

**AUSTRALIA – MEASURES AFFECTING THE
IMPORTATION OF APPLES FROM NEW ZEALAND**

Report of the Panel

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<i>Argentina – Footwear (EC)</i>	Appellate Body Report, <i>Argentina – Safeguard Measures on Imports of Footwear</i> , WT/DS121/AB/R, adopted 12 January 2000, DSR 2000:I, 515
<i>Australia – Salmon</i>	Appellate Body Report, <i>Australia – Measures Affecting Importation of Salmon</i> , WT/DS18/AB/R, adopted 6 November 1998, DSR 1998:VIII, 3327
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<i>EC – Hormones (Canada)</i>	Panel Report, <i>EC Measures Concerning Meat and Meat Products (Hormones), Complaint by Canada</i> , WT/DS48/R/CAN, adopted 13 February 1998, as modified by Appellate Body Report WT/DS26/AB/R, WT/DS48/AB/R, DSR 1998:II, 235
<i>EC – Hormones (US)</i>	Panel Report, <i>EC Measures Concerning Meat and Meat Products (Hormones), Complaint by the United States</i> , WT/DS26/R/USA, adopted 13 February 1998, as modified by Appellate Body Report WT/DS26/AB/R, WT/DS48/AB/R, DSR 1998:III, 699
<i>EC – Selected Customs Matters</i>	Appellate Body Report, <i>European Communities – Selected Customs Matters</i> , WT/DS315/AB/R, adopted 11 December 2006, DSR 2006:IX, 3791

Short Title	Full Case Title and Citation
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<i>US – Upland Cotton</i>	Appellate Body Report, <i>United States – Subsidies on Upland Cotton</i> , WT/DS267/AB/R, adopted 21 March 2005, DSR 2005:I, 3
<i>US – Wool Shirts and Blouses</i>	Appellate Body Report, <i>United States – Measure Affecting Imports of Woven Wool Shirts and Blouses from India</i> , WT/DS33/AB/R, adopted 23 May 1997, and Corr.1, DSR 1997:I, 323

LIST OF ABBREVIATIONS USED IN THIS REPORT

ABARE	Australian Bureau of Agricultural and Resource Economics (Australia)
ABS	Australian Bureau of Statistics (Australia)
AHL	n-acyl homoserine lactone
ALCM	Apple leafcurling midge
ALOP	Appropriate level of protection
ALPP	Area of low pest prevalence
APAL	Apple & Pear Industry Ltd (Australia)
AQIS	Australian Quarantine and Inspection Service (Australia)
BA	Biosecurity Australia (Australia)
BRS	Bureau of Rural Sciences (Australia)
CABI	CAB (Commonwealth Agricultural Bureau) International (United Kingdom)
cfu	Colony-forming unit
CICD	Council for International Congresses of Dipterology
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
<i>D. mali</i>	<i>Dasineura mali</i>
DAFF	Department of Agriculture, Fisheries and Forestry (Australia)
DEA	Designated export area
DOI	Declaration of intent
DSB	Dispute Settlement Body
DSU	Dispute Settlement Understanding
<i>E. amylovora</i>	<i>Erwinia amylovora</i>
EA	<i>Erwinia amylovora</i>

EC	European Communities
EPS	exopolysaccharides
ESG	Eminent Scientists Group (Australia)
Exp.	Exposure
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
GATT 1994	General Agreement on Tariffs and Trade 1994
HAL	Horticulture Australia Limited (Australia)
HortResearch	Horticulture and Food Research Institute of New Zealand Limited (New Zealand)
IFP	Integrated fruit production
Imp	Importation step
IPPC	International Plant Protection Convention
IRA	<i>Final Import Risk Analysis Report for Apples from New Zealand, November 2006</i>
ISPM	International Standards for Phytosanitary Measures (International Plant Protection Convention)
MAFNZ	Ministry of Agriculture and Forestry (New Zealand)
<i>N. galligena</i>	<i>Neonectria galligena</i>
NG	<i>Neonectria galligena</i>
NPPO	National plant protection organization
OIE	World Organisation for Animal Health
PCR	Polymerase chain reaction
PFA	Pest free area
PFGE	Pulsed-field gel electrophoresis
PRA	Pest risk analysis

PEES	Probability of entry, establishment and spread
PPE	Partial probability of entry
PPEES	Partial probability of entry, establishment and spread
PPES	Partial probability of entry and spread
PPS	Partial probability of spread
SOP	Standard operating procedure
SPS	Sanitary and phytosanitary
SPS Agreement	WTO Agreement on the Application of Sanitary and Phytosanitary Measures
UK	United Kingdom
US	United States of America
USDA	United States Department of Agriculture (United States)
VBNC	Viable, but not culturable
WTO	World Trade Organization
WTO Agreement	Marrakesh Agreement establishing the World Trade Organization

I. INTRODUCTION

A. REQUEST FOR CONSULTATIONS

1.1 On 31 August 2007, New Zealand requested consultations with Australia pursuant to Article XXII of the General Agreement on Tariffs and Trade 1994 ("GATT 1994"), Article 4 of the Understanding on Rules and Procedures Governing the Settlement of Disputes ("DSU") and Article 11 of the Agreement on the Application of Sanitary and Phytosanitary Measures ("SPS Agreement"), concerning measures imposed by Australia on the importation of apples from New Zealand.¹ Consultations were held in Geneva on 4 October 2007, but did not lead to a resolution of the dispute.²

B. ESTABLISHMENT AND COMPOSITION OF THE PANEL

1.2 On 6 December 2007, New Zealand requested the Dispute Settlement Body ("DSB") to establish a panel pursuant to Article 6 of the DSU, with standard terms of reference as set out in Article 7.1 of the DSU.³ At its meeting on 21 January 2008, the DSB established a Panel, pursuant to the request of New Zealand, in accordance with Article 6 of the DSU (WT/DSB/M/245).

1.3 The Panel's terms of reference are the following:

"To examine, in the light of the relevant provisions of the covered agreements cited by New Zealand in document WT/DS367/5, the matter referred to the DSB by New Zealand in that document, and to make such findings as will assist the DSB in making the recommendations or in giving the rulings provided for in those agreements."

1.4 On 3 March 2008, New Zealand requested the Director-General to determine the composition of the panel, pursuant to paragraph 7 of Article 8 of the DSU. On 12 March 2008, the Director-General composed the Panel as follows:

Chairman: Mr P.J.A. (Attie) Swart

Members: Mr William Ehlers
Ms Kirsten Hillman

1.5 Chile, the European Communities⁴, Japan, Pakistan, Chinese Taipei and the United States reserved their rights to participate in the Panel proceedings as Third Parties.

¹ *Australia – Apples*, Request for Consultations (WT/DS367/1), 4 September 2007.

² *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report. Australia's first written submission, para. 33.

³ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

⁴ On 1 December 2009, the Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community (done at Lisbon, 13 December 2007) entered into force. On 29 November 2009, the World Trade Organization received a Verbal Note (WT/L/779) from the Council of the European Union and the Commission of the European Communities stating that, by virtue of the *Treaty of Lisbon*, as of 1 December 2009, the European Union replaces and succeeds the European Community.

C. PANEL PROCEEDINGS

1. Adoption of the Working Procedures and the timetable

1.6 On 14 March 2008, the Panel circulated two sets of draft working procedures and timetables to the Parties.⁵ In order to obtain the Parties' views, one version of the documents was prepared assuming that the Panel would consult scientific experts, while the other version was prepared assuming no such expert consultation. The Panel held an organizational meeting on 19 March in order to consult the Parties on the proposed working procedures and timetables. Both Parties expressed their views during the meeting; the Panel invited them to submit in writing and no later than by 20 March any additional comments, including on the question of whether a full transcript of questions and answers should be included in the final report. In response to the Panel's invitation, both Parties submitted written comments on a number of organizational questions raised during the meeting; New Zealand did so on 19 and 20 March⁶ and Australia on 20 March.⁷ On 26 March, the Panel notified the Parties of the adopted Working Procedures.⁸ The Panel sent a revised draft timetable to Parties on 4 April for their comments.⁹ On 8 April, the Panel notified the Parties of the adopted timetable.¹⁰ On the same date, Third Parties were notified of the Working Procedures and the timetable adopted by the Panel.¹¹ Having noted the views expressed by the Parties, the Working Procedures and timetable adopted by the Panel provided for expert consultation.

2. Request for a preliminary ruling raised by Australia

1.7 On 13 March 2008, Australia raised a preliminary procedural question concerning the consistency of New Zealand's request for the establishment of the Panel (WT/DS367/5) with Article 6.2 of the Dispute Settlement Understanding.¹² In response to an invitation from the Panel¹³, on 17 March both Parties submitted preliminary reactions to Australia's request for a preliminary procedural ruling, including on whether this request should affect the timing of the organizational meeting.¹⁴ After the organizational meeting, New Zealand and Australia made written submissions regarding Australia's request for a preliminary procedural ruling on 7 and 14 April, respectively.¹⁵ New Zealand submitted an additional unsolicited letter on the issue on 16 April in reference to Australia's submission of 14 April.¹⁶

1.8 On 18 April 2008, the European Communities requested that, in the event the Panel intended to address Australia's request for a preliminary ruling prior to the date set in the timetable for Third Party written submissions, the Panel should allow an opportunity for Third Parties to separately comment on Australia's request.¹⁷ On 22 April, the Panel proposed a procedure and calendar to address the European Communities' request and invited the Parties to comment.¹⁸ In their respective

⁵ Electronic communication from the Panel to the Parties, 14 March 2008.

⁶ Electronic communications from New Zealand to the Panel, 19 and 20 March 2008.

⁷ Communication from Australia to the Panel, 20 March 2008.

⁸ Communication from the Panel to the Parties, 26 March 2008.

⁹ Electronic communications from the Panel to the Parties, 3 and 4 April 2008.

¹⁰ Communication from the Panel to the Parties, 8 April 2008.

¹¹ Electronic communication from the Panel to the Parties and Third Parties, 8 April 2008.

¹² Communication from Australia to the Panel: Request for a preliminary procedural ruling in relation to the consistency of New Zealand's panel request with Article 6.2 of the DSU, 13 March 2008.

¹³ Electronic communication from the Panel to the Parties, 14 March 2008.

¹⁴ Electronic communications from New Zealand and Australia to the Panel, 17 March 2008.

¹⁵ Communications from New Zealand and Australia to the Panel, 7 and 14 April 2008, respectively.

¹⁶ Communication from New Zealand to the Panel, 16 April 2008.

¹⁷ Electronic communication from the European Communities to the Panel, 18 April 2008.

¹⁸ Electronic communication from the Panel to the Parties, 22 April 2008.

responses of 23 and 24 April, New Zealand and Australia expressed no objections to the Panel's proposal.¹⁹

1.9 Noting the request made by the European Communities and the lack of objections from the Parties, the Panel invited Third Parties to provide comments on Australia's preliminary procedural request.²⁰ Two Third Parties filed submissions: the European Communities on 30 April 2008, followed by Chile on 2 May.²¹ On 9 May, New Zealand and Australia made comments on the Third Party submissions.²²

1.10 The Panel issued its preliminary ruling on the procedural question raised by Australia on 6 June 2008.²³ After consultation with the Parties, the content of the Panel's preliminary ruling was circulated by the Panel to the Dispute Settlement Body.²⁴

3. Revisions of the timetable

1.11 In view of the time that had been granted for Third Parties to comment on the preliminary issue raised by Australia, and for Parties to comment on any Third Parties' comments, on 7 June 2008 the Panel proposed extending the deadlines granted to Parties to file their respective first written submissions and to Third Parties to file their Third Party submissions.²⁵ After having heard the Parties' views on the matter²⁶, on 13 June the Panel modified the timetable, extending by two working days the deadlines granted to Parties to file their first written submissions and to Third Parties to file their own submissions; the rest of the timetable was not modified.²⁷

1.12 On 15 July 2008, the United States requested a two-week extension for itself (and other Third Parties, if interested) to file their Third Party submission, because of the length and complexity of New Zealand's first written submission and the ministerial meeting taking place in Geneva during the same week the Third Party submissions were due.²⁸ In response to an invitation from the Panel²⁹, New Zealand expressed a preference that no extension be granted for Third Party submissions or, alternatively, that any extension be no longer than one week.³⁰ Australia supported extending the deadline by one week.³¹ Chinese Taipei supported the United States' request³²; Chile, the European Communities, Japan and Pakistan expressed no objection to the request.³³ Having noted the views expressed by the Parties and Third Parties, on 18 July the Panel extended the deadline granted to

¹⁹ Electronic communications from New Zealand and Australia to the Panel, 23 and 24 April 2008, respectively.

²⁰ Electronic communication from the Panel to the Parties and Third Parties, 24 April 2008.

²¹ Communications from the European Communities and Chile to the Panel, 30 April and 2 May 2008, respectively.

²² Communications from New Zealand and Australia to the Panel, 9 May 2008.

²³ Communication from the Panel to the Parties, 7 June 2008.

²⁴ *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008.

²⁵ Communication from the Panel to the Parties, 7 June 2008.

²⁶ Communications from New Zealand to the Panel, 11 and 12 June 2008; Communications from Australia to the Panel, 11 and 13 June 2008.

²⁷ Communication from the Panel to the Parties, 13 June 2008; communication from the Panel to the Third Parties, 16 June 2008.

²⁸ Communication from the United States to the Panel, 15 July 2008.

²⁹ Electronic communication from the Panel to the Parties and Third Parties, 15 July 2008.

³⁰ Communication from New Zealand to the Panel, 16 July 2008.

³¹ Communication from Australia to the Panel, 16 July 2008.

³² Electronic communication from Chinese Taipei to the Panel, 16 July 2008.

³³ Electronic communication from the European Communities to the Panel, 15 July 2008; Electronic communications from Chile, Japan and Pakistan to the Panel, 16 July 2008.

Third Parties to file their written submissions by one week; the rest of the timetable was not modified.³⁴

1.13 On 19 September 2008, the Panel informed the DSB that, due to the nature and scope of the dispute, including the Panel's decision to seek scientific and technical expert advice pursuant to Article 11 of the SPS Agreement and Article 13 of the DSU, it would not be able to issue its report within six months from the date that the Panel had been composed. The Panel also informed the DSB that it expected to issue its final report to the Parties by July 2009, as envisaged in the timetable adopted after consultations with the Parties.³⁵

4. First written submissions by the Parties and Third Party submissions

1.14 New Zealand and Australia filed their first written submissions on 20 June and 18 July 2008, respectively. In accordance with the Working Procedures adopted by the Panel, both Parties submitted an executive summary of their respective first written submissions. The European Communities filed its Third Party submission on 31 July. Chile, Japan, Chinese Taipei and the United States filed their own Third Party submissions on 1 August. The European Communities, Japan, Chinese Taipei and the United States submitted an executive summary of their respective Third Party submissions.³⁶

5. Second request for a preliminary ruling raised by Australia

1.15 On 22 August 2008, Australia requested the Panel to issue a preliminary ruling that New Zealand's claim under Article 8 and Annex C(1)(a) of the SPS Agreement in its first written submission, that the "*process* for considering New Zealand's request for access for New Zealand apples to the Australian market" had been unduly delayed, was outside the scope of this dispute. Australia asked the Panel to rule on this matter, preferably during the course of the first oral hearing on 2-3 September, or as soon as possible thereafter.³⁷ On 25 August, the Panel invited both Parties, as well as Third Parties, to express in their statements during the course of the first substantive meeting to be held on 2-3 September, their views on the issue raised by Australia in its letter of 22 August.³⁸ On 26 August, New Zealand sent a letter to the Panel, expressing its view that there was no reason for the Panel to make a preliminary ruling on the issue of New Zealand's undue delay claim.³⁹

1.16 On 8 September 2008, the Panel notified the Parties that it would address New Zealand's claim regarding Article 8 and Annex C(1)(a) of the SPS Agreement in its final report, together with the other claims advanced by New Zealand, since it had found no good cause to issue a second preliminary ruling at that point.⁴⁰

³⁴ Electronic communication from the Panel to the Parties and Third Parties, 18 July 2008.

³⁵ Communication from the Panel to the DSB, 19 September 2008. See, *Australia – Apples*, Communication from the Chairman of the Panel (WT/DS367/8), 23 September 2008.

³⁶ Under paragraph 12 of the Panel's Working Procedures, Parties and Third Parties were asked to provide an executive summary of their respective submissions or statements. Executive summaries were not to exceed ten pages in length in the case of those provided by Parties and three pages for those provided by Third Parties. No executive summaries were required for submissions or statements shorter than ten pages for Parties and three pages for Third Parties.

³⁷ Communication from Australia to the Panel, 22 August 2008.

³⁸ Electronic communication from the Panel to the Parties and Third Parties, 25 August 2008.

³⁹ Communication from New Zealand to the Panel, 26 August 2008.

⁴⁰ Communication from the Panel to the Parties, 8 September 2008.

6. Unsolicited letter from an Australian private entity

1.17 On 26 August 2008, the Panel received an unsolicited letter from an Australian private entity (*Apple and Pear Australia Ltd*, APAL).⁴¹ On 27 August, the Panel invited both Parties, as well as Third Parties, to express their views on how the Panel should deal with this unsolicited communication in their statements during the course of the first substantive meeting to be held on 2-3 September 2008.⁴² During the substantive meeting, the Parties expressed no objection to the Panel accepting the unsolicited letter.⁴³ On 8 September, the Panel notified the Parties that it had decided to accept the unsolicited communication received from APAL, and would inform that entity accordingly. The Panel also told the Parties that it would include in the list of written questions after the first substantive meeting an invitation for the Parties to comment on the substance of that unsolicited communication.⁴⁴ On 18 September, APAL was informed by the Panel that its communication had been accepted by the Panel, noting at the same time that this decision did not prejudice on the content of the communication.⁴⁵

7. Substantive meeting of the Panel with the Parties and the Third Parties

1.18 During the organizational meeting held by the Panel on 19 March 2008, both Parties expressed their wish that the Panel's substantive meetings with the Parties and the Third Parties be open to viewing by the public, preferably by means of closed-circuit television broadcast to a separate room. On 9 July, New Zealand and Australia sent a joint message to the Panel reiterating their preference for the public being allowed to view the proceedings of the substantive meeting through closed-circuit television broadcast.⁴⁶ Having noted the Parties' preference, on 10 July the Panel sent a message to the Parties asking for their views regarding the possible format for the Panel's substantive meeting and for the registration process for interested persons.⁴⁷ On 15 July, the Panel received a joint response from New Zealand and Australia to the questions posed by the Panel.⁴⁸ On 23 July, the Panel sent to the Parties a set of draft procedures for the first substantive meeting and the Third Party session.⁴⁹ On 28 July, New Zealand expressed its acceptance of the proposed draft procedures.⁵⁰ Australia made observations on specific aspects of the draft procedures on 29 July.⁵¹ New Zealand commented on Australia's observations on 31 July⁵² and Australia commented on New Zealand's comments on 1 August.⁵³ On 4 August, Parties and Third Parties were notified of the rules of procedure adopted by the Panel for the first substantive meeting.⁵⁴

1.19 The Panel held its first substantive meeting with the Parties on 2 and 3 September 2008. It met with the Third Parties on 3 September 2008. At the request of the Parties, these meetings were open for public viewing from a separate room via closed-circuit television broadcast. On 10 September, the Panel sent written questions to the Parties and to the Third Parties. On the same

⁴¹ Communication from *Apple and Pear Australia Ltd* to the Panel, 26 August 2008.

⁴² Electronic communication from the Panel to the Parties and Third Parties, 27 August 2008.

⁴³ This was subsequently confirmed in the Parties' respective responses to a question posed by the Panel after the first substantive meeting. See New Zealand's reply to Panel question 147 after the first substantive meeting, para. 307, and Australia's reply to Panel question 147 after the first substantive meeting.

⁴⁴ Communication from the Panel to the Parties, 8 September 2008.

⁴⁵ Communication from the Panel to *Apple and Pear Australia Ltd*, 18 September 2008.

⁴⁶ Electronic communication from New Zealand and Australia to the Panel, 9 July 2008.

⁴⁷ Electronic communication from the Panel to the Parties, 10 July 2008.

⁴⁸ Electronic communication from New Zealand and Australia to the Panel, 15 July 2008.

⁴⁹ Electronic communication from the Panel to the Parties, 23 July 2008.

⁵⁰ Electronic communication from New Zealand to the Panel, 28 July 2008.

⁵¹ Electronic communication from Australia to the Panel, 29 July 2008.

⁵² Electronic communication from New Zealand to the Panel, 31 July 2008.

⁵³ Electronic communication from Australia to the Panel, 1 August 2008.

⁵⁴ Communications from the Panel to the Parties and Third Parties, 4 August 2008.

date, Australia sent a number of written questions to New Zealand and to the United States. On 23 September, the Panel received responses to questions from New Zealand, Australia, the European Communities, Japan, Chinese Taipei and the United States.

8. Agreement regarding one of the measures identified by New Zealand

1.20 On 19 December 2008, New Zealand and Australia addressed a joint communication to the Panel indicating that they had reached an agreement regarding one of the measures identified by New Zealand in its Panel request, i.e., the requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker (listed as the twelfth bullet point in New Zealand's Panel request). The Parties informed the Panel that, based on Australia's confirmation that it does not impose such a requirement, New Zealand would not pursue its claim in relation to this point. The Parties finally noted that they intended to copy the joint communication to Third Parties and to make it publicly available.⁵⁵ On 2 February 2009, the Panel asked the Parties' confirmation on whether Third Parties had already received a copy of the agreement reached by New Zealand and Australia and whether the agreement had been made publicly available. The Panel also offered to ask the Secretariat to circulate the Parties' joint communication as a document in the WT/DS367 series, related to the dispute.⁵⁶ On 4 February, Australia replied that it would be sending a copy of the 19 December joint communication to Third Parties on that same date. Australia added that, while it had not made the joint communication public yet, it intended to do so.⁵⁷ On 6 February, New Zealand informed the Panel that Australia, in consultation with New Zealand, had provided Third Parties with a courtesy copy of the 19 December joint communication. New Zealand also confirmed that it had not yet made the joint communication publicly available, but it intended to publish it on the website of the Ministry of Foreign Affairs and Trade.⁵⁸

9. Expert consultation process

(a) Selection of experts and preparation of questions

1.21 During the organizational meeting held by the Panel on 19 March 2008, New Zealand expressed its view that expert advice would be an important assistance for the Panel in addressing the matter in this dispute. Both Parties indicated that, if the Panel decided to consult experts, it should consult them on an individual basis, rather than as a single expert group. Australia also expressed its preliminary view that the experts used by the panel in the *Japan – Apples* dispute would not be acceptable.

1.22 In response to an invitation by the Panel during the first substantive meeting, both Parties submitted additional views on how the Panel should consult experts; Australia submitted its views on 4 September and New Zealand on 11 September 2008. In its communication, Australia stated that due to the completely different biologies of the three pests at issue, the Panel should seek separate expert advice on fire blight, European canker and apple leafcurling midge and that, should the Panel consider it necessary, it could also consult risk analysis experts. Australia indicated that there should be at least two experts for each of the three pests at issue, in order to ensure that a sufficiently diverse range of views was available to the Panel, and that experts should confine their advice to subjects

⁵⁵ Communication from New Zealand and Australia to the Panel, 19 December 2008.

⁵⁶ Electronic communication from the Panel to the Parties, 2 February 2009.

⁵⁷ Electronic communication from Australia to the Panel, 4 February 2009.

⁵⁸ Electronic communication from New Zealand to the Panel, 6 February 2009. The letter was published at <http://www.mfat.govt.nz/downloads/treaties-and-international-law/pruning-letter.pdf>, consulted on 14 September 2009.

within their field of expertise. Australia added that it would be appropriate for the Panel to consult relevant international bodies on appropriate experts. Finally, Australia confirmed its preliminary view that the experts used by the panel in *Japan – Apples* would not be acceptable.⁵⁹ In turn, New Zealand stated that, if the Panel thought that this would be useful, it would be supportive of the use of scientific experts in the specific areas of fire blight, European canker and apple leafcurling midge. New Zealand indicated that one expert, or no more than two for each of the pests at issue, would be adequate, and that it agreed with Australia that experts should confine their advice to their areas of expertise. New Zealand added that the International Plant Protection Convention (IPPC) would be the logical international organization to approach for suggestions for names of experts. Finally, New Zealand noted that it saw no basis for excluding from consideration the experts used by the panel in *Japan – Apples*.⁶⁰

1.23 In a communication dated 15 September 2008, the Panel notified the Parties that, having considered the views expressed by the Parties, it had decided to seek expert advice in four fields: (a) *Erwinia amylovora* (fire blight), including its potential spread through trade in apples and the phytosanitary measures to be applied to control its spread; (b) *Neonectria galligena* (European canker), including its potential spread through trade in apples, the climatic conditions for its establishment, and the phytosanitary measures to be applied to control its spread; (c) *Dasineura mali* (apple leafcurling midge), including its potential spread through trade in apples and the phytosanitary measures to be applied to control its spread; and, (d) pest risk assessment, including the use of semi-quantitative methodologies.⁶¹

1.24 Pursuant to the Working Procedures adopted by the Panel and the views expressed by the Parties, on 15 September 2008 the Panel requested the IPPC Secretariat to recommend names of candidate experts in the relevant fields.⁶² On 23 September, the IPPC Secretariat provided a first list of ten expert names.⁶³ The Panel subsequently contacted these experts to enquire about their availability and possible conflicts of interest. Only four of the ten experts confirmed their interest and availability to participate in the proceedings. In its communication of 23 September, the IPPC Secretariat indicated that, with more time to research, it could provide additional names of relevant experts.⁶⁴ In light of the limited number of available experts from the initial list, the Panel allowed for a delay in order to receive additional expert names from the IPPC. The IPPC submitted a second list of 12 expert names on 29 and 30 October.⁶⁵ The Panel contacted the new suggested experts, and four of them confirmed their interest and availability to participate in the proceedings, while the other suggested experts declined due to potential conflicts of interest, lack of directly relevant expertise or other commitments.

1.25 On 13 November 2008, the Panel sent a set of documents to the Parties detailing the names, nationalities, *curricula vitae* and preliminary conflict of interest statements of the eight available experts.⁶⁶ The document package also contained the complete list of 22 experts who, until then, had been contacted by the Panel. The Parties were given the opportunity to comment on each available expert and to provide any compelling objections to any particular expert being chosen to provide advice to the Panel in this dispute. Since, at that point in the selection process, none of the experts

⁵⁹ Communication from Australia to the Panel, 4 September 2008.

⁶⁰ Electronic communication from New Zealand to the Panel, 11 September 2008.

⁶¹ Electronic communication from the Panel to the Parties, 15 September 2008.

⁶² Communication from the Panel to the IPPC, 15 September 2008.

⁶³ Electronic communication from the IPPC to the Panel, 23 September 2008.

⁶⁴ *Ibid.*

⁶⁵ Electronic communications from the IPPC to the Panel, 29 and 30 October 2008.

⁶⁶ Communication from the Panel to the Parties, 13 November 2008. This group of eight available experts included four of the experts that were ultimately selected by the Panel: Dr Tom Deckers, Dr Bernardo Latorre, Dr Jean-Pierre Paulin and Dr Gritta Schrader.

suggested by the IPPC with expertise on ALCM had confirmed their availability, the Panel solicited names of potential experts in this area from the Parties.⁶⁷

1.26 In a letter dated 20 November 2008 New Zealand provided comments on the list of eight available experts and expressed its objections to the appointment of two of the proposed experts.⁶⁸ New Zealand reiterated that it saw no basis for Australia's objection to experts consulted by the panel on *Japan – Apples*. New Zealand also identified one potential ALCM expert, as well as an additional expert in European canker.⁶⁹ On the same date, Australia noted that it had compelling objections to the appointment of three of the proposed experts.⁷⁰ Australia added that it was unable to suggest any ALCM experts at that stage, because it had not been able to identify experts who were not citizens of New Zealand or who did not, in Australia's opinion, have close connections with the New Zealand government and industry. Australia suggested that the Panel contact the Council for International Congresses of Dipterology (CICD), which might be able to provide names of ALCM experts. Australia stated that, given the disagreement between the Parties on the semi-quantitative methodology used in the IRA, it was essential that at least one of the risk assessment experts appointed by the Panel should have expertise in the use of semi-quantitative methodologies and that none of the proposed experts appeared to have such an expertise. Australia finally noted that, in the interest of minimizing any further delays in the dispute settlement process, the Panel could ask the Parties to suggest the names of additional possible experts.⁷¹

1.27 In light of the Parties' comments and suggestions, as well as the limited number of available experts, on 21 November 2008 the Panel invited the Parties to suggest experts in all of the four areas that had been identified, and particularly in the areas of European canker and pest risk assessment. The Panel informed the Parties that it would contact the two experts suggested by New Zealand and, as suggested by Australia, it would also contact the CICD for names of experts in the area of ALCM.⁷²

1.28 Following Australia's recommendation, the Panel sent a letter to the Chairman of the CICD on 25 November 2008 seeking assistance in identifying the names and contact details of scientific and/or technical experts suitably qualified to provide advice to the Panel on ALCM.⁷³ On 26 November 2008, the Chairman of the CICD informed the Panel of one potential expert in the field of ALCM. The Chairman of the CICD also noted that this ALCM scientist would be able to suggest names of additional experts on behalf of the CICD.⁷⁴ After having been contacted by the Panel, the ALCM expert suggested by the CICD replied that he would be unable to attend the Panel meeting with experts, but identified two experts in *Dasineura mali* taxonomy and biology.

1.29 In a letter dated 27 November 2008, and in response to the Panel's invitation, New Zealand rejected the objections made by Australia on 20 November to one of the experts proposed by the Panel; in this respect, New Zealand stated that past participation as an expert in a WTO dispute should not of itself create a conflict of interest.⁷⁵ New Zealand also suggested the names of two possible experts in the area of European canker, as well as one on ALCM and one on pest risk

⁶⁷ Communication from the Panel to the Parties, 13 November 2008.

⁶⁸ Communication from New Zealand to the Panel, 20 November 2008. New Zealand's objections did not refer to any of the experts that were ultimately selected by the Panel.

⁶⁹ Communication from New Zealand to the Panel, 20 November 2008.

⁷⁰ Communication from Australia to the Panel, 20 November 2008. Australia's objections did not refer to any of the experts that were ultimately selected by the Panel.

⁷¹ Communication from Australia to the Panel, 20 November 2008.

⁷² Communication from the Panel to the Parties, 21 November 2008.

⁷³ Communication from the Panel to the CICD, 25 November 2008.

⁷⁴ Electronic communications from the CICD to the Panel, 26 November 2008.

⁷⁵ This expert was ultimately not selected by the Panel.

assessment.⁷⁶ New Zealand finally stated that there was nothing in the Panel's Working Procedures, nor in the guidance by the Appellate Body in prior cases, that would require the Panel to appoint more than one expert for each of the different areas.⁷⁷ On the same date, Australia suggested the names of two possible experts in the area of European canker and two on pest risk assessment.⁷⁸ It also reiterated its objections to the appointment of one of the proposed experts.⁷⁹

1.30 On 5 December 2008, the Panel sent a second set of documents to the Parties (supplementing the one sent on 13 November) detailing the names, nationalities, *curricula vitae* and preliminary conflict of interest statements of four additional available experts; this brought the list of available experts to a total of twelve. This second package also contained the complete list of the 34 experts who had been suggested thus far by the IPPC, the CICD, Australia or New Zealand. The Panel invited Parties to comment on the new available experts.⁸⁰ On 9 December, the Panel sent a third set of documents to the Parties regarding three additional available experts that had been suggested by the Parties on 27 November; this brought the list of available experts to a total of fifteen.⁸¹

1.31 On 9 December 2008, New Zealand expressed compelling objections to two of the suggested experts on ALCM.⁸² New Zealand added that, in its view, in light of the extremely limited pool of experts on ALCM, one expert would be sufficient.⁸³ On the same date, Australia expressed compelling objections to two of the suggested experts on ALCM⁸⁴, expressed its objection to a third expert on ALCM if he could not participate in a meeting with the Panel, and ratified the objections it had raised earlier to another expert in fire blight and pest risk assessment.⁸⁵ Australia reiterated its view that the experts used by the panel in the *Japan – Apples* dispute would not be acceptable.⁸⁶

1.32 On 11 December 2008, the Panel received additional comments from both Parties relating to the available experts. New Zealand reiterated its objection to one of the suggested experts on ALCM.⁸⁷ New Zealand also responded to some of the objections made by Australia. In New Zealand's view, Australia's objection to one of the suggested experts on ALCM because he had collaborated in ALCM research with New Zealand experts, was without basis.⁸⁸ New Zealand also rejected the objection raised by Australia to one of the suggested experts on fire blight because he had participated as an expert in the *Japan – Apples* dispute.⁸⁹ In turn, Australia argued that two of the proposed experts for European canker were generalist plant pathologists and should only be appointed if a specialist European canker expert was also appointed.⁹⁰ Australia also raised compelling

⁷⁶ None of these four experts was ultimately selected by the Panel.

⁷⁷ Communication from New Zealand to the Panel, 27 November 2008.

⁷⁸ Communication from Australia to the Panel, 27 November 2008. Two of these experts (Dr Ricardo Sgrillo and Dr Terence Swinburne) were ultimately selected by the Panel.

⁷⁹ *Ibid.* This expert was ultimately not selected by the Panel.

⁸⁰ Communication from the Panel to the Parties, 5 December 2008.

⁸¹ Electronic communication from the Panel to the Parties, 9 December 2008.

⁸² None of these experts was ultimately selected by the Panel.

⁸³ Communication from New Zealand to the Panel, 9 December 2008.

⁸⁴ Communication from Australia to the Panel, 9 December 2008. Australia's objections included Dr Jerry Cross, one of the experts who was ultimately selected by the Panel. Australia noted that Dr Cross had recently participated in joint research projects and publications with researchers from HortResearch New Zealand, an organization that was funded by the New Zealand Government.

⁸⁵ *Ibid.* This expert on fire blight and pest risk assessment was ultimately not selected by the Panel.

⁸⁶ *Ibid.*

⁸⁷ Communication from New Zealand to the Panel, 11 December 2008. This expert on ALCM was ultimately not selected by the Panel.

⁸⁸ This expert, Dr Jerry Cross, is one of the experts who was ultimately selected by the Panel.

⁸⁹ Communication from New Zealand to the Panel, 11 December 2008. This expert on fire blight was ultimately not selected by the Panel.

⁹⁰ Communication from Australia to the Panel, 11 December 2008. None of these experts on European canker was ultimately selected by the Panel.

objections to one of the suggested experts on fire blight.⁹¹ Australia indicated some constraints in the dates by which it would be available to provide comments on proposed questions for experts. Finally, Australia requested that, as originally set out in the Working Procedures, the expert selection process be completed prior to the Panel providing proposed expert questions to the Parties for comments.⁹²

1.33 On 15 December 2008, the Panel informed the Parties that, having considered their comments on the proposed experts, as well as the objections expressed by the Parties, the Panel had selected the following experts:

- Dr Jerry Cross, Research Leader, Entomology, East Malling Research, Kent, United Kingdom;
- Dr Tom Deckers, Head, Department of Pomology, Research Station of Fruit Growing, PCFruit (former Royal Research Station of Gorsem), St.Truiden, Belgium;
- Dr Bernardo Latorre, Full Professor, Facultad de Agronomía e Ingeniería Forestal, Pontificia Universidad Católica de Chile, Chile;
- Dr Jean-Pierre Paulin, Director of Research, Institut National de la Recherche Agronomique (INRA), Angers, France;
- Dr Gritta Schrader, Scientific Collaborator, Julius Kühn-Institut, Federal Research Centre for Cultivated Plants, Institute for National and International Plant Health, Braunschweig, Germany;
- Dr Ricardo Sgrillo, Researcher, Cocoa Research Center (CEPLAC/CEPEC) - Ministry of Agriculture, Brazil;
- Dr Terence Swinburne, Professor and Plant pathology researcher, former Governor of Hadlow College, Kent, United Kingdom.

1.34 The Panel noted that in three of the areas of expertise identified, it selected two experts, while in the area of apple leafcurling midge, in light of the very limited number of relevant and available experts, as well as the comments and objections of the Parties, it had selected only one expert. On the same date, the Panel notified the Parties of its proposed questions to the experts, inviting them to comment on those questions and to suggest additional ones. The Panel also commented on Australia's argument that the expert selection process should be completed before Parties were provided the proposed expert questions for their comments, and noted that it found no provision in the Working Procedures that would establish any necessary sequence between the Panel selecting the experts and the Parties commenting on the proposed questions to experts.⁹³

1.35 When expressing their availability, all experts were asked by the Panel to provide preliminary statements regarding the absence of conflicts of interest, which were forwarded to the Parties. On 16 December 2008, the Panel contacted the identified experts to ask them to undergo a more detailed disclosure procedure. The experts were asked to sign the disclosure form included in Annex 3 of the Rules of Conduct for the Understanding on the Rules and Procedures Governing the Settlement of Disputes. Furthermore, the Panel directed the experts to Section VI of the Rules of Conduct (*Self-Disclosure Requirements by Covered Persons*) and asked them, if necessary, to expand on the information that they had already provided by disclosing any facts which, in their view, would be

⁹¹ This expert on fire blight was ultimately not selected by the Panel.

⁹² Communication from Australia to the Panel, 11 December 2008.

⁹³ Communication from the Panel to the Parties, 15 December 2008.

likely to affect their independence or impartiality as experts, or give rise to justifiable doubts in that regard. In particular, the Panel noted that it was interested in any relevant information regarding previous work for any of the Parties in relation to the matter at issue in this dispute or, more generally, regarding any of the items exemplified in the illustrative list of information to be disclosed, contained in Annex 2 of the Rules of Conduct.⁹⁴ On 18 December 2008, the experts' replies and disclosure forms were forwarded to the Parties.⁹⁵

1.36 In a letter dated 19 December 2008, New Zealand provided its comments on the Panel's proposed questions to the experts and suggested a number of additional questions.⁹⁶ On the same date, Australia provided its comments on the Panel's proposed questions to the experts. Australia also reiterated its compelling objection to one of the experts selected by the Panel (Dr Jerry Cross) and reaffirmed its strong preference that two ALCM experts be appointed to assist the Panel.⁹⁷

1.37 On 18 December 2008, the Panel informed the Parties that, in accordance with the Working Procedures, it intended to send to the selected experts on a confidential basis the submissions filed by the Parties and the accompanying exhibits. The Panel added that, unless New Zealand raised any objections, it would include in the material the exhibits submitted by New Zealand that were marked "business in confidence". Having received no objections from the Parties, on 23 December, the Panel sent the submissions and the accompanying exhibits to the experts.⁹⁸

1.38 After considering the Parties' comments and revising the draft questions, on 16 January 2009 the Panel sent 142 written questions to the selected experts.⁹⁹ Parties received a copy of the questions sent to the experts on the same date.¹⁰⁰ The Panel requested that the experts provide their written replies to the questions by 23 February 2009.¹⁰¹ As a result of the amendments to the timetable made by the Panel on 2 February 2009, and in the light of the request of some experts, the deadline given to experts to provide their written replies to questions was extended to 9 March; Parties were also allowed to provide to the experts – through the Panel – some factual clarifications that the experts found necessary for preparing some of their responses.¹⁰² On 9 and 10 February, the Panel relayed to the Parties a number of requests for factual clarifications received from the experts.¹⁰³ On 17 February, the Parties made those factual clarifications in separate communications.¹⁰⁴ Factual clarifications were sent by the Panel to the experts on 18 February.¹⁰⁵

1.39 Written replies from the experts to questions posed by the Panel were received on 9 March 2009.¹⁰⁶ On 10 March, the Panel relayed the experts' written replies to the Parties for their comments.¹⁰⁷ The Parties provided their comments on the experts' replies on 25 March.¹⁰⁸ On 9 April, the Parties submitted comments on each other's comments on the experts' replies.¹⁰⁹

⁹⁴ Electronic communications from the Panel to the selected experts, 16 December 2008.

⁹⁵ Communication from the Panel to the Parties, 18 December 2008.

⁹⁶ Communication from New Zealand to the Panel, 19 December 2008.

⁹⁷ Communication from Australia to the Panel, 19 December 2008.

⁹⁸ Communications from the Panel to the selected experts, 23 December 2008.

⁹⁹ Electronic communications from the Panel to the selected experts, 16 January 2009.

¹⁰⁰ Communication from the Panel to the Parties, 16 January 2009.

¹⁰¹ A compilation of the experts' written replies is attached to this report as Annex B-1, and is available only electronically.

¹⁰² Communication from the Panel to the Parties, 2 February 2009.

¹⁰³ Communications from the Panel to the Parties, 9 and 10 February 2009.

¹⁰⁴ Communications from New Zealand and Australia to the Panel, 17 February 2009.

¹⁰⁵ Electronic communication from the Panel to the experts, 18 February 2009.

¹⁰⁶ A compilation of the experts' written replies is attached to this report as Annex B-1, and is available only electronically.

¹⁰⁷ Communication from the Panel to the Parties, 10 March 2009.

(b) Due process concerns raised by Australia

1.40 In its comments on the experts' replies of 25 March 2009, Australia raised procedural concerns regarding the expert consultation process, including some that were qualified by Australia as due process concerns. Some of these concerns had already been raised by Australia on 19 December 2008, when providing its comments on the Panel's proposed questions to the experts, although at the time those concerns had not been qualified by Australia as "due process concerns".¹¹⁰ Likewise, in its comments of 9 April on New Zealand's comments on the experts' replies and in its rebuttal submission of 21 April, Australia reiterated some of these concerns and raised some other ones. In the course of the Panel's second substantive meeting with the Parties, the Panel asked Australia a number of questions regarding the concerns it had raised. In particular, the Panel asked Australia to identify the nature of its due process concerns and to explain in what manner its rights had in its view been impaired. Similar written questions were posed to Australia by the Panel after the second substantive meeting.¹¹¹ New Zealand was invited by the Panel to comment on these points. Both New Zealand and Australia offered their views in response to the Panel's questions.

(c) Additional revisions of the timetable

1.41 Because of the long time needed to identify available experts in the areas selected by the Panel, on 21 October 2008 the Panel informed the Parties that it would not be possible to send the proposed list of experts and questions to the Parties on 22 October, as originally scheduled in the timetable adopted on 8 April 2008. The Panel added that it hoped to be in a position to propose new dates for the following steps in the proceedings as soon as new information on experts became available, and no later than during the first week of November.¹¹² In a communication sent on 24 October, Australia asked the Panel to take into account the constraints of a key member of its delegation from 23 March to 3 April 2009, in case the second substantive meeting was rescheduled.¹¹³ Australia also asked the Panel to specify, in an eventual revised timetable, the date in which Parties would receive responses from the selected experts, and to allow Parties at least two weeks, or possibly longer, to comment on the experts' replies.

1.42 On 31 October 2008, the Panel informed the Parties that, because of the delay in identifying possible experts, the meetings with the experts and the second substantive meetings with the Parties, originally scheduled to take place on 3 to 5 March 2009 in accordance with the timetable adopted on 8 April 2008, would need to be postponed.¹¹⁴ The Panel added that it expected to contact the Parties again with a proposed new timetable, taking into account the Parties' preferences expressed thus far, in the course of the following week.

1.43 On 11 November 2008, the Panel sent to the Parties a proposed revised timetable; this proposal included a delay in the dates originally scheduled, and identified the date on which Parties would receive responses from the selected experts in accordance with Australia's request.¹¹⁵ Parties commented on the proposed revision to the timetable on 12 November; New Zealand had no objections to the new dates proposed by the Panel¹¹⁶, while Australia requested that more time be granted to Parties to reply to the Panel's questions after the second substantive meeting and to

¹⁰⁸ Communications from New Zealand and Australia to the Panel, 25 March 2009.

¹⁰⁹ Communications from New Zealand and Australia to the Panel, 9 April 2009.

¹¹⁰ Communication from Australia to the Panel, 19 December 2008.

¹¹¹ See, in particular, Panel questions 20 to 26 after the second substantive meeting.

¹¹² Electronic communication from the Panel to the Parties, 21 October 2008.

¹¹³ Electronic communication from Australia to the Panel, 24 October 2008.

¹¹⁴ Electronic communication from the Panel to the Parties, 31 October 2008.

¹¹⁵ Communication from the Panel to the Parties, 11 November 2008.

¹¹⁶ Electronic communication from New Zealand to the Panel, 12 November 2008.

comment on each other's replies.¹¹⁷ After having considered the Parties' comments, on 14 November the Panel informed the Parties of the revised timetable.¹¹⁸ On 9 December 2008, the Panel informed the Parties of a delay in finalizing the list of proposed questions to the experts.¹¹⁹ As noted above¹²⁰, the Panel sent to the Parties its list of proposed questions to the experts on 15 December 2008; in accordance with the revised timetable adopted on 14 November, Parties were given four working days to comment on the proposed questions.

1.44 On 23 December 2008, the Panel informed the Parties that, because of the nature and the number of comments made by the Parties on the proposed questions to the experts on 19 December, the Panel would not be in a position to send the questions to experts before the end of the year, as intended. The Panel proposed revising the timetable for the upcoming steps in the expert consultation process, indicating that the dates for subsequent steps would remain as indicated in the revised timetable that had been adopted on 14 November.¹²¹ On 6 January 2009, Australia commented on the Panel's proposed revised timetable. Australia requested that the date for submitting the Parties' rebuttals be extended by one week as had been proposed by the Panel for other steps.¹²² New Zealand made no comments on the Panel's proposed revised timetable.

1.45 On 8 January 2009, the Panel informed the Parties that, because of the extensive comments on the draft questions to the experts received from the Parties, the Panel would be able to send those questions to the experts only by the end of the following week. In the light of this delay, the Panel intended to propose a new revised timetable to the Parties.¹²³ On 12 January, New Zealand expressed its hope that any delays in the proceedings would be kept to an absolute minimum so that the dispute could be addressed in a timely fashion.¹²⁴ On 16 January, the Panel sent to the Parties a proposed revised timetable for the proceedings.¹²⁵ On 21 January 2009, New Zealand commented on the Panel's proposed revised timetable. New Zealand suggested alternative dates for the Panel's second substantive meeting and indicated some constraints with regard to the dates that it would be available to participate in that meeting.¹²⁶ On the same date, Australia made its own comments on the Panel's proposed revised timetable; Australia indicated some time constraints, because some members of its delegation would not be available to participate in the preparation of its rebuttal submission, and consequently requested that the date for submitting the Parties' rebuttals be extended by two weeks and that the dates for the Parties' replies to questions and comments on replies be extended by one week in order to take account of the significant travel times after the Panel's second substantive meeting.¹²⁷ After having considered the Parties' comments, taken into account the constraints that were expressed, and confirmed the experts' availability, on 2 February the Panel informed the Parties of the revised timetable.¹²⁸

1.46 On 22 June 2009, the Panel informed the DSB that, as a result of the time required for the expert consultation process, including the time needed to identify and select experts, to prepare the questions for the experts in consultation with the Parties, the time required by the experts to prepare their responses and the time provided to the Parties to comment on these responses, the Panel would not be able to issue its report by July 2009 as it had previously informed the DSB. The Panel also

¹¹⁷ Electronic communication from Australia to the Panel, 12 November 2008.

¹¹⁸ Communication from the Panel to the Parties, 14 November 2008.

¹¹⁹ Electronic communication from the Panel to the Parties, 9 December 2008.

¹²⁰ See para. 1.34 above.

¹²¹ Communication from the Panel to the Parties, 23 December 2008.

¹²² Communication from Australia to the Panel, 6 January 2009.

¹²³ Electronic communication from the Panel to the Parties, 8 January 2009.

¹²⁴ Electronic communication from New Zealand to the Panel, 12 January 2009.

¹²⁵ Communication from the Panel to the Parties, 16 January 2009.

¹²⁶ Electronic communication from New Zealand to the Panel, 21 January 2009.

¹²⁷ Communication from Australia to the Panel, 21 January 2009.

¹²⁸ Communication from the Panel to the Parties, 2 February 2009.

informed the DSB that it expected to issue its final report to the Parties by January 2010, as envisaged in the revised timetable adopted after consultations with the Parties.¹²⁹

10. Written rebuttal submissions by the Parties

1.47 Following their comments on experts' responses, New Zealand and Australia filed their written rebuttal submissions on 21 April 2009. In accordance with the Working Procedures adopted by the Panel, both Parties submitted an executive summary of their respective written rebuttals.

11. Second substantive meeting of the Panel with the Parties and Panel's meeting with the experts

1.48 Having noted the Parties' wish that the Panel's substantive meetings with the Parties be open to viewing by the public, on 27 April 2009 the Panel sent a message to the Parties asking for their views regarding the possible format for the Panel's second substantive meeting and the Panel's meeting with the experts.¹³⁰ On 5 May, the Panel received a response from New Zealand.¹³¹ On the same date, Australia provided its own response, together with a number of questions to the Panel in relation to the Panel's meeting with the experts and the second substantive meeting.¹³²

1.49 On 3 June 2009, the Panel sent to the Parties a set of draft procedures for the second substantive meeting and for the Panel's meeting with the experts. As noted by the Panel in its communication, the draft procedures were prepared with the intention of providing the Parties with a useful guideline for the meetings, especially regarding the purpose of the Panel's meeting with the experts, the focus of the discussions, the subject areas in which the discussion would be organized, as well as on the nature and form in which questions should be posed to the experts.¹³³ On 9 June, New Zealand expressed its acceptance of the proposed text.¹³⁴ On the same date, Australia made a number of comments on the draft procedures and requested some clarifications from the Panel, while generally agreeing to the proposed text.¹³⁵ On 11 June, Parties were notified by the Panel of the rules of procedure adopted for the second substantive meeting and for the Panel's meeting with the experts.¹³⁶

1.50 The Panel met with the designated experts on 30 June 2009, in the presence of the Parties. The meeting provided an opportunity for the Panel and the Parties to ask questions to the experts and for the experts to clarify points that they had made earlier in their written responses to questions. Following a request from the Parties, the Panel decided to make publicly available a compilation of the experts' written responses and a transcript of the Panel's meeting with experts.¹³⁷

1.51 The Panel held its second substantive meeting with the Parties on 1 and 2 July 2009. Both the Panel's meeting with the experts and the Panel's second substantive meeting were open for public viewing from a separate room via closed-circuit television broadcast. In the course of the meeting,

¹²⁹ Communication from the Panel to the DSB, 22 June 2009. See *Australia – Apples*, Communication from the Chairman of the Panel (WT/DS367/9), 29 June 2009.

¹³⁰ Electronic communication from the Panel to the Parties, 27 April 2009.

¹³¹ Electronic communication from New Zealand to the Panel, 5 May 2009.

¹³² Communication from Australia to the Panel, 5 May 2009.

¹³³ Communication from the Panel to the Parties, 3 June 2009.

¹³⁴ Communication from New Zealand to the Panel, 9 June 2009.

¹³⁵ Communication from Australia to the Panel, 9 June 2009.

¹³⁶ Communication from the Panel to the Parties, 11 June 2009.

¹³⁷ The List of replies from the scientific experts to questions posed by the Panel and the Transcript of the Panel's meeting with the scientific experts are part of this report. Both documents are available only electronically. See Annex B-1 and Annex B-2 of this report.

New Zealand submitted evidence contained in three exhibits (NZ-135, NZ-136 and NZ-137); Australia stated that it had no objections to these exhibits becoming part of the record.¹³⁸

1.52 On 10 July 2009, the Panel sent written questions to the Parties. On the same date, New Zealand and Australia each sent a number of written questions to the other Party. On 24 July, the Panel received responses to questions from New Zealand and Australia. On 31 July, both New Zealand and Australia submitted comments on the other Party's responses to questions.

12. Issuance of the report

1.53 The descriptive (factual and argument) sections of the Panel's draft report were issued to the Parties on 2 October 2009. On the same date, Chile, the European Communities, Japan, Chinese Taipei and the United States were sent excerpts from the descriptive sections containing the summary of their respective arguments. New Zealand and Australia submitted comments to the descriptive sections of the Panel's draft report on 16 October. On the same date, the European Communities, Japan, Chinese Taipei and the United States expressed they had no comments to the relevant excerpts.

1.54 The Panel issued its interim report to the Parties on 31 March 2010. As noted in the interim review section of the report, on 15 April, in accordance with Article 15 of the Dispute Settlement Understanding (DSU) and paragraph 14 of the Panel's Working Procedures, New Zealand and Australia submitted written comments and requested the Panel to revise precise aspects of the interim report. On 22 April, New Zealand and Australia submitted written comments on each other's comments and requests for interim review. Neither Party requested an interim review meeting with the Panel.

II. FACTUAL ASPECTS

A. PESTS AT ISSUE

1. Fire blight

2.1 Fire blight is a plant disease caused by the bacterium *Erwinia amylovora* (or *E. amylovora*). In apple trees, fire blight infects flowers, young leaves, stems and fruits. Symptoms of infection of host plants depend on the parts infected. Infected flowers droop, wither and die, becoming dry and darkened in colour. Infected shoots and twigs wither, darken and die. As shoots and twigs wither, they bend downwards resembling a shepherd's crook. Infected leaves become curled and scorched. Infected fruit fail to develop fully, turning brown to black, and becoming mummified, frequently remaining attached to the limb.¹³⁹ Limbs and trunks of trees may also develop cankers (sunken areas surrounded by cracked bark) which, if disease development is severe, may result in tree death.¹⁴⁰

(a) Host plants

2.2 The fire blight disease affects numerous host plants of the Rosaceae family, including both cultivated and native wild plants. Fruit tree hosts include apples, pears, quince, and loquats.¹⁴¹

¹³⁸ Australia subsequently clarified that its acceptance of these three new exhibits being made part of the record was a separate question of how they should be treated by the Panel. In Australia's view, in accordance with paragraph 11 of the Panel's working procedures, these new exhibits may not contribute to the making of New Zealand's prima facie case, as only material necessary for rebuttal purposes may be exhibited in the latter stage of panel proceedings. Australia's reply to Panel question 7 after the second substantive meeting, paras. 33-42.

¹³⁹ Australia's IRA, Part B, p. 52; New Zealand's first written submission, para. 3.47.

¹⁴⁰ New Zealand's first written submission, para. 3.47.

¹⁴¹ Australia's IRA, Part C, p. 105; New Zealand's first written submission, para. 3.46.

Within each genus, there are species or cultivars that may show a high level of resistance under natural conditions or artificial inoculations.¹⁴² There are several plant species of the Rosaceae family in Australia. According to the IRA, hosts include *Amelanchier* spp.; *Aronia* spp.; *Chaenomeles* spp.; *Cotoneaster* spp.; *Crataegus* spp.; *Cydonia* spp.; *Dichotomanthes* spp.; *Docynia* spp.; *Eriobotrya* sp.; *Heteromeles* sp.; *Malus* spp.; *Mespilus* sp.; *Osteomeles* sp.; *Peraphyllum* spp.; *Pyracantha* spp.; *Pyrus* spp.; *Rhaphiolepis* spp.; *Sorbus* spp.; and *Photinia* spp.¹⁴³

(b) Life cycle

2.3 Fire blight bacteria (*E. amylovora*) overwinter exclusively in infected host plants, mainly in the previous season's cankers.¹⁴⁴ In the presence of warm, wet conditions in spring, the disease cycle commences when cankers on infected trunks and shoots become active and exude a bacteria-laden ooze, which is the inoculum for primary infection in the spring time.¹⁴⁵

2.4 Cankers become inactive during the growing season, especially in warmer, drier months. The cankers generally cease ooze production during the hot summer months and remain inactive until the following spring when they reactivate and the disease cycle begins again.¹⁴⁶

(c) Spread

2.5 The bacteria may spread within host plants, infecting blossoms, fruits, spurs, twigs, branches, and leaves, and form new cankers on infected branches and twigs.¹⁴⁷ With appropriate environmental conditions, inoculum may then be exuded from infected shoots, cankered bark, and infected fruitlets and blossoms. Infection may also occur when host plants produce sporadic, late blossoms ("rattail bloom").¹⁴⁸ Rain, insects, wind and pruning tools are the main methods of spreading inoculum of *E. amylovora*.¹⁴⁹ Bees are the primary agents for secondary spread of inoculum from infested flowers to newly opened ones.¹⁵⁰

2.6 Depending on orchard conditions, fruit can be infested with low levels of *E. amylovora*.¹⁵¹ This occurs when small populations of bacteria are present on the developing flower parts. An infested flower can develop into a mature apple, but bacteria are localized in the calyx (remnant of the blossom) in small numbers.¹⁵² In orchards with fire blight symptoms, bacteria can also be present in low numbers on the surface of the apple, for example when rain transfers bacteria from another part of a tree to fruits. Such external populations would not multiply and would tend to diminish over time.¹⁵³

¹⁴² Australia's IRA, Part C, pp. 105-106.

¹⁴³ Australia's IRA, Part C, p. 106.

¹⁴⁴ Australia's IRA, Part B, p. 51, and Part C, p. 110; New Zealand's first written submission, para. 3.48.

¹⁴⁵ Australia's IRA, Part C, p. 111; New Zealand's first written submission, para. 3.48.

¹⁴⁶ New Zealand's first written submission, para. 3.49.

¹⁴⁷ Australia's IRA, Part C, pp. 109-110; New Zealand's first written submission, para. 3.50.

¹⁴⁸ New Zealand's first written submission, para. 3.50.

¹⁴⁹ Australia's IRA, Part B, p. 51, and Part C, p. 110.

¹⁵⁰ Australia's IRA, Part B, p. 51; New Zealand's first written submission, para. 3.48.

¹⁵¹ Compilation of expert replies, paras. 44 and 53. Regarding fruit infestation, see also Australia's IRA, Part B, pp.52, 55-65; Part C, pp.117-119; New Zealand's first written submission, paras. 4.13-4.16. "Infestation" refers to the presence of an organism (e.g. bacteria, fungus, insect) on the outside of a host plant (including the fruit), without any implication that an infection has occurred.

¹⁵² Australia's IRA, Part B, p. 52; New Zealand's first written submission, para. 3.51.

¹⁵³ Compilation of expert replies, paras. 44, 53 and 62; Transcript of the Panel's meeting with experts, paras. 230 and 395,

(d) Geographical distribution

2.7 Fire blight is thought to be native to North America. The earliest known observation and description of the disease was reported in New York State in the United States in 1793. By the early 1900s, fire blight had been reported in Canada from Ontario to British Columbia, in northern Mexico, and in the United States from the East Coast to California and the Pacific Northwest. Fire blight has been identified across northern and western Europe, the Mediterranean region and several Central European countries, although it remains localized in France and Switzerland and is restricted to certain spots in Spain, Italy, and Austria. Portugal and Finland are fire blight-free and Norway has an eradication programme underway. Most recently fire blight has been reported in Latvia, Morocco and Syria. Latin America and substantial parts of Africa and Asia apparently remain fire blight-free.¹⁵⁴

2.8 Fire blight was first reported in New Zealand in 1919. Its establishment and spread around the country is thought to be associated with the movement of infected rootstocks and nursery material.¹⁵⁵ In 1997 fire blight was detected in Australia in the Melbourne Royal Botanic Gardens, but eradication efforts were undertaken and no further outbreaks have been reported.¹⁵⁶

2. European canker

2.9 European canker is a plant disease caused by the fungus *Neonectria galligena* (or *N. galligena*). The primary symptom of infected plants is the production of cankers on limbs and trunks. The fungus can infect fruit and cause lesions that develop into "fruit rots", mainly under conditions of high summer rainfall.¹⁵⁷

(a) Host plants

2.10 Hosts of this fungus include tree species in the genera *Acer* (maple), *Aesculus* (horse chestnut), *Alnus* (alder), *Betula* (birch), *Carya* (hickory), *Cornus* (dogwood), *Corylus* (hazel), *Fagus* (beech), *Fraxinus* (ash), *Juglans* (walnut and butternut), *Liriodendron tulipifera* (tulip tree), *Malus* (apple), *Populus* (aspen), *Prunus* (cherry), *Pyrus* (pear), *Quercus* (oak), *Salix* (willow), *Sorbus* (rowan tree), *Tilia* (American basewood) and *Ulmus* (elm).¹⁵⁸

(b) Life cycle

2.11 *N. galligena* produces two types of spores: asexual spores (called "conidia") and sexual spores (called "ascospores").¹⁵⁹ Conidia are produced from tree cankers during humid conditions, mainly in late summer, autumn and spring.¹⁶⁰ Conidia also may be produced on infected fruit showing visible rot symptoms. Ascospores are produced in fruiting bodies called "perithecia", produced by the sexual stage of the fungus. Perithecia only occur in regions with a climate conducive to their development. Perithecia produce ascospores mainly during late winter and spring.¹⁶¹

¹⁵⁴ New Zealand's first written submission, paras. 3.52-3.53.

¹⁵⁵ New Zealand's first written submission, para. 3.54.

¹⁵⁶ Australia's first written submission, para. 77; Australia's IRA, Part C, p. 107; New Zealand's first written submission, para. 3.55.

¹⁵⁷ Australia's IRA, Part C, pp. 100 and 102; New Zealand's first written submission, paras. 3.56-3.57.

See also Compilation of experts replies, paras. 305, 311, 348, 356, 435, 438.

¹⁵⁸ Australia's IRA, Part B, p. 117; New Zealand's first written submission, para. 3.56.

¹⁵⁹ Australia's IRA, Part C, p. 100; New Zealand's first written submission, para. 3.58.

¹⁶⁰ Australia's IRA, Part C, p. 100; New Zealand's first written submission, para. 3.59.

¹⁶¹ Australia's IRA, Part C, p. 100; New Zealand's first written submission, para. 3.60.

Perithecia and ascospores have occasionally been reported on fruit overwintered under specific conditions.¹⁶²

2.12 European canker infection¹⁶³ occurs when spores (conidia or ascospores) that have been deposited on the surface of a host plant enter the plant through wounds in the plant surface. The infection process requires wetness on the plant surface.¹⁶⁴ Leaf scars (that result from leaf fall in autumn) are the most important site of infection. Wounds arising from orchard practices or from natural cracks in tree branches also provide infection sites for both conidia and ascospores at times other than leaf fall.¹⁶⁵ Infection of the fruit can take place through the open calyx, lenticels and scab lesions, or wounds caused by insects.¹⁶⁶

2.13 After infection, the fungus grows within the plant and remains latent for a period of weeks to months, depending on temperature.¹⁶⁷ Eventually, disease symptoms appear as cankers on wood or lesions on fruit. In regions where the climate is conducive to fruit infection a proportion of the infections may remain latent within the fruit at the time of harvest. However, not all latently infected fruit will express rot symptoms.¹⁶⁸

2.14 After a period of wood canker or fruit lesion growth (weeks to months, depending on temperature), conidia may be produced on cankers or lesions. After a further period, which generally includes a winter, perithecia may be produced on wood cankers or on mummified fruit.¹⁶⁹

(c) Spread

2.15 As mentioned above, European canker is transmitted by spores. Conidia are spread mainly by rain splash over relatively short distances, while ascospores are spread mainly by wind.¹⁷⁰ Several factors influence spore production, spore survival and infection, but the most important is climate.¹⁷¹ The Parties disagree about the climatic conditions conducive to the spread of European canker.

2.16 The pattern of European canker infection varies in different parts of the world. In Northern Ireland, where rainfall occurs in all seasons, inoculum is available all year round, spring and summer are a critical period for infection, and ascospores play an important role. In California, in contrast, which has pronounced dry periods over the summer months, infection occurs in the winter rainy season, and conidia are considered to play the major role in infection.¹⁷²

¹⁶² Australia's IRA, Part C, pages 100-101; New Zealand's first written submission, para. 3.60.

¹⁶³ Infection refers to the process by which an organism (e.g., *N. galligena*) enters into a host plant and establishes a pathogenic relationship with the host.

¹⁶⁴ New Zealand's first written submission, para. 3.62; Transcript of the Panel's meeting with experts, para. 525; Australia's first written submission, para. 627; Australia's second written submission, para. 535 and Annex 2, pp. 247-250.

¹⁶⁵ Australia's IRA, Part C, page 101; New Zealand's first written submission, para. 3.61.

¹⁶⁶ See, Swinburne, "European Canker of Apple (*Nectria galligena*)" (1975), in Exhibit NZ-9; Australia's IRA, Part C, p. 102.

¹⁶⁷ If an infection gets into trees through nurseries, it can remain symptomless for 3-4 years. See, Australia's IRA, Part C, p. 102.

¹⁶⁸ New Zealand's first written submission, para. 3.62.

¹⁶⁹ Australia's IRA, Part C, pp. 100-101; New Zealand's first written submission, para. 3.63.

¹⁷⁰ Australia's IRA, Part C, p. 101; New Zealand's first written submission, para. 3.64; Compilation of experts replies, paras. 365 and 398.

¹⁷¹ New Zealand's first written submission, para. 3.66.

¹⁷² Australia's IRA, Part C, p. 101, New Zealand's second written submission, paras. 2.201-2.202; Compilation of experts replies, paras. 396, 416; Transcript of the Panel's meeting with experts, para 525.

(d) Geographical distribution

2.17 European canker is present in large parts of Europe, North America, South America, the Middle East, and South Africa.¹⁷³ The worldwide distribution of European canker appears to correspond to major apple and pear growing regions, although its occurrence is restricted to those areas and occasions when suitable climatic conditions occur.¹⁷⁴

2.18 European canker was first reported in New Zealand in 1905.¹⁷⁵ Due to climatic factors, European canker is not found everywhere in New Zealand. Most apple export production in New Zealand takes place in areas where European canker has either never been recorded or the disease occurs only sporadically in very wet seasons.¹⁷⁶ In Australia, the disease was identified in 1954 in four orchards in Spreyton, Tasmania, but was eradicated by 1991.¹⁷⁷

3. Apple leafcurling midge

2.19 The apple leafcurling midge (ALCM), or *Dasineura mali*, is a small fly, 1.5–2.5 mm long, with dusky wings covered in fine dark hairs.¹⁷⁸ The ALCM has four life stages: adult, egg, larva (or maggot) and pupa.¹⁷⁹ Both the adult male and female have wings and are able to fly.¹⁸⁰ ALCM larvae feed on the unfurling young leaves of apple trees causing the leaf margins to curl or roll. This can result in reduced shoot and tree growth.¹⁸¹

(a) Host plants

2.20 Apple trees (including crab-apple) are the only hosts of ALCM.¹⁸²

(b) Life cycle

2.21 ALCM reproduce sexually.¹⁸³ They have a short life span. According to the IRA, laboratory evidence indicates that adult ALCM live for 2-6 days.¹⁸⁴ New Zealand indicates that adults live 3-4 days under laboratory conditions, and that males live only 1-2 days in the field.¹⁸⁵ Eggs are laid by mated females on soft new unfurling apple leaves at the tips of shoots and branches. These eggs hatch to produce larvae, which are legless red maggots. Being legless, the larvae are essentially immobile and do not move far from the egg-laying site. The larvae develop by feeding on the unfurled leaf causing marginal leaf rolling, which then prevents the leaf from unfurling normally, or results in a curled margin on the leaf.¹⁸⁶

2.22 When ready to pupate, the mature larvae drop, or crawl, from the leaves to the ground to find a pupation site below the surface of the ground. Pupation is instigated by rainfall. A small proportion

¹⁷³ Australia's first written submission, para. 83.

¹⁷⁴ New Zealand's first written submission, para. 3.67.

¹⁷⁵ *Ibid.*

¹⁷⁶ Australia's IRA, Part B, p. 121; New Zealand's first written submission, para. 4.56 and Annex 3.

¹⁷⁷ Australia's IRA, Part B, p. 117; New Zealand's first written submission, paras. 3.68 and 4.93, Exhibit NZ-13.

¹⁷⁸ Australia's IRA, Part B, p. 157; New Zealand's first written submission, para. 3.69.

¹⁷⁹ Australia's IRA, Part C, p. 121; New Zealand's first written submission, para. 3.72.

¹⁸⁰ Australia's IRA, Part B, p. 177; New Zealand's first written submission, para. 3.77.

¹⁸¹ Australia's IRA, Part C, p. 122; New Zealand's first written submission, para. 3.70.

¹⁸² Australia's IRA, Part C, p. 121; New Zealand's first written submission, para. 3.69.

¹⁸³ Australia's IRA, Part B, p. 157; New Zealand's first written submission, para. 3.71.

¹⁸⁴ Australia's IRA, Part B, p. 157.

¹⁸⁵ New Zealand's first written submission, para. 3.71.

¹⁸⁶ New Zealand's first written submission, para. 3.72. See also, Australia's IRA, Part C, p. 122.

of the pupating larvae may also lodge and pupate on the tree, often in cracks in the bark or sometimes on the calyx or stalk ends of fruit. Pupating larvae spin a white silken cocoon.¹⁸⁷

2.23 The cocoons of the emerging adults remain where they were formed, i.e. in the soil, on the trunk, or on the calyx of fruit. In spring and summer, after the required pupation period, adult ALCM emerge leaving their cocoons empty. Males emerge from their pupae earlier than females. In late summer and autumn ALCM pupating in cocoons enter an "overwintering" state called "diapause."¹⁸⁸ Their development and emergence is not completed until the following spring.¹⁸⁹ The life cycle of ALCM (mating, egg-laying, larval growth, pupation and adult emergence) is usually repeated several times a year. New Zealand mentions four, sometimes five generations per year¹⁹⁰, while Australia indicates that in the north of New Zealand, there are 6-7 generations annually, and that the number of generations completed each year decreases from north to south in New Zealand.¹⁹¹

(c) Spread

2.24 Movement of ALCM happens by a mixture of adult flight and the transportation of infested apple trees.¹⁹² The dispersal of ALCM appears to have been little studied.¹⁹³ Both Parties refer to studies by Suckling et al. (2007) which found that mated female ALCM flew about 30 metres¹⁹⁴, but Australia also refers to evidence that male ALCM can fly 50 metres to a pheromone source.¹⁹⁵ One of the experts, Professor Cross, indicates that "[t]here is no study that shows how far the midge can fly. There is no definitive flight range. So, it's rather difficult to establish what the flight range should be. Obviously the midge is a weak flier. In my view, it is unlikely to be able to fly long distances."¹⁹⁶ Professor Cross also indicated "[i]t would be unlikely that [the midge] could fly many hundreds of metres. But I felt that the 200 metres distance was not totally unreasonable. It doesn't seem to me to be an impossible distance for this midge to fly."¹⁹⁷

(d) Geographical distribution

2.25 ALCM are presumed to be native to Europe, where they are widespread. They are found in countries with cool to moderate temperate apple producing regions. The species also occurs in North America and New Zealand.¹⁹⁸ ALCM were first recorded in New Zealand in 1950.¹⁹⁹ ALCM's establishment and spread around the country is associated with the movement of infested rootstocks and nursery material.²⁰⁰ Australia reports that it is free from ALCM.²⁰¹

¹⁸⁷ Australia's IRA, Part C, p. 122; New Zealand's first written submission, para. 3.73.

¹⁸⁸ A period of suspension of development in some insects.

¹⁸⁹ Australia's IRA, Part C, p. 122; New Zealand's first written submission, para. 3.74.

¹⁹⁰ New Zealand's first written submission, para. 3.75.

¹⁹¹ Australia's IRA, Part C, p. 123.

¹⁹² Australia's IRA, Part C, p. 125; New Zealand's first written submission, paras. 3.78-3.79.

¹⁹³ Australia's IRA, Part C, p. 125.

¹⁹⁴ Australia's IRA, Part B, p. 171; Australia's first written submission, paras. 802-804; New Zealand's first written submission, para. 3.77.

¹⁹⁵ Australia's first written submission, paras. 802-808; Exhibits AUS-95 and AUS-96; Australia's IRA, Part B, pp. 171 and 177; Compilation of expert replies, para. 530; Transcript of the Panel's meeting with experts, paras. 582-584.

¹⁹⁶ Transcript of the Panel's meeting with experts, para. 584.

¹⁹⁷ Transcript of the Panel's meeting with experts, para. 586.

¹⁹⁸ Australia's IRA, Part C, p. 121; New Zealand's first written submission, para. 3.78.

¹⁹⁹ Australia's IRA, Part C, p. 125; New Zealand's first written submission, para. 3.79.

²⁰⁰ Australia's IRA, Part C, p. 125; New Zealand's first written submission, para. 3.79.

²⁰¹ New Zealand's first written submission, para. 3.80.

B. THE FINAL IRA REPORT

2.26 The Final Import Risk Analysis Report for Apples (IRA) from New Zealand was issued by Biosecurity Australia in three parts in November 2006: Part A contains a summary of the import risk analysis; Part B contains the full detail of the analysis; and Part C contains technical details on the full range of pests considered. The IRA is a large document, comprising about 600 pages altogether.

2.27 The scope of the risk analysis is the importation of mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand.²⁰² In addition to fire blight, European canker and apple leafcurling midge, the IRA includes assessments of eight other pests.²⁰³

2.28 From October 2001 onwards, preparation of the IRA was carried out by a seven-member import risk analysis team (IRA Team, initially known as Risk Analysis Panel), including two officials from Biosecurity Australia; an official from South Australia's Department of Primary Industries and Resources; an official from CSIRO (Commonwealth Scientific and Industrial Research Organisation) Sustainable Ecosystems²⁰⁴; a fruit production specialist from Australia; and an owner and manager of an apple production business in Australia.²⁰⁵

2.29 At various stages of the preparation of the IRA, stakeholders made comments on the successive drafts.²⁰⁶ Biosecurity Australia maintains a register of stakeholders to assist effective consultation and communication. Stakeholders comprise government agencies, individuals, community or industry groups or organisations, in Australia and overseas, including the proponent or applicant for a specific proposal, having an interest in the subject matter of an IRA.²⁰⁷

1. Chronology

2.30 Australia banned the importation of New Zealand apples in 1921, following the entry and establishment of fire blight in Auckland in 1919.²⁰⁸ In 1986, 1989 and 1995 New Zealand applied for access to the Australian apple market.²⁰⁹ In each case its application was rejected.²¹⁰

2.31 In 1996 the Australian Quarantine and Inspection Service (AQIS) commenced a risk assessment that was released in 1998.²¹¹ Following a new request for access to the Australian market filed by New Zealand in January 1999, the Australian Quarantine and Inspection Service (AQIS) initiated the import risk analysis for New Zealand apples which is the subject of this dispute.²¹² Biosecurity Australia (then a part of AQIS) issued a first draft of the risk analysis in October 2000.²¹³ In November 2000, the Committee on Rural and Regional Affairs and Transport Legislation of the

²⁰² Australia's IRA, Part B, p. 9.

²⁰³ These other pests are: garden featherfoot, grey-brown cutworm, leafrollers, apple scab or black spot, codling moth, mealybugs, Oriental fruit moth and oystershell scale.

²⁰⁴ CSIRO (Commonwealth Scientific and Industrial Research Organisation) is Australia's national science agency.

²⁰⁵ Australia's IRA, Part B, p. 10; New Zealand's First Written Submission, paras. 3.21-3.22.

²⁰⁶ Australia's IRA, Part A, pp. 3 and 21, and Part B, pp. iii and 6-10.

²⁰⁷ *Import risk analysis handbook* (Canberra, 2003) in Exhibit AUS-10, p. 9.

²⁰⁸ Australia's IRA, Part B, p. 7. See also New Zealand's first written submission, para. 3.1.

²⁰⁹ Australia's IRA, Part B, p. 7. See also New Zealand's first written submission, para. 3.2-3.6.

²¹⁰ Australia's IRA, Part B, p. 7.

²¹¹ Australia's IRA, Part B, pp. 7-8. See also New Zealand's first written submission, paras. 3.4-3.6 and p. 212.

²¹² Australia's IRA, Part B, pp. 8-9. See also Australia's first written submission, para. 66; New Zealand's first written submission, para. 3.7.

²¹³ Australia's IRA, Part B, p. 8. See also Australia's first written submission, para. 67; New Zealand's first written submission, para. 3.12.

Australian Senate launched a first inquiry into the assessment of apple imports from New Zealand by Australia's quarantine agencies.²¹⁴ The Committee's interim report, including recommendations, was delivered in July 2001.²¹⁵

2.32 A revised draft risk assessment was issued by Biosecurity Australia in February 2004 and was followed by a comment period.²¹⁶ The Australian Senate Committee launched a second inquiry in March 2004.²¹⁷ In August 2004, an Eminent Scientists Group was created to independently examine all final draft IRAs before their release and to ensure that technical submissions from stakeholders were properly taken into account.²¹⁸ Biosecurity Australia was made a prescribed agency (financially independent from the Department of Agriculture, Fisheries and Forestry) in October 2004, and the Australian Government decided that Biosecurity Australia would review and reissue draft IRAs in progress at that time, including the one on New Zealand apples.²¹⁹ The Australian Senate Committee's report on the importation of apples from New Zealand was issued in March 2005.²²⁰ After reviewing stakeholder comments, Biosecurity Australia issued another revised draft import risk analysis in December 2005, again providing a comment period.²²¹ The Final IRA was issued in November 2006.²²²

2.33 The IRA requires New Zealand to prepare a documented standard operating procedure (SOP) describing the phytosanitary procedures for each quarantine pest of concern and the responsibilities of the parties. The SOP must be approved by AQIS before exports start and is subject to AQIS audits. The SOP would be based on a work plan to be developed between Australia and New Zealand.²²³ Australia and New Zealand have not been able to agree on an SOP.²²⁴

2. Methodology

2.34 The technical component of an import risk analysis for plants or plant products is called a pest risk analysis (PRA). Australia's IRA carries out the PRA in three stages:

- (a) Initiation of the PRA;
- (b) pest risk assessment; and,
- (c) pest risk management.²²⁵

(a) Process of pest risk assessment

2.35 In describing its process for pest risk assessment, the IRA identifies four interrelated steps:²²⁶

²¹⁴ New Zealand's first written submission, para. 3.15.

²¹⁵ New Zealand's first written submission, para. 3.19.

²¹⁶ Australia's IRA, Part B, p. 8. See also Australia's first written submission, para. 69.

²¹⁷ New Zealand's first written submission, para. 3.27.

²¹⁸ Australia's first written submission, para. 70 and Annex 1; New Zealand's first written submission, para. 3.28.

²¹⁹ Australia's IRA, Part B, p. 8. Australia's first written submission, para. 70 and Annex 1; New Zealand's first written submission, paras. 3.28-3.29.

²²⁰ New Zealand's first written submission, para. 3.30.

²²¹ Australia's IRA, Part B, p. 8. See also Australia's first written submission, para. 71 and Annex 1; New Zealand's first written submission, para. 3.31.

²²² Australia's IRA, Part B, cover page. Australia's first written submission, para. 72 and Annex 1; New Zealand's first written submission, para. 3.34.

²²³ Australia's IRA, Part B, pp. 313-314; New Zealand's first written submission, para. 3.35.

²²⁴ Australia's first written submission, Annex 1, p. 336; Australia's reply to Panel questions 27-31 after the first substantive meeting; New Zealand's first written submission, paras. 3.36-3.38.

²²⁵ Australia's IRA, Part B, p. 11.

- (a) Pest categorization;
- (b) the assessment of the probability of entry, probability of establishment, and the probability of spread;
- (c) the assessment of consequences; and,
- (d) combining the probability of entry, establishment and spread with the estimate of consequences to estimate the unrestricted risk.²²⁷

2.36 For the three pests at issue, Australia has characterized the approach taken in the IRA as combining a quantitative assessment of the probability of entry, establishment and spread with a qualitative assessment of the consequences. This semi-quantitative approach is elaborated below.

(b) Pest categorization

2.37 According to the IRA, the purpose of pest categorization is to identify whether or not a pest should be considered a quarantine pest, thereby reducing the number of pests that have to be examined in a risk assessment.²²⁸ Based on the International Standards for Phytosanitary Measures (ISPM) No. 11 adopted by the International Plant Protection Convention, *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, the IRA carries out its pest categorization in six steps:

- (a) Compilation of species lists;
- (b) presence or absence within Australia;
- (c) potential for being on the pathway;
- (d) potential for establishment or spread;
- (e) potential for consequences; and,
- (f) final categorization.²²⁹

2.38 As a result of the pest categorization, the IRA concludes that the following ten species (eight insects, one bacterium and one fungus) require consideration for the whole of Australia: Apple leafcurling midge (*D. mali*); Garden featherfoot (*S. horticola*); Grey-brown cutworm (*G. mutans*); Brownheaded leafroller (*C. herana*); Brownheaded leafroller (*C. obliquana*); Greenheaded leafroller (*P. excessana*); Greenheaded leafroller (*P. octo* Dugdale); Native leafroller (*P. plagiata*); Fire blight (*E. amylovora*); and, European canker (*N. galligena*).²³⁰

2.39 The IRA additionally concludes that the following six species (five insects and one fungus) require consideration for Western Australia only: Codling moth (*C. pomonella*); Mealybug (*P. mali*); Citrophilus mealybug (*P. calceolariae*); Oriental fruit moth (*G. molesta*); Oystershell scale (*D. ostreaeformis*); and, Apple scab (*V. inaequalis*).²³¹ The IRA notes in this regard that:

²²⁶ Australia's IRA, Part B, p. 13.

²²⁷ Australia's IRA, Part B, pp. 13-14.

²²⁸ Australia's IRA, Part B, p. 14. See also, Australia's IRA, Part A, p. 4.

²²⁹ Australia's IRA, Part B, p. 14.

²³⁰ Australia's IRA, Part B, pp. 47-48. See also, Australia's IRA, Part A, pp. 11-12.

²³¹ Australia's IRA, Part B, pp. 47-48. See also, Australia's IRA, Part A, pp. 11-12.

"Western Australia has a pest and disease status that, in some respects, is different from other areas of Australia. This regional freedom from pests or diseases that might already be present in other locations in Australia is recognised in the risk assessment."²³²

(c) Assessment of the probability of entry, establishment and spread

(i) *Probability of entry*

2.40 The IRA describes the probability of entry as "the probability that a quarantine pest will enter Australia as a result of trade in a given commodity, be distributed in a viable state to an endangered area, and subsequently be transferred to a suitable host."²³³ The probability of entry is "based on pathway scenarios depicting necessary steps in the sourcing of the commodity for export, its processing, transport and storage, its utilization in Australia, and the generation and disposal of waste."²³⁴ Each pathway is made up of several of the different importation steps identified by Australia.

(ii) *Importation steps and biological pathways*

2.41 The importation steps used in the IRA are an approximation of the trade in apples sufficient to estimate the proportion of fruit that will be infected/infested.²³⁵ Each importation step represents a point on the importation pathway along which apples will travel from the orchard in New Zealand to arrival in Australia. An estimate is made of the proportion of apples which will be infected/infested at each point.

- Importation step 1 (Imp1) represents the "proportion of [New Zealand] orchards in which the pest is present";
- Importation step 2 (Imp2) represents the "proportion of fruit coming from an infected or infested orchard [in New Zealand] that is infected or infested" with the pest;
- Importation step 3a (Imp3a) represents the "proportion of clean fruit from infected or infested orchards [in New Zealand] that is contaminated [by the pest] during picking and transport to the packing house";
- Importation step 3b (Imp3b) represents the "proportion of clean fruit from uninfected or uninfested orchards [in New Zealand] that is contaminated [by the pest] during picking and transport to the packing house";
- Importation step 4 (Imp4) represents the "proportion of infected or infested fruit that remains infected or infested [by the pest] after routine processing procedures in the packing house";
- Importation step 5 (Imp5) represents the "proportion of clean fruit that is contaminated [by the pest] during processing in the packing house";

²³² Australia's IRA, Part A, p. 14.

²³³ Australia's IRA, Part B, p. 17.

²³⁴ *Ibid.*

²³⁵ Australia's IRA, Part B, p. 21.

- Importation step 6 (Imp6) represents the "proportion of infected or infested fruit that remains infected or infested [by the pest] during palletization, quality inspection, containerization and transportation to Australia";
- Importation step 7 (Imp7) represents the "proportion of clean fruit that is contaminated [by the pest] during palletization, quality inspection, containerization and transportation" to Australia;
- Importation step 8 (Imp8) represents the "proportion of infected or infested fruit that remains infected or infested [by the pest] after on-arrival minimum border procedures for the unrestricted analyses".²³⁶

2.42 The IRA describes how different combinations of importation steps represent a biological pathway "or ordered sequence of steps undertaken in sourcing, processing and exporting a commodity up to the point where it is released from quarantine by the importing country".²³⁷ This is also referred to as an importation scenario.²³⁸ In each importation scenario, the initiating step "is the sourcing of apples from orchards in New Zealand and the end-point is the arrival in Australia of infected or infested fruit or packaging materials."²³⁹ Since the pathways include the possibility for contamination of clean fruit, the importation scenario is not a simple sequence from importation steps 1 to 8.²⁴⁰

2.43 Figure 1 of Part B of the IRA illustrates various import scenarios.²⁴¹ Table 4 of Part B of the IRA outlines step-by-step the ten different pathways considered for each pest.²⁴² The probability that an imported apple will be infected or infested having followed a certain pathway was obtained by multiplying the probabilities associated with each importation step in that pathway. The overall probability that an imported apple is infected or infested when it arrives in Australia (probability of importation) is the sum of the proportions (or probabilities) associated with each of the ten individual pathways.²⁴³

2.44 Once the probability of importation was estimated, the IRA establishes the likelihood that major handlers and users of apples (utility points) would be located sufficiently close to pest hosts (exposure groups) for transfer of pests from apples to host plants to take place (proximity). The IRA identifies and quantifies different pathways of distribution, utilization, and waste generation and disposal, illustrated in Figure 2 of Part B of the IRA.²⁴⁴ Each of these distribution pathways includes several utility points (orchard wholesalers; urban wholesalers; retailers; food services; and consumers) at which apples are distributed or utilized and where waste will be generated. The characteristics of these utility points have different implications for the likelihood of exposure.²⁴⁵

2.45 Exposure is the likelihood of transfer of a pest from an infected or infested apple to a susceptible host plant. The IRA analyses the key steps that are required for successful exposure, including viability of the pest, survival, transfer mechanism(s), host receptivity and environmental

²³⁶ Australia's IRA, Part B, p. 21. See also Australia's first written submission, para. 95.

²³⁷ Australia's IRA, Part B, p. 19.

²³⁸ *Ibid.*

²³⁹ *Ibid.*

²⁴⁰ *Ibid.*

²⁴¹ Australia's IRA, Part B, p. 20.

²⁴² Australia's IRA, Part B, p. 24.

²⁴³ Australia's IRA, Part B, p. 23.

²⁴⁴ Australia's IRA, Part B, pp. 25-26; Australia's first written submission, para. 100.

²⁴⁵ Australia's IRA, Part B, p. 25; Australia's first written submission, para. 101.

factors.²⁴⁶ It then categorizes susceptible host plants in Australia into different exposure groups for which the likelihoods of exposure and the impact of a pest are different. The exposure groups are: susceptible commercial fruit crops; susceptible nursery plants; susceptible household and garden plants, including weed species; and susceptible wild and amenity plants.²⁴⁷

2.46 The IRA's assessment is based on a projected volume of trade in New Zealand apples for one year, taking into account that apples might be imported in packed cartons for table consumption, but also in bulk bins for repacking or for processing into fruit juices or other products. Australia assumed that the volume of apple imports from New Zealand would be between 50 million and 400 million apples per year, with a most likely value of 150 million. These values equate to approximately 5 per cent, 40 per cent and 15 per cent of domestic fresh fruit, or 2.5 per cent, 20 per cent and 7.5 per cent of Australia's total average apple production, respectively.²⁴⁸

(iii) *Probability of establishment and spread*

2.47 The IRA describes the probability of establishment and spread as encompassing the "biological factors associated with the likelihood that a pest will successfully propagate on or in [a suitable] host, and disperse from there to other populations of susceptible hosts."²⁴⁹ This probability "is obtained from an examination of biologic factors associated with compatibility of the host and environment, and the availability of necessary mechanisms for dispersal."²⁵⁰ Its calculation "involves examination of the factors relevant to the successful colonisation of a susceptible host, and to the subsequent establishment and spread within the larger population of susceptible hosts."²⁵¹

2.48 In analysing the probability of establishment, the IRA compares the following factors in the source country and in the PRA area for each exposure group:

- Availability of suitable hosts, alternate hosts and vectors in the PRA area;
- suitability of the environment;
- cultural practices and control measures; and,
- other characteristics of the pest affecting the probability of establishment.²⁵²

2.49 For each exposure group, the IRA also derives the probability of spread by comparing the following factors in the source country and in the PRA area:

- Suitability of the natural and/or managed environment for natural spread of the pest;
- presence of natural barriers;

²⁴⁶ Australia's IRA, Part B, p. 27.

²⁴⁷ Australia's IRA, Part B, pp. 28-29.

²⁴⁸ Australia's IRA, Part B, pp. 17-19. See also Australia's first written submission, paras. 98-99. New Zealand has contested these estimates. In New Zealand's view, the most likely value of 150 million apples per year estimated by Australia "bears no relationship to the reality of likely Australian demand for New Zealand apples or New Zealand's capacity to supply that demand". New Zealand's first written submission, para. 4.196. According to New Zealand, "the lower value on Australia's range, 50 million apples per annum, is in fact the 'most likely' value". New Zealand's second written submission, para. 2.360.

²⁴⁹ Australia's IRA, Part B, p. 17.

²⁵⁰ *Ibid.*

²⁵¹ Australia's IRA, Part B, p. 29.

²⁵² Australia's IRA, Part B, p. 30.

- potential for movement with commodities or conveyances;
- intended use of the commodity;
- potential vectors of the pest in the PRA area; and,
- potential natural enemies of the pest in the PRA area.²⁵³

2.50 For arthropod pests, including apple leafcurling midge, the IRA used a slightly different methodology to take into account that the midge is a flying insect, which has implications for spread, distribution and establishment.²⁵⁴

2.51 After obtaining the "partial" probabilities for each exposure group, the IRA calculates the overall annual probability of entry, establishment and spread of each pest.²⁵⁵

(d) Assessment of consequences

2.52 In assessing the consequences for potential pests imported on New Zealand apples, the IRA conducts separate assessments for each pest. These are carried out in two steps. First, the IRA evaluates the "magnitude of impact of a pest on each of the direct and indirect criteria".²⁵⁶ Second, the IRA combines the "magnitude of impact obtained for each of the direct and indirect criteria ... to give an overall (qualitative) estimate of the consequences of establishment or spread."²⁵⁷

2.53 Referring to ISPM No. 11, the IRA cites the following examples of criteria in assessing the direct consequences of a pest.

- Criteria that could be considered for the direct consequences on plant life or health: known or potential host plants; types, amount and frequency of damage; crop losses, in yield and quality; biotic factors (e.g., adaptability and virulence of the pest) affecting damage and losses; abiotic factors (e.g., climate) affecting damage and losses; rate of spread; rate of reproduction; control measures (including existing measures), their efficacy and cost; effect of existing production practices; and, environmental effects.
- Human life or health, as a factor that is not directly relevant, but may need to be considered as part of a comprehensive risk analysis of the proposed import.
- Other aspects of environmental effects: reduction of keystone plant species; reduction of plant species that are major components of ecosystems and endangered native plant species; significant reduction, displacement or elimination of other plant species.²⁵⁸

2.54 The IRA defines "indirect criteria" or "indirect consequences" as "the costs resulting from natural or human processes associated with the incursion of a pest."²⁵⁹ Referring to ISPM No. 11, the IRA cites the following examples.

²⁵³ Australia's IRA, Part B, p. 31.

²⁵⁴ Australia's IRA, Part B, pp. 24, 33-35; Australia's first written submission, para. 105.

²⁵⁵ Australia's IRA, Part B, pp. 31-33.

²⁵⁶ Australia's IRA, Part B, p. 39.

²⁵⁷ *Ibid.*

²⁵⁸ Australia's IRA, Part B, p. 36.

²⁵⁹ *Ibid.*

- Indirect consequences on eradication, control, etc.: changes to producer costs or input demands, including control costs; feasibility and costs of eradication or containment; capacity of the pest to act as a vector for other pests; and resources needed for additional research and advice.
- Indirect consequences on domestic and international trade: effects on domestic and export markets, including particular effects on export market access; and changes to domestic or foreign consumer demand for a product resulting from quality changes.
- Indirect consequences on the environment: environmental and other undesired effects of control measures; social and other effects; significant effects on plant communities; significant effects on designated environmentally sensitive or protected areas; significant change in ecological processes and the structure, stability or processes of an ecosystem; and costs of environmental restoration.
- Indirect consequences on communities.²⁶⁰

2.55 The IRA estimates the effect of pests on the direct and indirect consequences criteria at four levels: local; district; regional; and national.²⁶¹ The values derived were translated into qualitative scores: unlikely to be discernible; of minor significance; significant; or highly significant.²⁶² After obtaining an impact score for each direct and indirect criterion, the IRA Team determined whether the overall consequences of a pest incursion were considered negligible, very low, low, moderate, high, or extreme.²⁶³

(e) Unrestricted risk

2.56 The IRA presents an estimate of unrestricted risk by combining the probabilities of entry, establishment and spread with the consequences assessments for pests entering via apples. The IRA defines unrestricted risk as the "unrestricted annual risk associated with each pest if apples were imported from New Zealand for 12 months without phytosanitary measures."²⁶⁴

2.57 Probabilities and consequences are combined using the risk estimation matrix contained in Table 11 of Part B of the IRA.²⁶⁵ The vertical axis of this matrix refers to likelihood²⁶⁶ of entry, establishment and spread; the horizontal axis refers to consequences; and the cells of this matrix describe the product of likelihood and consequences, or risk, in qualitative terms. For example, a high likelihood of entry, establishment and spread combined with negligible consequences results in negligible risk; a low probability of entry, establishment and spread combined with low consequences result in very low risk; and a negligible likelihood of entry, establishment and spread combined with extreme consequences also results in very low risk.

3. Risk management measures and Australia's appropriate level of protection

2.58 Following the assessment of the unrestricted risk for each pest of quarantine concern, the IRA deals with pest risk management, which is "the process of identifying and implementing measures to mitigate risks so as to achieve Australia's appropriate level of protection (ALOP), or tolerance for

²⁶⁰ Australia's IRA, Part B, p. 37.

²⁶¹ Australia's IRA, Part B, p. 38. See also Australia's first written submission, para. 111.

²⁶² Australia's IRA, Part B, pp. 38-39. See also Australia's first written submission, para. 112.

²⁶³ Australia's IRA, Part B, pp. 39-40. See also Australia's first written submission, para. 113.

²⁶⁴ Australia's IRA, Part B, p. 40.

²⁶⁵ Australia's IRA, Part B, pp. 4 and 41. See also Australia's first written submission, para. 114.

²⁶⁶ The terms "probability" and "likelihood" are used interchangeably.

loss, while ensuring that any negative effects on trade are minimised."²⁶⁷ In determining whether risk management measures are required, the IRA compares the unrestricted risk associated with each pest to its ALOP. When the unrestricted risk of a pest was found to exceed the ALOP, the IRA concludes that measures are required. The risk assessment process described above was also used by the IRA to assess the effect of potential risk management measures.²⁶⁸

2.59 Australia's ALOP is expressed in the IRA as "providing a high level of sanitary or phytosanitary protection aimed at reducing risk to a very low level, but not zero".²⁶⁹ This ALOP is not specific to apples imported from New Zealand; it is rather part of Australia's general biosecurity policy.²⁷⁰ Using the risk estimation matrix, any combination of the likelihood of entry, establishment and spread and consequences that resulted in "negligible" or "very low" risk was found to meet Australia's ALOP and was considered acceptable. In such a situation, risk management measures would not be justified. If, however, the unrestricted risk was "low", "moderate", "high" or "extreme", it would be found to exceed Australia's ALOP and risk management measures were required.²⁷¹

2.60 The specific risk management measures that are at issue in this dispute will be discussed in detail below.

4. The IRA's semi-quantitative approach

2.61 As indicated above, the IRA uses a semi-quantitative approach to assess the risk associated with the three pests at issue in this dispute. For some of the other pests evaluated in the same IRA, Australia applied a qualitative approach. The IRA states:

"Like most quarantine agencies, Biosecurity Australia generally undertakes pest risk analyses using a qualitative approach where the likelihoods of various events are considered and evaluated using descriptive terms that are linked to probability intervals".²⁷²

2.62 However, "in responding to issues raised by some stakeholders", Biosecurity Australia used a semi-quantitative approach for the 2004 draft version of the IRA, "to reinforce the transparency and objectivity of the analysis wherever possible".²⁷³ The final version of the IRA maintains this approach, with some adjustments.

2.63 According to Australia, the semi-quantitative approach in the IRA combines a quantitative estimation of the probability of entry, establishment and spread of a pest with a qualitative evaluation of the consequences.²⁷⁴ The IRA assigns a probability range and mathematical distribution on a per apple basis for each importation step of the importation scenario and the different pathways of distribution, utilization, waste generation and disposal of apples in Australia.²⁷⁵ For some input values, a point value (e.g., a probability of 1, or 100 per cent) was used.

²⁶⁷ Australia's IRA, Part B, p. 41.

²⁶⁸ *Ibid.*

²⁶⁹ Australia's IRA, Part B, p. 4. See also, Australia's IRA, Part A, p. 3.

²⁷⁰ *Import risk analysis handbook* (Canberra, 2003) in Exhibit AUS-10, p. 5. Australia's first written submission, para. 20.

²⁷¹ Australia's IRA, Part B, p. 41. See also, Australia's IRA, Part A, p. 7. Australia's first written submission, para. 116.

²⁷² Australia's IRA, Part B, p. 11.

²⁷³ *Ibid.*

²⁷⁴ Australia's first written submission, paras. 90 and 110.

²⁷⁵ Australia's first written submission, paras. 90-92; New Zealand's first written submission, para 4.171.

2.64 The probabilities were then combined with the projected volume of imports of apples from New Zealand in a computer programme called @Risk (Palisade Corporation, 2007), to provide an estimate of the overall probability of entry, establishment and spread for each pest.²⁷⁶ A Monte Carlo stochastic (random) simulation model was used with @Risk, based on random sampling from the set of values.²⁷⁷ The @Risk software selected a number from within each probability range, taking into account the shape of the range, to represent the likelihood of an event occurring; it did this thousands of times to produce an output in the form of a distribution representing the annual probability of entry, establishment and spread. The 5 per cent, median and 95 per cent values of the range were included in the Final IRA Report.²⁷⁸

2.65 In most cases, the IRA Team chose one of a set of probability ranges suggested in Biosecurity Australia's 2001 draft *Guidelines for import risk analysis*²⁷⁹, although the IRA Team was not constrained by these pre-defined ranges.²⁸⁰ Table 12 of Part B of the IRA sets out the "[n]omenclature for qualitative likelihoods, corresponding semi-quantitative probability intervals".²⁸¹ For example, this table shows that a "negligible" likelihood corresponds to the qualitative descriptor "[t]he event would almost certainly not occur", a probability interval of 0 to 10^{-6} (zero to one in one million), and a midpoint (if uniform distribution used) of 5×10^{-7} (0.5 in one million, or one in two million). Table 13 of Part B of the IRA provides "[a] matrix of rules for combining descriptive likelihoods".²⁸²

2.66 The IRA Team used uniform, triangular and Pert probability distributions.²⁸³ A uniform distribution has a minimum and a maximum value. Any value contained in the range between the minimum and maximum values occurs with equal probability. The IRA states that a uniform distribution was used where insufficient information was available to determine the most likely value. A triangular distribution has a minimum, maximum and a most likely value. It is not necessarily symmetric, but can be skewed. According to the IRA, this distribution was used when information (such as literature and expert opinion) on the most likely value was available. The Pert distribution also has three parameters: a minimum value, a maximum value, and a most likely value, but it has a different, more rounded shape than a triangular distribution. The Pert distribution was used in the IRA to estimate the volume of apples likely to be imported.²⁸⁴

2.67 The IRA notes that the IRA Team "considered carefully whether they were confident that the range they had chosen would contain the actual value and that the chosen distribution reflected their beliefs".²⁸⁵ The IRA additionally states that values were chosen "taking into account relevant scientific information and expert opinion".²⁸⁶ The IRA Team appears to have worked by consensus, although Appendix 1 of the IRA on the involvement of the Bureau of Rural Sciences in the IRA process states that the "issue of expressing divergent opinions was also discussed and different approaches to handling divergence of opinion were canvassed".²⁸⁷

²⁷⁶ Australia's first written submission, paras. 90 and 106; New Zealand's first written submission, paras. 4.168-4.169.

²⁷⁷ Australia's first written submission, para. 90 and footnote 96.

²⁷⁸ Australia's IRA, Part B, pp. 43-44; New Zealand's first written submission, para. 4.190; Compilation of experts replies, paras. 787-789.

²⁷⁹ *Guidelines for import risk analysis*, Draft September 2001 (Canberra, Australia, Agriculture, Fisheries and Forestry) in Exhibit AUS-17.

²⁸⁰ Australia's IRA, Part B, p. 42.

²⁸¹ Australia's IRA, Part B, p. 43.

²⁸² *Ibid.* Australia's first written submission, para. 115.

²⁸³ Australia's first written submission, paras. 93-94 and 99.

²⁸⁴ Australia's IRA, Part B, p. 42.

²⁸⁵ *Ibid.*

²⁸⁶ Australia's IRA, Part B, p. 44.

²⁸⁷ New Zealand's first written submission, para. 4.468; Australia's IRA, Part B, p. 332.

C. RELEVANT INTERNATIONAL STANDARDS, GUIDELINES AND RECOMMENDATIONS

2.68 A number of provisions of the SPS Agreement make reference to "international standards, guidelines and recommendations". Annex A:3(c) of the SPS Agreement indicates that for plant health, the relevant international standards, guidelines and recommendations are those developed under the auspices of the Secretariat of the International Plant Protection Convention (IPPC) in cooperation with regional organizations operating within the framework of the IPPC.

1. The IPPC

2.69 The IPPC is an international treaty to secure action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control. It is governed by the Commission on Phytosanitary Measures (CPM) which adopts International Standards for Phytosanitary Measures (ISPMs). The Convention has been deposited with the Director-General of the Food and Agriculture Organization of the United Nations (FAO) since its initial adoption by the Conference of FAO at its Sixth Session in 1951. The New Revised Text of the IPPC was approved in 1997. It entered into force on 2 October 2005.²⁸⁸ Both Australia and New Zealand have signed and ratified the International Plant Protection Convention and are Contracting Parties to the IPPC.

(a) IPPC standards on risk analysis: ISPM No. 2 and ISPM No. 11

2.70 In the context of their arguments on risk assessment, the Parties refer to ISPM No. 2, *Guidelines for pest risk analysis*, adopted in 1995 and revised in 2007 and renamed as *Framework for pest risk analysis*; and ISPM No. 11 on pest risk analysis for quarantine pests, adopted in 2001 and revised in 2003 and 2004.²⁸⁹

2.71 ISPM No. 2 provides general guidance for pest risk analysis (PRA), whereas ISPM No. 11 establishes guidelines for conducting a risk analysis for *quarantine* pests.²⁹⁰ The two standards are related and present the same general framework for conducting a pest risk assessment, consisting of three stages: (i) initiation; (ii) pest risk assessment; and (iii) pest risk management. ISPM No. 2 provides detailed guidance on PRA stage one (initiation), summarizes PRA stages two (risk assessment) and three (risk management), and addresses issues generic to the entire PRA process. ISPM No. 11 addresses stages two and three in more detail for quarantine pests.

2.72 The aim of stage one, the initiation stage, is to identify the pest(s) and pathways which are of concern and should be considered for risk analysis in relation to the identified PRA area. Stage two (risk assessment) begins with the categorization of individual pests to determine whether the criteria for a quarantine pest are satisfied, and continues with an evaluation of the probability of pest entry, establishment, and spread, and of their potential economic consequences. Stage three (risk management) involves identifying management options for reducing the risks identified at stage two. These are evaluated for efficacy, feasibility and impact in order to select those that are appropriate.

2.73 According to ISPM No. 11, the pest risk assessment process can be broadly divided into three interrelated steps: (i) pest categorization; (ii) assessment of the probability of introduction and spread; and, (iii) assessment of potential economic consequences (including environmental impact).

²⁸⁸ International Phytosanitary Portal (IPP), <https://www.ippc.int/IPP/En/default.jsp>, consulted on 22 July 2009.

²⁸⁹ *Framework for pest risk analysis*, 2007 (ISPM No. 2, FAO, Rome); and *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome, submitted as Exhibit AUS-6).

²⁹⁰ The IPPC defines a quarantine pest as: "[a] pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled." *Glossary of phytosanitary terms*, 2009 (ISPM No. 5, FAO, Rome).

Pest introduction is composed of both entry and establishment. Assessing the probability of introduction requires an analysis of each of the pathways with which a pest may be associated from its origin to its establishment in the PRA area. ISPM 11 identifies the following broad issues which should be considered when evaluating the probability of introduction and spread, and provides detailed guidance under each heading:

- (a) Probability of the pest being associated with the pathway at origin;
- (b) probability of survival during transport or storage;
- (c) probability of pest surviving existing pest management procedures;
- (d) probability of transfer to a suitable host;
- (e) probability of establishment;
- (f) availability of suitable hosts, alternate hosts and vectors in the PRA area;
- (g) suitability of environment;
- (h) cultural practices and control measures;
- (i) other characteristics of the pest affecting the probability of establishment; and,
- (j) probability of spread after establishment.

2.74 ISPM No. 11 recognizes that the estimation of the probability of introduction of a pest and of its economic consequences involves many uncertainties since it is an extrapolation from the situation where the pest occurs to the hypothetical situation in the PRA area. It emphasizes the importance of documenting the areas of uncertainty and the degree of uncertainty in the assessment, and to indicate where expert judgement has been used, since this is necessary for transparency and may also be useful for identifying and prioritizing research needs.

2.75 The conclusions from pest risk assessment are used to decide whether risk management is required and the strength of measures to be used. ISPM No. 11 recognizes that zero-risk is not a reasonable option. The guiding principle for risk management should be to manage risk to achieve the required degree of safety that can be justified and is feasible within the limits of available options and resources. According to this standard, pest risk management (in the analytical sense) is the process of identifying ways to react to a perceived risk, evaluating their efficacy, and identifying the most appropriate options. The uncertainty noted in the assessments of economic consequences and probability of introduction should also be considered and included in the selection of a pest management option. The ISPM lists examples of measures classified into broad categories that relate to the pest status of the pathway in the country of origin. These include measures:

- (a) Applied to the consignment;
- (b) applied to prevent or reduce original infestation in the crop;
- (c) to ensure the area or place or site of production or crop is free from the pest;
- (d) for other types of pathways (such as to curb natural spread);
- (e) within the importing country;

- (f) concerning the prohibition of commodities; and,
- (g) phytosanitary certificates and other compliance measures.

2.76 According to ISPM No. 11, the whole PRA process from initiation to pest risk management should be sufficiently documented so that when a review or a dispute arises, the sources of information and rationale used in reaching the management decision can be clearly demonstrated.

- (b) IPPC standards on pest free areas and areas of low pest prevalence: ISPM No. 4, ISPM No. 10 and ISPM No. 22

2.77 In the context of discussions on pest free areas and areas of low pest prevalence, the Parties have referred to: ISPM No. 4, *Requirements for the establishment of pest free areas*; ISPM No. 10, *Requirements for the establishment of pest free places of production and pest free production sites*; and ISPM No. 22, *Requirements for the establishment of areas of low pest prevalence*.²⁹¹

2.78 The IPPC defines a "pest free area" (PFA) as "[a]n area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained".²⁹² According to ISPM No. 4, the establishment and use of a PFA by a national plant protection organization provides for the export of plants, plant products and other regulated articles from the exporting country to the importing country without the need for application of additional phytosanitary measures when certain requirements are met. Thus, the pest free status of an area may be used as the basis for the phytosanitary certification of plants, plant products and other regulated articles with respect to the stated pest(s). It also provides, as an element in pest risk assessment, the confirmation on a scientific basis of the absence of a stated pest from an area. The PFA is then an element in the justification of phytosanitary measures taken by an importing country to protect an endangered area.

2.79 Although the term "pest free areas" encompasses a whole range of types (from an entire country which is pest free to a small area which is pest free but situated in a country where that pest is prevalent), it has been found to be convenient to discuss the requirements of PFAs by defining three categories: an entire country; an uninfested part of a country in which a limited infested area is present; an uninfested part of a country situated within a generally infested area. In each of these cases, the PFA may, as appropriate, concern all or part of several countries.

2.80 A pest free place of production is defined as a "[p]lace of production in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained for a defined period".²⁹³ A pest free production site is "[a] defined portion of a place of production in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained for a defined period and that is managed as a separate unit in the same way as a pest free place of production".²⁹⁴

2.81 ISPM No. 10 uses the concept of "pest freedom" to allow exporting countries to provide assurance to importing countries that plants, plant products and other regulated articles are free from a

²⁹¹ *Requirements for the establishment of pest free areas*, 1996 (ISPM No. 4, FAO, Rome); *Requirements for the establishment of pest free places of production and pest free production sites*, 1999 (ISPM No. 10, FAO, Rome); *Requirements for the establishment of areas of low pest prevalence*, 2005 (ISPM No. 22, FAO, Rome). The descriptions of each standard in this section closely follow the "Outline of Requirements" which appears at the beginning of each ISPM.

²⁹² *Glossary of phytosanitary terms*, 2009 (ISPM No. 5, FAO, Rome, 2008 version of ISPM No. 5 submitted as Exhibit AUS-164), p. 12.

²⁹³ *Ibid.*

²⁹⁴ *Ibid.*

specific pest or pests and meet the phytosanitary requirements of the importing country when imported from a pest free place of production. In circumstances where a defined portion of a place of production is managed as a separate unit and can be maintained pest free, it may be regarded as a pest free production site. The use of pest free places of production or pest free production sites is dependent on the use of criteria concerning the biology of the pest, the characteristics of the place of production, the operational capabilities of the producer, and the requirements and responsibilities of the national plant protection organization.

2.82 Similar to the requirements for PFAs stated in ISPM No. 4, requirements for the establishment and maintenance of a pest free place of production or a pest free production site as a phytosanitary measure by the national plant protection organization set out in ISPM No. 10 include:

- Systems to establish pest freedom;
- systems to maintain pest freedom;
- verification that pest freedom has been attained or maintained; and,
- product identity, consignment integrity and phytosanitary security.

Where necessary, a pest free place of production or a pest free production site also includes the establishment and maintenance of an appropriate buffer zone.

2.83 Administrative activities required to support a pest free place of production or pest free production site involve documentation of the system and the maintenance of adequate records concerning the measures taken. Review and audit procedures undertaken by the national plant protection organization are essential to support assurance of pest freedom and for system appraisal. Bilateral agreements or arrangements may also be needed.

2.84 The concept of the pest free place of production is distinct from that of the PFA. The PFA has the same objective as the pest free place of production but is implemented in a different way. Every distinction between a pest free place of production and a PFA applies equally to a pest free production site. A PFA is much larger than a place of production, includes many places of production and may extend to a whole country or parts of several countries. A PFA may be isolated by a natural barrier or an appropriate buffer zone. A PFA is generally maintained over many years without interruption, whereas the status of a pest free place of production may be maintained for only one or a few growing seasons. A PFA is managed as a whole, by the national plant protection organization (NPPO) of the exporting country, i.e., the official service established by the government to discharge the functions specified by the IPPC. A pest free place of production is managed individually by the producer, under the supervision and responsibility of the NPPO. If the pest is found in a PFA, the status of the whole area is called into question. If it is found in a pest free place of production, that place loses its status but other places of production in the area operating the same system are not directly affected. These distinctions may not always apply in particular cases. A place of production lying in a PFA may satisfy, by that fact, the requirements for a pest free place of production, although the importing country may require verification.

2.85 According to ISPM No. 22, the establishment of an area of low pest prevalence is a pest management option used to maintain or reduce a pest population below a specified level in an area. An area of low pest prevalence may be used to facilitate exports or to limit pest impact in the area. A specified low pest level should be determined taking into consideration the overall operational and economic feasibility of establishing a programme to meet or maintain this level, and the objective for which an ALPP is to be established.

2.86 In determining an area of low pest prevalence, a national plant protection organization should describe the area involved. Areas of low pest prevalence may be established and maintained for regulated pests or for pests regulated by an importing country only.

2.87 Surveillance of the relevant pest should be conducted according to appropriate protocols. Additional phytosanitary procedures may be required to establish and maintain an area of low pest prevalence. Once established, the area of low pest prevalence should be maintained by the continuation of the measures used for its establishment and the necessary documentation and verification procedures. In most cases an official operational plan which specifies the required phytosanitary procedures is needed. If there is a change in the status of the area of low pest prevalence, a corrective action plan should be initiated.

(c) Other ISPMs

2.88 The Parties also refer to ISPM No. 1, Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade; ISPM No. 14, The use of integrated measures in a systems approach for pest risk management; ISPM No. 20, Guidelines for a phytosanitary import regulatory system; ISPM No. 23, Guidelines for inspection; and ISPM No. 31, Methodologies for sampling of consignments. ISPM No. 5 contains the Glossary of phytosanitary terms.²⁹⁵

2.89 In addition, the Parties refer to the IPPC's Participant Manual for Pest Risk Analysis Training.²⁹⁶ The manual was developed as a basic introduction to pest risk assessment for biological scientists, plant pest risk assessors, plant pest risk analysts and phytosanitary policy makers working in the field of international phytosanitary regulation. The material in the manual explains the international context for pest risk assessment and outlines the pertinent international standards and resources available for pest risk assessment, pest risk management and pest risk communication. The Manual itself, however, is not an international standard, guideline or recommendation.

D. MEASURES AT ISSUE

1. The measures at issue are limited to 17 specific measures

2.90 As explained above²⁹⁷, on 6 June 2008 the Panel issued a preliminary ruling²⁹⁸ in response to Australia's request regarding the consistency of New Zealand's panel request with Article 6.2 of the DSU. In its ruling, the Panel reviewed *inter alia* whether New Zealand's panel request had identified the measures at issue in a manner consistent with the requirements of Article 6.2 of the DSU. The Panel found that "its terms of reference are limited to the 17 measures specifically identified by New Zealand in its panel request [by bullet points] and do not encompass other measures that may be

²⁹⁵ *Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*, 2006 (ISPM No. 1, FAO, Rome); *Glossary of phytosanitary terms*, 2009 (ISPM No. 5, FAO, Rome, 2008 version of ISPM No. 5 submitted as Exhibit AUS-164); *The use of integrated measures in a systems approach for pest risk management*, 2002 (ISPM No. 14, FAO, Rome, submitted as Exhibit AUS-14); *Guidelines for a phytosanitary import regulatory system*, 2004 (ISPM No. 20, FAO, Rome, submitted as Exhibit AUS-170); *Guidelines for inspection*, 2005 (ISPM No. 23, FAO, Rome); *Methodologies for sampling of consignments*, 2008 (ISPM No. 31, FAO, Rome, submitted as Exhibit AUS-30).

²⁹⁶ *Pest Risk Analysis Training Participant Manual*, 2007 (FAO, Rome). Page 37 of this document has been submitted as Exhibit NZ-95; Pp. 1, 36 and 37 as Exhibit AUS-16.

²⁹⁷ See para. 1.10 above.

²⁹⁸ As explained above (see para. 1.10 above), the preliminary ruling was made publicly available on 23 June 2008. *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report.

contained in Australia's *FIRA*, but which were not identified with sufficient precision in the panel request."²⁹⁹

2. The 17 specific measures and their relationship to the three pests at issue

2.91 The 17 specific measures identified by bullet points in New Zealand's panel request fall into four categories according to their relationship to the three pests relevant for this dispute. For ease of reference, the Panel has chosen to number these 17 measures consecutively, in the order that they appear in the bullet point list in New Zealand's panel request:

- (a) Measures 1-8, addressed in the first eight bullet points of New Zealand's panel request, relate to "fire blight".³⁰⁰
- (i) "The requirement that apples be sourced from areas free from fire blight disease symptoms."³⁰¹
- (ii) "The requirement that orchards/blocks be inspected for fire blight disease symptoms, including that they be inspected at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees, and that such inspections take place between 4 to 7 weeks after flowering."³⁰²
- (iii) "The requirement that an orchard/block inspection methodology be developed and approved that addresses issues such as visibility of symptoms in the tops of trees, the inspection time needed and the number of trees to be inspected to meet the efficacy level, and training and certification of inspectors."³⁰³
- (iv) "The requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of fire blight."³⁰⁴
- (v) "The requirement that an orchard/block be suspended for the season on the basis of detection of any visual symptoms of fire blight."³⁰⁵
- (vi) "The requirement that apples be subject to disinfection treatment in the packing house."³⁰⁶
- (vii) "The requirement that all grading and packing equipment that comes in direct contact with apples be cleaned and disinfected (using an approved disinfectant) immediately before each Australian packing run."³⁰⁷

²⁹⁹ *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 9.

³⁰⁰ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1.

³⁰¹ *Ibid.*

³⁰² *Ibid.*

³⁰³ *Ibid.*

³⁰⁴ *Ibid.*

³⁰⁵ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2.

³⁰⁶ *Ibid.*

- (viii) "The requirement that packing houses registered for export of apples process only fruit sourced from registered orchards."³⁰⁸
- (b) Measures 9-13, addressed in the subsequent five bullet points of New Zealand's panel request, relate to "European canker".³⁰⁹
- (ix) "The requirement that apples be sourced from export orchards/blocks free of European canker (pest free places of production)."³¹⁰
- (x) "The requirement that all trees in export orchards/blocks be inspected for symptoms of European canker, including that orchards/blocks in areas less conducive for disease are inspected for symptoms by walking down every row and visually examining all trees on both sides of each row, and that areas more conducive to the disease are inspected using the same procedure combined with inspection of the upper limbs of each tree using ladders (if needed), and that such inspections take place after leaf fall and before winter pruning."³¹¹
- (xi) "The requirement that all new planting stock be intensively examined and treated for European canker."³¹²
- (xii) "The requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker."³¹³
- (xiii) "The requirement that exports from an orchard/block be suspended for the coming season on the basis of detection of European canker and that reinstatement would require eradication of the disease, confirmed by inspection."³¹⁴
- (c) Measure 14, addressed in the subsequent bullet point of New Zealand's panel request, relates to "apple leafcurling midge".³¹⁵
- (xiv) "The requirements of inspection and treatment for apple leafcurling midge, including:
- the option of inspection of each lot on the basis of a 3000 unit sample selected at random across the whole lot for apple leafcurling midge, symptoms of quarantineable diseases, quarantineable pests, arthropods, trash and weed seeds, with detection of any live quarantineable arthropod resulting in appropriate treatment or rejection for export;

³⁰⁷ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2.

³⁰⁸ *Ibid.*

³⁰⁹ *Ibid.*

³¹⁰ *Ibid.*

³¹¹ *Ibid.*

³¹² *Ibid.*

³¹³ *Ibid.*

³¹⁴ *Ibid.*

³¹⁵ *Ibid.*

the option of inspection of each lot on the basis of a 600 unit sample selected at random across the whole lot for symptoms of quarantineable diseases, trash and weed seeds, plus mandatory appropriate treatment of all lots."³¹⁶

(d) Measures 15-17, addressed in the last three bullet points of New Zealand's panel request, were described by New Zealand as "general"³¹⁷ measures:

- (xv) "The requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment."³¹⁸
- (xvi) "The requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices."³¹⁹
- (xvii) "The requirement that packing houses provide details of the layout of premises."³²⁰

2.92 In its first written submission, New Zealand explains that Measures 15-17, i.e. the "general" measures are "applicable to all three pests (fire blight, European canker and apple leafcurling midge)."³²¹ Australia agrees, and notes that "these [general] requirements are also relevant to the other pests examined in the Final IRA Report which [however] are not at issue in this dispute."³²²

2.93 In their responses to the Panel's questions after the first substantive meeting, the Parties confirm that they consider that each of Measures 15, 16 and 17 as a whole relates to all three pests at issue.³²³ At the same time, the Parties adopt a more nuanced approach as regards how the various elements of Measure 15 relate to those three pests. New Zealand argues that some of the elements of Measure 15 relate to only some and not all of the three pests:

"Australia indicated that [M]easure 15 is ancillary to the inspections for fire blight and European canker, and the orchard inspection component of the measure only relates to those two diseases. New Zealand understands that 'direct verification of packing house procedures' primarily relates to chlorine dipping and disinfection of machinery as part of the fire blight management system but, as fruit inspection is also carried out in the packing house, 'direct verification of packing house procedures' may also therefore apply to all three pests. New Zealand understands that 'fruit inspection' applies to all three pests and to any other quarantine pest that may be present (see measure 14). New Zealand assumes that 'treatment' refers only to any fumigation that may be necessary for ALCM as a result of detecting ALCM during the 3000 fruit inspection or routinely after the 600 fruit inspection. However,

³¹⁶ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2.

³¹⁷ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

³¹⁸ *Ibid.*

³¹⁹ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2.

³²⁰ *Ibid.*

³²¹ New Zealand's first written submission, para. 3.82.

³²² Australia's reply to Panel question 45 after the first substantive meeting.

³²³ New Zealand's reply to Panel question 44 after the first substantive meeting and Australia's reply to Panel question 45 after the first substantive meeting.

chlorine dipping is also a 'treatment' and New Zealand notes the ambiguity around the use of the term in this instance."³²⁴

2.94 Likewise, Australia responds to the Panel that the various elements of Measure 15 are not necessarily related to all three pests at issue, although Australia establishes slightly different linkages between the various elements of Measure 15 and the pests at issue:

"[Measure 15] is ... aimed at verifying and operationalising the principal risk reduction measures set out in the Final IRA Report. In particular, the AQIS audits of orchard inspections and packing house procedures serve to verify that the principal orchard inspection and disinfection measures for fire blight and European canker are appropriately fulfilled. Verification of fruit inspection processes is aimed at ensuring the appropriate level of efficacy is achieved for the principal fruit inspection requirements for ALCM, as well as the more general fruit inspection requirements."³²⁵

2.95 Although the Parties might have different views on the exact relationship of some of the elements of Measure 15 to some of the three pests at issue, the Panel does not consider it necessary to elaborate on this matter. The Parties agree that, through its various elements, Measure 15 has a linkage to all three pests, and that – similar to Measures 16 and 17 – Measure 15 as a whole relates to all three pests at issue.

3. The Parties' agreement on Measure 12

2.96 As explained above³²⁶, on 19 December 2008 the Parties advised the Panel that "they have reached agreement on the requirement listed as the twelfth bullet point in New Zealand's panel request"³²⁷, i.e. Measure 12. Further to the Parties' request³²⁸, the Panel records this agreement as follows:

"The Panel noted Australia's submission that it does not impose '[t]he requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker' referred to in the twelfth bullet point of New Zealand's panel request. The Panel also noted New Zealand's advice that, based on Australia's confirmation that it does not impose such a requirement, it will not pursue its claim in relation to the twelfth bullet point of its panel request. In view of this, the Panel concluded that there was no need for it to rule on this aspect of New Zealand's claim."³²⁹

4. The remaining 16 specific measures at issue spelt out in the IRA

2.97 The Parties agree that the remaining 16 specific measures at issue, namely Measures 1-11 and 13-17, are spelt out in the IRA. In its first written submission, New Zealand links each of the measures to a specific part of the IRA.³³⁰ In turn, Australia refers to "the reasonable measures

³²⁴ New Zealand's reply to Panel question 44 after the first substantive meeting.

³²⁵ Australia's reply to Panel question 45 after the first substantive meeting. See also, Australia's replies to Panel questions after the first substantive meeting, Annex A.

³²⁶ See para. 1.20 above.

³²⁷ Joint Communication from New Zealand and Australia to the Panel, 19 December 2008.

³²⁸ *Ibid.*

³²⁹ *Ibid.*

³³⁰ New Zealand's first written submission, para. 3.83.

recommended in the Final IRA Report"³³¹, and argues that "[t]he Final IRA Report provides the basis for Australia's measures".³³² Likewise, the Panel's preliminary ruling refers to "the items contained in Australia's *Final import risk analysis report for apples from New Zealand (FIRA)* and identified by bullet points in New Zealand's request".³³³

2.98 In addition to the IRA, New Zealand's panel request mentions another instrument, the Biosecurity Australia Policy Memorandum 2007/07 of 27 March 2007. This Biosecurity memorandum determines that the "[i]mportation of apples [from New Zealand] can be permitted subject to the *Quarantine Act 1908*, and the application of phytosanitary measures as specified in the *Final import risk analysis report for apples from New Zealand*, November 2006."³³⁴

2.99 Further, New Zealand argues that:

"According to the IRA the measures [at issue] are to be implemented in practice through a Work Plan and 'Standard Operating Procedures'. Under the IRA these instruments are required to be developed by New Zealand and approved by Australia before trade can take place."³³⁵

2.100 Indeed, at the parts referenced by New Zealand, the IRA provides:

"It is a requirement that MAFNZ or the registered agency prepare a documented standard operating procedure (SOP) or manual that describes the phytosanitary procedures for each of the pests of quarantine concern for Australia and the various responsibilities of all parties involved in meeting this requirement. The operating procedure must be approved by AQIS before exports commence and will be subject to audit by AQIS.

A draft work plan will be developed between DAFF and MAFNZ following the finalisation of this IRA.

The work plan procedures may include, but are not limited to operational details on:

- inspection and sampling methodology
- pre-clearance arrangements
- maintenance and supply of records
- storage segregation and identification of lots, and
- dealing with rejected lots.
- details on standard commercial practice."³³⁶

2.101 In response to a question by the Panel following the first substantive meeting, in September 2008 both Parties confirm that they have not been able to agree on the SOP and the

³³¹ Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 16.

³³² Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, p. 3.

³³³ *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 13(a).

³³⁴ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1. See also, New Zealand's first written submission, para. 3.81.

³³⁵ New Zealand's first written submission, para. 3.81 (footnote omitted). See also Australia's reply to Panel question 1 after the first substantive meeting.

³³⁶ Australia's IRA, Part B, pp. 313-314.

work plan.³³⁷ The Panel has not received any indication of such an agreement having been concluded since then.

2.102 In any event, the Parties agree that it is the IRA, not the SOP or the work plan, that spells out the measures at issue in this dispute. The reference in New Zealand's panel request to Biosecurity Australia Policy Memorandum 2007/07 of 27 March 2007 explicitly refers to "measures ... specified in the *Final import risk analysis report for apples from New Zealand*, November 2006."³³⁸ As regards the SOP and the work plan, New Zealand explains that one of the reasons for it not being able to agree on the SOP and the work plan was that "in the course of [its] discussions [with Australia] concerning the SOP and the work plan it became clear that this process would not result in any significant departure from or amelioration of the requirements of the IRA."³³⁹ New Zealand adds that "[g]iven that the measures at issue in this dispute ... mirror those set out in the IRA, and that the SOP and work plan must conform with the IRA ... the IRA sets out the exact conditions of New Zealand apple exports to Australia."³⁴⁰ Australia notes "that the SOP and work plan do not form part of the New Zealand's panel request and are therefore outside the Panel's terms of reference."³⁴¹

5. Disagreements on some of the 16 specific measures at issue

2.103 While the Parties agree that the 16 remaining specific measures at issue are spelt out in the IRA, they disagree on the actual nature of some of those 16 measures. From the outset of this dispute Australia argues that "New Zealand's description of [Measures 1, 4, 11 and 15] ... is flawed"³⁴², which New Zealand has contested throughout the proceedings. The Panel turns to these contested measures in the order of the numbers assigned to them.

(a) Measure 1

2.104 As noted above, New Zealand's panel request identifies Measure 1 as "[t]he requirement that apples be sourced from areas free from fire blight disease symptoms."³⁴³ In its first written submission, New Zealand references page 106 of Part B of the IRA in regard to this measure.³⁴⁴ This page of the IRA contains a part entitled "Areas free from disease symptoms", and provides *inter alia*:

"Areas free from disease symptoms, as distinct from pest free areas, could be established and maintained following the guidelines described in ISPM No. 4: *Requirements for the establishment of pest free areas* (FAO, 1996b), ISPM No. 10: *Requirements for the establishment of pest free places of production and pest free production sites* (FAO, 1999) and ISPM No. 22: *Requirements for the establishment of areas of low pest prevalence* (FAO, 2005). An area free from disease symptoms could be a place of production (an orchard managed as a single unit) or a production

³³⁷ Australia's reply to Panel questions 27-31 after the first substantive meeting, and New Zealand's reply to Panel questions 27-32 after the first substantive meeting.

³³⁸ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1. See also, New Zealand's first written submission, para. 3.81.

³³⁹ New Zealand's reply to Panel question 31 after the first substantive meeting.

³⁴⁰ New Zealand's reply to Panel question 29 after the first substantive meeting.

³⁴¹ Australia's reply to Panel question 27 after the first substantive meeting.

³⁴² Australia's first written submission, p. 67.

³⁴³ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1.

³⁴⁴ New Zealand's first written submission, para. 3.83, footnote 78. New Zealand's reply to Panel question 35 after the first substantive meeting.

site (a designated block within an orchard), for which freedom from fire blight symptoms is established, maintained and verified by MAFNZ.

The literature on infestation and infection of fruit with *E. amylovora* has been reviewed extensively in the section on Imp2 above. Endophytic infection of fruit has been recorded in immature fruit sourced from infected orchards (van der Zwet et al., 1990), but it has not been recorded in orchards free from symptoms of fire blight in New Zealand. Endophytic populations of *E. amylovora* were not recovered from mature fruit at harvest (Dueck, 1974a; Roberts et al., 1989; Roberts, 2002). On the basis of the work reviewed in Imp2 the IRA team concluded that endophytic infection was not a risk factor for fruit sourced from orchards free from symptoms.

In assessing the risk of calyx and surface infestation the IRA team took note of the literature on infestation rates for apples sourced from orchards with few or no symptoms. For example, studies conducted in New Zealand by Clark et al. (1993), using a specific DNA hybridisation method with a detection level of about 10^2 cfu per calyx, 60,000 immature apple fruit were tested from orchards free of fire blight symptoms, but *E. amylovora* was not detected. Such fruit, when mature would not have bacteria present in the calyces but may carry *E. amylovora* on the surface if the disease has been active in the orchard near to harvest time. There are many other studies that show that infestation of fruit is undetectable or the number of fruit infested is very small when fruit is sourced from orchards with few or no visible symptoms of fire blight (see Imp2 above). The IRA team concluded that 'freedom from visible symptoms' provided a firm basis for risk reduction by substantially reducing the likelihood that picked fruit is infected or infested."³⁴⁵

2.105 The IRA continues on the same page by turning to Measure 2:³⁴⁶

"The IRA team acknowledged that it would be extremely difficult to confirm absolute freedom from symptoms using visual inspection of orchards. The IRA team concluded that a practical inspection regime should be specified as free from visual symptoms at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees. This inspection should take place between 4 to 7 weeks after flowering when conditions for fire blight disease development are likely to be optimal."³⁴⁷

2.106 The subsequent page of the IRA addresses the resulting risk reduction, in particular in the context of importation steps 2, 3a and 5³⁴⁸, and finds that the resulting "restricted annual likelihood of entry, establishment and spread [would] remain ... at 'very low' range".³⁴⁹ The IRA explains that "[w]hen these values are combined with the estimate of consequences of 'high' for fire blight, the restricted risk for this pest [would] ... be 'low', which [would] still exceed ... Australia's ALOP."³⁵⁰

³⁴⁵ Australia's IRA, Part B, p. 106.

³⁴⁶ In its panel request, New Zealand describes Measure 2 as "[t]he requirement that orchards/blocks be inspected for fire blight disease symptoms, including that they be inspected at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees, and that such inspections take place between 4 to 7 weeks after flowering." *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1.

³⁴⁷ Australia's IRA, Part B, p. 106.

³⁴⁸ Australia's IRA, Part B, p. 107.

³⁴⁹ *Ibid.*

³⁵⁰ *Ibid.*

The IRA concludes that "[t]he use of areas free from visible fire blight symptoms for sourcing export apples would not be a sufficient risk management measure by itself."³⁵¹

2.107 In its first written submission, Australia argues that "New Zealand has mischaracterized" Measure 1.³⁵² Australia notes that New Zealand's first written submission refers to Measure 1 also as a requirement of "area freedom".³⁵³ However, Australia argues, the concept of "'area freedom' is analogous to the pest free area concept in ISPM No. 4 – that is, 'an area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained'."^{354,355} Australia points out that "the Final IRA Report notes"³⁵⁶ [that] the concept of an 'area free of disease symptoms', is [also] distinct from 'pest free areas' and the similar 'pest free places of production' (ISPM No. 10).³⁵⁷ Australia adds that "ISPM No. 10 is a sub-category of ISPM No. 4."³⁵⁸

2.108 Australia argues further that "[its] precise requirement is that New Zealand apples be sourced from areas free from visible symptoms of fire blight during the period between 4 to 7 weeks after flowering."³⁵⁹ Australia adds that "[it] is prepared to tolerate the existence of *E. amylovora* in the areas from which New Zealand apples are sourced up to the period where the disease symptoms are visible in the period between 4 to 7 weeks after flowering."³⁶⁰ Australia contends that "[t]his requirement reflects the concept of 'low pest prevalence'³⁶¹, spelt out in ISPM No. 22 as follows:

"The establishment of an area of low pest prevalence (ALPP) is a pest management option used to maintain or reduce a pest population below a specified level in an area. An ALPP may be used to facilitate exports or to limit pest impact in the area."^{362,363}

Australia requests the Panel to "bear in mind the distinction between an orchard that is 'free' of the bacteria, *E. amylovora*, and an orchard that is merely 'free' of fire blight symptoms."³⁶⁴

2.109 In response to a question by the Panel following the first substantive meeting, New Zealand contends that "[it] has correctly characterised the relevant measure at issue (Measure 1) in its Panel request as the requirement that apples be sourced from areas free from fire blight disease symptoms."³⁶⁵ New Zealand also confirms that "[b]y 'area freedom', [it] refers [also] to Measure 1"³⁶⁶, and stated that Measure 1, "which requires that apples be sourced from areas free from fire blight disease symptoms"³⁶⁷, "does not equate to freedom from the pathogen, *E. amylovora*."³⁶⁸ At the same time, New Zealand points out that "there is no reference in the IRA to 'tolerance' of the

³⁵¹ Australia's IRA, Part B, p. 107.

³⁵² Australia's first written submission, p. 69.

³⁵³ Australia's first written submission, para. 157, footnote 140, referencing New Zealand's first written submission, paras. 4.33 and 4.39.

³⁵⁴ (footnote original) ISPM No. 4, p. 37.

³⁵⁵ Australia's first written submission, para. 157.

³⁵⁶ (footnote original) Final IRA Report, Part B, p. 106.

³⁵⁷ Australia's first written submission, para. 157.

³⁵⁸ Australia's reply to Panel question 36 after the first substantive meeting.

³⁵⁹ Australia's first written submission, para. 158.

³⁶⁰ Australia's first written submission, para. 159.

³⁶¹ Australia's first written submission, para. 158.

³⁶² (footnote original) ISPM No. 22, p. 265.

³⁶³ Australia's first written submission, para. 158.

³⁶⁴ Australia's first written submission, para. 159.

³⁶⁵ New Zealand's reply to Panel question 33 after the first substantive meeting.

³⁶⁶ New Zealand's reply to Panel question 34 after the first substantive meeting.

³⁶⁷ *Ibid.*

³⁶⁸ *Ibid.*

presence of *E. amylovora* and [it] rejects Australia's *post facto* attempt in its First Written Submission to link Measures 1 and 2 to the concept of low pest prevalence."³⁶⁹

2.110 In its response to a question from the Panel, New Zealand also argues that the requirement for "areas free from disease symptoms under Measure 1 (fire blight) is similar to the requirement for "pest free place of production" under Measure 9 (European canker).³⁷⁰ The reason for this, according to New Zealand, is that:

"Both [Measures 1 and 9] require visual inspections for symptoms of the disease and result in exclusion of an orchard in the event of the detection of any symptoms. The inspection requirement reflects the fact that a detection of disease symptoms is the logical and practical way to detect the presence of the disease."³⁷¹

2.111 New Zealand adds that Measures 1 and 9 "should be distinguished from the term 'pest free area', as defined in IPSM No 4" because "[a]pplication of a measure requiring that product be sourced from a 'pest free area' would require systems to be put in place by MAFNZ to establish, maintain and verify that the pathogens *E. amylovora* or *N. galligena* did not occur in that area."³⁷²

2.112 Conversely, in its response to a question from the Panel following the first substantive meeting, Australia distinguishes Measures 1 and 9, arguing that its "measures for fire blight are based on ISPM No. 22 and its measures for European canker are based on ISPM No. 10."³⁷³ Australia adds that while "[i]n respect of fire blight, [it] requires an 'area of low pest prevalence' ... [(and] New Zealand occasionally uses the term 'area freedom' to refer to this requirement)"³⁷⁴, "[i]n respect of European canker, [it] requires 'pest free places of production'.³⁷⁵ Australia reiterates its earlier distinction between pest freedom and symptom freedom:

"The concepts of 'pest free areas' and 'pest free places of production' both relate to freedom of a particular geographic location from a pest in its entirety. By contrast, an 'area of low pest prevalence' assumes that a certain level of the pest may be present in the geographic area – but that it exists at a specified level. In the case of Australia's fire blight measure, the area of low pest prevalence is determined by the absence of any symptoms detected during visual inspection."³⁷⁶

2.113 The Panel does not consider it necessary to establish which ISPM Measure 1 might correspond to or should be distinguished from. Nor is it necessary for the Panel to assess whether the Parties have been using the term "area freedom" correctly when describing Measure 1 in their submissions, or whether, as New Zealand argues, Measures 1 and 9 are similar.

2.114 The issue before the Panel is whether the essence of Measure 1 is a requirement for freedom from *E. amylovora*, or freedom from the symptoms of fire blight, and whether New Zealand describes this correctly in its panel request.

³⁶⁹ New Zealand's reply to Panel question 33 after the first substantive meeting.

³⁷⁰ New Zealand's reply to Panel question 35 after the first substantive meeting. In its panel request, New Zealand describes Measure 9 as "[t]he requirement that apples be sourced from export orchards/blocks free of European canker (pest free places of production)." *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), attached as Annex A-1 to this report, 7 December 2007, p. 2.

³⁷¹ New Zealand's reply to Panel question 35 after the first substantive meeting.

³⁷² *Ibid.*

³⁷³ Australia's reply to Panel question 36 after the first substantive meeting (footnotes omitted).

³⁷⁴ *Ibid.* (footnotes omitted).

³⁷⁵ *Ibid.* (footnotes omitted).

³⁷⁶ *Ibid.* (footnotes omitted).

2.115 As to the first aspect of this issue, there can be no doubt that the IRA requires freedom from symptoms, not freedom from *E. amylovora*. In fact, at the part referenced by New Zealand, the IRA describes Measure 1 as a requirement for "areas/an area free from disease symptoms"³⁷⁷, and defines such an area as "a place of production (an orchard managed as a single unit) or a production site (a designated block within an orchard), for which freedom from fire blight symptoms is established, maintained and verified by MAFNZ."³⁷⁸ Other references in the IRA to the same requirement are also explicit about symptom freedom.³⁷⁹ The IRA's description of Measure 2, immediately following the description of Measure 1, also makes clear that the inspection requirement related to Measure 1 involves an inspection for symptom freedom, not pest freedom.³⁸⁰

2.116 The Panel notes that the IRA distinguishes symptoms from pests. In the context of the definition of the term "symptomless", the IRA equates symptoms to "any visible indication of disease by reaction of the host, e.g. canker, leaf spot, wilt."³⁸¹ In turn, the IRA defines "pest" as:

"The collective term used for insect pests, plant diseases, viruses, bacteria and fungi that could harm plants. The formal definition used is the one provided in the International Plant Protection Convention (IPPC): any species, strain, or biotype of plant, animal or pathogenic agent injurious to plants of plant products."³⁸²

2.117 The Parties accept that symptom freedom and pest freedom are distinct concepts in the context of fire blight.³⁸³ The experts also confirm the validity and importance of this distinction. The experts explain that pest freedom and symptom freedom are two distinct concepts in the context of fire blight and apple orchards because at specific moments in time fire blight bacteria could be present in an orchard (or on neighbouring hosts) without there being visible symptoms of the fire blight disease.³⁸⁴

2.118 As Australia argues, a corollary of a requirement for symptom freedom, as distinguished from a requirement for pest freedom, is that symptom freedom implies a certain tolerance for the pest in the orchard in question. Dr Paulin explains that, logically, the IRA has to provide for such tolerance in regard to fire blight:

"The IRA indicates that no area can be proved to be without fire blight in apple production zones in New Zealand. If this is correct, the requirements are made on the assumption that there is not any orchard from which apples are exported which is (or has ever been in the 50 last years) without fire blight: therefore the IRA provides a certain level of tolerance."³⁸⁵

³⁷⁷ Australia's IRA, Part B, p. 106.

³⁷⁸ *Ibid.*

³⁷⁹ See Australia's IRA, Part B, pp. 110-116 and 316.

³⁸⁰ Australia's IRA, Part B, p. 106. See also, *ibid.*, p. 316.

³⁸¹ Australia's IRA, Part B, p. 346.

³⁸² Australia's IRA, Part B, p. 340.

³⁸³ See New Zealand's reply to Panel question 34 after the first substantive meeting, Australia's first written submission, para. 157, and Australia's reply to Panel question 36 after the first substantive meeting.

³⁸⁴ Reply of Dr Deckers to Panel question 8, in List of Replies from the scientific experts to questions posed by the Panel, para. 64; Reply of Dr Paulin to Panel question 8, in List of Replies from the scientific experts to questions posed by the Panel, paras. 65-71.

³⁸⁵ Reply of Dr Paulin to Panel question 8 in List of Replies from the scientific experts to questions posed by the Panel, para. 65.

2.119 In fact, in the context of importation step 1, the IRA provides that:

"[F]ire blight caused by *E. amylovora* is widespread in New Zealand and ... the bacterium would be present in all orchards throughout the major production areas. Therefore the IRA team decided to represent Impl [i.e. importation step 1] as 1."³⁸⁶

2.120 Continuing, the IRA makes a clear distinction between symptom freedom and pest freedom, and explains that importation step 1 relates to the latter:

"One stakeholder has indicated that the above value cannot be justified and asserted that orchards selected for the export of fruit to Japan in 1994-95 were free of *E. amylovora*. While these orchards may have been free of symptoms this does not mean that *E. amylovora* was absent. Impl concerns the presence of *E. amylovora* not disease symptoms."³⁸⁷

2.121 Further, before spelling out Measure 1 specifically, the IRA explicitly provides for tolerance of *E. amylovora* in New Zealand orchards:

"Sourcing apples for export from areas established, maintained and verified free from *E. amylovora* ('pest free areas'), in accordance with the guidelines outlined in ISPM No. 4: *Requirements for the establishment of pest free areas* (FAO, 1996b) would reduce the likelihood of several of these steps to 'negligible' and thereby mitigate the risks. However, this option was not considered feasible, given that *E. amylovora* is widely distributed in apple-growing areas of New Zealand and there is no feasible way to verify if bacteria are present in orchards or not.

However, individual apple orchards in New Zealand can be maintained free from fire blight disease symptoms ('areas free from disease symptoms') through the use of various management practices. Such orchards are known to have lower levels of bacteria associated with fruit than orchards where symptoms are evident. Similarly, treatments with chlorine and cold storage of apples have been reported to reduce bacterial numbers. Therefore the following options were evaluated to mitigate the risk of fire blight:

- Source apples for export from individual orchards free from fire blight disease symptoms (areas free from disease symptoms)
- Disinfest apples for export with 100 ppm chlorine for one minute at pH 5–6 (chlorine treatment) or other suitable disinfection treatment.
- Store apples for export at a temperature of 0°–4°C for six weeks (storage)
- Combinations of areas free from disease symptoms, chlorine treatment or storage (systems approach)."³⁸⁸

2.122 New Zealand's description of Measure 1 in its panel request also talks specifically about "free[dom] from fire blight disease symptoms"³⁸⁹, and not freedom from *E. amylovora*.

³⁸⁶ Australia's IRA, Part B, pp. 53-54.

³⁸⁷ Australia's IRA, Part B, p. 55.

³⁸⁸ Australia's IRA, Part B, pp. 105-106 (emphasis added).

³⁸⁹ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1.

2.123 In light of the above, as a factual point, the Panel agrees with Australia that the essence of Measure 1 is a requirement for freedom from fire blight symptoms, not freedom from *E. amylovora*. Hence, the Panel also agrees with New Zealand that "New Zealand has correctly characterised the relevant measure at issue (Measure 1) in its Panel request as the requirement that apples be sourced from areas free from fire blight disease symptoms."³⁹⁰

(b) Measure 4

2.124 In its panel request New Zealand refers to Measure 4 as "[t]he requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of fire blight."³⁹¹ In its first written submission New Zealand links Measure 4 to page 316 of Part B of the IRA³⁹², which provides in relevant part that "[a]ny evidence of pruning or other activities carried out before the inspection *that* could constitute an attempt to remove or hide symptoms of fire blight would result in the suspension of the orchard/block for the season."³⁹³

2.125 Australia argues that "New Zealand has misunderstood the fire blight requirement in respect of pruning".³⁹⁴ Australia points out that the above-cited passage from the IRA contains the word "that", which does not figure at the relevant part of New Zealand's description of Measure 4. Australia contends that "New Zealand's omission of the word 'that' changes the nature of this requirement".³⁹⁵

"Australia's requirement is not that *any* evidence of pruning before the inspection *will* be taken by Australia as an attempt to remove symptoms of fire blight, resulting automatically in suspension of that orchard/block for the season. An orchard/block would only be suspended on evidence of pruning before the inspection *if* AQIS officers believe that the pruning in that instance may have been an attempt to hide symptoms of fire blight."³⁹⁶

According to Australia, Measure 4 is not a "requirement not to prune", as New Zealand argues; "[t]he only requirement is that pruning is not used to hide symptoms of fire blight in orchards."³⁹⁷

2.126 New Zealand agrees that the description of the measure in the IRA includes the word "that", but it disagrees that the inclusion of this word results in any change in the meaning of the measure.³⁹⁸ New Zealand argues that pruning can also have legitimate purposes: it is a good agricultural practice and necessary for good orchard hygiene, as well as being an important method for managing fire blight disease.³⁹⁹ Accordingly, "it is not possible to determine the purpose of pruning by visually inspecting an apple tree":⁴⁰⁰

³⁹⁰ New Zealand's reply to Panel question 33 after the first substantive meeting.

³⁹¹ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1.

³⁹² New Zealand's first written submission, para. 3.83, footnote 81.

³⁹³ Australia's IRA, Part B, p. 316 (emphasis added).

³⁹⁴ Australia's first written submission, p. 70.

³⁹⁵ Australia's first written submission, para. 163 (footnote omitted).

³⁹⁶ *Ibid.* (original emphasis; footnote omitted).

³⁹⁷ Australia's reply to Panel question 39 after the first substantive meeting.

³⁹⁸ New Zealand's reply to Panel question 37 after the first substantive meeting. See also New Zealand's reply to Panel question 38 after the first substantive meeting.

³⁹⁹ New Zealand's first written submission, para. 4.38.

⁴⁰⁰ New Zealand's reply to Panel question 39 after the first substantive meeting.

"[T]he requirement under the IRA amounts to an automatic suspension on discovery of evidence of pruning. This is reinforced by the permissive '*could* constitute an attempt to remove or hide symptoms of fire blight'."⁴⁰¹

2.127 Australia concurs that "it is not possible to determine through visual inspection, *per se*, whether pruning ... has been done 'in an attempt to remove or hide symptoms of fire blight or for orchard management purposes.'"⁴⁰² Australia argues, however, that "it is possible to form a view that an attempt to remove or hide symptoms of fire blight may have been made if pruning has occurred that is not consistent with good orchard practice."⁴⁰³

2.128 New Zealand takes this statement by Australia as a "concession" that "it is not possible to determine through visual inspection whether pruning of an apple tree has been done 'in an attempt to remove or hide symptoms of fire blight' or for orchard management purposes."⁴⁰⁴

2.129 In their responses to the Panel, the experts explain that pruning is a standard procedure in the winter or dormant period. Dr Paulin notes that "winter-pruning is a standard procedure in tree management"⁴⁰⁵, and Dr Deckers refers to "standard pruning measures that are made during dormant season."⁴⁰⁶

2.130 As regards pruning in the growing season, Dr Deckers explains that:

"Pruning out the fire blight infections during growing season is a control measure that is taken in many countries to keep the fire blight situation under control in an orchard. It should not be regarded as a way to hide the fire blight infections because this pruning out of the fire blight infections during season can easily be distinguished from the standard pruning measures that are made during dormant season."⁴⁰⁷

2.131 Dr Deckers concludes that "[s]uspension of the export when recent fire blight pruning in an orchard has been observed seems to be a logic measure in the IRA."⁴⁰⁸

2.132 Dr Paulin provides a more nuanced response as regards pruning during the growing season. Dr Paulin does not state explicitly whether or not it is easy visually to distinguish pruning to hide fire blight symptoms from other pruning. In fact, he refers to Measure 4 as a "ban of pruning".⁴⁰⁹ Nevertheless, Dr Paulin sees some logic to Measure 4, but only "as soon as [the IRA] limits the ban of pruning, for export orchards to the pruning which takes place *after the beginning of the blossom period*."⁴¹⁰ Dr Paulin adds that "the suspension of export is soundly based on the evidence of this *late* pruning"⁴¹¹, implying that "the evidence of this *late* pruning" can be distinguished from other, more

⁴⁰¹ New Zealand's reply to Panel question 38 after the first substantive meeting.

⁴⁰² Australia's reply to Panel question 39 after the first substantive meeting.

⁴⁰³ *Ibid.*

⁴⁰⁴ New Zealand's reply to Panel question 68 after the second substantive meeting. See also New Zealand's comments on Australia's reply to Panel question 68 after the second substantive meeting.

⁴⁰⁵ Reply of Dr Paulin to Panel question 9, in List of Replies from the scientific experts to questions posed by the Panel, para. 75.

⁴⁰⁶ Reply of Dr Deckers to Panel question 9, in List of Replies from the scientific experts to questions posed by the Panel, para. 72.

⁴⁰⁷ *Ibid.*

⁴⁰⁸ *Ibid.*

⁴⁰⁹ Reply of Dr Paulin to Panel question 9, in List of Replies from the scientific experts to questions posed by the Panel, para. 74.

⁴¹⁰ *Ibid.* (original emphasis).

⁴¹¹ Reply of Dr Paulin to Panel question 9, in List of Replies from the scientific experts to questions posed by the Panel, para. 75.

standard types of pruning. Dr Paulin explains the rationale for this in terms of the annual cycle of the development of fire blight and its symptoms in apple orchards:

"[S]ymptoms of fire blight develop in spring and early summer, associated with the presence of blossoms and then actively growing shoots. The main infection period is the blossom period. If an orchard is infected in spring or early summer, the development of symptoms will stop in summer and autumn. If the trees are trimmed for suppression of symptoms, it could well be that the orchard looks symptomless when actually it has shown activity of the disease (and hence production of ooze with bacteria), which could have consequences on fruit infestation. In addition, it remains possible that a renewal of activity of the disease takes place after the inspection, but before cropping."⁴¹²

2.133 Commenting on the experts' responses, New Zealand points out that "Dr Deckers' response is that pruning out infections is a standard practice consistent with good orchard management."⁴¹³ As regards the other points of Dr Deckers's relevant response, New Zealand argues that "Dr Deckers' answer ... does not address the real issue, which is whether it is possible to ascertain from a visual inspection whether pruning of an apple tree has been done 'in an attempt to remove or hide symptoms of fire blight' or whether it has been done for orchard management purposes."⁴¹⁴ In fact, New Zealand considers that "whether 'pruning out of the fire blight infections during [growing] season can easily be distinguished from the standard pruning measures that are made during dormant season' would depend on when the inspection took place."⁴¹⁵ In light of Australia's alleged concession cited above, New Zealand adds that "Australia has [not] adequately articulated how ... [M]easure [4] could be implemented."⁴¹⁶

2.134 Conversely, Australia agrees with Dr Deckers "that pruning out of fire blight infection during the season, particularly before inspection, is distinguishable from standard pruning measures used by growers in the 'dormant' season."⁴¹⁷ Australia adds that "[t]he IRA Team took this into account"⁴¹⁸, and it refers to page 114 of the IRA⁴¹⁹, which provides that "the purpose of the inspection was to ensure that fire blight was not active in the orchard at the early stage of fruit development and therefore reduce the likelihood that *E. amylovora* would be present in the calyces of mature apples."⁴²⁰ The same page of the IRA also explains the origin of Measure 4:

"Removal of infected plant material immediately prior to the inspection was a concern highlighted by some stakeholders. They have suggested that any grower resorting to the practice of pruning off inoculum before the inspection should be not be [sic] allowed to be in the export program. The IRA team agrees that successful removal of all visually infected material before inspection could result in orchard blocks passing inspection when they should have failed. The IRA team doubts that given the labour costs it would be commercially viable to undertake this task but nevertheless has modified the risk management framework to deal with this issue."⁴²¹

⁴¹² Reply of Dr Paulin to Panel question 9, in List of Replies from the scientific experts to questions posed by the Panel, para. 73.

⁴¹³ New Zealand's reply to Panel question 68 after the second substantive meeting.

⁴¹⁴ *Ibid.*

⁴¹⁵ *Ibid.*

⁴¹⁶ *Ibid.*

⁴¹⁷ Australia's reply to Panel question 68 after the second substantive meeting.

⁴¹⁸ *Ibid.*

⁴¹⁹ *Ibid.*, footnote 328.

⁴²⁰ Australia's IRA, Part B, p. 114.

⁴²¹ *Ibid.*

2.135 Australia points out that, in fact:

"[T]he fundamental issue relating to pruning does not concern the *dormant* season. The relevant issue is the capacity to *hide symptoms* of fire blight by pruning symptomatic material out during the early *growth* phase, just prior to orchard inspection."⁴²²

2.136 As regards the measure not being sufficiently specific, Australia explains that the IRA was not intended to set out all the details of the operation of Measure 4:

"[T]he operational details as to how the different types of pruning can be distinguished would form part of the standard operational procedures and work plans to be developed by New Zealand and approved by Australia.

Australia considers that there are several procedures that could deal with this situation. These could include requirements on timing of pruning or that pruned cuttings be left under trees to allow them to be examined at inspection."⁴²³

2.137 Commenting on these arguments by Australia, New Zealand agrees "that the fundamental issue relating to Australia's pruning measure does not concern the *dormant* season."⁴²⁴

2.138 In establishing the nature of Measure 4, and whether New Zealand has misunderstood it, the Panel needs to look at the relevant passage from the IRA, referenced also by New Zealand:

"Any evidence of pruning or other activities carried out before the inspection that could constitute an attempt to remove or hide symptoms of fire blight would result in the suspension of the orchard/block for the season."⁴²⁵

2.139 New Zealand is right that, by merely looking at this language, it is not possible to tell if the word "pruning" is qualified by the term "carried out before the inspection that could constitute an attempt to remove or hide symptoms of fire blight", or whether this latter term only qualifies "other activities". It is even possible, although again impossible to tell with certainty from the mere wording of this passage in the IRA, that the term "carried out before the inspection" relates only to "other activities", and that the term "that could constitute an attempt to remove or hide symptoms of fire blight" qualifies both "pruning" and "other activities carried out before the inspection". The Panel also agrees with New Zealand that the use of the word "could" in "*could* constitute an attempt to remove or hide symptoms of fire blight" increases the latitude of the inspector as well as the scope of Measure 4.

2.140 Nevertheless, the Panel notes that the above passage in the IRA spelling out Measure 4 follows immediately the IRA's description of Measure 1 ("The detection of any visual symptoms of fire blight would result in the suspension of the orchard/block for the season").⁴²⁶ In turn, this description follows immediately the language in the IRA spelling out the inspection requirement under Measure 2:

"Orchards will be inspected at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees. This inspection should

⁴²² Australia's reply to Panel question 68 after the second substantive meeting.

⁴²³ *Ibid.*

⁴²⁴ New Zealand's comments on Australia's reply to Panel question 68 after the second substantive meeting.

⁴²⁵ Australia's IRA, Part B, p. 316 (emphasis added).

⁴²⁶ *Ibid.* (emphasis added).

take place between 4 to 7 weeks after flowering when conditions for development of fire blight disease are likely to be optimal. MAFNZ must provide details of the proposed inspection methodology, including an analysis showing that the methodology will achieve the required efficacy, in advance of commencement of exports. This analysis must address practical issues such as visibility of symptoms in the tops of trees, the inspection time needed and the number of trees to be inspected to meet the efficacy level, and training and certification of inspectors. The proposed system will need to be approved before the commencement of trade.

One stakeholder has claimed that the proposed inspection regime would mean that only 300 trees would be inspected. The IRA team notes that this may well be the case if the inspection efficacy for each tree is 100% but would not be the case if the efficacy was less than this. MAFNZ must provide details of the inspection regime and an analysis of how this regime achieves the required overall efficacy (see above).⁴²⁷

2.141 As the title of the relevant part of the IRA ("Fire blight symptoms"⁴²⁸) indicates, these passages, and hence the measures they spell out, are closely related among themselves through their shared concern for fire blight symptoms. Measure 4 is concerned with hiding fire blight symptoms by the exporter, since that could undermine the inspection under Measure 2 as well as the suspension of orchards where visual symptoms of fire blight are detected during the inspection (Measure 1). As the IRA explains, "successful removal of all visually infected material before inspection could result in orchard blocks passing inspection when they should have failed."⁴²⁹

2.142 Accordingly, the Panel finds it reasonable to conclude, as a factual point, that the word "pruning" in the IRA's passage spelling out Measure 4 is qualified by the term "that could constitute an attempt to remove or hide symptoms of fire blight."⁴³⁰

2.143 Likewise, "pruning" is qualified by the term "carried out before the inspection". Measure 4 is closely related to Measure 2: the IRA explains that the "[r]emoval of infected plant material immediately prior to the inspection was a concern" shared by the IRA Team.⁴³¹

2.144 The IRA explicitly rejects a concern expressed by a shareholder during the development of the assessment in regard to fire blight infections in previous growing seasons (which would be pruned in the winter season immediately preceding the current growing season):

"[T]he purpose of the inspection was to ensure that fire blight was not active in the orchard at the early stage of fruit development and therefore reduce the likelihood that *E. amylovora* would be present in the calyces of mature apples. In this regard the past fire blight history of the orchard is irrelevant as long as the inspection process shows that fire blight is not active in the orchard at the critical time for *E. amylovora* infestation to occur in the calyx."⁴³²

⁴²⁷ Australia's IRA, Part B, p. 316.

⁴²⁸ *Ibid.*

⁴²⁹ Australia's IRA, Part B, p. 114.

⁴³⁰ Australia's IRA, Part B, p. 316 (emphasis added).

⁴³¹ Australia's IRA, Part B, p. 114.

⁴³² *Ibid.*

Thus, the IRA also confirms the irrelevance of any pruning during the dormant season for Measure 4, an issue on which both Parties have agreed.⁴³³

2.145 In line with this purpose of the inspection under Measure 2, the timing of the inspection is also rather well defined by the IRA. On the same page and in the same section as that spelling out Measure 4, the IRA determines the basic elements of Measure 2, in particular its specific timing:

"Orchards will be inspected at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees. This inspection should take place between 4 to 7 weeks after flowering when conditions for development of fire blight disease are likely to be optimal."⁴³⁴

2.146 As Australia argues, the IRA does not specify all elements of Measure 4 and, within the limits set out in its text, the IRA leaves a certain margin of discretion to New Zealand in proposing how to implement Measure 4 in detail:

"MAFNZ must provide details of the proposed inspection methodology, including an analysis showing that the methodology will achieve the required efficacy, in advance of commencement of exports. This analysis must address practical issues such as visibility of symptoms in the tops of trees, the inspection time needed and the number of trees to be inspected to meet the efficacy level, and training and certification of inspectors. The proposed system will need to be approved before the commencement of trade."⁴³⁵

As indicated above, the requirement in the IRA that New Zealand develop an operating manual and work plan encompasses "operational details on ... inspection ... methodology."⁴³⁶

2.147 Although the IRA does not specify every detail of Measure 4, it does set out certain key aspects of Measure 4. Importantly, the IRA makes it clear that it is not concerned with all pruning, or with pruning as such. The IRA does not consider pruning prior to the growing season problematic or relevant. In fact, the IRA took into account the following existing "[o]rchard management"⁴³⁷ practices in New Zealand:

"According to the Integrated Fruit Production Program Manual (MAFNZ, 2005a), standard commercial practice involves a combination of measures recommended for management of fire blight in New Zealand, including:

- pruning out infected shoots and cankers in the winter

...

The orchard management practices listed are aimed at eliminating or reducing the inoculum before the onset of favourable conditions for spread of fire blight. Failure to adhere to a combination of the above measures could result in increased incidence and severity of fire blight which could affect fruit quality and cause yield reductions.

⁴³³ See paras. 2.135 and 2.137 above. Australia's reply to Panel question 68 after the second substantive meeting; New Zealand's comments on Australia's reply to Panel question 68 after the second substantive meeting.

⁴³⁴ Australia's IRA, Part B, p. 316.

⁴³⁵ *Ibid.*

⁴³⁶ Australia's IRA, Part B, p. 314.

⁴³⁷ Australia's IRA, Part B, p. 54.

Therefore these procedures are likely to be undertaken by export orchards for commercial reasons."⁴³⁸

2.148 Also, the IRA explains in general terms in the context of the "[c]ontrol"⁴³⁹ of fire blight, "[r]outinely most orchardists remove as much infected limbs as possible during the dormant season with the aim of reducing the primary inoculum and also to maintain a high proportion of fruiting wood and to control the tree size and shape."⁴⁴⁰

2.149 As regards pruning during the growing season, a careful reading of the IRA sheds light on the IRA's underlying key concern with the "successful removal of all visually infected material before inspection could result in orchard blocks passing inspection when they should have failed"⁴⁴¹, and the ensuing focus of the IRA on pruning in the specific period of "the early stage of fruit development"⁴⁴², prior to the inspection "tak[ing] place between 4 to 7 weeks after flowering."⁴⁴³

2.150 The IRA notes New Zealand's following pruning practice in the growing season under the above-mentioned Integrated Fruit Production Program Manual of MAFNZ:

"[F]requently inspecting the orchard; especially from blossoming to mid-summer for signs of infected blooms or shoots, pruning and burning any infected material upon detection (Note that removal of infected material before the proposed inspection for fire blight will not be permitted in registered export orchards – see later section on risk management and operational framework)."⁴⁴⁴

2.151 As regards visual inspection, the experts confirm the viability of distinguishing, through visual inspection, "pruning ... that ... could constitute an attempt to remove or hide symptoms of fire blight" from standard pruning in the dormant season. As to the viability of making a similar distinction in the context of pruning during the growing season through visual inspection taking place between 4 to 7 weeks after flowering, the Panel considers that this is not directly an issue for establishing the exact nature of the measure under review in this dispute as Measure 4. That issue is more closely related to Measure 2, New Zealand's description of which Australia has not been contesting. In the context of Measure 4, the issue of the viability of visual inspection is more related to whether Measure 4 itself is viable and can be objectively justified. Accordingly, the Panel will address it in the findings section of this report, if necessary. At this point, the Panel notes only that the feasibility of distinguishing, through visible inspection, pruning that could constitute an attempt to hide symptoms of fire blight would in part depend on the actual inspection modalities to be agreed upon by the Parties as part of the operating manual and work plan.

(c) Measure 11

2.152 In its panel request, New Zealand refers to Measure 11 as "[t]he requirement that all new planting stock be intensively examined and treated for European canker."⁴⁴⁵ In its first written submission, New Zealand links Measure 11 to page 154 of Part B of the IRA.⁴⁴⁶

⁴³⁸ Australia's IRA, Part B, p. 54.

⁴³⁹ Australia's IRA, Part C, p. 119.

⁴⁴⁰ *Ibid.*

⁴⁴¹ Australia's IRA, Part B, p. 114.

⁴⁴² *Ibid.*

⁴⁴³ Australia's IRA, Part B, p. 316.

⁴⁴⁴ Australia's IRA, Part B, p. 54.

⁴⁴⁵ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2.

⁴⁴⁶ New Zealand's first written submission, para. 3.83, footnote 88.

2.153 Australia refers to the following passage on the same page of the IRA, arguing that it shows that "New Zealand has mischaracterised the European canker requirement in respect of planting stock".⁴⁴⁷

"All new planting stock must be intensively examined, and appropriate cultural practices and fungicide sprays used to minimise the likelihood of canker infections."⁴⁴⁸

2.154 Following the first substantive meeting, the Panel asked "Australia [to] explain how 'intensively examined and treated for European canker', as described in New Zealand's panel request, differs from 'intensively examined, and appropriate cultural practices and fungicide sprays used to minimise the likelihood of canker infections' as apparently described in Australia's IRA at page 154, Part B."⁴⁴⁹ In response, Australia explains that,

"[T]here may be no substantive difference between New Zealand's and Australia's respective understandings of this requirement. However, Australia considers it important for the Panel to examine and make findings in respect of the precise measure that Australia actually imposes as set out in the relevant section of the Final IRA Report. This is the reason for Australia's clarification.

New Zealand's version of the measure refers generically to the 'treatment for European canker' of planting stock. More precisely, what Australia requires is 'appropriate cultural practices and fungicide sprays used to minimise the likelihood of canker infections'. For example, 'appropriate treatment' may mean no treatment at all such as where nursery stock has been sourced from areas that can be verified as free from European canker."⁴⁵⁰

2.155 The Panel notes that Australia acknowledges "that there may be no substantive difference between New Zealand's and Australia's respective understandings of this requirement"⁴⁵¹, and that Australia requests the Panel "to examine and make findings in respect of the precise measure that Australia actually imposes as set out in the relevant section of the Final IRA Report."⁴⁵²

2.156 If there is any difference between the Parties concerning Measure 11, it relates to whether all new planting stock would need to be treated for European canker or whether some planting stock, verified to originate from areas free from European canker, would not be required to be treated at all.

2.157 The relevant section of the IRA report setting out Measure 11 applies unconditionally to "[a]ll new planting stock"⁴⁵³, and is not limited to planting stock sourced from areas not verified as free from European canker. It requires "*appropriate* cultural practices and fungicide sprays"⁴⁵⁴, without however specifying that in certain cases "appropriate cultural practices and fungicide sprays"⁴⁵⁵ could involve no cultural practice or fungicide sprays at all. Also, the requirement for "appropriate cultural practices and fungicide sprays"⁴⁵⁶ serves "to minimise the *likelihood* of canker

⁴⁴⁷ Australia's first written submission, p. 80.

⁴⁴⁸ Australia's first written submission, para. 165, referring to IRA, Part B, p. 154.

⁴⁴⁹ Panel question 41 after the first substantive meeting.

⁴⁵⁰ Australia's reply to Panel question 41 after the first substantive meeting.

⁴⁵¹ *Ibid.*

⁴⁵² *Ibid.*

⁴⁵³ Australia's IRA, Part B, p. 154.

⁴⁵⁴ *Ibid.* (emphasis added).

⁴⁵⁵ *Ibid.*

⁴⁵⁶ *Ibid.*

infections"⁴⁵⁷, not to minimise verified canker infections proper. All this demonstrates the unconditionality of Measure 11 with regard to the treatment of new planting stock.

2.158 While the IRA spells out Measure 11 in regard to "[a]ll new planting stock"⁴⁵⁸, the immediately preceding sentence in the IRA refers to "[i]nfected nursery stock[, which the IRA considers] presents a pathway for the establishment and spread of European canker into places of production."⁴⁵⁹ The difference between the two neighbouring sentences underscores the unconditionality of Measure 11.

2.159 Further on the same page, the IRA briefly refers to Measure 11 in a similarly unconditional manner as New Zealand's panel request, namely as the "requirement for New Zealand to examine and treat nursery plants."⁴⁶⁰

2.160 In the expert consultation process, the Panel asked the experts the following specific question:

"Based on Australia's IRA, what is your understanding as to what might be the 'appropriate cultural practices and fungicide sprays used to minimise the likelihood of [European] canker infections'? In practice, could this encompass no treatment at all where nursery stock has been sourced from areas verified as free from European canker?"⁴⁶¹

2.161 In response to the first question, the experts specify various usual cultural practices applied to control European canker. In regard to fungicide treatment, they explain that such treatment would also normally take place at the end of the growing season – according to Dr Latorre, in a preventive manner, i.e. before any infection has resulted in symptoms. Dr Latorre states that "cultural practices should be integrated with chemical control using specific fungicides, preventively sprayed (*pre-infection*) in late November or early December to reduce inoculum production and fruit infection."⁴⁶² Dr Swinburne refers to "the application of fungicides at vulnerable periods such as leaf fall or bud burst."⁴⁶³ Also, Dr Deckers explains that one "important period ... for fungicide applications with the aim to reduce NG infections ... is the leaf fall period at the end of the season because the leaf scars form a preferred infection pathway for a NG infection."⁴⁶⁴

2.162 As to the Panel's second question, the experts provide conflicting responses. Dr Deckers answers that "[e]xclud[ing] the treatments completely when the nursery stock has been sourced from areas verified free from European canker can be risky."⁴⁶⁵ Conversely, Dr Swinburne explains that "[a]ppropriate cultural methods specifically for the control of European canker are obviously required only where the pathogen is present."⁴⁶⁶ Dr Latorre states, on the one hand, that "[t]he program would involve no treatment where summer rainfalls are non-existent and where disease trees (cankered trees)

⁴⁵⁷ Australia's IRA, Part B, p. 154 (emphasis added).

⁴⁵⁸ *Ibid.*

⁴⁵⁹ *Ibid.*

⁴⁶⁰ *Ibid.*

⁴⁶¹ Panel question 53 to scientific experts.

⁴⁶² Reply of Dr Latorre to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 339 (emphasis added).

⁴⁶³ Reply of Dr Swinburne to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 341.

⁴⁶⁴ Reply of Dr Deckers to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 337.

⁴⁶⁵ Reply of Dr Deckers to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 338.

⁴⁶⁶ Reply of Dr Swinburne to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 341.

have not been detected."⁴⁶⁷ However, Dr Latorre adds that "treatments should be considered in areas highly prone to disease development."⁴⁶⁸

2.163 The Panel believes that these answers by the experts explain more directly some normal or ideal situation, rather than what is specifically required by the IRA. In fact, none of the experts referred specifically to the IRA on this point. Also, perhaps since the Panel's first question was not specific about new planting stock ("Based on Australia's IRA, what is your understanding as to what might be the 'appropriate cultural practices and fungicide sprays used to minimise the likelihood of [European] canker infections'?"⁴⁶⁹), most of the responses related to the treatment of apple trees in orchards in general. Only the following sentence by Dr Deckers deals specifically with the treatment of new planting stock "[e]xclud[ing] the treatments completely when the nursery stock has been sourced from areas verified free from European canker can be risky."⁴⁷⁰ Accordingly, the Panel accords limited relevance to most of these responses in regard to interpreting how the IRA spells out the treatment requirement under Measure 11 in the context of new planting stock.

2.164 In addition to the treatment requirement, as the first part of Measure 11, the IRA requires in a rather unconditional fashion that "[a]ll new planting stock must be intensively examined".⁴⁷¹ At the same time, the IRA does not explain whether such intensive examination would involve an identification of nursery stock infected with European canker, which seems to be what the IRA is concerned with, or the identification of nursery stock originating in areas verified (or not) for freedom from European canker. Nor does the IRA specify the consequences of such examination or the relationship of the two parts of Measure 11, namely examination and treatment. In practical terms, does examination serve to identify potentially dangerous nursery stock that would be required to be treated, or would all nursery stock need to be treated independently of the outcome of the examination?

2.165 In light of the above, the Panel finds as a factual point, in the context of the treatment requirement under Measure 11, that the IRA allows for the possibility that New Zealand would need to treat all new nursery stock independently of the outcome of the examination under Measure 11. The actual modalities of the treatment in question would need to be agreed upon by the Parties at a later stage⁴⁷², and the Panel cannot exclude that they might be linked to the outcome of the examination.

2.166 The Panel finds further support for this conclusion in the potential latency of nursery stock infection indicated in the IRA:

"There are no restrictions on the movement of planting material between districts in New Zealand and this could present a pathway for introducing new inoculum. A study in the United Kingdom called the 'Millennium trial' (McCracken et al., 2003b) concluded that approximately 6% of canker infection in new orchards could be associated with movement of infected nursery plants, although this figure increased significantly under favourable climatic conditions. *N. galligena* can remain latent in

⁴⁶⁷ Reply of Dr Latorre to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 340.

⁴⁶⁸ *Ibid.*

⁴⁶⁹ Panel question 53 to scientific experts.

⁴⁷⁰ Reply of Dr Deckers to Panel question 53, in List of Replies from the scientific experts to questions posed by the Panel, para. 338.

⁴⁷¹ Australia's IRA, Part B, p. 154.

⁴⁷² Australia's IRA, Part B, pp. 313-314.

infected plants for up to 3 to 4 years, expressing only when climatic conditions are conducive for disease development (McCraken et al., 2003b).⁴⁷³

2.167 The IRA points out also that, in a similar vein, "CABI (2003) reports that trees can be infected in the nursery shortly after, or during, propagation and may not express disease symptoms for up to three or four years (Berrie et al., 2000; Lovelidge, 2003; McCraken et al., 2003a; McCraken et al., 2003b)."⁴⁷⁴

2.168 Such a long period of European canker latency in infected nursery stock would make it necessary to treat all planting stock, not just those showing symptoms of European canker infection. This is underscored by the finding of the Millenium Report referenced in the IRA that "there is no cost effective method for detecting the pathogen in symptomless wood which makes it difficult to get a handle on the size of the problem".⁴⁷⁵

2.169 In fact, according to the IRA, even treatment of nursery stock might not prevent the dissemination of European canker:

"MAFNZ (2003a) states that one of the larger nurseries in the Waikato area routinely applies fortnightly copper sprays to stock plants and dip tools, and applies carbendazim (benzimidazole) and captan to some cuttings. In spite of these measures, the disease is thought to have arrived in Nelson on trees imported from Waikato (Murdoch, 2002). Therefore, there is a continual threat of new pathogen inoculum being introduced into disease-free districts and remaining latent for up to 3 to 4 years."⁴⁷⁶

(d) Measure 15

(i) *The Parties' arguments*

2.170 In its panel request, New Zealand identifies Measure 15 as:

"The requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment."⁴⁷⁷

2.171 In its first written submission, New Zealand links Measure 15 to page 314 of the IRA⁴⁷⁸, within the part entitled "Risk management and operational framework"⁴⁷⁹ and, more specifically, to the section entitled "Requirement for pre-clearance". This section includes language similar to the one contained in New Zealand's panel request:

"It is recommended that, at least for the initial trade, the quarantine measures operate through a standard pre-clearance arrangement with AQIS officers being directly involved. The need for pre-clearance would be reassessed after experience had been gained following significant trade.

⁴⁷³ Australia's IRA, Part B, p. 119. See also IRA, Part B, p. 152, and IRA, Part C, p. 102.

⁴⁷⁴ Australia's IRA, Part B, p. 143.

⁴⁷⁵ Australia's IRA, Part C, p. 102.

⁴⁷⁶ Australia's IRA, Part B, p. 119.

⁴⁷⁷ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

⁴⁷⁸ New Zealand's first written submission, para. 3.83, footnote 92.

⁴⁷⁹ Australia's IRA, part B, p. 313.

Under these arrangements *AQIS officers would be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection.* The involvement of AQIS officers in pre-clearance would also facilitate a rigorous audit of other arrangements including registration procedures, standard commercial practice, traceability, and handling export fruit in a secure manner.

Under the pre-clearance arrangement, on-arrival procedures would provide verification that the consignment received was the pre-cleared consignment and that the integrity of the consignment had been maintained."⁴⁸⁰

2.172 In the context of its claim under Article 5.5 of the SPS Agreement, New Zealand further describes Measure 15 as "[t]he requirement that AQIS be involved in orchard inspections, packing house procedures and fruit inspections."⁴⁸¹ In regard to orchard inspections in particular, New Zealand argues that, "[i]n addition to applying very prescriptive inspection requirements for New Zealand apples, Australia also requires that AQIS officials be involved in *all* such inspections."⁴⁸² In the context of fire blight, New Zealand argues more generally that "a multitude of measures have been applied to New Zealand apples, affecting all stages of the exportation of the fruit from the orchard to the packing house, including the requirement that AQIS be involved in all these steps."⁴⁸³ As for European canker, New Zealand argues that "again multiple measures have been applied to New Zealand apples, including the requirement that 100% of registered orchards be inspected for the disease before normal winter pruning, with AQIS involvement in those inspections."⁴⁸⁴ New Zealand contends that the IRA "require[s] the involvement of AQIS officials in *all* [such] inspections."⁴⁸⁵

2.173 In the context of Article 5.6 of the SPS Agreement, New Zealand refers to Measure 15 as the "requirement ... that AQIS officers be involved in inspection for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment".⁴⁸⁶ New Zealand argues that "[t]here is an alternative, less trade restrictive measure reasonably available[:] ... simple auditing by AQIS officers of New Zealand systems applicable to the import of apples to Australia from New Zealand."⁴⁸⁷ According to New Zealand:

"Auditing of New Zealand systems by AQIS officials would simply require occasional visits under normal circumstances, or targeted visits in the event that non-compliance was to be detected during routine procedures. Audit visits normally assess the range of certification processes associated with the commodity in question from any required field procedures to export inspections, and storage and handling procedures. In the first few years of trade such visits are often annual but frequency tends to reduce to rare or ad hoc as the importing country gains confidence in the exporting country's systems. In past practice between Australia and New Zealand, audit visits have generally been limited to the first year of trade and are ad hoc thereafter. The AQIS 'involvement' proposed under the IRA goes beyond any other inspection regime currently in place for New Zealand exports to Australia."⁴⁸⁸

⁴⁸⁰ Australia's IRA, part B, p. 314 (emphasis added).

⁴⁸¹ New Zealand's first written submission, para. 4.449.

⁴⁸² New Zealand's first written submission, para. 4.447 (original emphasis).

⁴⁸³ New Zealand's first written submission, para. 4.458.

⁴⁸⁴ New Zealand's first written submission, para. 4.459.

⁴⁸⁵ *Ibid.*

⁴⁸⁶ New Zealand's first written submission, para. 4.524.

⁴⁸⁷ New Zealand's first written submission, para. 4.525.

⁴⁸⁸ New Zealand's first written submission, para. 4.527.

2.174 New Zealand also argues that AQIS involvement would double the number of inspectors and more than double the cost of orchard and packing house inspections as New Zealand would have to bear, not only the time costs of the AQIS inspectors involved, but all other expenses as well (such as their international and domestic travel, accommodation and living expenses).⁴⁸⁹

2.175 Australia calls into question New Zealand's understanding of Measure 15, arguing that "New Zealand has misunderstood the nature of AQIS involvement in orchard inspections."⁴⁹⁰ Australia puts forward that Measure 15 "does *not* require the involvement of AQIS officials in all orchard inspections and packing house operations."⁴⁹¹ While "acknowledg[ing] that the level and precise nature of 'AQIS involvement' was not defined in the Final IRA Report"⁴⁹², Australia adds that "AQIS clarified the ... requirements [involved in Measure 15] on a number of occasions during bilateral discussions on the standard operating procedures (SOP) in 2007 and early 2008."⁴⁹³

2.176 Australia also recognizes that the text in New Zealand's panel request describing Measure 15 "is taken from the section entitled 'Requirement for pre-clearance' on page 314 of Part B of the IRA ..."⁴⁹⁴ At the same time, Australia links Measure 15 to the following section entitled "Audit", which starts on the same page of the IRA. The section of the IRA entitled "Audit" states:

"The New Zealand apple production and certification system is subject to audit by AQIS. Audits may be conducted at the discretion of AQIS during the entire production cycle and as a component of any pre-clearance arrangement. AQIS field audits will measure compliance with orchard registration, block identification, pest/disease management/monitoring, records management, and the administration of the area freedom and accreditation requirements.

Audits will be conducted to measure compliance with packing house responsibilities, traceability, labelling, segregation and product security, and MAFNZ/Agency certification processes.

Participants in pre-clearance arrangements will be audited by AQIS during the season to verify that requirements such as the following continue to be met:

- There is an effective approved documented system in operation, including product identification and labelling at each facility to ensure that pre-cleared and non pre-cleared products are kept separate.
- At any time pre-cleared product is moved, the transport systems used maintains the integrity of the pre-cleared product.
- Appropriate records are maintained for all pre-cleared product in storage."⁴⁹⁵

2.177 Australia supports the relevance of the "Audit" section for Measure 15 with the following arguments:

⁴⁸⁹ New Zealand's first written submission, para. 4.535.

⁴⁹⁰ Australia's first written submission, p. 67. See also Australia's closing oral statement at the first substantive meeting of the Panel with the Parties, p. 9.

⁴⁹¹ Australia's first written submission, para. 151. See also Australia's reply to Panel question 49 after the first substantive meeting.

⁴⁹² Australia's first written submission, para. 151.

⁴⁹³ Australia's first written submission, para. 155.

⁴⁹⁴ Australia's reply to Panel question 48 after the first substantive meeting.

⁴⁹⁵ Australia's IRA, Part B, pp. 314-315.

"Pre-clearance' means that the normal *on-arrival* verification requirements are undertaken outside Australia and may include fruit inspection.

Accordingly, the reference to orchard inspections and verification of packing house procedures in [Measure 15] should be taken to be linked to auditing requirements which AQIS officials may *separately* undertake while present in New Zealand to conduct pre-clearance."⁴⁹⁶

2.178 Australia considers that "both [the 'Requirement of pre-clearance arrangement' and the 'Audit'] sections [of the IRA] are relevant to understanding the involvement of AQIS officials in systems audits relating to the export of apples from New Zealand to Australia."⁴⁹⁷ According to Australia, "audits form a component of the pre-clearance arrangement."⁴⁹⁸ Australia argues in particular that:

"The 'Audit' section states clearly that New Zealand's 'apple production and certification system' is to be subject to audit by AQIS. The section provides that '[a]udits may be conducted at the discretion of AQIS during the entire production cycle and as a component of any pre-clearance arrangement'.⁴⁹⁹ The section then goes on to elaborate on the scope of audits. The reference made to pre-clearance arrangements recognises the efficiency and cost-effectiveness of AQIS officials engaged in pre-clearance in New Zealand also conducting audits. To do otherwise would require other AQIS officials to travel to New Zealand to conduct audits at further cost to New Zealand exporters. Wherever possible, significant elements of the auditing requirements would be undertaken by utilising the presence of AQIS officers already involved in pre-clearance.

... Australia explained that 'pre-clearance' means that activities are undertaken outside Australia to meet Australia's usual on-arrival verification requirements, which are separate to auditing requirements. AQIS officials present in New Zealand to conduct pre-clearance will *separately* conduct systems audits."⁵⁰⁰

2.179 Australia adds that:

"In the Final IRA Report, the distinction between 'pre-clearance' and 'audit' is made to indicate that AQIS officers' involvement in orchard inspections for European canker and fire blight, in direct verification of packing house procedures and in fruit inspection is mandatory. Audit of other components of the New Zealand apple production and certification system may be conducted at the discretion of AQIS."⁵⁰¹

2.180 Referencing the "Audit" section of the IRA, Australia describes Measure 15 as requiring systems audits by AQIS:

"Rather, AQIS activities are to be by way of systems audits."⁵⁰² For orchard inspections, the audit would include 100% of survey teams in the field, and the

⁴⁹⁶ Australia's reply to Panel question 48 after the first substantive meeting (original emphasis).

⁴⁹⁷ Australia's reply to Panel question 47 after the first substantive meeting.

⁴⁹⁸ Australia's reply to Panel question 101 after the second substantive meeting.

⁴⁹⁹ (footnote original) Final IRA Report, Part B, p. 314.

⁵⁰⁰ Australia's reply to Panel question 47 after the first substantive meeting.

⁵⁰¹ Australia's reply to Panel question 101 after the first substantive meeting.

⁵⁰² (footnote original) This is explained in the Final IRA Report as follows: "AQIS field audits will measure compliance with orchard registration, block identification, pest/disease management/monitoring,

intensity of audits would be adjusted over time based on performance. For packing houses, all relevant packing houses would be audited in their first year of trade."⁵⁰³

2.181 Australia argues that:

"[A] 100% audit of survey teams' suggests that auditors will apply auditing techniques, 'questioning, listening, observation, documentation', to each and every member of each of the survey teams.⁵⁰⁴ By contrast, the statement that '[t]he audit would include 100% of survey teams' signals Australia's intention to audit each survey team by applying audit techniques, 'questioning, listening, observation, documentation', to sufficient members of each team to satisfy the auditors that *the team* is meeting the requirements outlined in the Final IRA Report.

With audits of packing houses, a '100% audit of packing houses' means that each packing house will be audited by AQIS officers while they are present undertaking fruit inspections for pre-clearance. During the Australian officials visit to New Zealand in June 2007, a New Zealand official expressed a view that, at least initially, there was likely to be one, perhaps two packing houses in each apple production region that specialise in packing apples for Australia. If this view is correct, a maximum of six and a minimum of three packing houses would be subject to an AQIS audit."⁵⁰⁵

2.182 As regards fruit inspections, Australia points out that the exact details of AQIS involvement are to be determined in the SOP and that, depending on how New Zealand intends to operationalize the requirements of the IRA,⁵⁰⁶ options may be available to reduce costs and avoid duplication.⁵⁰⁷

2.183 In response to the Panel's question on the exact nature of Measure 15, Australia reiterates that "it is difficult to be specific until such time as New Zealand has completed Standard Operating Procedures and a Work Plan that describes the phytosanitary procedures for each of the pests of concern and the various responsibilities of all parties involved in meeting this requirement."⁵⁰⁸ Nevertheless, Australia offers the following more detailed explanations:

"AQIS will conduct system audits and verifications in the first year of trade to confirm that the New Zealand system as described in the Standard Operating Procedures and Work Plan is in place and operating effectively.

There are three key periods when audits would be conducted. These would be May/June/July (European canker surveys), October/November (Fireblight surveys), and January/February (packhouse management systems and treatments). AQIS' initial audit will examine compliance with the European canker survey

records management, and the administration of the area freedom and accreditation requirements." (Final IRA Report, Part B, p. 314.)

⁵⁰³ Australia's first written submission, para. 151. See also Australia's reply to Panel question 49 after the first substantive meeting.

⁵⁰⁴ (footnote original) Exhibit AUS-118: AQIS (2007), *New Zealand Summerfruits Export to Western Australia: Audit Plan* (November 2007).

⁵⁰⁵ Australia's reply to Panel question 52 after the first substantive meeting.

⁵⁰⁶ (footnote original) See: Final IRA Report, Part B, p. 313.

⁵⁰⁷ Australia's reply to Panel question 102 after the second substantive meeting. See also Australia's IRA, Part B, p. 313.

⁵⁰⁸ Australia's reply to Panel question 105 after the second substantive meeting. See also Australia's reply to Panel question 106 after the second substantive meeting.

requirements, and also audit NZMAF compliance with all the administrative arrangements, reporting structures, and the responsibilities of the various parties.

Orchard Surveys

European canker surveys are to be conducted after leaf fall (May/June/July) while the trees are dormant.

The audit teams will comprise senior, experienced AQIS inspectors/auditors and technical experts with experience in detecting European canker symptoms. Audit teams will attend a percentage of orchard surveys in all growing districts. AQIS understands that the main areas will be Hawkes Bay (Napier/Hastings) and Nelson. Data supplied by NZMAF in May 2007, indicated 200 potential participating orchards. Of these, 75% of orchards will be located in Hawkes Bay, 20% in Nelson, and 5% Otago/other.

The percentage of surveys attended will be dependent upon the number of survey teams/IVAs/accredited agencies operating in each district. There will be no requirement to observe every survey undertaken by New Zealand. Based on the May 2007 data it is likely that 10% of orchard surveys would be attended by AQIS audit teams, e.g 15 in Hawkes Bay, five in Nelson, two in Otago/other.

The AQIS audit team will verify that survey personnel are trained and accredited to perform the survey task. AQIS will observe survey activities during orchard visits and will directly question (including 'show me') survey personnel about their activities including the process of detecting and identifying disease symptoms on trees. The audit will include reporting arrangements for survey teams including records of surveys and outcomes, identification arrangements for suspect disease material. There will be concurrent verification of orchard registration, block identification, pest/disease management monitoring.

Fire blight surveys must be conducted four to seven week after flowering. AQIS will discuss audit plans with NZMAF to enable AQIS to attend a percentage of surveys in each district. Audit teams will include technical experts with experience in detecting fire blight symptoms. The percentage of surveys attended in each growing district will be dependent upon the number of survey teams/IVAs/accredited agencies operating in each district.

Packing house Verification Audits

An audit of packing house management systems and the mandatory treatment requirements will be conducted prior to issuance of an import permit. Ongoing verification of packing house management systems and treatments will be conducted by AQIS pre-clearance inspectors during their visits for fruit inspections."⁵⁰⁹

2.184 As regards survey teams, Australia adds that:

"[B]ased upon discussions with New Zealand officials in Wellington in June 2007, Australia understands that discrete survey teams will operate in each of the main apple production areas. These teams may be operated by, and trained by, different accredited agencies. Given this, Australia considers it would be necessary, at least in

⁵⁰⁹ Australia's reply to Panel question 105 after the second substantive meeting.

the initial year, to audit each survey team to be confident that they are meeting Australia's requirements.

A 'survey team' is considered by Australia to be a group (or team) operating under the direction of a single entity, such as an accredited agency in an apple production district such as Hawkes Bay. There may be a number of such groups in each district, or only one in each district. If these survey teams split into smaller sub-teams, then AQIS would audit a sample of the teams under each entity in each district."⁵¹⁰

2.185 In response to a question by the Panel, Australia also confirms that "100% of survey *teams* may be audited."⁵¹¹ However, Australia argues that it "does not consider it conceivable that 100% of survey team *members* would be audited."⁵¹²

2.186 Referring to the section of the IRA entitled "Review of import conditions", Australia adds that "its import requirements for apples from New Zealand, including the AQIS audit requirements, are subject to review after the first year of trade."⁵¹³⁵¹⁴ The "Review of import conditions" section of the IRA provides in relevant part that:

"It is recommended that Biosecurity Australia and AQIS in consultation with MAFNZ, will review the import requirements after the first year of trade. Further reviews will occur if circumstances or information warrant such action."⁵¹⁵

2.187 Australia contends that "New Zealand's description of such systems audits"⁵¹⁶ accords with Australia's view of its requirement and accordingly there is no live dispute with respect to this measure."⁵¹⁷

2.188 In response, New Zealand points out that "any type of AQIS involvement in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment for ALCM is without scientific support, and accordingly there is very much a live dispute between the parties."⁵¹⁸ New Zealand adds that:

"AQIS involvement is contrary to Article 2.2 because that involvement is aimed at verifying requirements that are themselves inconsistent with Article 2.2 – for example in this case, orchard inspections for fire blight and European canker, and the requirements on packing houses for fire blight imposed by the IRA. As the underlying measures are inconsistent with the *SPS Agreement*, it follows that any type of AQIS involvement in or supervision of those measures would also be inconsistent with the *SPS Agreement*. No amount of redefining of the measure by Australia can

⁵¹⁰ Australia's reply to Panel question 106 after the first substantive meeting.

⁵¹¹ Australia's reply to Panel question 110 after the second substantive meeting, para. 488.

⁵¹² *Ibid.*

⁵¹³ (*footnote original*) Final IRA Report, p. 325.

⁵¹⁴ Australia's closing oral statement at the first substantive meeting of the Panel with the Parties, para. 34.

⁵¹⁵ Australia's IRA, Part B, p. 325.

⁵¹⁶ (*footnote original*) See: New Zealand's first written submission, para. 4.527.

⁵¹⁷ Australia's first written submission, para. 166. See also Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, 22.

⁵¹⁸ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 27.

change this. Accordingly, there is very much a live dispute with respect to ...
[M]easure [15]."⁵¹⁹

2.189 New Zealand also adds that it "does not agree with Australia's characterisation of 'AQIS involvement' and its attempt to equate this with a systems audit within New Zealand's understanding of the term."⁵²⁰ As regards systems audits, New Zealand states that "[a] systems audit involves an official coming from the country's quarantine agency to New Zealand to audit New Zealand systems, including policies, procedures and actual site visits."⁵²¹ New Zealand argues that "a 100% audit of survey teams and packing houses in the first year by the officials of an importing country does not conform to any notion of a systems audit as understood by New Zealand."⁵²²

2.190 In contrast to Australia, New Zealand considers that the "Audit" section of the IRA is not related to Measure 15:

"The requirement that AQIS officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing houses and in fruit inspection is set out under the heading 'requirement for pre-clearance'. This is separate from the section of the IRA entitled 'audit'. These are two different sections and neither mention 'systems audits'."⁵²³

New Zealand adds that "there was no reference to a 'systems audit' in the IRA"⁵²⁴ at all, and argues that "the AQIS involvement measure appears to be based on an assumption that the usual auditing systems will be insufficient to meet the risk posed by New Zealand apples."⁵²⁵

2.191 New Zealand also contests whether "there has been clarification around the level of AQIS involvement [as] [n]either the draft work plan nor the SOP provides further clarity on the level of involvement of AQIS officers."⁵²⁶ New Zealand points out that "Australia itself conceded in its first written submission 'the level and precise nature of "AQIS involvement" was not well defined in the Final IRA Report."^{527, 528}

2.192 Accordingly, New Zealand confronts the relevant portions of the IRA with Australia's subsequent explanations during these proceedings:

"[W]hereas Australia's first written submission now refers to an audit of '100% of survey teams in the field,'⁵²⁹ the IRA referred to '[AQIS involvement]' in orchard

⁵¹⁹ New Zealand's reply to Panel question 46 after the first substantive meeting. See also, New Zealand's second written submission, p. 13.

⁵²⁰ New Zealand's reply to Panel question 46 after the first substantive meeting. See also, New Zealand's second written submission, para. 2.22.

⁵²¹ New Zealand's first written submission, para. 4.526, footnote 446.

⁵²² New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 27.

⁵²³ New Zealand's reply to Panel question 46 after the first substantive meeting. See also New Zealand's second written submission, para. 2.23.

⁵²⁴ New Zealand's second written submission, para. 2.23.

⁵²⁵ New Zealand's reply to Panel question 109 after the second substantive meeting.

⁵²⁶ New Zealand's reply to Panel question 50 after the first substantive meeting.

⁵²⁷ (*footnote original*) Australia's first written submission, para 151. See also ARPQ, Q 47, p. 36 which stated that "elements [of the measure] required clarification".

⁵²⁸ New Zealand's second written submission, para. 2.23.

⁵²⁹ (*footnote original*) Australia's first written submission, para. 151.

inspections for European canker and fire blight.⁵³⁰ Rather than an audit of 'all relevant packing houses,⁵³¹ the IRA referred to '[AQIS involvement] in direct verification of packing house procedures, and in fruit inspection⁵³² and 'supervision' by AQIS officers of procedures in the packing house, including fumigation treatments.⁵³³ Further, although Australia's first written submission now suggests that with respect to audits of survey teams the level of scrutiny may decline from 100% over time 'based on performance'⁵³⁴, the IRA was entirely silent on this point. New Zealand also notes that there is no explicit clarification in Australia's first written submission in relation to performance-based audits of New Zealand packing houses.^{535,536}

New Zealand adds that "[t]he lack of clarity in the IRA with respect to this requirement is also reflected in the varied views of the experts as to what exactly 'AQIS involvement' might entail."^{537,538}

2.193 New Zealand also disagrees with Australia as regards equating pre-clearance arrangements with standard on-arrival border procedures. New Zealand argues that, in the context of other fruit:

"Current standard pre-clearance arrangements are voluntary on the part of New Zealand fruit export industries, which invite and pay for AQIS officers to come to New Zealand to perform their standard on-arrival border inspections on New Zealand certified product.⁵³⁹ However, the suggestion that the 'standard pre-clearance arrangements' be extended beyond the on-arrival border procedures to, for example, involvement in field inspections for European canker and fire blight, is entirely novel."⁵⁴⁰

2.194 New Zealand argues that:

"None of the explanations suggest less than 100% intensity for the AQIS inspections. ... In New Zealand's view a 'systems audit' has never involved an audit of each survey team, even in the first year. New Zealand also notes that Australia is not prepared to rule out audits of 100% of survey teams in subsequent years."⁵⁴¹

⁵³⁰ (footnote original) IRA, p. 314.

⁵³¹ (footnote original) Australia's first written submission, para. 151.

⁵³² (footnote original) IRA, p. 314.

⁵³³ (footnote original) In respect of ALCM, under "Option 1: Inspection with Treatment", the IRA stipulates at p. 320 that "Under pre-clearance arrangements AQIS would be involved in the *supervision of these procedures*" (emphasis added). "These procedures" includes the requirement that, "where any live quarantinable arthropod is found the lot must be subjected to *an appropriate treatment* (for example, fumigation) or rejected for export." (Emphasis added.)

⁵³⁴ (footnote original) Australia's first written submission, para. 151.

⁵³⁵ (footnote original) Australia's first written submission, para. 151.

⁵³⁶ New Zealand's second written submission, para. 2.23.

⁵³⁷ (footnote original) Experts' RPQ [responses to Panel questions], Qs 4, 5.

⁵³⁸ New Zealand's second written submission, para. 2.24.

⁵³⁹ (footnote original) As required for all exports, the product is inspected by MAF approved inspectors and, if appropriate, issued with a phytosanitary certificate. Following this, the product is inspected by AQIS officials as per their normal post-border procedures (as if it had arrived in Australia).

⁵⁴⁰ New Zealand's reply to Panel question 51 after the first substantive meeting.

⁵⁴¹ New Zealand's comments on Australia's reply to Panel questions 105-106 after the second substantive meeting.

2.195 New Zealand also notes "Australia's ... reluctance in its comments on experts' replies to rule out the possibility that the auditor 'may observe and question *an entire survey team* to satisfy themselves that there was an appropriate level of competence'.^{542,543}

2.196 New Zealand argues that "[a]udits of 100% of survey teams and packing houses in the first year are not systems audits within New Zealand's definition of the term, nor with international practice"⁵⁴⁴, and it makes reference to a document concerning ISPM 20:

"[The] IPPC, 'Explanatory Document 1 on International Standard for Phytosanitary Measures No. 20 (Guidelines for a Phytosanitary Import Regulatory System)', p 8 states:

'Audit and compliance checking by the NPPO of the country of import should thus be considered a verification process, confirming that procedures are appropriate, effective, and being properly applied. This should not necessitate 100% inspection either of individual consignments or of all consignments in a particular trade but rather some form of sampling process. As confidence grows in the procedures related to, for example, a particular trade the intensity of inspection should be reduced.'⁵⁴⁵ New Zealand adds that "ISPM 20 ... support[s] ... its view that an audit requires 'some sort of sampling process' of relevant systems."⁵⁴⁶

2.197 In response to New Zealand, Australia argues that its explanation of its measure concerning "AQIS involvement" was provided in good faith and should thus be accepted.⁵⁴⁷ Australia also comments that it does not believe any of the experts have the knowledge to assist the Panel on this matter.⁵⁴⁸

2.198 As regards ISPM No. 20, Australia argues that its "explanations of the systems audits that will be conducted by AQIS officers cannot be interpreted to amount to 100% inspection of individual consignments or of all consignments, as New Zealand has implied."⁵⁴⁹ Also, Australia quotes ISPM No. 20 and argues that "New Zealand fails to acknowledge that ISPM No. 20 itself specifically recognises that 'audit of procedures in the exporting country' may be required in the context of measures to address phytosanitary risks."^{550,551} Accordingly, Australia considers that its requirement pertaining to "AQIS involvement" falls within the scope of what is envisaged by ISPM No. 20.⁵⁵²

⁵⁴² (footnote original) ACER [Australia's comments on experts' responses], para 283.

⁵⁴³ New Zealand's comments on Australia's reply to Panel question 110 after the second substantive meeting.

⁵⁴⁴ New Zealand's reply to Panel question 52 after the first substantive meeting (footnote omitted). See also New Zealand's reply to Panel question 46 after the first substantive meeting.

⁵⁴⁵ New Zealand's reply to Panel question 52 after the first substantive meeting, footnote 50.

⁵⁴⁶ New Zealand's comments on Australia's reply to Panel questions 105-106 after the second substantive meeting (footnote omitted).

⁵⁴⁷ Australia's second written submission, para. 722. See also Australia's first written submission, paras. 150-151, 962 and 1107; Australia's reply to Panel's questions 47, 48, 49, 50, 51 and 52 after the first substantive meeting; Australia's comments on the experts' replies, paras. 281-286; Australia's second written submission, p. 218.

⁵⁴⁸ Australia's second written submission, para. 722.

⁵⁴⁹ Australia's second written submission, para. 724.

⁵⁵⁰ (footnote original) Exhibit AUS-170: IPPC, *Guidelines for a Phytosanitary Import Regulatory System* (2004), (ISPM No. 20), p. 236.

⁵⁵¹ Australia's second written submission, para. 725.

⁵⁵² *Ibid.*

(ii) *The Panel's analysis*

2.199 At the outset of its analysis, the Panel notes as a factual point that there continues to be an ongoing dispute between the Parties on Measure 15. This is illustrated by the Parties' repeated exchanges of arguments throughout these proceedings on the exact nature of Measure 15. But even if the Parties had been able to agree on the nature of Measure 15, a dispute would remain between them with regard to the justification of that measure. In fact, as New Zealand – the complainant – indicates, there is an ongoing dispute independently of the exact nature of Measure 15:

"Any type of AQIS involvement in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment for ALCM is without scientific support, and accordingly there is very much a live dispute between the parties."⁵⁵³

New Zealand adds that the underlying measures themselves are inconsistent with the SPS Agreement, so any AQIS involvement in, or supervising of, those measures would also be inconsistent with the SPS Agreement and "[n]o amount of redefining of the measure by Australia can change this."⁵⁵⁴

2.200 As regards the nature of Measure 15, the Panel's obvious starting point is New Zealand's panel request, which determines the Panel's terms of reference, including the measures under review. New Zealand's panel request identifies Measure 15 as:

"The requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment."⁵⁵⁵

2.201 New Zealand challenges this measure (and the other measures at issue) as spelt out in the IRA.⁵⁵⁶ In fact, New Zealand makes reference to the section of the IRA entitled "Requirement for pre-clearance"⁵⁵⁷, which contains specific language identical to New Zealand's description of Measure 15, save as regards New Zealand's reference in its panel request to the word "treatment" at the end. In its pre-clearance section, the IRA provides that "under the[] [pre-clearance] arrangements AQIS officers would be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection."⁵⁵⁸

2.202 Australia does not call into question the description of Measure 15, including the reference to "treatment", in New Zealand's panel request. In fact, Australia identifies the above-cited sentence in the pre-clearance section of the IRA as the origin of the relevant language in New Zealand's panel

⁵⁵³ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 27.

⁵⁵⁴ New Zealand's reply to Panel question 46 after the first substantive meeting. See also New Zealand's second written submission, p. 13.

⁵⁵⁵ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

⁵⁵⁶ *Ibid.*, p. 1. See also the Panel's preliminary ruling, made publicly available in *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 13(a).

⁵⁵⁷ New Zealand's first written submission, para. 3.83, footnote 92.

⁵⁵⁸ Australia's IRA, Part B, p. 314.

request.⁵⁵⁹ Also, New Zealand argues that fruit inspection and treatment are specifically relevant for ALCM, as the IRA refers to AQIS involvement in these steps.⁵⁶⁰

2.203 New Zealand adds that:

"In respect of ALCM, under 'Option 1: Inspection with Treatment', the IRA stipulates at p. 320 that 'Under pre-clearance arrangements AQIS would be involved in the *supervision of these procedures*' (emphasis added). 'These procedures' includes the requirement that, 'where any live quarantinable arthropod is found the lot must be subjected to *an appropriate treatment* (for example, fumigation) or rejected for export.' (Emphasis added.)"⁵⁶¹

2.204 In light of the above and New Zealand's right as complainant to identify Measure 15 in its panel request, the Panel finds no reason to exclude AQIS involvement in "treatment" from the scope of Measure 15.

2.205 Australia recognizes that the relevant parts of the IRA might require further clarification.⁵⁶² Of course, the Panel needs to take into consideration all the arguments and evidence submitted by the Parties. Nonetheless, in its analysis of the nature of Measure 15, the starting point for the Panel's analysis remains the IRA. It is the IRA that spells out Measure 15 in detail, and it is the IRA that the Panel needs to review in this dispute.

2.206 The main issues of disagreement between the Parties as regards the nature of Measure 15 is whether it involves audits, whether it amounts to systems audits as identified by the Parties, and whether it entails 100 per cent involvement by AQIS officers. The Panel notes that the above core description of Measure 15 in the pre-clearance section of the IRA, referenced by New Zealand, does not explicitly mention audits or systems audits. It talks in an unqualified manner about the involvement of AQIS inspectors in two types of activities: (i) inspections, namely inspection of orchards for European canker and fire blight, and inspection of fruit; and (ii) "direct" verification of packing house procedures. In regard to the latter, the IRA states that AQIS officers will be involved in the direct verification of packing house procedures, but the IRA does not say that this would necessarily entail AQIS audits.

2.207 The direct involvement of AQIS officers is underscored by the explicit language to that effect in the first sentence of the IRA's pre-clearance section:

"[A]t least for initial trade, the quarantine measures operate through a standard pre-clearance arrangement with AQIS officers being directly involved."⁵⁶³

2.208 These core sentences of the IRA with regard to Measure 15 do not explain whether this direct involvement of AQIS would be 100 per cent or less. Through their unqualified language they do not exclude 100 per cent involvement of AQIS officers at all.

2.209 In the other parts of the IRA's pre-clearance section, only one sentence makes reference to audits:

⁵⁵⁹ Australia's reply to Panel question 48 after the first substantive meeting.

⁵⁶⁰ New Zealand's second written submission, 2.23, referring to Australia's IRA, p. 314. See also New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 27.

⁵⁶¹ New Zealand's second written submission, para. 2.23, footnote 28.

⁵⁶² Australia's first written submission, 150.

⁵⁶³ Australia's IRA, Part B, p. 314.

"The involvement of AQIS officers in pre-clearance would also facilitate a rigorous audit of other arrangements including registration procedures, standard commercial practice, traceability, and handling export fruit in a secure manner."⁵⁶⁴

2.210 Importantly, this sentence refers to the "facilitation"⁵⁶⁵ of audits, without stating that pre-clearance itself would involve audits. Also, it refers to a "rigorous audit", implying that any potential overlap between pre-clearance and audit would not weaken but rather strengthen audit by AQIS. Furthermore, the pre-clearance section of the IRA refers to for the first time pre-clearance as "pre-clearance arrangement"⁵⁶⁶, and introduces the sentence immediately preceding the one relating to audits with the words "[u]nder these arrangements".⁵⁶⁷ Accordingly, the reference to "other arrangements"⁵⁶⁸ in the sentence referring to audit implies that audit would concern measures different from pre-clearance. These points appear to distinguish pre-clearance from audit.

2.211 Turning to the section of the IRA entitled "Audit", invoked by Australia in the context of Measure 15, the Panel notes that this section is separate from the pre-clearance section, although it immediately follows the latter.

2.212 This audit section of the IRA makes various references to pre-clearance. One sentence in that section mentions that "[a]udits may be conducted at the discretion of AQIS during the entire production cycle and as a component of any pre-clearance arrangement."⁵⁶⁹ This would seem to suggest that pre-clearance arrangements *may* include audits as a component, although the IRA does not say that it will be necessarily the case. Further, under the audit section, audit extends to participants in pre-clearance arrangements, although it relates to auditing the integrity of pre-clearance arrangements and participants' compliance with such arrangements:

"Participants in pre-clearance arrangements will be audited by AQIS during the season to verify that requirements such as the following continue to be met:

- There is an effective approved documented system in operation, including product identification and labelling at each facility to ensure that pre-cleared and non pre-cleared products are kept separate.
- At any time pre-cleared product is moved, the transport systems used maintains the integrity of the pre-cleared product.
- Appropriate records are maintained for all pre-cleared product in storage."⁵⁷⁰

2.213 As regards the scope of audit, under the audit section of the IRA, AQIS audit concerns the "apple production and certification system"⁵⁷¹, and it "will be conducted to measure compliance with packing house responsibilities, traceability, labelling, segregation and product security, and MAFNZ/Agency certification processes."⁵⁷² Further, "AQIS field audits will measure compliance with orchard registration, block identification, pest/disease management/monitoring, records management, and the administration of the area freedom and accreditation requirements."⁵⁷³ As

⁵⁶⁴ Australia's IRA, Part B, p. 314.

⁵⁶⁵ *Ibid.*

⁵⁶⁶ *Ibid.*

⁵⁶⁷ *Ibid.*

⁵⁶⁸ *Ibid.*

⁵⁶⁹ *Ibid.*

⁵⁷⁰ Australia's IRA, Part B, pp. 314-315.

⁵⁷¹ Australia's IRA, Part B, p. 314.

⁵⁷² *Ibid.*

⁵⁷³ *Ibid.*

indicated above, pre-clearance arrangements entail direct AQIS involvement in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection.

2.214 The Panel cannot exclude that the scope of audit set out in the "Audit" section of the IRA might have some, partial overlap with the scope of pre-clearance arrangements. However, the IRA does not specifically explain that relationship, nor does it indicate that any such relationship would imply a specific link between audit and pre-clearance.

2.215 In light of the above, the Panel finds as a factual point that Measure 15 is clearly linked to the section of the IRA entitled "Requirement for pre-clearance", as invoked by New Zealand. The Panel notes also that the IRA does not explicitly exclude that at least certain aspects of Measure 15 may be linked to the audit section of the IRA, or involve some audit by AQIS officers; however, any linkages spelt out in the IRA in that regard are not sufficiently clear, explicit or unconditional to establish that Measure 15 would necessarily involve any audit by AQIS officers.

2.216 This is underscored by Australia's arguments that try to link the audit section of the IRA and AQIS audit to Measure 15. In fact, in its response to a question by the Panel, Australia emphasizes that AQIS audit would be undertaken separately:

"[T]he reference to orchard inspections and verification of packing house procedures in [Measure 15] should be taken to be linked to auditing requirements which AQIS officials may *separately* undertake while present in New Zealand to conduct pre-clearance."⁵⁷⁴

2.217 Likewise, in response to another question:

"Australia explained that 'pre-clearance' means that activities are undertaken outside Australia to meet Australia's usual on-arrival verification requirements, which are separate to auditing requirements. AQIS officials present in New Zealand to conduct pre-clearance will *separately* conduct systems audits."⁵⁷⁵

2.218 Further, in trying to link the pre-clearance and audit sections of the IRA to each other and to Measure 15, Australia highlights certain key differences between the nature of the requirements under those two sections:

"In the Final IRA Report, the distinction between 'pre-clearance' and 'audit' is made to indicate that AQIS officers' involvement in orchard inspections for European canker and fire blight, in direct verification of packing house procedures and in fruit inspection is mandatory. Audit of other components of the New Zealand apple production and certification system may be conducted at the discretion of AQIS."⁵⁷⁶

2.219 Another difference between the pre-clearance and audit sections of the IRA flows from the potentially transitory nature of pre-clearance arrangements and the uncertainty regarding the timing and criteria for its eventual phasing out under the IRA.

2.220 As regards the length of time during which the pre-clearance arrangements would apply and the exact criterion for their phasing out, the pre-clearance section of the IRA explains that pre-

⁵⁷⁴ Australia's reply to Panel question 48 after the first substantive meeting (original emphasis).

⁵⁷⁵ Australia's reply to Panel question 47 after the first substantive meeting (original emphasis).

⁵⁷⁶ Australia's reply to Panel question 101 after the second substantive meeting.

clearance arrangements would apply "*at least for initial trade*"⁵⁷⁷, and that "[t]he need for pre-clearance would be reassessed after experience had been gained following significant trade."⁵⁷⁸ Neither "initial trade" nor "significant trade" are defined by the IRA.

2.221 The section of the IRA entitled "Verification of documents and inspection on arrival where pre-clearance is not used" starts by repeating the "initial trade" criterion and refers, in a rather vague manner, to possible changes to pre-clearance arrangements:

"It is recommended that, at least for initial trade, pre-clearance be used (see above). However, it is possible that this requirement may change in the future."⁵⁷⁹

2.222 Further, the section of the IRA entitled "Review of import conditions" provides that:

"It is recommended that Biosecurity Australia and AQIS in consultation with MAFNZ, will review the import requirements after the first year of trade. Further reviews will occur if circumstances or information warrant such action."⁵⁸⁰

2.223 As Australia argues⁵⁸¹, this review at the end of the first year might involve a review or phase-out of pre-clearance arrangements; however, it will not necessarily do so. In fact, the Panel cannot exclude that the pre-clearance arrangements might be phased out directly, and separately from the review of import conditions.

2.224 Under the IRA, Australia's consent is indispensable for phasing out pre-clearance arrangements either directly or in the framework of a review of import conditions. In light of the uncertainty of the exact criteria and timing of the phase-out, the IRA accords wide discretion to Australia for eventually phasing out pre-clearance arrangements. It also appears from the above sections of the IRA that pre-clearance arrangements would be – at least potentially – transitory. This potentially transitory nature of pre-clearance arrangements and the uncertainty regarding the timing and criteria for its eventual phasing out under the IRA constitutes a further difference between the pre-clearance arrangements and the requirements spelt out in the audit section of the IRA.

2.225 The above uncertainties with regard to the IRA in the context of Measure 15 are underscored by the IRA's requirement that the details of pre-clearance be addressed by the Parties in the operating manual and work plan, but which has not yet been adopted. According to the IRA:

"It is a requirement that MAFNZ or the registered agency prepare a documented standard operating procedure (SOP) or manual that describes the phytosanitary procedures for each of the pests of quarantine concern for Australia and the various responsibilities of all parties involved in meeting this requirement. The operating procedure must be approved by AQIS before exports commence and will be subject to audit by AQIS.

A draft work plan will be developed between DAFF and MAFNZ following the finalisation of this IRA.

The work plan procedures may include, but are not limited to operational details on:

⁵⁷⁷ Australia's IRA, Part B, p. 314 (emphasis added). See also Australia's IRA, Part B, p. 325.

⁵⁷⁸ Australia's IRA, Part B, p. 314.

⁵⁷⁹ Australia's IRA, Part B, p. 325.

⁵⁸⁰ *Ibid.*

⁵⁸¹ Australia's closing oral statement at the first substantive meeting of the Panel with the Parties,, para. 34.

- inspection and sampling methodology
- pre-clearance arrangements
- maintenance and supply of records
- storage segregation and identification of lots, and
- dealing with rejected lots. [sic]
- details on standard commercial practice."⁵⁸²

2.226 Although the "operating procedure must be approved by AQIS"⁵⁸³, according to the IRA it needs to be prepared by New Zealand. Likewise, under the IRA the work plan does not depend only on Australia but it needs to be developed jointly by both Parties, including New Zealand. The Panel appreciates Australia's forthcoming offer during the proceedings to specify what Measure 15 might involve in detail in light of earlier discussions between the Parties to prepare the standard operating procedures.⁵⁸⁴ However, to the extent that New Zealand – the complainant – has not accepted those explanations during the proceedings or the Parties have not agreed on the standard operating procedures and work plan, the Panel cannot be certain that the final version of those documents would include the same requirements with regard to Measure 15 as the ones offered in Australia's explanations.⁵⁸⁵

2.227 The pre-clearance section of the IRA does not specify the frequency or intensity of the involvement of AQIS officers in Measure 15. At the same time, it spells out the direct involvement of AQIS officers in unqualified language, and it is silent on any further details of that involvement. This certainly does not exclude a 100 per cent involvement, i.e. that during initial trade AQIS officers would be involved in all orchard inspections for European canker and fire blight, in all direct verification of packing house procedures, and in all fruit inspection. Australia recognizes that this is a possibility under the IRA, at least as regards certain elements of Measure 15, although Australia also argues that this would be exceptional.

2.228 The Panel notes that Part A of the IRA summarizes the conclusions of the IRA in relevant part as follows:

"This final report recommends that the importation of apples to Australia from New Zealand be permitted, subject to the following risk management conditions:

- Mandatory pre-clearance arrangements with Australian Quarantine and Inspection Service officers involved in *all* risk management measures in New Zealand and auditing of the systems and processes used by New Zealand to certify exports."⁵⁸⁶

2.229 As mentioned above, Australia argues that pre-clearance is mandatory whereas the requirements set out in the audit section of the IRA are at the discretion of AQIS.⁵⁸⁷ Accordingly, only the first part of the above bullet point summary in Part A of the IRA could relate to the pre-

⁵⁸² Australia's IRA, Part B, pp. 313-314.

⁵⁸³ Australia's IRA, Part B, p. 313.

⁵⁸⁴ Australia's reply to Panel questions 105 and 106 after the second substantive meeting.

⁵⁸⁵ See for example, New Zealand's comments on Australia's responses to the Panel's questions 105 and 106 after the second substantive meeting, paras. 250-254.

⁵⁸⁶ Australia's IRA, Part A, p. 1 (emphasis added).

⁵⁸⁷ Australia's reply to Panel question 101 after the second substantive meeting, para. 454.

clearance section of the IRA, while the second part of the same bullet point summarizes the requirements set out in the audit section of the IRA.

2.230 The first part of the above bullet point summary in Part A of the IRA indicates that, under the pre-clearance arrangements, AQIS officers would be involved in *all* pre-clearance-related risk management measures in New Zealand. Based on this language in the IRA, Measure 15 seems to entail the involvement of AQIS officers in all orchard inspections for European canker and fire blight, in all direct verification of packing house procedures, and in all fruit inspection and treatment. At the same time, the Panel is aware that the IRA does not provide a full picture on Measure 15. In light of the details on Measure 15 offered by Australia during these proceedings, the Panel could imagine – although it cannot be certain at this point – that in its final form Measure 15 will not entail AQIS involvement in all measures related to pre-clearance arrangements.

2.231 As regards the Parties' differences on whether Measure 15 equals systems audits, the Panel notes that neither the pre-clearance nor the audit part of the IRA mention systems audits. Part A of the IRA summarizes the requirements in the audit section of the IRA as the "auditing of the *systems* and processes used by New Zealand to certify exports."⁵⁸⁸ Nevertheless, this summary does not explain in detail whether the requirements set out in the audit section of the IRA would effectively amount to a systems audit as understood by the Parties. In any event, as stated earlier, it is unclear from the IRA whether Measure 15 relates also to the audit section of the IRA, and the Parties have not finalized the work plan and operating procedures. Accordingly, it remains impossible for the Panel to establish also whether Measure 15 would include systems audits as understood by the Parties. The Panel notes that this issue is more directly related to New Zealand's claim under Article 5.6 of the SPS Agreement.

6. Territorial applicability of the measures at issue

2.232 The IRA assesses the three pests at issue "for the whole of Australia".⁵⁸⁹ Accordingly, the measures spelt out in the relevant parts of the IRA in regard to those pests apply to apple exports from New Zealand to the entire territory of Australia.⁵⁹⁰

7. Legal issues to be addressed in the findings section of the report

2.233 The Panel notes there are various further issues of disagreement between the Parties as regards the measures that are at issue in this dispute, such as:

- (a) Whether all of the 16 specific measures qualify as SPS measures;
- (b) Whether New Zealand has the right to contest each of the 16 specific measures individually or only as a whole, including whether some measures should be addressed together as part of a "systems" approach; and,
- (c) Whether, as Australia argues, some of those measures are "ancillary" to some other, allegedly "principal" measures.

These issues are more relevant for the eventual legal review of the measures at issue than for the determination of which measures are at issue in the dispute and precisely what some of these

⁵⁸⁸ Australia's IRA, Part A, p. 1 (emphasis added).

⁵⁸⁹ Australia's IRA, Part B, p. 47. See also *Ibid.*, pp. 48-49.

⁵⁹⁰ The IRA addressed some other pests and recommended certain measures only for Western Australia, these measures and the pests to which they relate that are not at issue in this dispute. See Australia's IRA, Part B., pp. 239-310, and 324.

measures might entail. Accordingly, the Panel will address these issues in the findings section of the report.

2.234 A further question related to measures at issue is whether the "IRA process" as a whole is a measure within the purview of this Panel. Australia contests this in the specific context of New Zealand's claim under Article 8 and Annex C(1)(a) of the SPS Agreement.⁵⁹¹ It is in the legal review of that claim that the Panel will address this question.

E. PRODUCT AT ISSUE

1. The Parties' arguments

2.235 The Parties have discussed at length the product at issue throughout these proceedings.

2.236 In principle, both Parties agree that the product at issue should be determined by the Panel's terms of reference, as contained in New Zealand's panel request⁵⁹² and adopted by the DSB. New Zealand's panel request refers in general terms to the "importation of apples from New Zealand"⁵⁹³ to Australia.

2.237 Despite the Parties convergence on the relevance of the panel's request for determining the product at issue, they express differences on the importance in this regard of the maturity, freedom from trash, symptomless nature and the mode of trade of apples.

2.238 In its first written submission, New Zealand states that the product at issue in this dispute is apples imported from New Zealand into Australia, as described in the Panel's terms of reference.⁵⁹⁴ But New Zealand adds that "[i]n practice, [New Zealand] would export mature, symptomless apples to Australia"⁵⁹⁵ because:

"The IRA requires, as a condition of entry, that all New Zealand apples must meet the 'class 1 export quality fruit' standard in respect of the presence of wounds and maturity⁵⁹⁶ and must be free of trash.⁵⁹⁷ Such a standard would be consistent with practice in the export of apples from New Zealand, and in bringing this case New Zealand made no challenge to this type of requirement."⁵⁹⁸

2.239 New Zealand repeatedly states that its arguments focus on the product actually exported⁵⁹⁹, namely, mature, symptomless apples.⁶⁰⁰

⁵⁹¹ See, for example, Australia's first written submission, paras. 1117-1126; Australia's second written submission, paras. 184-218.

⁵⁹² New Zealand's reply to Panel question 1 after the first substantive meeting, para. 2; Australia's reply to Panel question 1 after the first substantive meeting, p. 1.

⁵⁹³ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

⁵⁹⁴ New Zealand's first written submission, para. 3.44; New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 23; New Zealand's reply to Panel question 1 after the first substantive meeting, para. 2, and Panel question 2 after the first substantive meeting, para. 5.

⁵⁹⁵ New Zealand's first written submission, para. 3.44.

⁵⁹⁶ (*footnote original*) IRA, p. 315.

⁵⁹⁷ (*footnote original*) IRA, p. 318.

⁵⁹⁸ New Zealand's first written submission, para. 3.45.

⁵⁹⁹ New Zealand's reply to Panel question 2 after the first substantive meeting, para. 5.

⁶⁰⁰ New Zealand's reply to Panel question 10 after the second substantive meeting, para. 20.

2.240 In response, Australia argues that "New Zealand's attempt to characterize the product at issue as 'mature, symptomless apples' should be dismissed."⁶⁰¹ Australia adds that the Panel would commit a legal error by defining the product at issue as "mature, symptomless apples"⁶⁰² because the "term 'symptomless' could be misinterpreted as suggesting that New Zealand would only export 'risk-free goods' without requiring New Zealand to prove this."⁶⁰³ In Australia's view, even if apples are "symptomless", this does not necessarily mean that they are pest free: apples latently infected with European Canker or carrying fire blight bacteria are by definition "symptomless".⁶⁰⁴

2.241 Australia argues that "[t]he product at issue in this dispute should be determined by reference to the scope of the Final IRA Report".⁶⁰⁵ Australia points out that New Zealand's panel request cites the policy determination of the Australian Director of Animal and Plant Quarantine concerning the importation of apples from New Zealand, subjecting the importation of apples into Australia to the requirements of the IRA.⁶⁰⁶ In Australia's view, that reference in New Zealand's panel request defines the product at issue by linking it to the product considered in the IRA.⁶⁰⁷ Since the IRA's scope is "mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand"⁶⁰⁸, Australia argues that the product at issue should be defined in the terms used in the IRA and not as "mature, symptomless apples".⁶⁰⁹

2.242 In response, New Zealand contends that there is no practical difference between the apples actually exported to Australia and those under the scope of the IRA.⁶¹⁰ Nevertheless, New Zealand states that it is not appropriate to determine the product at issue by reference to the scope of the IRA, but rather that it should be defined by the panel's terms of reference⁶¹¹ as "apples imported from New Zealand into Australia."⁶¹² In New Zealand's view, limiting the product at issue by reference to the scope of the IRA "would effectively allow a Member undertaking an IRA to exclude certain elements from review by a dispute settlement panel simply by defining the scope of its investigations in a particular way."⁶¹³ At the same time, as noted, New Zealand points out that its arguments focus on the product actually exported, namely mature, symptomless apples.⁶¹⁴

2.243 The Parties also discuss the relevance of the mode of trade of apples for the purposes of defining the product at issue. New Zealand asserts that "[t]he mode of trade does not have implications for the definition of the 'product at issue', which is determined by the Panel's terms of reference."⁶¹⁵ Australia on the other hand, argues that the product at issue is defined by the IRA and

⁶⁰¹ Australia's reply to question 1, p. 3.

⁶⁰² Australia's reply to Panel question 15 after the second substantive meeting, paras. 50-51.

⁶⁰³ Australia's reply to Panel question 3 after the first substantive meeting, p. 4.

⁶⁰⁴ *Ibid.*

⁶⁰⁵ Australia's first written submission, para. 123.

⁶⁰⁶ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

⁶⁰⁷ Australia's reply to Panel question 1 after the first substantive meeting, pp. 1-3.

⁶⁰⁸ Australia's IRA, Part B, p. 9. See Australia's reply to Panel question 1 after the first substantive meeting, pp. 1-3.

⁶⁰⁹ Australia's reply to Panel question 1 after the first substantive meeting, pp. 1-3; Australia's second written submission, para. 81-83.

⁶¹⁰ New Zealand's reply to Panel question 10 after the second substantive meeting, para. 20; New Zealand's first written submission, para., 2.33.

⁶¹¹ New Zealand's reply to Panel question 1 after the first substantive meeting, para. 2.

⁶¹² *Ibid.*, citing in support *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

⁶¹³ New Zealand's reply to Panel question 1 after the first substantive meeting, para. 1.

⁶¹⁴ New Zealand's reply to Panel question 10 after the second substantive meeting, para. 20.

⁶¹⁵ New Zealand's reply to Panel question 8 after the first substantive meeting, para. 12.

that "[t]he mode of trade, namely packed fruit or bulk fruit, is an important aspect of this definition and therefore determines the product at issue."⁶¹⁶

2. The Panel's analysis

2.244 The Panel's task is to define the scope of the dispute with regard to the product at issue. According to established jurisprudence, it is the panel's terms of reference that "define the scope of [a] dispute."⁶¹⁷ In turn, a panel's mandate or terms of reference are determined by the request for the establishment of the panel.⁶¹⁸ The panel request constitutes the "matter referred to the DSB", which in turn forms the basis of a panel's terms of reference under Article 7.1 of the DSU. To define the product at issue, the Panel must thus refer to its terms of reference.

2.245 New Zealand's panel request refers to "the importation of apples from New Zealand"⁶¹⁹ into Australia. Thus, the panel request determines the product at issue in general terms, without any qualifications. In particular, the request does not refer to either "mature, symptomless apples", or "mature apple fruit free of trash, either packed or sorted and graded bulk fruit".

2.246 The Panel recalls the argument of Australia that the product at issue should be defined by the IRA, and that the mode of trade, namely packed fruit or bulk fruit, is an important aspect of this definition and therefore determines the product at issue.

2.247 The measures at issue identified in the panel request are contained in the IRA, also referenced by the panel request.⁶²⁰ As noted by Australia, the IRA states that "[t]he scope of [its] analysis is the importation of mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand."⁶²¹ At the same time, the IRA applies to apples produced in New Zealand and to be exported to Australia. Indeed, the IRA is entitled "Final Import Risk Analysis Report for Apples from New Zealand", without any qualification. Part A of the IRA, summarizes the overall conclusions of the IRA by referring to New Zealand apples in equally general terms: "This final report recommends that the importation of apples to Australia from New Zealand be permitted, subject to the following risk management conditions."⁶²² The applicability of the IRA to apples from New Zealand destined to Australia is acknowledged by both Parties. Australia states that "[a]ny apples proposed for export from New Zealand to Australia would be subject to the requirements in the Final IRA Report."⁶²³ Thus, while the scope of the IRA's analysis might be limited to certain apples, the measures set out in the IRA apply to any apples exported from New Zealand to Australia. This is underscored by Biosecurity Australia's Policy Memorandum 2007/07 of 27 March 2007, from which New Zealand's panel request cites the following passage: "Importation of apples [from New Zealand] can be permitted subject to the *Quarantine Act 1908*, and the application of phytosanitary measures as specified in the *Final import risk analysis report for apples from New Zealand*, November 2006."⁶²⁴

2.248 If the Panel were to focus only on mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand, as Australia argues, it would commit a legal error. Australia's

⁶¹⁶ Australia's reply to Panel question 8 after the first substantive meeting, p. 7.

⁶¹⁷ Appellate Body Report on *US – Carbon Steel*, para. 126.

⁶¹⁸ Panel Report on *Japan – Apples*, para. 8.32.

⁶¹⁹ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

⁶²⁰ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

⁶²¹ Australia's IRA, Part B, p. 9.

⁶²² Australia's IRA, Part A, p. 1.

⁶²³ Australia's reply to Panel question 5 after the first substantive meeting, p. 5.

⁶²⁴ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report.

arguments narrow the product at issue with respect to how it is identified in the panel request. Even if the Panel accepted Australia's arguments, it would still reach the conclusion that the IRA's effects extend to all apples from New Zealand imported into Australia. Indeed, only apples within the scope of the IRA are allowed to be imported into Australia. In other words, the IRA is equally applicable to any other type of apple from New Zealand, in the sense that it restricts the importation of those apples into Australia.

2.249 The Panel now turns to New Zealand's focus on "mature, symptomless" apples. New Zealand states that its focus on "mature, symptomless" apples is done in the context of the arguments it has brought forth in this case "[which] are, as a practical matter, based on the product actually exported from New Zealand".⁶²⁵ Such focus, made for the purpose of New Zealand's arguments relates to issues of the merits of the case, issues which will not be dealt with in this section. This should not be confused with the definition of the product at issue.

2.250 Again, for the purpose of defining the product at issue it is the Panel's terms of reference that define the scope of the dispute. New Zealand's claims are directed to measures contained in the IRA which are applied to the importation of apples from New Zealand. The Panel cannot broaden or narrow its mandate, it has to limit itself to address the measures and products identified in the Panel's terms of reference.⁶²⁶ Accordingly, the identified product at issue is apples imported from New Zealand into Australia. This constitutes the scope of this dispute. New Zealand's arguments referring to "mature, symptomless apples" are relevant, not for the determining the product at issue, but rather for the purposes of reviewing Australia's challenged measures in light of the provisions of the SPS Agreement identified in the Panel request. In sum, the Panel's terms of reference, and not New Zealand's legal arguments, define the product at issue and the scope of the dispute.

2.251 In conclusion, the Panel's terms of reference refer to "the importation of apples". The Panel may not limit itself to the analysis of only "mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand", or on the other hand to only "mature, symptomless apples". By doing so, and failing to incorporate into its analysis the products defined in the Panel's terms of reference, namely apples from New Zealand imported into Australia, the Panel would be incorrectly narrowing its mandate.

2.252 In light of these considerations, the Panel concludes as a factual point that the product at issue identified in the Panel's terms of reference is apples from New Zealand imported into Australia.

III. PARTIES' REQUESTS FOR FINDINGS AND RECOMMENDATIONS

3.1 New Zealand requests the Panel to find that the challenged measures are, both individually and as a whole, inconsistent with the obligations of Australia under the following provisions of the SPS Agreement: Articles 2.2 and 2.3 (both sentences); Articles 5.1, 5.2, 5.5 (first sentence) and 5.6; Article 8; and Annex C(1)(a).

3.2 In response, Australia argues that:

- (a) Australia's measures are not inconsistent with Article 5.1 and, accordingly, with Article 2.2 of the SPS Agreement, and that they are also not inconsistent with Article 5.2 of the SPS Agreement; or, alternatively, that Australia's measures are not inconsistent with Article 2.2 of the SPS Agreement;
- (b) Australia's measures are not inconsistent with Article 5.6 of the SPS Agreement;

⁶²⁵ New Zealand's reply to Panel question 2 after the first substantive meeting, para. 5.

⁶²⁶ Appellate Body Report on *Japan – Alcoholic Beverages II*, p. 26.

- (c) Australia's measures are not inconsistent with Article 5.5 of the SPS Agreement and, consequently, with Article 2.3; and,
- (d) New Zealand's claim under Article 8 and Annex C(1)(a) of the SPS Agreement is outside the scope of this dispute and should be dismissed by the Panel.

IV. ARGUMENTS OF THE PARTIES⁶²⁷

A. NEW ZEALAND

1. Executive summary of New Zealand's first written submission

(a) Introduction

4.1 The importation of New Zealand apples into Australia is subject to highly restrictive measures relating to fire blight, European canker and apple leafcurling midge (ALCM) set out in Australia's Final Import Risk Analysis Report for Apples from New Zealand (IRA). These measures effectively close Australia's market to New Zealand apples.

4.2 While New Zealand does not dispute the right of a WTO Member to take sanitary and phytosanitary (SPS) measures necessary for the protection of human, animal or plant life or health, as a WTO Member and party to the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), Australia's SPS measures must also comply with its obligations under that Agreement.

4.3 The SPS Agreement requires that SPS measures applied to the importation of a product – in this instance apples imported into Australia from New Zealand – be based on an appropriate risk assessment and be supported by sufficient scientific evidence. However, there is no scientific evidence that mature, symptomless apples are a pathway for the transmission of fire blight or European canker – indeed there is evidence to the contrary. In the case of ALCM, Australia conjectures a confluence of events which falls far short of being a real world likelihood.

4.4 Accordingly, and for the reasons detailed below and set out in full in New Zealand's submission, the measures at issue adopted by Australia are inconsistent with Articles 2.2, 2.3, 5.1, 5.2, 5.5, 5.6, 8 and Annex C(1)(a) of the SPS Agreement.

(b) Background

4.5 The Australian market has effectively been closed to New Zealand apples since 1921. In 1986, and again in 1989 and 1995, New Zealand requested access to that market – and each time access was denied.

4.6 In 1999, New Zealand made its fourth request for the admission to Australia of New Zealand apples. Almost eight years later, in November 2006, the IRA was released. It sets out measures to be applied to the importation of New Zealand apples to address pests and diseases that Australia reports itself to be free of, in particular: fire blight – a plant disease caused by the bacterium *Erwinia amylovora*; European canker - a plant disease caused by the fungus *Neonectria galligena*; and ALCM – a small, winged insect which feeds on the unfurling leaves of apple trees. These measures in effect continue to exclude New Zealand apples from the Australian market.

⁶²⁷ This section on the arguments of the Parties is based on the executive summaries submitted by the Parties to the Panel.

4.7 During the many years of preparation of the IRA, New Zealand's request for market access for apples developed a political prominence in Australia. The issue of New Zealand apple access was debated in the run-up to federal elections, there were Senate Committee hearings on the matter and the Australian apple industry was closely involved in the import risk analysis process.

4.8 In its panel request, New Zealand identified seventeen specific measures imposed in respect of three pests: fire blight, European canker and ALCM. The measures fall into two categories; those of general application and those specific to each of the three pests. New Zealand considers these measures are inconsistent with Australia's obligations under the SPS Agreement.

4.9 The measures at issue applicable to fire blight are the requirements that: apples be sourced from areas free from fire blight disease symptoms; orchards/blocks be inspected for fire blight disease symptoms; an orchard/block inspection methodology be developed and approved; orchards/blocks be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of fire blight; orchards/blocks be suspended for the season on the basis of detection of any visual symptoms of fire blight; apples be subject to disinfection treatment in the packing house; all grading and packing equipment that comes in direct contact with apples be cleaned and disinfected immediately before each Australian packing run, and that packing houses registered for export of apples process only fruit sourced from registered orchards.

4.10 In respect of European canker the measures at issue are the requirements that: apples be sourced from export orchards/blocks free of European canker; all trees in export orchards/blocks be inspected for symptoms of European canker; all new planting stock be intensively examined and treated for European canker; orchards/blocks be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker; and exports from orchards/blocks be suspended for the coming season on the basis of detection of European canker and that reinstatement would require eradication of the disease, confirmed by inspection.

4.11 The measures at issue applicable to ALCM are the requirements of inspection and treatment, including: the option of inspection of each lot on the basis of a 3000 unit sample selected at random across the whole lot, with detection of any live quarantineable arthropod resulting in appropriate treatment or rejection for export; or the alternative option of inspection of each lot on the basis of a 600 unit sample selected at random across the whole lot, plus mandatory treatment of all lots.

4.12 The general measures are: the requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment; the requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices; and the requirement that packing houses provide details of the layout of premises.

(c) Legal analysis

(i) *Australia's measures are inconsistent with Article 2.2*

4.13 Australia's measures are "maintained without sufficient scientific evidence". There is no "rational or objective" relationship between those measures and scientific evidence, and therefore they are inconsistent with Article 2.2 of the SPS Agreement.

4.14 All of Australia's fire blight measures depend on the contention that mature apple fruit provide a pathway for the transmission of the disease. However, there is no evidence that fruit to be exported from New Zealand – that is, mature, symptomless apples – provide such a pathway. Rather,

the scientific evidence shows that mature, symptomless apple fruit do not transmit the disease and have never done so.

4.15 In *Japan – Apples*, the relevant scientific evidence was reviewed by the panel and by its scientific experts. The panel found that the risk that mature, symptomless apple fruit would transmit fire blight was negligible. The panel's conclusions were upheld by the Appellate Body. There is nothing to suggest that the panel and the scientific experts in *Japan – Apples* were wrong. Indeed, scientific research on fire blight since *Japan – Apples* only serves to reinforce the panel's conclusions.

4.16 Fire blight bacteria are not found internally in mature apple fruit. The bacteria are only rarely found externally on apples, and then only on the calyx, an environment that is not conducive to the growth, survival or transfer of *E. amylovora*. Even when found on the calyx, *E. amylovora* are not in quantities sufficient to be transmitted to a susceptible host and initiate an infection, particularly following the decline in bacteria numbers that occurs during post-harvest handling, storage and transport of apples. Studies have concluded that the risk of importing *E. amylovora* on commercial apple fruit and the concomitant risk of a fire blight outbreak is so small as to be insignificant.

4.17 The scientific evidence is reinforced by the reality of the international trade in apples. Over the past several decades, billions of apples have been exported into fire blight-free countries with no spread of fire blight resulting.

4.18 Since the contention that mature, symptomless apple fruit provide a pathway for the transmission of fire blight is not supported by scientific evidence, none of the fire blight measures imposed by Australia have a rational or objective relationship with the scientific evidence. Indeed, many of the Australian measures, for example chlorine dipping, parallel those in *Japan – Apples* found to be in violation of the SPS Agreement.

4.19 Similarly, the measures imposed in respect of European canker are based on the contention that mature, symptomless apples provide a pathway for transmitting the disease. However, once again, this is not supported by scientific evidence. Such a pathway has never been demonstrated to exist. In particular, there is no scientific evidence of mature New Zealand apple fruit being latently infected with *N. galligena*. Australia's contentions about latent infection are based on studies conducted in countries where the climate, characterised by high summer rainfall, is very different from that of New Zealand.

4.20 There is also no scientific support for the proposition that mature apple fruit could be infested (surface-contaminated) with *N. galligena* by spores at harvest, as a future source of infection or cross-contamination of clean apple fruit. Further, even if *N. galligena* were present in or on mature New Zealand apple fruit and survived handling, processing and transport into Australia, there is no scientific evidence that spores would be produced from latently infected or infested fruit, or that these spores could be spread from infected fruit to a susceptible host.

4.21 Finally, there is no scientific evidence that European canker could establish and spread in the Australian climate, given that conditions favourable to European canker, namely rainfall and moderate temperatures, are not prevalent in Australia's apple growing regions. There can be no better evidence of the lack of a pathway and the inhospitability of the Australian climate to the disease than the failure of European canker to spread during the Tasmanian outbreak last century, despite the unrestricted movement of apple fruit within and from Tasmania during this period.

4.22 Since there is no scientific evidence that mature, symptomless apple fruit provide a pathway for the transmission of European canker, none of the European canker measures imposed by Australia have a rational or objective relationship with the scientific evidence.

4.23 The Australian measures in relation to ALCM are also maintained without sufficient scientific evidence. In formulating its measures for ALCM Australia has not taken into account the scientific evidence which indicates that approximately 85 per cent of ALCM cocoons on New Zealand apple fruit are not viable because they do not contain live pupae. That fact, combined with the midge's limited lifespan and flight range, and other biological factors, renders highly improbable the sequence of events on which Australia relies to support its measures.

4.24 Australia's contention would require at least 4,000 apples to be dumped, uncovered at a single site within 30m of apple trees with new shoots. There is no scientific evidence demonstrating that such a sequence of events has occurred or would occur in the real world.

4.25 The implausibility of such a sequence of events is borne out by the history of trade in apple fruit. New Zealand has exported millions of apples to ALCM-free countries with no special measures for ALCM and with no spread of ALCM resulting.

4.26 In light of this, a standard AQIS inspection regime of 600 apples would be more than adequate to address the risk. The 3000 fruit sample inspection regime required by Australia or the mandatory treatment in addition to a 600 fruit inspection are disproportionate to the risk.

4.27 Equally, the general measures imposed by Australia for the importation of New Zealand apples are maintained without sufficient scientific evidence. Indeed, Australia does not even attempt to provide a scientific justification for these measures.

(ii) *Australia's measures are inconsistent with Article 5.1*

4.28 Australia's measures are not based on a "risk assessment" within the meaning of Article 5.1 and Annex A and are therefore inconsistent with Article 5.1 of the SPS Agreement.

4.29 The IRA approaches the risk assessment in a way that ascribes quantitative probability values to steps that are often no more than possibilities – in some instances the remotest of possibilities. Such an approach is inconsistent with that adopted by the Appellate Body in *Australia – Salmon and EC – Hormones*, which emphasises that a risk assessment must be concerned with probabilities and not just possibilities.

4.30 Australia compounds this problem with several fundamental methodological flaws, with the result that the levels of risk ascribed in the IRA have no credibility. Such flaws include the choice of an inflated maximum value for the probability of events with a "negligible" likelihood of occurring, inappropriate use of the uniform distribution to model the likelihood of various events, and overestimation of the projected volume of trade in New Zealand apples. The overall effect of these three fundamental methodological flaws has been to seriously overestimate the likelihood of events whose probability of occurring is negligible.

4.31 Additionally, like Japan in *Japan – Apples*, Australia has neither "evaluated the likelihood" of entry, establishment or spread of the relevant pests, nor has it evaluated the likelihood of their entry, establishment or spread "according to the SPS measures which might be applied".

4.32 In respect of fire blight, the IRA asserts a highly inflated likelihood of entry of the bacteria into Australia via imported apples. Australia's "importation steps" for fire blight assume a continuous transmission pathway, ignoring the fact that at critical points there is no evidence of a pathway. In assigning probability values to what are frequently the remotest of possibilities, Australia has ignored or significantly misunderstood scientific evidence, which throughout provides no support for the suggestion that a pathway exists.

4.33 Mature, symptomless apple fruit is not a vector for the transmission of *E. amylovora*. This is confirmed by the scientific evidence, as endorsed by the Panel and scientific experts in *Japan – Apples*. Hence, fire blight would not be transmitted to host plants in Australia through the importation of mature, symptomless apples. Australia's IRA is thus not an evaluation of the "likelihood of entry"; it is speculation on the possibility of entry that is not in conformity with Article 5.1 of the SPS Agreement.

4.34 The IRA equally fails to evaluate the likelihood of the establishment or spread of fire blight within Australia. Australia contends that, once apples infested or infected with *E. amylovora* arrive in Australia, the disease would be likely to be transmitted to host plants. This contention assumes that there is a dispersal mechanism to move the bacteria to a susceptible host. However, there is no scientific evidence of any likelihood that this could occur. In this area, too, the IRA's analysis rests on remote possibilities and not on probabilities based on scientific evidence of naturally occurring events. The IRA has only offered speculation about hypothetical events that have never been shown to occur.

4.35 Nor does Australia's analysis of the consequences of fire blight constitute an evaluation of the "associated potential biological and economic consequences" of the disease within the meaning of the SPS Agreement. The IRA overestimates the severity of the impact of fire blight on pipfruit production as well as other consequences of the introduction and spread of the disease, based on selectively chosen evidence and on assumptions that have no basis in scientific evidence or fact. A proper assessment, relying on the actual experience of countries where fire blight is present, would have resulted in the overall consequences of the introduction and spread of the disease being recognized as minor.

4.36 Equally, the IRA's analysis of the probability of importation of European canker rests on the flawed contention that mature, symptomless apple fruit are a pathway for the transmission of European canker, a contention that is not supported by scientific evidence.

4.37 In particular, there is no scientific evidence of mature New Zealand apple fruit being latently infected, or infested, with *N. galligena*. Further, even if *N. galligena* were present in or on mature New Zealand apple fruit, there is no scientific evidence to support the likelihood that spores would be produced from latently infected or infested fruit, or that these spores could be transferred from infected fruit to a susceptible host in conditions suitable to initiate infection once in Australia. In assigning probability values to steps that are no more than remote possibilities, the IRA ignores or misapplies scientific data or speculates about events that would almost certainly not occur.

4.38 The IRA also fails to evaluate the likelihood of the establishment or spread of European canker within Australia. Once again, the Australian analysis is based on assumptions about climatic similarity and alternative hosts in other countries where European canker is known to occur – none of which finds support in science. Equally, Australia significantly overestimates the severity of the consequences of European canker, based on assumptions that are not supported by scientific evidence.

4.39 In respect of ALCM, Australia overestimates the likelihood of entry at several importation steps and then bases likelihood of establishment and spread on a scenario that almost certainly would not occur. In particular, the IRA's evaluation of the likelihood of entry of ALCM into Australia erroneously equates the number of cocoons with the number of viable ALCM found on apples. However, cocoons themselves are not a risk factor for ALCM. It is only cocoons that contain viable ALCM pupae that pose any potential risk.

4.40 Just as Australia has failed to evaluate the likelihood of entry of ALCM, it has equally failed to evaluate the likelihood of "establishment or spread" of the pest. The IRA's evaluation of the transfer of ALCM to a susceptible host rests on unsubstantiated assumptions about the circumstances

and conditions under which adults will emerge and the likelihood that they will successfully mate. Australia's contention that ALCM would be likely to become established and spread in Australia is unsupported by scientific evidence or experience. It ignores the issue of viability of cocoons, the actual biology of ALCM and the reality of commercial practice with respect to the sale, use and disposal of apple fruit. Australia's purported analysis of the "associated potential biological and economic consequences" of ALCM is also flawed, constituting nothing more than a listing of unsubstantiated assumptions.

4.41 Finally, Australia has failed to evaluate the likelihood of entry, establishment and spread of each pest "according to the SPS measures that might be applied". The IRA determined, without analysis, that certain measures should be applied and failed to evaluate alternative measures that might have been applied instead, including a particular measure proposed by New Zealand requiring apples to be imported "retail ready".

4.42 Since Australia has failed to comply with its obligations under Article 5.1 of the SPS Agreement it is also in breach of the requirements of Article 2.2 that the measures be "based on scientific principles" and not be maintained "without sufficient scientific evidence".

(iii) *Australia's measures are inconsistent with Article 5.2*

4.43 Australia has also failed to comply with its obligations under Article 5.2. The IRA ignores available scientific evidence on the basis of which the panel in *Japan – Apples* concluded there was no pathway for the transmission of fire blight through mature, symptomless apples; it ignores relevant apple production processes in New Zealand; it ignores its own border inspection processes; it ignores the actual prevalence of the relevant diseases or pests in New Zealand; and it ignores relevant climatic conditions in both New Zealand and Australia.

(iv) *Australia's measures are inconsistent with Article 5.5 and Article 2.3*

4.44 Australia's measures for the importation of New Zealand apples are inconsistent with its obligations under Articles 5.5 and 2.3. Australia has established its own level of protection (ALOP) against risks to plant life or health in respect of two diseases affecting Japanese pears – brown rot and Japanese Erwinia. In those cases, imported fruit with a degree of risk equivalent to or higher than that of New Zealand apples are subject to measures substantially less restrictive than those imposed on New Zealand apples, constituting arbitrary and unjustifiable distinctions in treatment of different situations resulting in discrimination or a disguised restriction on international trade.

4.45 Several of the "warning signals" and other additional factors, identified by the Appellate Body in *EC – Hormones* and the panel in *Australia – Salmon* are present in the current instance. These include: the inconsistency of the measures with Article 5.1; the level of politicisation of the IRA process; the undue delay involved in the process and the absence of certain comparable domestic requirements. The presence of such warning signals and additional factors indicates that the distinctions in the levels of protection adopted by Australia in different situations are arbitrary and unjustifiable and amount to discrimination or a disguised restriction on international trade.

(v) *Australia's measures are inconsistent with Article 5.6*

4.46 Australia's measures for the importation of New Zealand apples are inconsistent with its obligations under Article 5.6.

4.47 There are alternative measures available that would have met Australia's ALOP. In the case of fire blight and European canker, restricting trade to mature, symptomless apples would be consistent with the ruling in *Japan – Apples* and would meet Australia's ALOP. In the case of

ALCM, inspection of a 600-unit sample would also have been a less trade restrictive alternative. Such alternative measures would achieve Australia's appropriate level of phytosanitary protection, taking into account technical and economic feasibility. They are also reasonably available and are significantly less trade restrictive than those which Australia has imposed in relation to New Zealand apples.

4.48 In addition, because the measures at issue are more restrictive than required, they also breach the requirement in Article 2.2 that measures be "applied only to the extent necessary to protect human, animal or plant life or health".

(vi) *Australia's measures are inconsistent with Article 8 and Annex C(1)(a)*

4.49 Australia's measures for the importation of New Zealand apples are inconsistent with its obligations under Article 8 and Annex C(1)(a). The delay by Australia of almost eight years to complete its approval procedures for access for New Zealand apples is clearly "undue". In the case of fire blight, there was no new scientific evidence contrary to the conclusions in *Japan – Apples* requiring consideration, and in the case of European canker and ALCM the science was accessible and uncontroversial. Instead, Australia adopted an approval process that was intertwined with a political process, resulting in Australia's market remaining effectively closed to New Zealand apples. Measures resulting from such a delayed process have not been imposed in accordance with the SPS Agreement.

(d) Conclusion

4.50 For these reasons, further developed in the body of its submission, New Zealand requests the Panel to find that Australia's measures are inconsistent with its obligations under the SPS Agreement, and to recommend that Australia bring its measures into conformity with that Agreement.

2. Executive summary of New Zealand's opening oral statement at the first substantive meeting

(a) Introduction

4.51 This dispute is about access of apples from New Zealand into the Australian market. For over 80 years, Australia's market has been closed to New Zealand apples. Finally in 2007, some eight years after New Zealand had made a fourth request for entry, apples from New Zealand were permitted access to Australia but subject to measures that meant that effectively the market was still closed. New Zealand has challenged 17 of those measures relating specifically to fire blight, to European canker, and to apple leafcurling midge as well as certain general measures applicable to all three pests. As New Zealand pointed out in its first written submission, these measures do not conform to Australia's obligations under the SPS Agreement.

4.52 The essence of the New Zealand case is quite straightforward. Among the core requirements of the SPS Agreement are the obligations that sanitary and phytosanitary measures not be maintained without sufficient scientific evidence (Article 2.2) and that such measures be based on a risk assessment (Article 5.1). In both of these fundamental respects Australia has failed to meet its obligations under the SPS Agreement.

(b) Product at issue

4.53 The product at issue in this case is apples imported from New Zealand into Australia. In practice, New Zealand would export mature, symptomless apples in accordance with the class 1 export quality standard. Australia is incorrect to suggest that the product at issue in this dispute

should be determined by reference to the scope of the IRA. The product at issue is determined by the terms of reference of the Panel.

(c) Measures at issue

4.54 In its Panel request, New Zealand identified 17 specific measures that New Zealand considers are inconsistent with Australia's obligations under the SPS Agreement. These measures fall into two categories: those of general application to all three pests; and those specific to each of the pests.

4.55 In its first written submission, Australia argues that there are only 15 measures at issue. First, in the light of Australia's statement in its first written submission that there is no pruning requirement with regard to European Canker, New Zealand will not pursue its claim that this is a measure. However, it asks the Panel to record Australia's position and New Zealand's response in its report.

4.56 Second, Australia argues that New Zealand mischaracterises the measure relating to AQIS involvement. New Zealand considers that any type of AQIS involvement in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment is without scientific support, and accordingly there is very much a live dispute between the Parties. Furthermore, a 100 per cent audit of survey teams and packing houses in the first year by the officials of an importing country does not conform to any notion of a systems audit as understood by New Zealand.

4.57 Finally, Australia's distinction between principal and ancillary measures (measures which "support, verify or operationalise" the principal risk reduction measure) is spurious. It has no textual basis in the SPS Agreement. Neither Annex A nor any of the substantive obligations make any distinction between types of measures. Australia thus uses the principal/ancillary distinction as a vehicle to avoid scrutiny under Articles 2.2 and 5.1 of this class of "ancillary" measures. New Zealand submits that such an approach should be resisted.

(d) The applicable law

(i) *Standard of review*

4.58 In New Zealand's view the appropriate standard of review in this case is set out in Article 11 of the DSU. This requires the Panel to "make an objective assessment of the matter before it, including an objective assessment of the facts of the case and the applicability of and conformity with relevant covered agreements...". This standard of review has been applied in every WTO SPS case to date.

4.59 Australia's claim that an alternative standard of review should be applied, based on "considerable deference" to risk assessments, is without merit. The Appellate Body has twice rejected similar arguments in previous SPS cases, *EC – Hormones* and *Japan – Apples*.

4.60 Australia's suggestion of "considerable" deference should be similarly rejected. Any other approach would fundamentally alter the "finely drawn balance" of jurisdictional competencies reflected in the SPS Agreement.

(ii) *Order of analysis*

4.61 Australia is wrong to suggest that "the question of whether Australia has maintained measures "without scientific evidence" under Article 2.2 *can only be answered* by considering whether Australia's measures are based on a valid risk assessment under Article 5.1".

4.62 Article 5.1 is a specific application of Article 2.2. There is nothing in the text of the SPS Agreement that suggests that an analysis of Article 5.1 should logically precede an analysis of Article 2.2. On the contrary, the Appellate Body in *EC – Hormones* considered that an approach that started with the "Basic Rights and Obligations" in Article 2 was "logically attractive". New Zealand agrees. Australia is attempting to limit the scope of Article 2.2 "in favour" of Article 5.1, contrary to *Japan – Agricultural Products*.

4.63 Australia's view on the relationship between Article 2.2 and 5.1 *subsumes* the third requirement of Article 2.2 within Article 5.1, and then through its standard of review *drains it of any substantive content*. The consequence would be that the panel would have no mandate to assess whether there is a "rational or objective" relationship between the science and the SPS measures.

(iii) *Burden of proof*

4.64 The issue of burden of proof should not be contentious in these proceedings. However, in a number of places in its first written submission, Australia misapplies the burden of proof. For example, in the context of Article 2.2 Australia uses the notion of "burden of proof" to transform the obligation not to maintain measures without scientific evidence in Article 2.2 into its own watered-down version of Article 5.1. This should be rejected.

(e) Article 2.2

4.65 In its first written submission New Zealand argued that Australia's measures violated Article 2.2, in particular the third requirement of Article 2.2. The core of New Zealand's argument is that there is no scientific evidence to support the view that mature, symptomless apples provide a pathway for fire blight and European canker and the likelihood of the existence of a pathway for ALCM is negligible.

4.66 In respect of New Zealand's arguments with respect to Article 2.2, Australia relies principally on its contention that consistency with Article 5.1 constitutes consistency with Article 2.2. Thus, Australia does not make a serious attempt to rebut New Zealand's arguments relating to Article 2.2.

4.67 Though Australia does not rebut New Zealand's Article 2.2 claim directly, there is a continuing refrain that Australia is entitled to rely on "divergent scientific opinion". But, there are no divergent scientific opinions suggesting the existence of pathways for each of the pests in question, on which Australia claims to have relied. They simply cannot be found. This is hardly surprising because there is no diverging scientific opinion. No such pathway exists for the two diseases and the likelihood of a pathway for ALCM is negligible.

4.68 Even in respect of the allegedly diverging scientific opinion relating to specific steps in the alleged pathway, on closer analysis there is no true divergent opinion. And, even if there had been divergent scientific opinion, this would not mean that Australia could automatically rely on it. The divergent science must be of a nature that there is a rational and objective relationship between the scientific opinion and the measures in question. None of the alleged divergent opinion meets that requirement.

(i) *Fire blight*

4.69 Australia fails to rebut New Zealand's claim that there is no scientific support for the view that mature symptomless apples provide a pathway. Instead, it seems to argue that "there *is no direct evidence* that apples do not spread fire blight" and that it is up to New Zealand to produce such direct evidence, thereby rewriting the burden of proof and requiring New Zealand to prove a negative. Article 2.2 does not permit a Member to maintain measures in relation to a hypothetical pathway as

long as there is no scientific evidence disproving the hypothesis. Rather a Member may not maintain measures without sufficient scientific evidence. Australia seeks to turn Article 2.2 on its head.

4.70 Australia's claim that the Roberts and Sawyer 2008 study is not relevant to this dispute and that its findings are "unreliable and inappropriate" is without substance. The US Third Party submission has pointed this out in detail and New Zealand fully agrees with its analysis.

4.71 The overall conclusion of Roberts and Sawyer was that the risk of importing *E. amylovora* on commercial apple fruit and of establishing new outbreaks of fire blight is so small as to be insignificant – the opposite conclusion from that reached by the IRA.

4.72 In short, New Zealand's arguments in respect of fire blight have not been rebutted. Australia's measures in respect of fire blight are not supported by sufficient scientific evidence and Australia is thus in violation of its obligations under Article 2.2.

(ii) *European canker*

4.73 Australia's attempted rebuttal of the New Zealand case on European canker focuses on the incidence of European canker fruit rot in New Zealand. However, while fruit rots caused by *N. galligena* are not unknown, they are very rare in New Zealand, where summer conditions are generally not conducive to fruit infection.

4.74 Australia continues to rely on the Braithwaite paper as evidence of latent fruit infection in New Zealand. However, the reference in Braithwaite is not to scientific research. Further, the assumption in Braithwaite as to the existence of a pathway was just speculation. Nor was the Braithwaite paper "endorsed" by the New Zealand Chief Plants Officer, as Australia on several occasions alleges.

4.75 As New Zealand has pointed out in its first written submission, the IRA's assumptions about the climatic similarity of Australian apple-producing regions to other regions of the world where European canker is present, are not based on scientific evidence.

4.76 Australia seeks now to present its own analysis of climate data, an analysis that was completely missing in the IRA. However, the Australian paper does not provide the methodological information necessary to allow an appraisal of the climate matching procedure used. The flaws in the Australian analysis are demonstrated in its risk maps of New Zealand, which indicate high European canker risk in areas of New Zealand where European canker is virtually non-existent. This is a clear expression of the unreliability of the Australian analysis.

4.77 The failure of European canker to establish and spread during the Tasmanian outbreak was also a probable consequence of climatic conditions. Australia now tries to argue that the Tasmanian strain of *N. galligena* was a "unique" strain. But there is no scientific evidence to support Australia's novel speculation that the *N. galligena* found in Tasmania was a heterothallic strain or that a New Zealand "strain" of *N. galligena* would produce ascospores if introduced into Australia. The failure of the disease to spread within Tasmania, let alone to the mainland, despite the uncontrolled movement of thousands of tonnes of apple fruit (and millions of apples) is convincing evidence of the lack of a pathway for the spread of European canker in Australia.

(iii) *ALCM*

4.78 The key flaw in the assumption of the IRA that New Zealand apples could be a pathway for the transmission of ALCM to Australia is that there is no scientific support for suggesting that the

likelihood of establishment of ALCM in Australia as a result of trade in apples is anything other than negligible.

4.79 A major problem with Australia's analysis of ALCM is that the great majority of cocoons on New Zealand apples are not viable, either because the midge inside has already developed into an adult and left the cocoon, or because it has died inside the cocoon. Australia's arguments in its first written submission disputing New Zealand's estimates on the proportion of ALCM cocoons containing viable pupae are based on Australia's faulty reading of the research into the viability rate of cocoons set out in Rogers *et al.* 2006.

4.80 If the low level of viable cocoons on New Zealand apples, the ALCM's biology and normal trade practices are all taken into account, the unavoidable conclusion is that the likelihood of ALCM establishment in Australia from the importation of New Zealand apples is negligible. The scenario on which Australia relies in its first written submission to rebut this is simply implausible. In sum, New Zealand's claim that Australia is in violation of its obligations under Article 2.2 stand un rebutted.

(f) Article 5.1

(i) *Australia has not evaluated the likelihood of entry, establishment or spread*

4.81 In this case, Australia has, for only the second time, applied a semi-quantitative methodology to its risk assessment for plant products, apparently in response to a proposal by a Senate Inquiry into the IRA process for apples. There are however, inherent risks and limitations in a semi-quantitative methodology. The IRA provides a "misleading impression of objectivity and precision". The IRA approached what were often the remotest of possibilities, and ascribed them inflated numerical values.

Fundamental flaws in the IRA

4.82 First, Australia has adopted an inflated maximum value for the probability of events with a "negligible" likelihood of occurring. Notably, this figure is applied on a per apple basis. Negligible is, by Australia's own qualitative definition, an event that would almost certainly not occur, yet in expressing this in quantitative terms, Australia chooses a maximum value of 1 in a million (apples). This bears no relation to real world events.

4.83 This flaw is compounded by the inappropriate use of the uniform distribution to model the likelihood of various events. The effect of Australia's choice of a maximum value of 1 in a million (apples) combined with Australia's choice of uniform distribution to model events with a negligible likelihood of occurring, is that outcomes are skewed towards higher values and "negligible likelihoods" occur on average once in two million apples.

4.84 The third fundamental flaw in Australia's risk assessment is that its estimate of the likely volume of trade inflates the assessed level of risk by a factor of at least three. This flaw has a significant impact on Australia's assessment of risk because the higher the estimated volume of trade, the higher the overall assessed risk.

4.85 The overall effect of these three fundamental methodological flaws has been to overestimate seriously the likelihood of events whose probability of occurring is negligible, with the result that the levels of risk ascribed in the IRA have no credibility.

New Zealand does not conduct its own risk assessment nor has Australia identified "very significant deficiencies"

4.86 According to Australia, each time New Zealand points to the absence of scientific evidence, New Zealand is conducting its own risk assessment. In fact New Zealand is doing no more than discharging its burden of proof in accordance with the correct standard of review.

4.87 With regard the phrase "appropriate to the circumstances", the panel in *Australia – Salmon* noted that it cannot "annul or supersede" the substantive obligation in Article 5.1. New Zealand agrees.

4.88 With regard the relevance of *Japan – Apples*, the central scientific issue that was resolved was whether apples serve as a vector for transmission of fire blight. It is beyond any doubt that the reports in that case are highly relevant in the present case.

There are important errors in the IRA's analysis of the entry, establishment and spread in respect of each pest

Fire blight

4.89 In its first written submission, New Zealand established that the IRA's analysis of the importation steps for fire blight ignored or misapplied relevant scientific data and assigned inflated probability values to events that would certainly not occur. Australia's counterargument attempt to rebut this relies on a critique of the Roberts and Sawyer 2008 study, which is completely misplaced, given the authors' conclusion that the likelihood of a pathway for the transmission of fire blight through apples is "so small as to be insignificant".

4.90 Australia relies on the theory that only a small number of bacteria present on an imported apple would be sufficient to initiate a fire blight infection. But there is no scientific evidence that in a real orchard environment low numbers of bacteria can initiate infections.

4.91 Australia also relies heavily on an assessment of the consequences of establishment and spread of the disease. But the consequences of a fire blight outbreak, no matter how serious, do not increase the chances of the pathway being completed. There cannot be real consequences of an "event" that is purely hypothetical. Thus, the IRA's risk assessment in respect of fire blight does not conform with Australia's obligations under Article 5.1 of the SPS Agreement.

European canker

4.92 In its first written submission, New Zealand pointed out that the IRA's analysis of the importation steps for European canker had assigned probability values to steps which often were no more than remote possibilities, resulting in the conclusion of a pathway for the transmission of European canker for which there is no support in scientific evidence or which has never been shown to exist in fact. As the IRA itself says, "there is no evidence in the literature that indicates that long-distance spread of the disease is due to the movement of fruit".

4.93 Further, New Zealand established that the climatic conditions in Australia were not suitable for the establishment and spread of European canker. Australia's attempted rebuttal of this consists of its own, new analysis of the implications of climate for European canker. However, Australia's climate analysis is seriously flawed and unreliable. In any event, Australia cannot remedy in these proceedings the failure of the IRA to consider climate in its risk assessment.

4.94 Equally, the IRA's arguments about alternative hosts in its analysis of the likelihood of establishment and spread are not based on scientific evidence. However, despite the presence of the pathogen in New Zealand for more than 80 years and the unrestricted movement of apple fruit around the country, there is no evidence of *N. galligena* causing disease on these hosts. Australia's attempts to play down the failure of European canker to spread during the Tasmanian outbreak, do not stand up to analysis.

ALCM

4.95 In its first written submission, New Zealand pointed out that there was no scientific evidence to support the IRA's conclusions about the likelihood of entry, establishment and spread of ALCM.

4.96 As New Zealand pointed out, the IRA only assessed the likelihood that apples are infested with cocoons, not whether the cocoons were viable. However, it is only viable cocoons that are a risk factor for ALCM.

4.97 The fact that the IRA ignored viability data is obvious from the text of the IRA. Australia tries to justify its failure to take into account viability by trying to discredit Rogers *et al.* 2006. However, Australia's analysis of Rogers is simply wrong.

4.98 Australia also failed, in its evaluation of the likelihood that ALCM survives and remains with fruit after on-arrival minimum border procedures, to take into account the effect of AQIS inspection at the border.

4.99 Australia's claim in its first written submission that adult emergence could occur at any point in Australia, including transportation, and re-packing is simply incorrect. The scenario on which Australia relies for the establishment of ALCM in Australia has never occurred in the real world and is simply implausible.

4.100 There was, thus, no basis in science for the assumption of the IRA about the establishment of ALCM in Australia and the Australian first written submission fails to rebut New Zealand's arguments on this point.

4.101 In respect of all three pests, Australia tries to shift the emphasis of a risk assessment from the likelihood of entry, establishment and spread to the consequences of establishment. Australia argues vehemently that risk assessment involves more than science; it involves economic and technical factors. But in making this argument, Australia, once again, misses the central point. There is no basis under the SPS Agreement for the application of SPS measures to deal with the consequences of an event if, on the basis of the relevant scientific evidence, the event itself has no likelihood of occurring. Australia's arguments on consequences are thus simply misguided.

(ii) *Australia has not evaluated likelihood "according to the SPS measures which might be applied"*

4.102 Finally, Article 5.1 requires that there be an evaluation of the likelihood of entry, establishment and spread of the three pests "according to SPS measures that might be applied".

4.103 In respect of seven of the measures at issue there is no evaluation at all in the IRA of their effect on the risk factors identified in the IRA; that is, no evaluation of the impact they would have, either on their own or as part of a systems approach, on the assessed level of risk. Australia acknowledges this failure but claims that the requirement to evaluate measures is limited to only "principal" measures, and that the seven it failed to evaluate are "ancillary" measures. However, there

is no basis for Australia's distinction between "principal" and "ancillary" measures. Australia's distinction is spurious.

4.104 The IRA also failed to evaluate a measure requiring that apples be imported retail ready even though specifically requested to do so by New Zealand. At a minimum, importing countries should consider reasonable alternatives proposed by exporting countries. Australia did not do this.

4.105 The cumulative result of all the matters raised by New Zealand in respect of the risk assessment conducted by the IRA is that Australia has failed to comply with its obligations under Article 5.1 of the SPS Agreement.

(g) Article 5.2, 5.5 and 5.6

4.106 As New Zealand pointed out in its first written submission, Australia has breached Article 5.2. The obligation to "take into account" is an obligation of substance that requires giving genuine consideration to available scientific evidence and the other factors set out in Article 5.2. When, as in this case, the measures adopted fly in the face of available scientific evidence, then the Panel needs some evidence to show that the available scientific evidence and the other relevant factors were taken into account. But Australia provides no evidence to establish that it has in fact acted consistently with its obligations under Article 5.2.

4.107 Australia's measures for the importation of New Zealand apples are also inconsistent with its obligations under Article 5.5. Australia has adopted arbitrary or unjustifiable distinctions in the levels of protection it considers to be appropriate in different situations, and those distinctions result in discrimination or a disguised restriction on international trade. Australia's attempt to contradict the New Zealand arguments on the basis of alleged measures that do not exist or volumes of trade are not convincing, and its objections to the warning signals and additional factors identified by New Zealand are misguided.

4.108 Article 5.6 requires that a Member must not establish or maintain measures that are more trade restrictive than required to achieve its ALOP. However, that is exactly what Australia has done. In respect of both fire blight and European canker, a less trade restrictive alternative would be a measure requiring that New Zealand apples imported into Australia be mature, symptomless fruit. In respect of ALCM, there is also a less trade restrictive alternative available – a 600-unit sample inspection.

(h) Article 8 and Annex C

4.109 Australia has acted in breach of its obligations under Annex C(1)(a), and consequently under Article 8, of the SPS Agreement. The completion of the IRA process was delayed well beyond any reasonable period of time for considering New Zealand's request for apples access. As New Zealand noted in its first written submission, "[m]easures resulting from such a delayed process have not been imposed in accordance with the SPS Agreement."

4.110 New Zealand rejects Australia's claim and sees no need for a preliminary ruling on this matter. Australia's arguments are based on the false assumption that the measure at issue under New Zealand's Annex C(1)(a) claim is the "IRA process". New Zealand has never claimed that the IRA process is a measure at issue in this dispute. The measures at issue under New Zealand's Annex C(1)(a) and Article 8 claim are the 17 measures identified in New Zealand's panel request. Australia appears to believe that the "measure at issue" under Annex C(1) must be the "procedures to check and ensure the fulfillment of SPS measures" referred to in the chapeau of Annex C(1). Once again, as was clarified in *EC – Approval and Marketing of Biotech Products*, Australia is mistaken.

4.111 In New Zealand's view, the procedure to check and ensure the fulfilment of SPS measures in the present case is the IRA process relating to apples from New Zealand. So while the IRA process is certainly relevant to New Zealand's claim, it is not the measure at issue. In New Zealand's view, measures resulting from such a delayed process have not been imposed in accordance with the SPS Agreement.

4.112 Where substantive SPS measures have been adopted following an approval process, the approval process itself will have ceased to exist. In *US – Certain EC Products* the Appellate Body said it would be an error for a panel to make recommendations under DSU Article 19.1 where a measure has ceased to exist. An interpretation of Annex C(1)(a) that requires a complaining Party to challenge measures that have ceased to exist does not accord with the DSU's aim of securing a positive solution to the dispute. For these reasons, Australia's procedural objection to New Zealand's claims under Annex C(1)(a) and Article 8 should be rejected.

4.113 Finally, New Zealand reaffirms all matters dealt with in its first written submission that have not been discussed in this oral statement and requests the Panel to make the rulings set out in its request for relief in its first written submission.

3. New Zealand's closing oral statement at the first substantive meeting

4.114 In the light of the first written submissions and oral statements, New Zealand thought that it would be helpful for the Panel for New Zealand briefly to identify in this concluding statement the issues in dispute between the Parties.

4.115 First, this is not a case about the right of Australia to set its ALOP. In its opening oral statement at the first substantive meeting Australia made much of the fact that it is entitled to set its own ALOP. New Zealand has not and does not dispute this. New Zealand makes no challenge to Australia's ALOP in this case or its right to set its ALOP.

4.116 Second, this is not a case about the burden of proof. Again, Australia frequently claims that New Zealand has not met its burden of proof, often more as a rhetorical device than as a real argument. But, the issue between the Parties is not about whether sufficient evidence has been adduced to establish a *prima facie* case or whether New Zealand must prove a negative – that pathways for the transmission of fire blight, European canker and ALCM do not exist.

4.117 Third, this is not really a case about the applicable law. The basic obligations relating to SPS measures have been clarified through dispute settlement in several cases so there should be little dispute about them. Australia has tried to introduce a "considerable deference" standard of review, apparently as a kind of *lex specialis* for SPS cases, or perhaps as New Zealand heard in the first day of the meeting in response to questions for Article 5.1 alone. But attempts like this in other SPS cases have been rejected in the past and they should not be given any credence in this case.

4.118 Equally Australia's attempt to give Article 5.1 primacy so that consistency with Article 5.1 constitutes consistency with Article 2.2 provides a gloss on the law which, when combined with a deferential standard of review, is really an attempt to shield its measures from serious review in the light of the standards of the SPS agreement. It is a claim for exemption from the agreement. Under the guise of maintaining a balance in the rights and obligations of the SPS Agreement, Australia is seeking to re-order those rights and obligations.

4.119 Fourth, the fundamental question in this case and the fundamental issue that divides the Parties is whether the measures imposed by Australia are maintained with sufficient scientific evidence. This can be expressed in terms of Article 2.2 as whether there is a "rational or objective

relationship" between the measures and scientific evidence, and in terms of Article 5.1 whether there has been a proper assessment of the "likelihood of entry, establishment and spread" of the three pests.

4.120 This, in fact, is the heart of this case.

4.121 The claim by Australia that the importation of mature symptomless apples provides a pathway for the transmission of the fire blight and European canker diseases and the ALCM pest, is based on conjecture and supposition, not on scientific evidence. At critical points along these alleged pathways, as New Zealand has pointed out, scientific evidence in support of the Australian position simply does not exist. The resolution of this difference between the Parties is ultimately the issue that the Panel has to decide.

4.122 Measures that can be shown to have a rational or objective relationship with scientific evidence meet the requirements of Article 2.2. A risk assessment that evaluates the likelihood of entry, establishment and spread of a disease on the basis of scientific evidence about that risk, not on the basis of supposition or speculation about risk, complies with Article 5.1. But an assessment of risk cannot take negligible risk and multiply it up into higher risk by the use of numerical probability values that have no relationship to real world experience. And, while it is true that minority scientific opinion can be taken into account, such minority science must exist; it cannot just be claimed to exist.

4.123 In short, the task for the Panel in this case is ultimately to determine whether the Australian measures are grounded in sufficient scientific evidence, that is, whether there is a rational or objective relationship between the measures and scientific evidence, and whether that risk was properly evaluated in the IRA on the basis of scientific evidence. New Zealand is confident that, when the Panel does so, it will find Australia lacking on both counts.

4.124 Australia's failure to find a basis in science for its measures have certain further consequences in terms of its obligations under Articles 5.2, 5.5, 2.3 and 5.6. In those instances, too, Australia is in breach of its obligations under the SPS Agreement. In addition, behind all of this are Australia's intermingled political process and its lengthy, undue delay which results in a breach of Annex C and Article 8, and also provides an important background and context for considering Australia's measures in this case.

4.125 This concludes New Zealand's closing statement. New Zealand thanks the Panel for its attention in this first oral hearing and looks forward to responding in due course to the Panel's written questions.

4. Executive summary of New Zealand's second written submission

(a) Introduction

4.126 In its first written submission, New Zealand established that Australia's measures for the importation of apples from New Zealand are not in conformity with Australia's obligations under the SPS Agreement. Australia's purported rebuttal seeks to shelter the Final Import Risk Analysis for Apples from New Zealand (IRA) from effective review, and divert the Panel from the fundamental issue in this case, namely, the lack of sufficient scientific evidence to support Australia's measures. The responses of the experts to the Panel's questions have confirmed the flaws in the IRA and the insufficiency of the scientific evidence relied on by Australia.

(b) Detailed rebuttal of Australia's arguments

(i) *Measures at issue*

4.127 Australia is incorrect in arguing that the definition of SPS measures contained in the SPS Agreement only includes measures that "actively" reduce SPS risks ("principal measures"), and not measures that reduce risk by supporting or implementing "principal measures" ("ancillary measures"). It is clear that the definition of SPS measures in the SPS Agreement includes any measures applied to protect against SPS risks. The reasoning in *US – Export Restraints* does not change this definition, and is entirely consistent with treating both "principal" and "ancillary" measures as SPS measures in the present case.

4.128 With the exception of measure 12, New Zealand maintains its position that the measures identified in New Zealand's panel request remain at issue, and are correctly characterised.

(ii) *Product at issue*

4.129 Whatever disagreement remains as to the precise "product at issue" in this case, the Parties appear to agree that the focus of this dispute should be on the product that is actually traded. New Zealand articulates this as "mature, symptomless apples". There is no practical difference between this and the product assessed in the IRA.

(iii) *Standard of review and burden of proof*

4.130 The appropriate standard of review in this case is set out in Article 11 of the DSU, which requires that the Panel make an "objective assessment" of the matter. The Appellate Body has stated that this "articulates with great succinctness but with sufficient clarity the appropriate standard of review", and this standard has been applied in every SPS case to date. Australia proposes a standard of "considerable deference" which has been rejected twice before by the Appellate Body. None of the cases cited by Australia support a "considerable deference" standard, and the "balance of jurisdictional competencies" would be undermined, not promoted, by Australia's proposed standard of review.

4.131 New Zealand has not presented an alternative view of the science as Australia suggests. Rather, New Zealand has established that Australia's measures, and the conclusions in its risk assessment, do not find sufficient support in the science, which is simply discharging New Zealand's burden of proof.

4.132 The right to rely on divergent scientific opinion does not help Australia's defence. The studies or information relied on by Australia either do not meet the definition of "divergent scientific evidence", or do not sufficiently support Australia's conclusions. In addition, there is no evidence, divergent or otherwise, regarding the completion of the various pathways as a whole. Moreover, Australia's implication that the IRA is itself a source of divergent scientific opinion is simply another variation of "considerable deference", designed to prevent meaningful WTO review of the IRA.

(iv) *Relationship between Articles 2.2 and 5.1, and order of analysis*

4.133 Articles 2.2 and 5.1 establish separate legal obligations. Australia's view that compliance with Article 2.2 "can only be answered" by considering compliance with Article 5.1 is incorrect and ignores the jurisprudence of panels and the Appellate Body. Australia seeks to conflate two distinct provisions into a single obligation with a single test. Combined with Australia's "considerable deference" standard of review, the result is that panels would be denied a mandate to objectively assess the sufficiency of the science. New Zealand disagrees that Article 2.2 was drafted too

narrowly, or that the complexity of risk analysis, the weighing of factors, the use of judgement by risk assessors, or the application of particular methodologies, are reasons to read down Article 2.2 in favour of Article 5.1.

4.134 In New Zealand's view, it would be appropriate in the circumstances of this case for the Panel to start its examination with Article 2.2. This approach is consistent with that taken in *Japan – Apples* and the opinions of the Appellate Body in *EC – Hormones* and in *Australia – Salmon*.

(v) *Australia's measures are inconsistent with Article 2.2*

4.135 Australia's measures for fire blight assume that there is a risk that mature, symptomless apples are involved in the spread of the disease. Yet Australia has been unable to point to any scientific evidence to support the existence of a pathway that would or could allow the introduction of fire blight in Australia via mature, symptomless apples imported from New Zealand. The experts' responses to the Panel's questions also support New Zealand's position that there is no such scientific evidence. There is therefore no rational or objective relationship between any of Australia's measures for fire blight and the scientific evidence, in breach of Article 2.2 of the SPS Agreement.

4.136 There is also a lack of scientific evidence to support each of the individual steps into which Australia breaks up its hypothetical fire blight pathway. For example, New Zealand and the experts have noted the absence of scientific support for Australia's hypothesis that a single *E. amylovora* bacterium, or a very small number of such bacteria on a mature, symptomless apple, would be sufficient to introduce fire blight under natural conditions. Accordingly, New Zealand maintains its submission that the population levels of *E. amylovora* occasionally found on infested apples at harvest are, under natural conditions, insufficient to be transferred to a susceptible host and result in the spread of disease. While it is possible that in rare circumstances *E. amylovora* may survive on harvested apple fruit, any such bacteria will only survive in small and diminishing numbers, unable to multiply.

4.137 Having been unable to produce any scientific evidence to support its fire blight measures, Australia then asserts that New Zealand is required to produce the evidence to prove that mature, symptomless apples *could not* introduce fire blight. But this is an attempt to reverse the obligations in the SPS Agreement. Rather, under Article 2.2, Australia may not maintain a measure without sufficient scientific evidence. Australia has failed to rebut New Zealand's case that Australia's fire blight measures are maintained without sufficient scientific evidence.

4.138 Australia's European canker measures are based on the contention that mature, symptomless apples from New Zealand provide a pathway for the establishment of European canker in Australia. The experts' responses confirm that such a pathway has never been demonstrated to exist.

4.139 In New Zealand, pre-harvest fruit rots caused by *N. galligena* are extremely rare and latent fruit rots (the only kind relevant to the alleged pathway) are virtually non-existent, which, as confirmed by the experts, reflects the generally unfavourable summer climatic conditions for fruit infection in New Zealand. New Zealand has demonstrated, and the experts have confirmed, that the only "evidence" put forward by Australia of latent infections in New Zealand, the Braithwaite report, does not constitute sufficient scientific evidence to support Australia's assumptions.

4.140 Moreover, climatic conditions in Australia are not conducive to the establishment and spread of European canker, an assessment supported by the experts. Australia's attempts to discredit New Zealand's climate arguments are misconceived. Australia has resorted to defending the IRA by producing an alternative climate analysis, but this lacks transparency, is methodologically flawed, and shows incorrect results when compared against the known incidence of European canker.

4.141 The failure of the disease to spread from the four affected orchards during the outbreak of European canker in Tasmania supports New Zealand's arguments as to climatic unsuitability. In an attempt to rebut this, Australia offers new explanations, not previously considered by the IRA, as to the existence of a heterothallic strain of *N. galligena* and the absence of a suitable mating partner. However, Australia's theory relies on an isolated finding in Germany which has no basis in the facts surrounding the Tasmanian outbreak. In addition, Australia has failed to rebut evidence of the absence of a pathway, in light of the failure of the disease to spread beyond the four affected Spreyton orchards despite the unrestricted movement of apple fruit for the duration of the Tasmanian outbreak.

4.142 Australia has failed to provide any scientific support for its contention of a pathway for the transmission of European canker via New Zealand apple fruit. Accordingly, none of the measures imposed by Australia in respect of European canker are based on sufficient scientific evidence, and are thus in breach of Article 2.2.

4.143 Australia's measures for apple leafcurling midge (ALCM) are also maintained without sufficient scientific evidence. They are premised on the incorrect assumption that all ALCM cocoons are risk factors. But the scientific evidence is clear that only viable cocoons would present any risk, and only a very small proportion of cocoons on New Zealand apples contain viable ALCM.

4.144 Australia argues that it did take cocoon viability into account but, as confirmed by the experts, it is obvious from the text of the IRA that it did not. Australia's attempt to critique the methodology of the scientific studies on viability is flawed, and does not change the fact that Australia ignored the relevant scientific evidence.

4.145 Australia's measures are also based on the incorrect assumption that ALCM females have a flying range of up to 200m. As confirmed by the experts, this conclusion is not sufficiently supported by the scientific evidence. The experts have also confirmed New Zealand's position that ALCM emergence will occur over an extended period of time, which was not factored into the IRA's conclusions. Finally, Australia's measures are based on incorrect assumptions about normal retail supply chain practices which would effectively exclude any opportunity for ALCM establishment.

4.146 There is, therefore, no rational basis for Australia's conclusion that the sequence of events required for ALCM establishment in Australia – many thousands of apples left outside of cold storage, uncovered, in the same place, at the same time, within 30-50m of newly unfurling apple leaves – would occur. Australia's comparison with the establishment of wheat bug in the Netherlands (which has not been linked to trade in apples) is irrelevant to this dispute.

4.147 Because none of the pest-specific measures are supported by sufficient scientific evidence, neither are the general measures. Australia has failed to identify, with reference to scientific evidence, the particular risks which the general measures are supposed to address, or their efficacy in dealing with that risk. Australia's flawed principal/ancillary distinction cannot remedy this failure.

(vi) *Australia's measures are inconsistent with Article 5.1*

4.148 New Zealand has demonstrated that the IRA is not objectively justifiable; it does not contain reasoning that is objective and coherent, or conclusions that find sufficient support in the scientific evidence relied upon. Australia's attempts to read down the obligation in Article 5.1 – by proposing a new "objective and credible" standard, misrepresenting the phrase "appropriate to the circumstances", falling back on "expert judgement" and "scientific uncertainty", and claiming that New Zealand has conducted its own risk assessment – are without basis, and should be rejected.

4.149 Australia's responses to the three fundamental flaws with the IRA's methodology identified by New Zealand also lack merit. Australia effectively admits that there is no correlation between the

maximum value of one in a million apples, and the qualitative description of a "negligible" likelihood as an event that would almost certainly not occur. Australia's arguments regarding the second flaw merely underline the fact that using a uniform distribution results in an over-representation of values that significantly overestimate the risk. When applied to something traded in millions of units (the "per apple" methodology), the result is that "negligible" events are assessed as occurring numerous times each export season. With regard to the third flaw, Australia has failed to rebut New Zealand's arguments that the volume of trade will be significantly lower than the IRA's most likely value and that this is another factor causing the assessed level of risk in the IRA to be inflated.

4.150 Australia did not evaluate the likelihood of importation, establishment and spread of fire blight, or of the associated potential biological and economic consequences, in relation to imports of mature, symptomless apples from New Zealand. No evidence of the existence of a pathway is contained in the IRA, or in Australia's first written submission, and thus Australia has failed to assess risk in accordance with Article 5.1. In addition, none of the experts have identified any scientific evidence supporting Australia's contention that a pathway exists for the introduction of fire blight via mature, symptomless apples.

4.151 Contrary to Australia's assertion in its first written submission, New Zealand draws appropriately on the following four matters in support of its case that the IRA is inconsistent with Article 5.1:

- (a) *Japan – Apples*, in which the panel found that, with respect to mature, symptomless apples, the risk that the transmission pathway could be completed is negligible; and that pathways must have a basis in science before they can legitimately form part of a risk assessment. Without making any suggestion that the Panel in the present case is "bound" to follow the findings in *Japan – Apples*, or that Australia did not need to carry out its own risk assessment, New Zealand's position remains that the findings in *Japan – Apples* are directly relevant to the present dispute.
- (b) The spread of fire blight to other countries via trade in apple fruit has never been reported.
- (c) Under natural orchard conditions, the number of *E. amylovora* that may, very rarely, be present on fruit will be low, dormant and declining, and as such will be insufficient to be transferred to susceptible hosts and initiate new infections.
- (d) Roberts and Sawyer 2008 and Roberts *et al.* 1998, which concluded that the risk of introduction of fire blight via imported apple fruit was so small as to be insignificant. None of Australia's criticisms of these studies have any merit. In any event, Australia misunderstands the purpose of New Zealand's reference to these studies. New Zealand does not contend that they are a substitute for Australia's risk assessment, or for the Panel's role in making an objective assessment of the matter presently before it. Nevertheless, the Panel may look at the conclusions in those papers (as it can with respect to any other relevant scientific study) in considering whether the conclusions in the IRA are supported by the scientific evidence.

4.152 New Zealand has also established that several of the conclusions drawn by the IRA in relation to its 'importation scenario' lack sufficient support in the scientific evidence relied upon. Australia has failed to rebut these criticisms. For example, Australia has failed to rebut New Zealand's argument that the IRA's conclusion on the probability of entry of *E. amylovora* into Australia is greatly inflated and is not supported by the scientific evidence. Nor has Australia rebutted New Zealand's case that there is no evidence to support Australia's crucial transmission ("exposure") theory. Australia speculates that *E. amylovora* would be transferred from mature, symptomless apples, either by insects

or by mechanical means, to susceptible hosts, under natural conditions, and that an infection would be initiated. New Zealand maintains its claim that there is no scientific evidence that, under natural conditions, low (or any) numbers of *E. amylovora* bacteria on mature apple fruit can be transferred onto a susceptible host and result in an infection. To the contrary, the scientific evidence shows that the likelihood of such occurrence is so small as to be insignificant.

4.153 In addition, the experts' responses cast further doubt on the conclusions Australia draws in relation to its importation steps for *E. amylovora*; the likelihood of importation of *E. amylovora*; and the probability of *E. amylovora* being transferred to and infecting a susceptible host.

4.154 The IRA's conclusions about entry, establishment and spread of European canker, as well as its assessment of consequences are not supported by sufficient scientific evidence. In New Zealand's first written submission, in addition to noting the lack of scientific support for the pathway as a whole, New Zealand pointed out the lack of scientific support for the individual steps in the pathway. In particular, there is no objective or rational relationship between the scientific evidence and the probability value that is chosen at each step of Australia's European canker pathway. In other words, the conclusions drawn by the IRA do not find sufficient support in the evidence relied on. The experts' responses confirm the lack of scientific evidence for almost every step of the pathway.

4.155 The probability value assigned to the likelihood that infected fruit may be picked (importation step 2) is exaggerated in light of the absence of confirmed reported instances of latent fruit infections in New Zealand due to the unfavourable summer climatic conditions in New Zealand's apple growing regions. Australia relies primarily on the unverified personal communication referenced in the Braithwaite report and data from Northern hemisphere countries with climatic conditions more favourable to fruit infection, to justify its conclusion in relation to this step, but these do not provide the necessary scientific support.

4.156 In addition, the experts confirm the lack of scientific support for the IRA's conclusions with respect to the likelihood that fruit may become surface-contaminated (infested) with *N. galligena* (importation steps 3, 5 and 7). Australia attempts to downplay the significance of these importation steps to the IRA's assessment, describing them as of only "minor" concern, but in fact they account for more than 80 per cent of the total probability of entry. The experts also support New Zealand's arguments that the IRA's conclusions regarding the survival of *N. galligena* during packing house processes and transport to Australia (importation steps 4 and 6) do not find sufficient support in the scientific evidence relied on.

4.157 As a consequence, the IRA arrives at an inflated estimate of the overall probability of entry, which estimates that approximately 1 in 15,000 New Zealand apples arriving into Australia would be latently infected or infested. Such a conclusion is not supported by the scientific evidence.

4.158 Australia has also failed to rebut New Zealand's argument that the IRA's conclusion on exposure is not supported by sufficient scientific evidence. In particular, New Zealand pointed out the lack of scientific support for the IRA's conclusions about spore production and dispersal of spores from rotten fruit onto a susceptible host in Australian conditions. Although Australia now seeks to distance itself from the IRA's assumptions about mummified fruit producing ascospores as a source of new infections in Australia – assumptions which have also been dismissed by the experts – Australia's revised position is inconsistent with the IRA. In addition, although Australia now insists that the IRA factored in that the dispersal range is no more than a few metres, this is not evident from the IRA. Finally, Australia's focus on a "sequence of events" continues to overlook the fact that the IRA failed to factor in the requirement for the simultaneous interaction of all three factors; pathogen, host and climate; in order for infection to occur.

4.159 Australia's attempted rebuttal of New Zealand's arguments on establishment and spread focuses on attacking New Zealand's climate analysis. Australia's first written submission relies on its own deeply flawed climate analysis, which does not remedy the flaws in the IRA's original consideration of this crucial factor. Australia's rebuttal of New Zealand's arguments on alternative hosts continues to rely on assumptions about the climatic similarity of Australia to regions where *N. galligena* is present on those hosts. These arguments cannot be sustained.

4.160 Finally, as the experts confirm, Australia's assessment of consequences is a significant over-estimate, as once again Australia has failed to consider its own circumstances, in particular the unfavourable climatic conditions.

4.161 The IRA's assessment of risk with respect to ALCM is also not sufficiently supported by scientific evidence. Indeed, the expert responses confirm that the IRA's assessment of risk is so flawed that it needs to be "recalculated".

4.162 The IRA's assessment of the likelihood that picked fruit will be infested with ALCM (importation step 2) has no scientific basis because it did not take into account the scientific evidence on viability. The IRA's conclusions with respect to the likelihood of contamination of New Zealand apples during packing and transport (importation step 3) also have no scientific basis.

4.163 Australia's only response to the numerous flaws in the IRA's estimate of the likelihood of ALCM entry is to concede that the IRA's eight step analysis of the likelihood of ALCM entry is irrelevant because it also used the August 2005 data provided by New Zealand. Australia's readiness to discard a significant part of its risk assessment is striking and calls into question the soundness of the rest of Australia's risk assessment.

4.164 The IRA's assessment of the likelihood of ALCM establishment and spread, and related consequences, also has no scientific basis. There is no scientific support for the IRA's key assumptions in respect of ALCM biology and the effect of normal trade practices on the risk associated with the importation of apples from New Zealand.

4.165 Finally, Australia has failed to evaluate the likelihood of entry, establishment and spread of each pest "according to the SPS measures which might be applied". Australia does not contest the IRA's lack of evaluation of what it terms 'ancillary' measures, but relies instead on its flawed principal/ancillary distinction to argue, incorrectly, that it is under no obligation to do so. In any event, the jurisprudence is clear that even what Australia calls 'ancillary' measures must be evaluated. Further, Australia responds to the argument that it has failed to consider the retail-ready measure put forward by New Zealand by misinterpreting the relevant case law.

(vii) *Australia's measures are inconsistent with Article 5.2*

4.166 Australia is incorrect to claim that it was not required, under Article 5.2, to give genuine consideration to the factors identified by New Zealand. Australia has failed to rebut New Zealand's case that these factors were not taken into account in the IRA.

(viii) *Australia's measures are inconsistent with Article 5.5*

4.167 New Zealand showed in its first written submission that the way Australia treats the similar risks associated with Japanese nashi pears and New Zealand apples constitutes a breach of Article 5.5. In response, Australia effectively concedes that the diseases are comparable (Japanese Erwinia and fire blight; and brown rot and European canker respectively) and focuses almost exclusively on showing differences in risks between the two situations. Australia relies on, *inter alia*: "assumptions" about area freedom in export areas; a flawed interpretation that situations must be current in order to

be compared; arguments about the relevance of trade volumes which are not borne out by the measures applied to Japanese nashi pears; and supposed differences in consequences which are not even supported by Australia's own assessments in the context of its Draft China Apples IRA. Despite the similar risks, Australia applies no measures to Japanese Erwinia, and the measures applied to Japanese nashi pears in respect of brown rot are much less onerous than those applied to New Zealand apples in respect of European canker. Australia is unsuccessful in its attempts to downplay or discredit the warning signals and additional factors identified by New Zealand, and taken into account in previous cases, as demonstrating discrimination and a disguised restriction on international trade.

(ix) *Australia's measures are inconsistent with Article 5.6*

4.168 Australia's primary objection to the alternative measures identified by New Zealand is that they would not meet Australia's ALOP, based on the assessments of risk contained in the IRA. However, New Zealand challenges these assessments of risk. There is no scientific evidence that mature, symptomless apples can provide a pathway for the introduction of fire blight or European canker into Australia, or that their importation would result in ALCM establishment and spread. New Zealand's alternative measures therefore meet Australia's ALOP.

4.169 Australia's proposed general measures are not required in respect of any other New Zealand exports. Australia has not provided any explanation as to why these are necessary to meet Australia's ALOP, and its efforts to downplay their restrictiveness are incorrect. New Zealand's proposed alternative (audits of WTO compliant measures) is consistent with existing arrangements between Australia and New Zealand and meets Australia's ALOP.

(x) *Australia's measures are inconsistent with Article 8 and Annex C(1)(a)*

4.170 Australia has not responded to New Zealand's substantive arguments regarding "undue delay", arguing only that the "IRA process" is not a measure at issue. However, New Zealand's claim is that the measures resulting from the IRA process are the measures at issue under this claim.

4.171 The 8 years (94 months) taken to complete the IRA clearly exceed what was reasonably necessary given that: Australian officials originally expected the process to take 12 months; Australian IRAs must now be completed within 24-30 months; similar IRAs had been conducted previously; there was no difficulty gaining access to the scientific information; there was no significant evolution of the science during this period; and there is no reasonable explanation that would justify the time taken to complete the IRA. Australia has not rebutted the evidence provided by New Zealand of a parallel and intertwined political process that helps to explain, but not justify, this delay.

(c) Conclusion

4.172 For these reasons, further developed in the body of its second written submission, New Zealand reaffirms the request in its first written submission that the Panel find that Australia's measures are inconsistent with the SPS Agreement.

5. Executive summary of New Zealand's opening oral statement at the second substantive meeting

(a) Introduction

4.173 Australia has failed to rebut New Zealand's case that Australia's measures are not supported by scientific evidence and the IRA does not constitute a risk assessment whose conclusions are

objectively justifiable. The experts reiterated what they said in their reports and they too demonstrated that the conclusions of the IRA are not supported by scientific evidence.

4.174 The experts confirmed that there is no scientific evidence to support Australia's conclusions that mature apples pose a risk of introduction of fire blight. The IRA's overall probability of importation is unsupported by scientific evidence, as are its conclusions in relation to most of the importation steps. Dr Paulin concluded that the risk of fire blight from trade in apples is about as likely as the risk of such transmission by insects carried by air currents from New Zealand, i.e. there is no greater risk than through natural dispersal. Imposing measures on apples creates no greater protection than having no measures.

4.175 With respect to European canker, the experts confirmed that there is no evidence that apple fruit are responsible for dissemination of the disease to new areas. There is no basis for concluding that a mature, symptomless requirement would not meet Australia's ALOP. Dr Swinburne described the risk of transfer via apples as "vanishingly small". The real risk of transfer is through the movement of planting material. In addition, the experts confirmed the insufficiency of the scientific evidence supporting the IRA's conclusions as to individual importation steps and the probability of entry, exposure, establishment and spread. The experts also considered that the IRA's assessment of consequences was flawed.

4.176 In respect of ALCM, the expert view was unequivocal. By ignoring viability, parasitism, the prolonged period of adult ALCM emergence, and mode of trade issues, and by making assumptions that were not based on scientific evidence, the IRA overestimated the likelihood of ALCM entry and establishment. Indeed, the ALCM expert, Professor Cross, concluded that the risk assessment was so flawed that it needed to be "recalculated".

(b) Australia's second written submission

4.177 Australia's argument about principal and ancillary measures finds no basis in the SPS Agreement. If principal and ancillary measures are capable of giving rise to violations "collectively", then they must also be subject to the obligations "collectively" and need to be evaluated "collectively" with principal measures to assess their impact on risk. The IRA did not do this.

4.178 Since *Canada – Continued Suspension* the law relating to standard of review has not changed. The Appellate Body simply applied well-established principles prohibiting *de novo* review, and affirmed the right of Members to rely on divergent scientific evidence. Although Australia now claims to have renounced the use of the terms "deference" and "considerable deference", the decision in *Continued Suspension* is treated by Australia as embodying a "considerable deference" standard. Clearly it does not do so.

4.179 Australia claimed that the IRA is supported by unspecified divergent scientific evidence or that the IRA was itself divergent scientific evidence. Unable to find sufficient scientific support for its measures, Australia now claims there is "scientific uncertainty", such that deference must be accorded to the expert judgement of the risk assessors. Although the term "scientific uncertainty" does not appear in the SPS Agreement, it provides a framework for managing scientific uncertainty, through Article 5.7 and the right to rely on divergent scientific opinion. Beyond this, notions of "scientific uncertainty" and "expert judgement" provide no justification for avoiding the science-based obligations in the SPS Agreement, or for suggesting that deference be accorded to the views of the risk assessors. The fact that Australia cannot find data or scientific studies to support its conclusions underlines the speculative and hypothetical nature of the pathways considered. This is not a situation of scientific uncertainty; it is an example of the scientific evidence not supporting Australia's measures.

4.180 Australia also places weight on conclusions which it asserts the IRA Team reached but which are not reflected in the IRA itself, for example importation steps 3, 5 and 7 in respect of European canker. Transparency is an integral part of objective justifiability. Claimed backroom deliberations of the IRA Team are irrelevant.

(c) The task of the Panel

(i) *Standard of review*

4.181 In accordance with DSU Article 11 the task of the Panel is to "objectively assess" the claims, evidence and arguments before it, and to determine whether the measures at issue are consistent with the relevant provisions of the SPS Agreement. The Panel should not conduct a *de novo* review or do its own risk assessment. The focus must be on reviewing the sufficiency of the scientific evidence underlying Australia's measures. The Panel enjoys discretion as to which evidence to utilise in making its findings, and the value and weight to be ascribed to that evidence. This mandate applies under both Article 2.2 and Article 5.1.

4.182 The Appellate Body in *Continued Suspension* stated that a panel's role under Article 5.1 is to "determine whether [a] risk assessment is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable". This requires determining whether the measure is based on science coming from a respected and qualified source, i.e. it has "the necessary scientific and methodological rigour to be considered reputable science", and whether "the reasoning articulated on the basis of the scientific evidence is objective and coherent". The Appellate Body stated that this requires a panel to "review whether the particular conclusions drawn by the Member assessing the risk find sufficient support in the scientific evidence relied upon".

4.183 *Continued Suspension* does not support Australia's claim that New Zealand must demonstrate "serious flaws" with respect to each and every conclusion in the IRA. The focus must be on whether the IRA is "objectively justifiable", requiring an assessment of the cumulative effect of the IRA's many flaws. The Appellate Body reaffirmed the "broad discretion" that panels have in exercising their "significant investigative authority" to consult experts. In making its "objective assessment" the Panel will consider the relevancy and weight to be attached to the experts' comments in deciding whether the IRA is supported by sufficient scientific evidence. This "objective assessment" should be carried out in light of the well-established rules regarding burden of proof. Australia's suggestion that New Zealand faces a higher burden of proof in this case should be rejected as yet another attempt to shelter its risk assessment from proper review.

(ii) *Relationship between Articles 2.2 and 5.1*

4.184 Australia's original argument was that Article 5.1 had to be considered first because compliance with Article 2.2 "can only be answered" by reference to Article 5.1. New Zealand demonstrated this argument is incorrect. Australia now says that "the standard established by Article 2.2 is fully met if the risk assessment satisfies the conditions elaborated in Article 5.1." This says nothing about the order in which those provisions should be assessed, and is also incorrect. A determination that there has been a risk assessment within the meaning of Article 5.1 does not resolve whether each of the challenged measures has a rational and objective relationship with scientific evidence under Article 2.2.

(iii) *The weight to be given to Japan – Apples*

4.185 In *Japan – Apples* the panel concluded that the scientific evidence did not establish that mature, symptomless apple fruit would be infected by fire blight, or harbour endophytic populations of *E. amylovora*, or harbour epiphytic populations of bacteria capable of transmitting fire blight. And

the panel in *Japan – Apples* concluded that the scientific evidence did not establish that apple fruit – whether mature or immature – would serve as a means or pathway for the introduction of fire blight to a fire blight-free area. The panel's conclusions in *Japan – Apples* were reached on the basis of substantially the same scientific evidence as that considered in the context of this dispute. If the Panel were to reach the same conclusions in relation to the scientific evidence as were reached in *Japan – Apples*, then it would inevitably follow that Australia's fire blight measures are maintained without sufficient scientific evidence, in breach of Article 2.2. This would not constitute "deferring" to the findings in *Japan – Apples* as Australia asserts; it would be the result of an objective assessment required under DSU Article 11.

4.186 Australia's arguments for ignoring *Japan – Apples* cannot be sustained, because the conclusions in *Japan – Apples* relate to the same matters in issue in the present case. Contrary to Australia's argument, the conclusions in *Japan – Apples* relate equally to epiphytic infestation as endophytic infection. The consequences of the introduction of fire blight were taken into account, as was the volume of international trade in apple fruit. Australia fails to point to any scientific evidence, considered by the IRA team but not considered in *Japan – Apples*, that would have altered the panels' conclusion in that case.

(d) Article 2.2

(i) *Fire blight*

4.187 New Zealand's central argument in relation to fire blight is that there is no scientific evidence that mature, symptomless apples provide a pathway for the introduction of the disease. First, mature apple fruit are not a conducive environment for *E. amylovora*. Second, the likelihood apples will enter Australia with *E. amylovora* on them is very small and there is no evidence to justify the high figure that Australia has used in the IRA. Third, as confirmed by the experts, there is no scientific evidence of transfer of bacteria from a mature apple to a susceptible host and an infection resulting. The only scientific evidence goes the other way.

4.188 Australia fails to point to any "interpretation" of the scientific evidence that supports its pathway hypothesis apart from the so-called "divergent scientific evidence" of the IRA itself, or the exercise of the IRA Team's "expert judgement" in relation to matters of "scientific uncertainty". Thus, according to Australia, the IRA itself becomes scientific evidence sufficient to satisfy Article 2.2. But, Australia cannot by these means escape the core obligation of Article 2.2, not to maintain measures without sufficient scientific evidence.

4.189 Equally, New Zealand has no obligation to prove that apples are *not* a pathway for the introduction of fire blight. New Zealand has established a *prima facie* case that there is no evidence of a pathway and it is for Australia to point to the scientific evidence that supports its contention that a pathway exists. It has not, and it cannot do so. Accordingly, Australia maintains fire blight measures without sufficient scientific evidence, in breach of Article 2.2.

(ii) *European canker*

4.190 The measures established by the IRA are not based on sufficient scientific evidence, contrary to Article 2.2. The experts have confirmed there is no scientific evidence of the transfer of European canker through trade in mature, apple fruit. Australia argues that latent fruit infection is a widely accepted phenomenon, and that because latent fruit infection occurs in some Northern Hemisphere countries, it also occurs in New Zealand. This fails to take account of the effect of climatic differences. The only evidence Australia provides on latent infection in New Zealand is the Braithwaite report, which the experts confirm is neither relevant nor reliable.

4.191 Further, there is no scientific evidence to support the contention that European canker could establish via discarded fruit, let alone spread under Australian conditions. In particular, the experts confirm that there is no evidence in the literature that fruit rots caused by *N. galligena* are a source of new infections in new areas. In addition, the IRA's assumptions about the climate of Australian apple-producing regions are not based on scientific evidence. Australia's new "climate analysis" is simply a collection of weather data with no predictive value and fails to contradict New Zealand's position.

4.192 Australia's argument that Tasmania is less suitable for European canker establishment and spread than other parts of Australia is not supported by the first BRS report which Australia relies upon. And Australia contradicts the conclusions in the IRA by suggesting that the outbreak of disease in Tasmania may not have been caused by *N. galligena* at all.

(iii) *ALCM*

4.193 There is no scientific evidence that the sequence of events required for ALCM establishment in Australia – many thousands of apples left outside of cold storage, uncovered, in the same place, over a considerable period of time, within the limited female ALCM flight range of newly unfurling apple leaves – would occur. Indeed, there is no scientific evidence that ALCM has ever been vectored by trade in apples. As confirmed by the expert responses, the existing scientific literature instead links the movement of ALCM to planting material.

4.194 Australia claims that enough New Zealand apples could be sent to orchard wholesalers for mating to occur. But retail ready packaged New Zealand apples are extremely unlikely to be sent to orchard wholesalers, the only utility point within sufficient proximity to apple trees, leaving, in Professor Cross's words, "virtually no opportunity for ALCM to emerge, mate, exit the packing house and locate a susceptible apple tree".

4.195 Only once New Zealand apples reach their final retail destination and are outside of cold storage could emergence occur. But, by then, New Zealand apples would never be in the quantities required for ALCM mating. Because of the very low level of viable cocoons on New Zealand apples, the prolonged period of emergence of ALCM adults and their very short life-span, many thousands of apples would need to be outside of cold storage, in the same place, over an extended period of time, for there to be any possibility of mating occurring. Australia failed to take such matters into account. Instead, Australia's measures are based on the incorrect assumption that ALCM emergence would occur immediately from all cocoons on New Zealand apples, an assumption that has no scientific basis. Australia's claim that emergence and mating could occur while apples are on display at retail outlets, open-air markets or when dumped as waste is therefore implausible.

4.196 As Australia has itself admitted, urban retailers are very unlikely to be near enough to apple trees for egg laying to occur. Thus, even if sufficient quantities of apples were on display at retail outlets or open air-markets, they would not be within the female ALCM's flight range of apple trees. Likewise, even if apple waste was disposed of in the volumes required for mating, it is extremely unlikely that it would be left near commercial apple trees. Australia's argument that "large quantities of fruit waste may be left uncovered in production areas" and may be "dumped under host plants", is made without any supporting evidence. Such practices would be directly contrary to Australian orchard biosecurity best practice guidelines which require agricultural waste to be destroyed or disposed of well away from orchards. Australia's measures are therefore maintained without sufficient scientific evidence, in violation of Article 2.2.

4.197 In addition, there is no scientific support for the general measures that apply to all three pests, in breach of Article 2.2.

(e) Article 5.1

(i) *Methodology*

4.198 New Zealand has demonstrated that the "negligible" interval (between 0 and 10^{-6}) used in the IRA to represent events that "almost certainly will not occur" includes values that significantly overestimate the risk. The use of a uniform distribution weights the outcome in favour of those values. The result is that these are no longer events that "would almost certainly not occur".

4.199 This approach is not, in any sense, objectively justifiable. The IRA simply applied pre-determined probability intervals taken from generic draft "Guidelines" developed in a completely different context. The IRA contains no explanation or analysis as to why these pre-determined probability intervals were appropriate in the context of a risk assessment for apples. The IRA took no account of the implications of applying these pre-determined probability intervals when the unit considered (a single apple) is traded in the tens of millions (the IRA's model was based on a "most likely volume of trade" of 150 million apples). In this context the maximum value of the "negligible" interval represents one in a million apples, and applying a uniform distribution results in outcomes that tend toward the average of one in two million apples. The "negligible" interval is the lowest probability interval used in the IRA. Despite Australia's claim that the IRA Team were free to use other intervals, not once was a lower probability interval applied.

4.200 There is no objective basis for the parameters and distribution of the "negligible" interval. Australia argues that the interval was used to "assist consistency in the risk assessment", and that "any choice of intervals is arbitrary". But the parameters and distribution of the interval have a direct and significant bearing on the overall estimation of risk, especially given that the "negligible" interval makes up over a third of all likelihood values used in the risk assessment. The values chosen must be objectively justifiable.

4.201 Australia also suggests that the intervals are justified because the interval "contained" the actual value. But the "negligible" interval ranges from zero to one in a million apples. It therefore represents events that "almost certainly will not occur", as well as events that manifestly would occur. Systematically combining this interval with a uniform distribution means that higher likelihoods are significantly over-represented.

4.202 Australia claims that "[t]he IRA Team applied expert judgment in arriving at appropriate distributions taking into account available data and the uncertainty resulting from the absence of data". However, simply claiming that "expert judgement" has been applied does not establish that the outcome is "objectively justifiable". Australia purports to render its risk assessment self-justifying. Moreover, it is difficult to see in what sense the IRA Team applied "expert judgement" in the context of the "negligible" interval. Pre-determined probability intervals were simply imported from another context without analysis. The same interval was used every time a "negligible" interval was applied. And a uniform distribution was applied almost every time. Beyond concluding that this broad and over-inclusive interval "contained" the actual value, the role of expert judgement is not apparent.

4.203 Furthermore, the quantity and quality of the data are factors that should be considered in deciding what methodology to apply. The experts' replies have made it clear that the incorporation of quantitative elements into a methodology is meant to add precision where available data and scientific evidence make this possible. It is *not* supposed to create *imprecision* through the systematic application of uniform distributions, justified on the basis of "significant uncertainties". This is especially so where the interval in question ranges across several orders of magnitude.

4.204 Australia's description of the method used to arrive at an expert opinion appears to have been an unstructured process, not following any recognized method for eliciting and combining expert

opinions in order to derive a particular range of values and distributions, casting doubt on the notion that a coherent and objective process was used.

4.205 Australia's estimate of a most likely import quantity of 150 million New Zealand apples annually (15 per cent of Australia's domestic fresh apple fruit market) also lacks any objective justification, and is based on a range of unsupported assumptions and suppositions. But despite the many uncertainties inherent in Australia's conclusion on the likely volume of trade, and the doubts raised by New Zealand, Australia firmly clings to its estimate. This is no doubt because of the importance of volume of trade to Australia's risk analysis methodology. As the IRA itself acknowledges, "very low exposure values expressed on a per apple basis could be highly significant when the potential volume of trade is taken into account". This reflects an unstated motivation underlying Australia's application of the semi-quantitative methodology; to use volume of trade to boost the estimated risk associated with New Zealand apples to a level that Australia claims justifies phytosanitary measures.

(ii) *Fire blight*

4.206 The experts confirmed that many of the conclusions in the IRA relating to fire blight lack sufficient scientific support. This was true of importation steps 1, 2, 3, 4, 5 and 7, the IRA's conclusions in relation to the overall probability of importation of *E. amylovora*, and in relation to the probability of exposure of a susceptible host to *E. amylovora*. Rather, the experts confirmed that the IRA's conclusions are fundamentally flawed and not objectively justifiable. Their responses confirm that "the scientific evidence *actually relied upon* did not support the conclusions drawn", and that Australia's theory that mature apples provide a pathway for the introduction of fire blight has no scientific support.

4.207 Unable to challenge the substance of the experts' responses, Australia has instead: attacked their qualifications; asserted that the flaws found by the experts were not serious enough to require the Panel to do anything; and argued that the Panel or New Zealand needs to see whether alternative probabilities are available on the evidence. This, in effect, asks the Panel and New Zealand to redo the risk assessment. None of these arguments withstands analysis.

4.208 Under Article 5.1, the task of the Panel is to review Australia's risk assessment, not to conduct a *de novo* review, or redo the Australian risk assessment. New Zealand's claim that the IRA fails to provide a risk assessment in respect of fire blight has been confirmed by the experts and is not rebutted by Australia.

(iii) *European canker*

4.209 New Zealand has demonstrated, and the experts have confirmed, that the IRA's conclusions in relation to the probability of entry, establishment and spread of *N. galligena*, and its conclusions on consequences, do not find sufficient support in the scientific evidence relied on.

4.210 New Zealand challenges the IRA's assessment of the probability that latently infected fruit will be harvested from New Zealand orchards. As the experts confirm, Australia has not provided sufficient scientific evidence to support the values assigned to this step. Moreover, in assigning an effective probability of 1 to survival of latent infections through processing in the packing house, the IRA does not take into account that fruit would be stored in New Zealand until grading and packing for just in time delivery to the Australian market. Thus, any rots which developed in storage would be removed prior to export, reducing the possibility of the entry of infected fruit into Australia.

4.211 Australia also asserts that "surface infestation of mature apples occurs in New Zealand, both in the field and in processing". However there is no evidence of surface contamination. The experts

conclude that contamination would not "play any part in an entry pathway" and that "this possibility should be disregarded from the risk analysis". Since the surface contamination pathways under the IRA account for more than 80 per cent of the total probability of entry, it is impossible to have any confidence in the conclusions of the IRA.

4.212 Australia now argues that New Zealand (and by implication the experts) have misunderstood the IRA's methodology and that surface infestation is only a precursor to latent infection and in this way importation steps 3, 5 and 7 refer also to latent infection. However the IRA does not discuss how or when fruit infestations would turn into fruit infection or evaluate the likelihood of this event occurring. In any event, there is no scientific evidence to support the contention that surface infestations will lead to infections at each of these steps and this was confirmed by the experts.

4.213 Australia also claims expert support for its exposure scenario, but it can only do so by selectively quoting from the experts' responses. In fact, Professor Latorre challenges the *probability* values assigned by the IRA team. And, both Drs. Swinburne and Latorre identified numerous reasons why the scientific evidence does not support the IRA's conclusion on exposure.

4.214 In its first written submission, New Zealand established that the IRA's analysis of climate was flawed and that the climatic conditions in Australia were not suitable for the establishment and spread of European canker. The experts confirm that there is no evidence to support the IRA's use of 1000mm rainfall as the relevant climatic indicator for European canker establishment. In its subsequent climate reports, Australia employs selective weather data, fails to take account of inoculum production and inappropriately uses "one off" weather events to predict establishment risk. Australia's use of different predictive models to bolster the IRA's conclusions as to the suitability of Australia's climate are deeply flawed and confirm that it is necessary to over-predict European canker risk in order to support the IRA's conclusions.

4.215 As New Zealand has established and the experts confirm, Australia's assessment of consequences is significantly over-estimated. Australia's arguments rest on the flawed premise of the suitability of its climate and assertions about the ability of the disease to establish on alternative hosts in Australia, which are not supported by scientific evidence.

(iv) *ALCM*

4.216 New Zealand has demonstrated that the conclusions drawn by the IRA in relation to the likelihood of entry, establishment and spread of ALCM, and the IRA's assessment of consequences, do not find sufficient support in the scientific evidence relied on. This has been confirmed by the experts, who describe the IRA's analysis of the likelihood of importation as "unclear", reliant on "old and inadequate published data", "subject to large uncertainties" and, most importantly, without "sufficient scientific evidence".

4.217 Australia's only response is its claim that the IRA's assessment of the likelihood of importation of ALCM is "irrelevant" because the IRA also relied on the August 2005 data. However, the IRA's failure to take into account the scientific evidence on viability is relevant not only to the IRA's conclusions on importation, but also to the entire assessment of risk, *including* the IRA's alternative conclusions on the likelihood of entry, establishment and spread, based on the August 2005 data, which related to occupied cocoons and not, as Australia incorrectly assumed, viable cocoons.

4.218 In an apparent acceptance of the IRA's failings with respect to viability, Australia has put forward various justifications, including that Australia was entitled to ignore Rogers *et al.* 2006 because its methodology was flawed and its results were unclear. Australia also claims that seasonal and varietal variability and scientific uncertainty mitigate the IRA's errors. But none of these factors

can cure the IRA's complete disregard of viability. While uncertainty may be an inherent part of risk analysis, it is not a licence to ignore inconvenient evidence.

4.219 As New Zealand has explained, the high rate of non-viable cocoons on New Zealand apples substantially affects the risk of ALCM establishing in Australia. As Professor Cross has said, the issue of viability is of "crucial importance ... in calculating risks and determining appropriate sample sizes..."

4.220 Moreover, as pointed out by Professor Cross, many of the key biological conclusions in the IRA with respect to the likelihood of ALCM establishment in Australia are not supported by scientific evidence. Even if there may be some uncertainty as to precisely when and how long it will take for adults to emerge there is no doubt that Australia's assumption of simultaneous emergence as soon as apples are removed from cold storage has no scientific support. As Professor Cross pointed out, the prolonged period of emergence substantially decreases the chance of male and female emerging during the necessary time frame for mating. To quote Professor Cross, "The risk of establishment is thus substantially reduced and this important factor has not been taken into account in Australia's IRA..."

4.221 The IRA also failed to take into account that standard commercial practices in Australia in respect of cold storage of fruit and agricultural waste disposal preclude any likelihood of the scenario required for ALCM establishment occurring in Australia. Australia claims that the IRA was correct to ignore Australian waste disposal practices because the Australian industry is unlikely to comply with them. This is a rather surprising proposition and it is a view not shared by Professor Latorre, who had a much more generous view of the "cultural attitude of Australian people" to the disposal of waste. Moreover, the waste disposal practices at issue are prescribed in the manual of Australian orchard biosecurity best practice guidelines.

4.222 The IRA also failed to take into account the crucial issue of mode of trade, a matter that was noted by the ALCM expert. If New Zealand apples are exported retail ready to Australia, the primary pathway identified by the IRA for ALCM establishment – orchard wholesalers – would disappear.

4.223 Finally, the IRA's assessment of the likelihood of ALCM spread and consequences failed to take into account the climatic factors required for establishment and spread and therefore over-estimated consequences. This, too, was confirmed by the experts and appears to be accepted by Australia.

4.224 With respect to Articles 5.2, 5.5, 2.3 and 5.6, New Zealand reaffirms its position on these provisions as stated in its earlier pleadings.

(f) Article 8/Annex C

4.225 The IRA process took 8 years to complete. Australia has offered no justification for this delay. Rather than countering New Zealand's substantive claim, Australia continues to relitigate the Panel's preliminary ruling. Australia wrongly equates the IRA process with the measures at issue, blurring "the distinction between *measures* and *claims*". The IRA process is the subject of the obligation, not the measure at issue. Moreover, Australia has not explained how the IRA process, which has ceased to exist, could be a challengeable measure under the DSU. It is well-established that "the measures included in a panel's terms of reference must be measures that are in existence at the time of the establishment of the panel". Finally, it is difficult to understand how Australia could not have known what case it had to answer. It was not necessary for Australia to know precisely what arguments New Zealand would be making to be on notice to begin preparing a defence in relation to its eight year delay.

6. New Zealand's closing oral statement at the second substantive meeting

4.226 New Zealand's closing statement will be brief. What New Zealand would like to do is come back to the fundamentals – the core of this case – because much has been said throughout this case by Australia to distract from that central core.

4.227 The Panel has heard over the course of these proceedings many arguments by Australia about what should be taken into account in the assessment of the evidence in this case. These have included the notions of considerable deference, scientific uncertainty, and expert judgment. And in their opening statement, Australia tried to characterize New Zealand's position as one of requiring scientific certainty. And under the guise of considering the "practical realities of conducting risk assessments" Australia seemed to be asking you to roll back the disciplines of the SPS Agreement. But the Panel's task need not be trammled by these efforts to confound the issue.

4.228 The central question is one of sufficient scientific evidence. New Zealand has made arguments and produced evidence to show that it is lacking. The Panel now has to consider all the evidence and the arguments presented, consider the experts reports and what the experts said in the meeting with them, and consider whether the Australian measures are based on sufficient scientific evidence, whether the alleged scientific basis for the measures is objective and credible, and whether the risk assessment is "objectively justifiable".

4.229 The essence of this case is that Australia has imposed measures on the importation of apples from New Zealand that are not based on sufficient scientific evidence, indeed in most instances not based on scientific evidence at all. The Panel has seen the arguments of New Zealand where this has been set out. The Panel has seen the reports of the experts that confirmed this and it has heard them repeat that confirmation earlier this week.

4.230 And it is not surprising that this should be so. In respect of fire blight the matter was completely reviewed in *Japan – Apples*. The panel looked at the scientific evidence and found that there was nothing to support the view that apple fruit provide a pathway for the introduction of fire blight. That in substance was the same scientific evidence that was reviewed in the IRA and has been discussed throughout these proceedings. There was nothing new to consider. There was no scientific evidence then of a pathway for the transmission of fire blight by mature, symptomless apple fruit, and there is none today. Of course, as the experts said, it cannot be completely ruled out, but its likelihood is no greater than the movement of fire blight through natural dispersal. This means that measures on apple fruit provide no additional protection against fire blight.

4.231 In respect of European canker and ALCM the science has been less abundant, but that which exists does not support the Australian theory. More fundamentally, in arguing that European canker and ALCM could enter, establish and spread through trade in apple fruit, Australia is positing something that has never been shown to occur either through experimentation or in the real world. This was reiterated quite emphatically by the experts during the meeting with the Panel. The Panel heard Dr Swinburne and Dr Latorre say this about European canker, and Professor Cross speaking about ALCM. And, in respect of all of the pests New Zealand heard the same statement from the experts; transmission is not through mature fruit, it is through planting material.

4.232 In the face of this lack of the needed scientific evidence to support the measures for each of the pests, Australia is clearly in violation of its obligations under Article 2.2 of the SPS Agreement.

4.233 The lack of scientific support also goes to the heart of the deficiency of the IRA as a risk assessment. The only way the IRA could find that Australia's ALOP was not met was to apply a methodology in a way that is not objectively justifiable. This involved applying probability intervals to the notion of "negligible" risk that transformed events that would almost certainly not occur into

events that would occur with some frequency. An event that almost certainly would not occur was now becoming an event that would occur once in every 2 million apples in a trade that would be in millions of apples per year. And, nothing New Zealand has heard at the second substantive meeting gives it any reason to alter its position in this regard.

4.234 If there had been the supporting scientific evidence, the IRA Team could have adopted a methodology that was objective and credible, and the result may well have been objectively justifiable. But in the absence of scientific support, the only way that measures could be justified was to apply a flawed methodology that arbitrarily magnifies risk and then multiplies that magnified risk by an inflated assumption of the volume of trade.

4.235 Thus, Australia is forced to significantly overestimate the likelihood of events that have never occurred and for which there is no scientific support. As a result of the probabilities assigned under particular import steps, highly speculative events become events that are predicted to produce thousands, sometimes tens of thousands, of infested or infected apples entering Australia each year, which are then multiplied by proximity and exposure values which themselves bear no relationship to the scientific evidence.

4.236 The result is not a risk assessment that meets the requirements of WTO disciplines and it places Australia in violation of its obligations under Article 5.1 of the SPS Agreement. Moreover, the failure of Australia to give appropriate consideration to the requirements of the SPS Agreement has equally placed Australia in violation of Article 5.2 of the SPS Agreement. These failings were confirmed by the experts consulted by the Panel. The only "support" Australia can claim for its measures requires an assumption of a zero-risk approach to the *importation* of "risk" apples. But of course, this is not consistent with Australia's ALOP, or the SPS Agreement which deals with the risk of entry, establishment, spread and associated consequences.

4.237 The IRA process took place, as New Zealand has described, in a highly charged political environment, and as a result it took over 8 years to complete. And while that political context might explain the delay, it does not free Australia from its obligations under Article 8 and Annex C of the SPS Agreement.

4.238 The fact that Australia has imposed measures in respect of apples from New Zealand that it does not impose in circumstances of comparable risk, is illustrated by the way Australia has treated the importation of nashi pears from Japan in violation of its obligations under Article 5.5 of the SPS Agreement.

4.239 But, none of this needed to happen. There are measures, set out in New Zealand's submissions, that are reasonably available and less trade restrictive that would meet Australia's ALOP in respect of each of the pests at issue. Failure to apply such measures places Australia in violation of its obligations under Article 5.6 of the SPS Agreement.

4.240 Thus, New Zealand has established that in applying the 17 measures to apples from New Zealand set out in New Zealand's First Written Submission Australia is in violation of its obligations under the SPS Agreement.

4.241 New Zealand would also take this opportunity to reaffirm all matters dealt with in its written submissions that have not been discussed in its oral statements in the second substantive meeting and to request the Panel to make the rulings for relief set out in New Zealand's First Written Submission.

4.242 Finally, New Zealand would like to take this opportunity to thank the Panel and the Secretariat for all of the time and care they have devoted to this case and no doubt will continue to do

so over the next several months. New Zealand would also like to thank the experts for their important contribution to the dispute settlement process.

4.243 That concludes New Zealand's closing statement. New Zealand looks forward to responding to any written questions that the Panel may have.

B. AUSTRALIA

1. Executive summary of Australia's first written submission

(a) Introduction

4.244 Australia opened its market to New Zealand apples in 2007. This followed an extensive import risk analysis which recommended that a number of measures were required to mitigate the risk that the causal agents of fire blight and European canker, and apple leafcurling midge (ALCM), *inter alia*, could enter Australia with serious and irreversible consequences. In requiring such measures, Australia is exercising its basic right under the SPS Agreement to protect its plant life and health from risks arising from the introduction of pests not present in Australia but endemic to New Zealand, at the appropriate level of protection (ALOP) determined by Australia.

4.245 New Zealand's challenge to the trade liberalising, science-based measures, fails to demonstrate any breach by Australia of its WTO obligations. Australia also completely rejects New Zealand's unsubstantiated allegations that the preparation of the Final Import Risk Analysis Report for Apples from New Zealand, November 2006 (the Final IRA Report) was tainted by political interference. Australia requests the Panel to disregard these allegations in their entirety.

(b) Legal framework

4.246 As complainant in this dispute, New Zealand must establish a prima facie case based on both evidence and legal argument, in relation to each of its claims and each of the measures challenged, before the evidentiary burden shifts to Australia. However, New Zealand's submission makes flawed legal arguments and bald, and sometimes misleading, assertions, without submitting evidence to support many of its claims. These failings mean that New Zealand has not discharged its burden of proof and, therefore, the presumption that Australia's measures are WTO-consistent has not been overturned. Australia nonetheless demonstrates, through solid scientific evidence and legal argument, that its measures are fully consistent with the relevant provisions of the SPS Agreement. While New Zealand is entitled to rebut Australia's arguments, it is not entitled to remedy its failure to provide sufficient factual evidence in support of its claims in its first written submission, by introducing new evidence in the rebuttal stage of these proceedings.

4.247 The product and measures at issue limit the scope of this dispute. First, the product at issue, as set out in the Final IRA Report, is "mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand." New Zealand's attempts to mischaracterise the product at issue should be rejected by the Panel.

4.248 New Zealand purports to challenge the 17 "measures" specifically identified in its panel request, but several of those measures do not exist as New Zealand has described them. Australia does not impose the orchard-suspension following pruning requirement for European canker alleged by New Zealand. Australia also considers that there is no live dispute regarding the requirement for involvement of Australian Quarantine and Inspection Service officers in inspections, because New Zealand's challenge results from a misunderstanding of the actual requirement. Accordingly, there are only 15 measures at issue in this dispute. In addition, a large number of the "measures"

identified by New Zealand are not challengeable on an individual basis, and should only be assessed by the Panel when "taken as a whole" with the principal risk reduction measures applied by Australia.

4.249 Australia also draws the Panel's attention to the critical threshold issue of standard of review. The Panel should be mindful of the appropriate standard(s) of review in its evaluation of the basis for Australia's measures. The nature of what is required of a panel to conduct an "objective assessment of the facts" pursuant to Article 11 of the DSU varies depending on the particular provision at issue. Under the SPS Agreement, Australia submits that a panel's jurisdictional competence is most limited in respect of its review of risk assessments, because the obligation to base SPS measures on a risk assessment means that a thorough expert evaluation of the relevant technical issues compulsorily precedes a panel's analysis of the issues.

4.250 In Australia's view, Article 5.1 requires a panel to examine whether the risk assessment relied upon by a Member is objective and credible. Guidance from past cases indicates that a panel may not conduct its own risk assessment, attempt to settle a scientific debate or substitute its own judgment for that contained in a risk assessment, without appropriate cause. Australia submits that, only if the complainant establishes flaws in a risk assessment which are so serious that they would prevent a panel from having reasonable confidence in that assessment will the panel's duty extend to scrutiny of the relevant scientific evidence and intervention in the findings or conclusions of a risk assessment.

4.251 In addition, the nature of the relationship between Article 2.2 and Article 5.1 of the SPS Agreement warrants careful consideration by the Panel. The Appellate Body has explained that these two provisions should constantly be read together and that the elements of each inform and impart meaning to the other. New Zealand effectively ignores this guidance by artificially dividing the substantive matters to be addressed under the two provisions.

4.252 In Australia's view, the obligation that SPS measures not be maintained without sufficient scientific evidence (Article 2.2) and the obligation to base measures on a valid risk assessment (Article 5.1) cannot be meaningfully separated. Article 5.1 is a specific application of Article 2.2. This means that Article 5.1 and its associated provisions elaborate specific conditions which, if met, will establish the consistency of the relevant measures with Article 2.2.

4.253 Australia's view is supported by the text of the SPS Agreement. Both Article 2.2 and Article 5.1 are concerned with whether the available evidence supports the establishment of *risk*, which provides an underlying justification for the adoption of SPS measures. Risk assessments under Article 5.1 involve the expert evaluation of scientific evidence, as well as technical and economic factors, in accordance with an appropriate methodology. They must also be appropriate to the circumstances. Accordingly, if measures are based on a valid risk assessment under Article 5.1, the requirement of Article 2.2 that measures not be maintained without sufficient scientific evidence is satisfied. Australia has therefore addressed New Zealand's technical and scientific claims together under Article 5.1 and encourages the Panel to similarly commence its analysis of Australia's measures under Article 5.1.

(c) Legal and factual rebuttal

(i) *Australia's measures are consistent with Article 5.1, and accordingly, with Article 2.2*

New Zealand misunderstands what is required of a valid risk assessment

4.254 Australia's measures are consistent with Article 5.1 and, accordingly, with Article 2.2 of the SPS Agreement. They are based on a comprehensive risk assessment, which is appropriate to the circumstances and is consistent with the criteria set out in Articles 5.1, 5.2, 5.3 and Annex A(4) of the SPS Agreement. The Final IRA Report expresses the conclusions of qualified and respected scientists

and technical experts (the IRA Team). The IRA Team concluded on the basis of available evidence that, in order to meet Australia's ALOP, measures would be necessary to protect plant life and health from fire blight, European canker and ALCM, as well as a range of measures for other pests that are not the subject of dispute by New Zealand.

4.255 New Zealand misunderstands the nature of the risk assessment required by Article 5.1.

4.256 For example, New Zealand argues that, instead of obtaining a proper risk assessment appropriate to the circumstances, Australia should have based its measures on the findings in the *Japan – Apples* dispute. However, the findings in *Japan – Apples* clearly do not constitute a risk assessment within the meaning of the SPS Agreement. Those findings do not take account of Australian conditions including its ALOP, consumption and distribution patterns, environmental conditions, host distributions or the potential commercial volume of New Zealand apples which may be exported to Australia. Australia does not accept that the panels in *Japan – Apples* envisaged that their *legal* conclusions should be considered a "global" risk assessment that could be substituted for a proper risk assessment applying to an entirely different set of circumstances. In any event, *Japan – Apples* is concerned with risks associated with only one of the three pests at issue in this dispute – fire blight.

4.257 New Zealand's criticisms of the IRA Team's analysis of the available scientific evidence is often based on selective reliance upon particular pieces of evidence and is also based on multiple erroneous calculations and assumptions. New Zealand relies on the superficially attractive notion of scientific "certainty" around the transfer and spread of the pests at issue. This conveniently ignores the range of credible scientific views on these issues. The IRA Team, in exercising its expert judgment, was entitled to rely on the full spectrum of scientific evidence drawn from qualified and respected sources. Members regularly take measures to mitigate the potentially significant consequences of low probability events. This is good risk management practice and does not mean that Australia has over-estimated or exaggerated the risks. It is for Australia to set its own ALOP.

4.258 The flaws in New Zealand's critique are compounded by errors of law. Pursuant to the relevant provisions of the SPS Agreement, a valid assessment of phytosanitary risk must evaluate both the *likelihood* of entry, establishment or spread of a pest, *as well as* the associated potential biological and economic *consequences*. New Zealand wrongly implies that the notion of "risk" should be confined to the likelihood of entry, establishment or spread. New Zealand also inappropriately conflates the notion of mere "possibility" with events that may only have a very small or "negligible" probability of occurring. This effectively amounts to an assertion that risk assessments are required to identify a minimum magnitude of risk – a proposition which has been expressly rejected by the Appellate Body.

4.259 New Zealand also wrongly claims that there are flaws in the semi-quantitative methodology used by the IRA Team. The IRA Team rigorously applied sound methodology, as is scrupulously detailed in the Final IRA Report. Its approach was commensurate with best practice risk assessments worldwide, including the International Plant Protection Convention standards (ISPMs). Furthermore, the SPS Agreement is not prescriptive as to methodology and Australia cannot be required to use New Zealand's own methodology.

4.260 The use of distributions by the IRA Team in estimating probability reflects the range and variability of available scientific evidence, accommodating small but significant probabilities as well as uncertainties, consistent with ISPM No.11. New Zealand's claims that the volume of trade is overestimated in the Final IRA Report are based on faulty suppositions about Australian consumer preferences, distribution channels, price responses and exporter behaviour.

New Zealand's claims in respect of fire blight are unsubstantiated

4.261 The Final IRA Report outlines in precise detail the analysis of the IRA Team, which arrived at the conclusion that there is an identifiable risk that the causal agent of fire blight, *Erwinia amylovora*, could find a pathway into Australia on mature New Zealand apples and result in serious consequences. The findings in *Japan – Apples* do not amount to scientific evidence, or a valid risk assessment, therefore undermining New Zealand's claims in this dispute. New Zealand also attempts to substitute the Final IRA Report with the scientific study by Roberts and Sawyer (2008), which is based on outdated data largely concerning trade between the United States and Japan under conditions that are no longer relevant.

4.262 New Zealand relies on purported evidence about the "long history of trade" between exporting countries with fire blight and those countries without the disease, as well as scientific studies which speculate about the causes of fire blight spread, to support its claim that mature apples do not spread fire blight. Australia shows to the contrary that there is no direct evidence which establishes this "fact". Many fire blight incursions around the world remain unexplained. Members other than Australia also share the concern that apple fruit may transmit *E. amylovora*, evidenced by the risk management measures that they impose on imported apples. Some of New Zealand's other trading partners impose measures very similar to those adopted by Australia on New Zealand apples. New Zealand also argues that the pathway for fire blight could never be completed because there would be insufficient quantities of *E. amylovora* bacteria to initiate an infection in Australia. In Australia's view, these arguments are based on an unbalanced and selective view of the evidence.

4.263 Finally, New Zealand's assertion that the consequences of a fire blight incursion in Australia would be the same as in New Zealand is without basis. The Final IRA Report demonstrates that fire blight is a highly variable disease and is not likely to be experienced in the same way in different places. In any case, there is ample evidence from New Zealand and the United States to show that fire blight disease has very serious consequences.

New Zealand's claims in respect of European canker are unsubstantiated

4.264 In respect of European canker, the Final IRA Report outlines in similarly precise detail the IRA Team's analysis to arrive at the conclusion that there is an identifiable risk that mature fruit could provide a pathway for the entry, establishment and spread of the disease, with serious potential consequences. New Zealand seeks to overturn the IRA Team's meticulous approach through a series of ill-founded arguments. However, it cannot escape the explicit acknowledgement by the Chief Plants Officer of the New Zealand Ministry of Agriculture that "apple fruit are a potential pathway for the introduction of European canker, as the fruit can develop latent or storage rots."

4.265 Australia shows that New Zealand's climate analysis is too narrow as it focuses solely on a few environmental criteria relevant to commercial apple and pear production, and it overlooks the biology of the pathogen and its wide range of hosts distributed throughout large areas of Australia. This leads to incorrect predictions as to the potential distribution of European canker. Australia's modelling shows that the potential distribution of European canker in Australia covers a much larger area than that suggested by New Zealand.

4.266 Contrary to New Zealand's suggestion, the IRA Team identified four relevant studies in relation to fruit rot caused by *Neonectria galligena* in New Zealand, as well as scientific evidence regarding spore dispersal and survival. Further, Australia has clearly articulated the reasons for the limited spread during the Tasmanian outbreak of European canker. These reasons include a rigorous eradication program and a unique strain of *N. galligena* which required another mating type for reproduction.

4.267 Finally, New Zealand's claim in relation to the assessment of potential consequences of European canker is superficial and confused.

New Zealand's claims in respect of ALCM are unsubstantiated

4.268 The Final IRA Report also represents an objective and credible analysis of the risks associated with the entry, establishment or spread of ALCM in Australia associated with New Zealand apples. New Zealand acknowledges that viable ALCM on imported New Zealand apples pose a risk for Australia. But New Zealand fails to appreciate that the mobility of the insects required the IRA Team to adjust its methodology and consider a much more complex pathway than for fire blight and European canker. New Zealand demonstrates its misunderstanding of the IRA Team's approach to assessing *unrestricted* risk by arguing that the IRA Team should have taken into account the affect of risk management measures in its importation analysis. Also, New Zealand's reliance upon pieces of scientific evidence is highly selective, failing to take into account the range of scientific data available.

4.269 Particularly detrimental to New Zealand's arguments on ALCM is its clear misinterpretation of the results of the paper by Rogers *et al.* (2006), upon which it relies heavily in respect of the proportion of fruit likely to be infested with viable ALCM. This misinterpretation irredeemably taints New Zealand's claims in respect of the probability of entry, establishment and spread of ALCM. New Zealand also asserts that most of its apples will be exported "retail ready", suggesting that only relatively few would require repacking at orchard packing houses, and therefore insufficient quantities of infested apples would be situated together near susceptible hosts. However, this "retail ready" assertion is unsupported by any evidence relevant to the conditions of the Australian market. In any event, the IRA Team's analysis makes clear that, even if a relatively small proportion of New Zealand apples are sent to orchard packing houses, there would still be sufficient quantities of infested apples for ALCM to establish on the basis of the estimated volume of imported apples.

4.270 New Zealand's claim that the necessary sequence of events to enable ALCM to enter, establish and spread in Australia could never occur in the "real world" is undermined by the clearly successful spread of ALCM and other insect pests across the world.

4.271 New Zealand's claims in relation to the IRA Team's assessment of potential consequences of an ALCM incursion are imprecise and unsubstantiated.

Conclusion on the risk assessment for fire blight, European canker and ALCM

4.272 New Zealand fails to demonstrate any flaws in the Final IRA Report, let alone flaws that are "so serious" that they should prevent the Panel from having reasonable confidence in the risk assessment. In any event, Australia has demonstrated that the IRA Team properly evaluated risk and applied its expert judgment rigorously to arrive at an objective assessment in relation to fire blight, European canker and ALCM.

The IRA Team properly evaluated those SPS measures which might be applied

4.273 Australia rejects New Zealand's assertion that the IRA Team failed to evaluate the SPS measures which might be applied. It is clear from the Final IRA Report that each of the principal risk reduction measures and alternatives were evaluated for each of the pests at issue. Australia submits that there is no obligation in the SPS Agreement to evaluate any and every potential measure that might be applied to address a particular risk; such an obligation would be impossible for any Member to satisfy.

Conclusion

4.274 For the above reasons, Australia submits that the Final IRA Report is a valid risk assessment within the meaning of Article 5.1 and related provisions of the SPS Agreement. As New Zealand has not challenged whether Australia's measures are "based" on the risk assessment in question, Australia submits that its measures are consistent with Article 5.1 of the SPS Agreement and, accordingly, with the requirement that measures not be maintained without sufficient scientific evidence under Article 2.2.

(ii) *Australia has acted consistently with Article 5.2*

4.275 The IRA Team took into account all of the factors listed in Article 5.2, including those identified by New Zealand: available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; and relevant ecological and environmental condition. New Zealand has failed to demonstrate otherwise. Moreover, New Zealand's attempt to convert Article 5.2 to an obligation to give "genuine consideration" to these factors is not grounded in the text of the provision and is instead merely a complaint that the IRA Team took a different view to New Zealand's own view of these factors.

(iii) *Alternatively, Australia's measures are nonetheless consistent with Article 2.2*

4.276 Australia considers that New Zealand has effectively abandoned any claims in relation to the Article 2.2 requirement that measures be "based on scientific principles".

4.277 If the Panel does not accept Australia's primary submission that consistency with Article 5.1 establishes consistency under Article 2.2, Australia submits that New Zealand has nevertheless failed to establish that Australia's measures are "maintained without sufficient scientific evidence" in violation of Article 2.2. In any event, Australia has demonstrated that, on the basis of the comprehensive analysis of the evidence in the Final IRA Report, there is a rational and objective relationship between Australia's measures and the scientific evidence.

(iv) *Australia's measures are consistent with Article 5.5 and Article 2.3*

4.278 Australia applies its explicitly stated ALOP consistently, including with respect to New Zealand apples and Japanese nashi pears. New Zealand has failed to establish that Australia applies different levels of protection under Article 5.5. New Zealand's simplistic comparison of the respective *measures* applied in relation to New Zealand apples and Japanese nashi pears ignores the fact that the *risks* associated with the two products are markedly different. Therefore, the measures required to meet Australia's ALOP differ. Accordingly, the application of Australia's ALOP does not exhibit arbitrary or unjustifiable distinctions in the treatment of different situations which result in discrimination or a disguised restriction on international trade. New Zealand has failed to substantiate any of the so-called "warning signals" and "additional factors" in relation to the third element of Article 5.5.

4.279 As New Zealand fails to establish a violation of Article 5.5, its consequential claims under Article 2.3 must also fail.

(v) *Australia's measures are consistent with Article 5.6*

4.280 Australia's measures are not more trade restrictive than required to achieve its ALOP under Article 5.6. New Zealand's claims under Article 5.6 rest entirely on its contention that the unrestricted risks associated with the importation of New Zealand apples are lower than the levels established in the Final IRA Report; a claim which New Zealand has failed to substantiate. New Zealand has failed

to satisfy its burden under Article 5.6 to show that any of the "alternative" measures identified would achieve Australia's ALOP. Nor, in the case of ALCM, has New Zealand shown that the "alternative" measure would be *significantly* less trade restrictive. New Zealand has also failed to identify any alternatives to the general measures.

4.281 Australia considers that New Zealand has abandoned any claim that Australia's measures are not "applied only to the extent necessary to protect human, animal or plant life or health" under Article 2.2.

(vi) *New Zealand's claim under Article 8 and Annex C(1)(a) is outside the Panel's terms of reference*

4.282 New Zealand's claim under Article 8 and Annex C(1)(a) depends on the "IRA process" being a measure at issue in this dispute. In its preliminary ruling, the Panel concluded that the scope of this dispute is confined to the 17 measures specifically listed in New Zealand's panel request, which do not include the IRA process. New Zealand's claim that Australia is in breach of Article 8 and Annex C(1)(a) is therefore outside the scope of this dispute.

(d) Conclusion

4.283 For the above reasons, Australia asks the Panel to find that New Zealand has not established a prima facie case that any of Australia's measures are inconsistent with its obligations under the SPS Agreement. Alternatively, if the Panel considers New Zealand has established a prima facie case in respect of one or more measures, then Australia requests the Panel find that it has rebutted that case on the basis of its evidence and legal argument.

2. Executive summary of Australia's opening oral statement at the first substantive meeting

(a) Introduction

4.284 This case is about the basic right of all WTO Members to protect plant life and health within their territory. It is about the level of risk that Australia is prepared to tolerate and Australia's particular quarantine circumstances. It is about serious plant pests not present in Australia but endemic in New Zealand – fire blight, European canker and apple leafcurling midge. It is about the comprehensive and transparent science-based risk assessment undertaken by the IRA Team and set out in the Final Import Risk Analysis Report for Apples from New Zealand. It is about Australia's reasonable quarantine measures, necessary to mitigate the risk of serious plant pests entering Australia. It is about the application of scientific and technical judgment by the qualified and respected experts who inform Australia's quarantine regulatory decisions. It is about the extent to which a WTO panel is permitted to intervene in such decisions. It is about the trade liberalizing reality of Australia having opened its market to New Zealand apples in March 2007.

4.285 Australia is free of many of the world's major plant pests. Australia's unique biodiversity and distinctive native flora and fauna are of world renown. In addition, Australia's favourable plant-health status is vital to its multi-billion dollar agricultural sector. In order to protect these significant assets, Australia invests heavily in quarantine. As a result, Australia has one of the most comprehensive and effective quarantine systems in the world.

4.286 As recognized in the SPS Agreement, Australia has the right to maintain its favourable plant health status. In this regard, Australia is not asking to be treated differently to other WTO Members when it urges the Panel to pay close attention to Australia's particular quarantine circumstances. In order to maintain its favourable plant-health status, Australia *must* be able to rely on the WTO bargain

that it signed up for – *including* the delicate and carefully negotiated balance of rights and obligations set out in the SPS Agreement. In undertaking its role in this dispute, the Panel should respect this delicate balance.

(b) Australia's appropriate level of protection in action

4.287 The SPS Agreement does not require international harmonization of Members' quarantine measures. In fact, the determination of a Member's acceptable level of risk, also known as the appropriate level of protection, is the Member's sole prerogative. No-one may impinge on that prerogative – not trading partners, not WTO panels, not the Appellate Body. This position has been clearly articulated by the Appellate Body⁶²⁸, and is widely accepted by the WTO membership.⁶²⁹ To deny a Member's sovereign right to determine its own appropriate level of protection would disregard the balance of rights and obligations set out in the SPS Agreement.

4.288 Whether other Members may be content to tolerate the risk of an event occurring once in every five years or five thousand years, is irrelevant. The SPS Agreement does not require Members to accept the same level of risk or a certain *minimum level of risk*. It is entirely up to each Member to judge whether its national interest is best served by a higher or lower appropriate level of protection. What matters in the present case is *the risk that Australia is prepared to tolerate*, not the risk that New Zealand or any other Member is prepared to tolerate.

4.289 The Australian community demands that its Government takes responsible action to protect Australia's agricultural sector and biodiversity from exotic pests, and Australia's appropriate level of protection is set to reflect this. It explicitly and transparently expressed as requiring quarantine risks to be managed to a very low level, although not to zero.

4.290 The concept of appropriate level of protection cannot be seen in isolation. The appropriate level of protection is integral to each Member's quarantine system. In order to implement their appropriate level of protection, Members have a basic right under the SPS Agreement to take SPS measures for the protection of human, animal and plant life or health. The appropriate level of protection is the benchmark, and the SPS measures are the instrument used to achieve that benchmark.

4.291 A Member's appropriate level of protection fundamentally shapes its decision on SPS measures. The first step is to determine the level of unrestricted risk posed by the product at issue. If that risk is higher than the Member's acceptable level of risk, then the Member may adopt measures to achieve its appropriate level of protection.

(c) The Final IRA Report provides the basis for Australia's measures

4.292 The relevant level of risk posed to Australia by the importation of apples from New Zealand was rigorously examined in the Final IRA Report. This document provides the basis for the SPS measures central to this dispute and cannot be ignored. The risk assessment conducted by the IRA Team, as set out in the Final IRA Report, is fully consistent with the SPS Agreement and with internationally recognized scientific method.

4.293 New Zealand is critical of the Final IRA Report and the measures applied by Australia to New Zealand's apple exports. This flows from a broad argument that there is a single correct view of

⁶²⁸ Appellate Body Report on *Australia – Salmon*, para. 199.

⁶²⁹ See for example: Chinese Taipei's Third Party submission, para. 20; Chile's Third Party submission, para. 8; European Communities' Third Party submission, paras. 31 and 61; and United States' Third Party submission, paras. 78-79.

science; that for there to be two opposing views in any scientific disagreement means that one of those views must necessarily be wrong. This is simply not the case.

4.294 In this dispute, New Zealand relies on the superficially attractive notion of scientific "certainty" around the transfer and spread of the pests at issue. The reality is that there are different views on many scientific issues based on the same set of facts, often held by equally qualified and respected scientists. Moreover, the state of scientific knowledge is limited and constantly evolving.

4.295 In this dispute, the Panel is faced with competing scientific opinion and evidence, and Australia asks that the Panel bear in mind the Appellate Body's statement that responsible and representative governments may act in good faith on the basis of so-called "divergent" scientific opinion, coming from qualified and respected sources.⁶³⁰ In other words, there is no need for the Panel to try to choose what it considers the "correct" view to be. To do so would constitute an error of law.

4.296 The Final IRA Report takes into account some thousand scientific references, including scientific references cited by New Zealand in its written submission. This literature needs to be interpreted in light of Australia's particular circumstances. The IRA Team, a group of highly qualified and respected scientists and technical experts, performed this role.

4.297 The IRA Team applied its expert judgment and elaborated its reasoning at every step in the Final IRA Report. On the basis of its detailed analysis of the level of risk associated with the importation of New Zealand apples, the IRA Team concluded that certain risk mitigation measures were required in order to achieve Australia's appropriate level of protection. New Zealand can export apples to Australia, provided that it observes the reasonable measures recommended in the Final IRA Report.

(d) This dispute is not a re-run of *Japan – Apples*

4.298 It is clear that New Zealand believes that this dispute is simply a re-run of *Japan – Apples*. New Zealand continues to treat *Japan – Apples* as some form of scientific process, not a legal process. This is a major error by New Zealand, a fact that Third Parties in this dispute have recognized.⁶³¹ *Japan – Apples* is not a risk assessment and is not scientific evidence. Moreover, there are significant differences between the two sets of circumstances, including the pests at issue, appropriate level of protection, climatic conditions, potential host plants, and the volume and mode of trade.

(e) The product and measures at issue must be identified clearly

4.299 The product at issue in this dispute, as set out in the Final IRA Report, is "mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand."⁶³² Any attempt by New Zealand to characterise the product at issue as "mature *symptomless* apples" must be dismissed. "Symptomless" apples are not necessarily hazard-free.

4.300 The measures at issue also define the scope of this dispute and warrant careful consideration by the Panel. In the Panel's preliminary ruling of 6 June 2008⁶³³, the Panel clearly limited its terms of reference to the 17 measures specifically identified in New Zealand's panel request. The onus is on New Zealand to establish that each measure meets the definition of an "SPS measure", as set out in

⁶³⁰ Appellate Body Report on *EC – Hormones*, para. 194.

⁶³¹ Chile's Third Party submission, paras. 11-13; Japan's Third Party submission, para. 2; European Communities' Third Party submission, para. 47; and United States' Third Party submission, para. 11.

⁶³² Australia's IRA, Part B, p. 9.

⁶³³ *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 13(b).

Annex A(1) of the SPS Agreement. In any event, as explained in Australia's written submission, two of these 17 measures are not live issues in this dispute.

4.301 Not all of the measures can be challenged individually, as several are ancillary measures which support, verify and operationalise the principal risk reduction measures. In Australia's view, the Panel should only examine such ancillary measures when "taken as a whole" with the principal risk reduction measures to which they relate.

4.302 On this, Australia notes that New Zealand's challenge does not cover the whole of the Final IRA Report. The Final IRA Report covers pests and diseases which are not at issue in this dispute, and this needs to be borne in mind, particularly when examining the ancillary measures.

(f) New Zealand has not backed up its claims with evidence and legal argument

4.303 New Zealand bears the burden of raising a prima facie case of inconsistency in relation to each of the provisions it is challenging under the SPS Agreement. To do this, New Zealand must present sufficient evidence *and* legal argument to support that prima facie case. Only if New Zealand succeeds in doing so must Australia rebut the alleged inconsistencies. Until that point, Australia is entitled to the presumption of WTO-consistency. Australia emphasises this point because it believes that the assertions made by New Zealand in its first written submission are simply not supported by legal argument or evidence. Neither the Panel, nor the Third Parties, are permitted to "make the case" for New Zealand.

4.304 New Zealand is required to discharge its burden of proof in relation to *each* of the measures at issue under *each* of the challenged provisions of the SPS Agreement. Australia is firmly of the view that New Zealand's case is fatally flawed as it has failed to meet its burden of proof. Australia nonetheless demonstrates, through solid scientific evidence and legal argument, that the measures at issue are fully consistent with the SPS Agreement.

(g) The Panel's role in this dispute is not unfettered

4.305 Another critical threshold issue relates to the role that the Panel is required to perform in this dispute. The Panel's role is not unfettered. Rather, there are parameters within which the Panel must operate, which are imposed in the standard of review to be applied by the Panel. The Appellate Body has stated that a failure to apply the proper standard of review constitutes a legal error.⁶³⁴ Australia therefore considers it essential that the Panel apply the appropriate standard of review throughout this dispute.

4.306 Contrary to what New Zealand has suggested, the final word on standard of review is not Article 11 of the Dispute Settlement Understanding. While the "objective assessment" standard under Article 11 is certainly the starting point for the Panel's standard of review, it nevertheless provides limited guidance on the precise nature and intensity of the review required by panels in their fact-finding role. Accordingly, as indicated by the Appellate Body, the appropriate standard of review must also be informed by the particular covered agreement and, within that agreement, the particular obligation at issue.⁶³⁵

4.307 Upon signing up to the WTO bargain, Members consciously conceded their jurisdiction on certain issues to the WTO, effectively nominating the WTO as arbiter of those issues. However, on other issues, Members' jurisdictional competences were deliberately retained. The effect of this delicate and carefully negotiated balance is that there is a line that traces its way through the

⁶³⁴ Appellate Body Report on *US – Countervailing Duty Investigation on DRAMS*, para. 187.

⁶³⁵ Appellate Body Report on *US – Softwood Lumber VI (Article 21.5 – Canada)*, para. 92.

SPS Agreement – on one side lies the areas of jurisdictional competence that Members conceded, on the other side, the areas they did not.

4.308 The Panel should observe that line. In the context of the SPS Agreement, the Appellate Body has explicitly stated that the standard of review must "reflect the balance established in that Agreement between the jurisdictional competences conceded by the Members to the WTO and the jurisdictional competences retained by the Members for themselves."⁶³⁶

4.309 The standard of review has important implications for this dispute. It means that the Panel should not conduct its own risk assessment for Australia. A WTO panel should not attempt to choose its preferred view of the science and thereby substitute its judgment for that of the risk assessor – in this case, the IRA Team.

4.310 Australia is not suggesting that the Panel's role in this dispute is marginal. Rather, the Panel has the centrally important role of determining whether Australia's measures are based on a valid risk assessment in accordance with the relevant provisions of the SPS Agreement; of determining whether that risk assessment is objective and credible.

4.311 Australia submits that the Panel should be guided by the compliance panel's approach in *Australia – Salmon (Article 21.5 – Canada)*. The Panel must be satisfied that it has reasonable confidence in the risk assessment, and only if New Zealand establishes flaws in the Final IRA Report which are *so serious* that they would prevent the Panel from having that confidence, should the Panel be required to intervene in the findings or conclusions of the Final IRA Report.⁶³⁷

4.312 Australia notes that the European Communities "largely agrees" with Australia's position on standard of review.⁶³⁸

(h) New Zealand disregards the special relationship between Articles 5.1 and 2.2

4.313 A further important issue in this dispute is the nature of the relationship between Articles 5.1 and 2.2 of the SPS Agreement. Australia believes that New Zealand's approach to these provisions is confused and incorrect.

4.314 According to the Appellate Body, Articles 5.1 and 2.2 should "constantly be read together", as the elements of each provision inform and impart meaning to the other.⁶³⁹ In fact, the Appellate Body has indicated that Article 5.1 is a specific application of Article 2.2⁶⁴⁰, meaning that Article 5.1, and its associated provisions, elaborate specific conditions which, if met, will establish the consistency of the relevant measures with Article 2.2.

4.315 Australia's view of the relationship between Articles 5.1 and 2.2 is firmly grounded in the text of the SPS Agreement. Both Articles concern whether the available evidence demonstrates the existence of *risk*. That risk provides the basis for the adoption of SPS measures.

4.316 New Zealand has effectively ignored the clear and consistent guidance of the Appellate Body by treating Articles 5.1 and 2.2 in virtual isolation from each other. New Zealand has neglected to illuminate how it considers the two provisions relate to each other.

⁶³⁶ Appellate Body Report on *EC – Hormones* para. 115.

⁶³⁷ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.57.

⁶³⁸ European Communities' Third Party submission, para. 28-30, 84.

⁶³⁹ Appellate Body Report on *EC – Hormones*, para. 180; Appellate Body Report on *Australia – Salmon*, para. 130; Appellate Body Report on *Japan – Agricultural Products II*, para. 82.

⁶⁴⁰ Appellate Body Report on *EC – Hormones*, para. 180.

4.317 Risk assessments involve the expert evaluation of scientific evidence and technical and economic factors, in accordance with an appropriate methodology. They must also be appropriate to the circumstances. Accordingly, if measures are based on a valid risk assessment under Article 5.1, the Article 2.2 requirement that measures not be maintained without sufficient scientific evidence is satisfied. As acknowledged by the Appellate Body, Article 5.1 marks out and elaborates a particular route leading to the same destination set out in Article 2.2.⁶⁴¹

4.318 Australia notes that the European Communities agrees that the question of whether Australia has maintained measures "without sufficient scientific evidence" under Article 2.2 can only be answered by considering whether Australia's measures are based on a valid risk assessment under Article 5.1.⁶⁴²

4.319 In light of the special legal relationship between Articles 5.1 and 2.2, and the fact that the Final IRA Report provides the basis for the measures at issue, Australia urges the Panel in this dispute to commence its assessment of New Zealand's technical and scientific arguments under Article 5.1 in this dispute.

(i) Consequences are an integral part of risk assessment

4.320 New Zealand wrongly implies that the notion of "risk" should be confined to the likelihood of entry, establishment or spread. However, pursuant to the relevant provisions of the SPS Agreement, a valid assessment of phytosanitary risk must evaluate both *likelihood, as well as* the associated potential biological and economic *consequences*. New Zealand cannot paper over the inconvenient truth that the pests at issue in this dispute – fire blight, European canker and apple leafcurling midge – all have serious biological and economic consequences.

(j) Australia's measures address real probabilities

4.321 New Zealand also confuses the notion of mere "possibility" or "theoretical risk" with events that have a very small or "negligible" probability of occurring. This effectively amounts to an assertion that risk assessments are required to identify a minimum magnitude of risk – a proposition which has been expressly rejected by the Appellate Body.

4.322 The careful use of statistical distributions by the IRA Team in estimating probability reflects the range and variability of available scientific evidence, accommodating small but significant probabilities as well as uncertainties, consistent with the relevant international standard for pest risk analysis, the ISPM No. 11.

(k) New Zealand's and the United States' scientific and technical arguments lack merit

4.323 Australia's first written submission comprehensively rebuts New Zealand's scientific and technical arguments and clearly demonstrates that the Final IRA Report is a valid risk assessment under Article 5.1. As such, Australia's measures are consistent with Article 5.1, and, accordingly with Article 2.2 of the SPS Agreement.

4.324 Australia notes that the United States has lodged a lengthy submission with a heavy focus on scientific and technical evidence in relation to fire blight and European canker. Australia will vigorously and comprehensively rebut the serious flaws in the arguments raised by the United States in its rebuttal submission.

⁶⁴¹ Appellate Body Report on *Australia – Salmon*, paras 137-138.

⁶⁴² European Communities' Third Party submission, para. 13.

(l) New Zealand's secondary claims are flawed

4.325 In addition to its primary claims under Articles 5.1 and 2.2, New Zealand's first written submission sets out a number of secondary claims relating to Articles 2.3, 5.2, 5.5 and 5.6 of the SPS Agreement. Australia has already comprehensively addressed these claims in its written submission and notes that a number of the Third Parties also question the validity of New Zealand's claims.

(m) New Zealand's undue delay claim is outside the scope of this dispute

4.326 The Panel has asked the Parties to address Australia's request for a ruling in relation to New Zealand's claim of undue delay under Article 8 and Annex C(1)(a) of the SPS Agreement. Australia's position is clear. The Panel issued a preliminary ruling on 6 June 2008, in which it made it very clear that New Zealand's panel request is limited to the items specified by bullet point in that panel request.⁶⁴³ All other matters are therefore outside the scope of this dispute.

4.327 Despite the Panel's preliminary ruling, New Zealand has proceeded with a claim that the IRA *process* was subject to undue delay. Australia considers that this is legally untenable. It is clear from New Zealand's panel request, and the Panel's preliminary ruling, that the IRA process is *not* a measure at issue in this dispute; the IRA process is *not* one of the items specified by bullet point in New Zealand's panel request.

4.328 Australia therefore wrote to the Panel on 22 August 2008 asking it to apply its preliminary ruling of 6 June by making a further ruling explicitly stating that New Zealand's undue delay claim is outside the scope of these proceedings.

4.329 Australia notes that paragraph 16 of the Panel's Working Procedures clearly allows for a jurisdictional ruling at any stage of the proceedings upon the showing of good cause. Australia believes that there is very good cause for a ruling at this stage of proceedings, as the respondent should not be required to defend claims which the Panel has indicated are not within its jurisdiction. In any event, Australia is not seeking a ruling on a new issue; Australia is merely asking the Panel to apply its preliminary ruling of 6 June.

4.330 This is a complex dispute involving detailed legal argument and voluminous scientific and technical evidence. It concerns three pests - bacterial, fungal and insect – each with quite different biology. The Panel, the Parties and the Secretariat all have limited resources, and there is no need to expend those limited resources on a moot point. Australia believes that a ruling at this stage would help secure a positive solution to the dispute.

(n) The Panel may take into account amicus curiae submissions as necessary

4.331 Australia does not see amicus curiae submissions as having the same status as party or third party submissions. However, they may provide a useful perspective on issues under consideration in this dispute. Accordingly, the Panel should accept amicus curiae submissions into the record. Beyond that, it is up to the Panel whether or not to take such submissions into account in resolving the issues raised in this dispute.

⁶⁴³ *Australia – Apples*, Communication from the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 13(b).

(o) Australia is ready to provide its views on the role of experts

4.332 Australia notes that the Panel may decide to consult experts in relation to scientific and technical issues in this dispute.⁶⁴⁴ If the Panel chooses to do so, Australia emphasises that, in its view, the selection of such experts requires careful deliberation, and their role requires demarcation from the outset.

(p) Conclusion

4.333 Australia is an active Member which takes its WTO obligations seriously. Australia is not seeking to resile from the disciplines contained in the SPS Agreement. On the contrary, Australia has opened its market to New Zealand apples subject to reasonable risk mitigation measures set out in the science-based Final IRA Report. These measures are directed at protecting plant life and health within Australia from serious pests not present in Australia but endemic in New Zealand. The measures are fully WTO-consistent and are required to achieve Australia's appropriate level of protection.

3. Australia's closing oral statement at the first substantive meeting

(a) Introduction

4.334 Australia thanks the Panel for its questions during this hearing.

4.335 In Australia's view, the statements of the Parties and their answers to questions during the first substantive meeting have evidenced the complexity of the legal, scientific and technical issues involved in this dispute. Australia has sought to respond directly and substantively to the Panel's questions to assist the Panel in dealing with this complexity. In particular, Dr Roberts has provided a direct account of key aspects of the IRA Team's work.

4.336 Contrary to New Zealand's assertions, Australia is not seeking to avoid scrutiny of its comprehensive and transparent Final IRA Report and the reasonable risk reduction measures required for New Zealand apples. Nor is Australia seeking to rewrite the SPS Agreement or indeed the DSU. Rather, drawing on Appellate Body guidance, Australia has advanced reasoned interpretations of its obligations under the SPS Agreement that can be applied practically by the Panel to the circumstances of this dispute.

4.337 During this hearing, New Zealand made a number of legal and factual assertions, many of which Australia has not previously heard or had the opportunity to address. Accordingly, Australia will take this opportunity to touch on some of those assertions. Australia will, of course, comprehensively address all of the arguments presented in New Zealand's opening statement in its rebuttal submission.

(b) The product at issue is clear

4.338 As has been further reinforced this afternoon, New Zealand seeks to run a dual-track argument on product at issue. On the one hand, New Zealand asserts that the product at issue is apples imported from New Zealand into Australia. On the other hand, New Zealand asserts that, "in practice", it would only export mature *symptomless* apples. Clearly, despite New Zealand's equivocation on the matter, there can only be one product at issue in this dispute.

⁶⁴⁴ Article 11.2 of the SPS Agreement and Article 13.2 of the DSU.

4.339 In principle, Australia agrees with New Zealand's assertion in paragraph 23 of its opening statement that the "product at issue is determined by the terms of reference of the Panel". These terms of reference are defined by New Zealand's panel request. The first paragraph of that panel request clearly indicates that the importation of apples from New Zealand can be permitted subject to the application of measures as specified in the Final IRA Report. Page 9 of the Final IRA Report defines its scope as "mature apple fruit free of trash, either packed or sorted and graded bulk fruit from New Zealand." Logic therefore dictates that this definition establishes the product at issue in this dispute. It also follows that any variation to the product at issue would require the IRA Team to conduct a new risk assessment.

(c) There is a sound basis for the distinction between principal and ancillary measures

4.340 Australia has noted the Panel's interest in the distinction between principal and ancillary measures. Australia has undertaken to provide further elaboration in writing. The distinction is based on the definition of "SPS measure" in Annex A(1) of the SPS Agreement, and the reasoning of the panel in the *US – Export Restraints* dispute. Contrary to New Zealand's assertions in its opening statement, the issue of whether a measure can individually give rise to a violation of WTO obligations was discussed at a general level in *US – Export Restraints*. The relevance of that panel's reasoning in that dispute is accordingly not limited to the Agreement on Subsidies and Countervailing Measures (SCM Agreement).

4.341 According to Annex A(1), an "SPS" measure is defined as "any measure applied to protect against" certain categories of risk. In Australia's view, a measure that aims to protect against risks must aim to reduce those risks in some concrete way. If a measure does not protect against risks, or reduce those risks by itself, then it cannot fall within the definition of "SPS measure".

4.342 Australia's contention is supported by the relevant international standards for phytosanitary measures. Ancillary verification measures are broadly used in international quarantine arrangements to ensure that primary risk reductions measures are properly applied. Australia understands that New Zealand itself requires that ancillary measures be met as part of its own quarantine risk reduction measures.

(d) The appropriate standard of review in this dispute

4.343 Australia recalls that the Panel asked a number of questions in relation to the standard of review under the SPS Agreement. While Australia will elaborate on this subject further in writing, it would take this opportunity to remind the Panel of the critical point made in Australia's own opening statement.

4.344 In this dispute, the standard of review reflects the balance of jurisdictional competences between Members and the WTO established in the SPS Agreement. As Australia explained in response to questions from the Panel, the standard of review must be considered in light of the specific obligations at issue, a notion explicitly recognized by the Appellate Body.⁶⁴⁵

4.345 In its questions, the Panel asked Parties whether they considered that a specific standard of review applied to disputes under the SPS Agreement, given the lack of an explicit standard of review set out in that Agreement. The Panel contrasted this to the existence of the specific standard of review set out in Article 17.6 of the Anti-Dumping Agreement.

4.346 Australia notes that the lack of an explicit standard of review under other covered agreements has not prevented panels and the Appellate Body from applying a specific standard of review in

⁶⁴⁵ Appellate Body Report on *US – Softwood Lumber VI (Article 21.5 – Canada)*, para. 92.

disputes relating to covered agreements other than the Anti-Dumping Agreement. For example, the standard of review has been a significant issue in both safeguards disputes and under the SCM Agreement. More particularly, in *EC – Hormones*, the Appellate Body clearly recognized that panels must "adopt a standard of review... clearly rooted in the text of the SPS Agreement itself".⁶⁴⁶

4.347 Accordingly, in Australia's view, the absence of an express provision in the SPS Agreement addressing standard of review does not mean that there is not a carefully delimited division of competences between Members and the WTO which must be reflected in the standard of review applied by the Panel.

4.348 For example, in relation to Article 5.1, unless New Zealand can demonstrate flaws so serious that the Panel cannot have reasonable confidence in the assessment of risk in the Final IRA Report, the Panel must not substitute its own assessment for that of the IRA Team.

(e) Australia may rely on divergent scientific opinion

4.349 New Zealand's opening statement illustrates its continued discomfort with the Appellate Body's express recognition that Members are entitled to rely on "divergent" scientific opinion from qualified and respected sources. In understanding the Appellate Body's guidance, it is important to recognize that scientific evidence does not exist in a vacuum; it does not have an autonomous reality. In the context of the quarantine regulatory system, scientific evidence needs to be interpreted by experts and applied to the specific circumstances of the importing Member. This is the role that was undertaken by the IRA Team.

4.350 By way of example, New Zealand claims that divergent scientific opinion on fire blight does not exist. However, it is illustrative to examine one of the technical issues raised by New Zealand – that of the number of bacteria needed to start an infection. The scientific opinion on this issue reflects diverging scientific papers that showed variously that the number of bacteria needed to start infection varies from 1 bacterium to around 10,000 bacteria. This is just one small example of the divergent scientific opinion that was considered in great detail in the Final IRA Report.

(f) New Zealand's continued reliance on *Japan – Apples* is misguided

4.351 Australia recognizes that the Panel has heard Australia's views on the applicability of *Japan – Apples* to the present dispute. Australia will not repeat its views, except to note that the United States, the complainant in that dispute, takes a more moderate approach than New Zealand to this issue. In fact, Australia notes that the United States did not mention the *Japan – Apples* dispute in its statement at the meeting with the Panel.

(g) Likelihood combined with consequences equals risk

4.352 New Zealand alleges that Australia is trying to shift the emphasis of risk assessment from likelihood to consequences. This is simply untrue. As explained during the first substantive meeting, Australia's risk estimation matrix takes full account of both elements of risk: likelihood and consequences. Australia's matrix is firmly grounded on the definition of risk assessment in Annex A(4) of the SPS Agreement.

(h) Articles 5.1 and 2.2 exist in a special legal relationship

4.353 Turning to the relationship between Article 2.2 and Article 5.1, Australia wishes to correct some significant errors in New Zealand's attempted critique of Australia's arguments.

⁶⁴⁶ Appellate Body Report on *EC – Hormones*, para. 115.

4.354 New Zealand has misrepresented and mischaracterised Australia's interpretation of Article 2.2 and Article 5.1. Contrary to "inverting" the relationship between the two provisions, or interpreting those provisions in a way that deprives Article 2.2 of substance, Australia has sought to provide the Panel with a workable, good faith interpretation of those closely connected provisions, consistent with the established guidance of the Appellate Body. Article 2.2 is not an invitation for the Panel to assess the validity of the scientific basis of Australia's measures on a basis other than the Final IRA Report.

4.355 As indicated in Australia's first written submission, Australia's interpretation in relation to Articles 5.1 and 2.2 is the one that it considers to be applicable in *this* case. It makes no submissions about the "correct" approach in *all* cases.

4.356 Australia's position is simply this. In the present case, where the Final IRA Report is both a current and comprehensive risk assessment, the question of whether Australia's measures are maintained without sufficient scientific evidence should be answered by considering whether the Final IRA Report is a valid risk assessment.

(i) Australia has comprehensively rebutted New Zealand's Article 2.2 arguments

4.357 Australia firmly rejects any suggestion that it has not made a serious attempt to rebut New Zealand's arguments in relation to Article 2.2. In paragraph 344 of Australia's first written submission, Australia notes that there is a substantial overlap in New Zealand's technical and scientific arguments under Articles 5.1 and 2.2, and that it would therefore address them together. Australia then proceeds with a 150 page comprehensive rebuttal of New Zealand's scientific and technical arguments. In addition, Australia's first written submission also contains a substantive alternative argument in relation to Article 2.2. Accordingly, there is no doubt whatsoever that Australia has responded very directly to New Zealand's arguments in relation to Article 2.2.

4.358 New Zealand has attempted to reverse the burden of proof in relation to Article 2.2. Australia's position on the burden of proof applicable to Article 2.2 is based on a straightforward application of the customary rules of interpretation of public international law to that provision. Put simply, the third requirement of Article 2.2 is couched in negative terms. Namely, Members must ensure that their measures are "*not* maintained *without* sufficient scientific evidence". The provision does not say that Members must ensure that their measures are "maintained with sufficient scientific evidence".

4.359 In Australia's view, the drafters of the SPS Agreement very deliberately chose this formulation of words to emphasise that complainants bear a heavy evidentiary burden in establishing a breach of the third requirement of Article 2.2. It requires the complainant to positively prove insufficiency of the scientific evidence in relation to the measures at issue. In the context of this dispute, this means that New Zealand must positively demonstrate that the IRA Team's evaluation of the scientific evidence was not objective and credible.

(j) Scientific and technical arguments

4.360 During this hearing, New Zealand has introduced a few new scientific and technical arguments in relation to European canker and apple leafcurling midge. Nothing new has been introduced in relation fire blight.

(i) *European canker*

4.361 Australia firmly rejects New Zealand's assertion that it is attempting to re-write the Final IRA Report in relation to European canker, or any other pest at issue. As the respondent in this dispute, Australia is clearly entitled to rebut New Zealand's claims and arguments in order to defend the

consistency of its measures. This is not equivalent to re-writing the Final IRA Report; it is simply usual practice under the WTO dispute settlement system.

4.362 New Zealand criticises Australia for introducing an "alternative climate analysis", suggesting that this somehow acknowledges the inadequacy of the "original climatic risk assessment" in the Final IRA Report. However, New Zealand fundamentally misunderstands Australia's position. Environmental conditions, including climate, are only one of the three key criteria which determine disease development. New Zealand's fixation with climate analysis ignores the other two key criteria, the pathogen and the host. In contrast, the IRA Team took into account all three criteria in its assessment of European canker as demonstrated by the Final IRA Report. Moreover, contrary to what New Zealand alleges, the climate analysis contained in Annex 2 of Australia's first written submission is not directed at patching up the Final IRA Report. Rather, it was merely introduced to rebut New Zealand's climate analysis - in doing so it confirms the credible and objective analysis set out in the Final IRA Report.

4.363 New Zealand continues to erroneously equate the significant apples trade from *Tasmania* with insignificant apples trade from the four diseased orchards in *Spreyton*. Australia notes New Zealand's assertions as to the volume of trade moving out of the Spreyton area during the period of the outbreak, and looks forward to receiving the evidence referred to by New Zealand.

(ii) *Apple leafcurling midge*

4.364 New Zealand claims in its opening statement at paragraph 105 that Australia included AQIS inspections at the border as a component of Australia's unrestricted risk analysis in relation to apple leafcurling midge. This is simply not true. In this regard, Australia refers the Panel to page 23 of the Final IRA Report, which states that "possible AQIS on-arrival inspection for quarantine pests associated with apples is not considered in the assessment of unrestricted risk".

4.365 Australia notes that New Zealand has introduced a purported clarification of the Rogers *et al* 2006 paper on apple leafcurling midge. Australia does not consider that it clarifies how New Zealand derives an overall viability rate of 15 per cent from that study. Australia will further address the content of the Rogers *et al* 2006 study, together with Exhibit NZ-102, at a later stage of the proceedings. Suffice to say, New Zealand's assertion with respect to this paper does not impugn the IRA Team's assessment of the probability of importation of apple leafcurling midge.

(k) The AQIS audit requirement has been misunderstood by New Zealand

4.366 The AQIS auditing requirement continues to be a contentious issue for New Zealand but, in Australia's view, needlessly so. Despite repeated clarifications from Australia, both before and during these proceedings, New Zealand continues to misquote and misunderstand the AQIS audit requirements. In practice, Australia expects that the audit requirements would not be onerous as, following normal practice, New Zealand and Australia would negotiate arrangements for minimising duplication and maximising efficiency. Australia will provide further elaboration on this point in writing as part of the question and answer process.

4.367 Australia also points out that its import requirements for apples from New Zealand, including the AQIS audit requirements, are subject to review after the first year of trade.⁶⁴⁷ Australia applies such a review mechanism in relation to all import risk assessments. Australia highlights US table grapes as an example where Australia has adjusted the relevant import requirements a number of times.

⁶⁴⁷ Australia's IRA, Part B, p. 325.

(l) New Zealand's secondary claims continue to lack merit

4.368 In addition to its primary claims under Articles 5.1 and 2.2, New Zealand's oral statement recycles the arguments made in its first written submission regarding its secondary claims under Articles 5.2, 5.5 and 5.6 of the SPS Agreement. Australia has already comprehensively rebutted these arguments in its first written submission. Moreover, a number of the Third Parties have also called into question the validity of New Zealand's secondary claims.

4.369 Australia continues to be of the view that New Zealand has failed to discharge its burden of proof by establishing a prima facie case. In all legal proceedings, including this one, the burden of proof is a critical issue, contrary to what New Zealand has asserted in its closing statement. Australia reiterates its position that New Zealand cannot be permitted to introduce new evidence to make a prima facie case by way of its rebuttal submission.

4.370 In its opening statement, New Zealand appears to query whether Australia has acted in good faith by reserving its position in relation to New Zealand's claim of undue delay under Article 8 and Annex C(1)(a). New Zealand goes on to allege that, as a consequence, the Panel is entitled to accept New Zealand's claim as it has not been challenged by "reasoned argument".

4.371 This argument is completely devoid of merit. New Zealand's claim on undue delay has been challenged by Australia as being outside the scope of the Panel's terms of reference. Australia has done so by "reasoned" and compelling argument, in stark contrast to New Zealand's acrobatics on the issue. Australia has acted in good faith in doing so and reserves further argument until the Panel delivers its ruling. On that point, Australia would appreciate an indication from the Panel as to when it is likely to rule on this issue.

(m) Timing of the second hearing

4.372 Before concluding, Australia would like to flag with the Panel a potential logistical issue with respect to the timing of the second panel hearing. Australia has repeatedly tried to secure accommodation for our delegation since it became aware of the timetable. Unfortunately, Australia's efforts to date have been unsuccessful due to the fact that the Geneva motor show coincides with the dates of the second hearing. Australia will continue with its search, but foreshadow that if it is unsuccessful within the next few weeks, it will write to the Panel to request that the second hearing be rescheduled to the nearest available dates. It is obviously not possible for the Australian delegation to travel to Geneva for the second hearing if Australia is unable to secure accommodation.

(n) Conclusion

4.373 Australia also notes New Zealand's reference in its closing statement to Australia's IRA process being "intermingled" with a political process. Australia absolutely rejects any inference that its science-based IRA process was intermingled with any political process. As noted in Australia's written submission, New Zealand has provided no evidence to back up such inferences and Australia has asked the Panel to disregard them completely.

4.374 In conclusion, there is no question that New Zealand and Australia enjoy a harmonious relationship based on shared values, partnership and mutual interest. The bilateral trade agreement between New Zealand and Australia is one of the most comprehensive and successful worldwide. There is no better basis on which to found a mutually agreeable resolution to this dispute. Australia welcomes the comments the Panel offered in this regard, and would like to assure the Panel that it will continue to work closely with its neighbour and close friend, New Zealand, towards this end.

4.375 Australia would like to thank the delegation of New Zealand, the Third Parties, the Panel and the Secretariat for the opportunity to present its case at this hearing.

4. Executive summary of Australia's second written submission

(a) Introduction

4.376 The key issue for the Panel's determination is the validity of Australia's risk assessments for fire blight, European canker and ALCM under the SPS Agreement. New Zealand has failed to demonstrate any serious flaws with those risk assessments. Accordingly, the Panel should find that the Final IRA Report provides objectively justifiable risk assessments for the three pests at issue, and that the measures at issue are required to achieve Australia's appropriate level of protection (ALOP).

(b) Overarching legal arguments

4.377 The Appellate Body's decision in *US/Canada – Continued Suspension* provides important guidance to the Panel for some of the key issues in this dispute: in particular, a panel's limited mandate when evaluating a risk assessment, as established by its standard of review; the right of Members to rely on "divergent or minority" scientific opinion; and the appropriate use of experts by panels. Australia's previous submissions on standard of review are substantially congruent with this guidance.

4.378 New Zealand's disregard for the Panel's limited mandate and the special relationship between Articles 5.1 and 2.2 of the SPS Agreement has caused it to misjudge the nature of the case it was required to advance. Instead of directing its challenge at the Final IRA Report, New Zealand has argued that its own interpretation of the available scientific evidence is the only "correct" view. By doing so, it has effectively asked the Panel to conduct a *de novo* review of the scientific and technical evidence, an approach which the Appellate Body has made clear is impermissible. New Zealand's misjudgement has resulted in it failing to meet its burden of proof. New Zealand may not rely on either the Panel or the experts to make its case.

4.379 In *US/Canada – Continued Suspension*, the Appellate Body reaffirmed that the scientific basis relied upon by a Member in its risk assessment need not reflect the majority view within the scientific community, but may reflect "divergent or minority" views. This recognizes that there may be more than one legitimate opinion, from qualified and respected sources, in situations where the available scientific evidence is sufficient to conduct an objectively justifiable risk assessment.

4.380 In particular, multiple valid opinions may result where there is scientific uncertainty on a particular issue. In Australia's view, a lack of comprehensive or definitive evidence on a particular point does not render a risk assessment legally invalid. Data constraints and expert judgment are part of the reality of conducting risk assessments in the context of a quarantine regulatory system directed at facilitating international trade.

4.381 The experts appointed by the Panel have a limited but important role to assist the Panel in considering the scientific evidence submitted and the arguments made by the Parties. The Panel should be mindful not to inadvertently defer its judgment to the experts on matters which ultimately require the Panel to draw *legal* conclusions.

4.382 New Zealand has failed to show that each of the 16 remaining measures at issue would fall within the definition of "SPS measure" in Annex A(1) of the SPS Agreement, when taken alone. Australia considers that its distinction between principal and ancillary measures is well-founded, and reflects a distinction between those measures which are intended to be active in risk reduction, and those which are not. The Panel may make findings with respect to all of the measures at issue in this

dispute, but Australia submits that it may only evaluate the "ancillary" measures when taken together with related "principal" measures.

4.383 New Zealand continues to equivocate on the product at issue. To restrict the scope of the Panel's findings to "mature, symptomless apples", as New Zealand would apparently have it, would be a legal error.

(c) Specific legal arguments

4.384 Australia recalls its submission that Articles 5.1 and 2.2 exist in a special relationship, whereby Article 5.1 provides a means of achieving the Article 2.2 requirement that SPS measures not be "maintained without sufficient scientific evidence" where an importing Member relies on a current risk assessment. New Zealand has incorrectly treated Articles 5.1 and 2.2 as sources of distinct obligations. Both the European Communities and the United States support Australia's approach to Articles 5.1 and 2.2 in this dispute.

4.385 New Zealand inappropriately equates scientific uncertainty with the notion of "insufficient" scientific evidence. The IPPC has acknowledged that uncertainty is an inherent part of pest risk analysis, and Australia submits that it may be validly addressed by a risk assessment which satisfies the requirements of Article 5.1. A lack of data on a particular aspect of a risk pathway does not absolve a risk assessor from its duty to conduct an objectively justifiable risk assessment, and accordingly may require the exercise of expert judgment. As observed in Firko and Podleckis (2000), scientific experiments are seldom conducted specifically to provide estimates to be used in risk assessments.

4.386 As none of the pests at issue are present in Australia, the Final IRA Report's estimations of risk inevitably constitute an extrapolation from available data to a hypothetical situation. However, historical data cannot be determinative when trying to predict how a pest may behave in a new environment. Furthermore, the level of risk determined in the Final IRA Report was closely related to the projected commercial volume of New Zealand apples that would be imported.

4.387 New Zealand's claim that Article 5.2 requires Members to give "genuine consideration" to the matters listed in that provision is contrary to the customary rules of interpretation of public international law. As Australia has previously noted, the IRA Team was not obliged to draw the same conclusions as New Zealand on the basis of the evidence available.

(d) The scientific and technical issues with respect to Australia's measures

4.388 Australia considers that the Final IRA Report sets out objectively justifiable risk assessments for fire blight, European canker and ALCM. The Final IRA Report expresses the reasoning and conclusions of qualified and respected scientists and technical experts on the basis of the evidence available, in a manner appropriate to Australia's circumstances. New Zealand's failure to demonstrate any serious flaws with those risk assessments means that its arguments have not undermined the validity of the Final IRA Report as a basis for the measures at issue.

(i) *New Zealand has not shown that the IRA Team's methodology is flawed*

4.389 Australia has refuted New Zealand's assertions that the semi-quantitative methodology used in the Final IRA Report suffered from three "fundamental flaws". New Zealand asserted that the Final IRA Report used uniform distributions, including the distribution $(0, 10^{-6})$, to "inflate risk". In attempting to support this assertion, New Zealand relied heavily on what it describes as "real world data" from its trade in apples with other countries. This data is not scientific evidence, and Australia's careful analysis demonstrates that New Zealand's reliance on it is misplaced. New Zealand also

asserted that the assessment in the Final IRA Report of the potential volume of trade in apples from New Zealand was overestimated. Australia has shown this assertion to be based on four faulty suppositions.

(ii) *The risk assessment for fire blight is objectively justifiable*

4.390 New Zealand's principal claim in respect of fire blight is that there is no scientific evidence supporting the proposition that mature apples provide a pathway for fire blight establishment. It relies on four key bases to substantiate this claim: *Japan – Apples*, Roberts and Sawyer (2008), "real world" data, and its own interpretation of selected scientific evidence. This approach is legally and technically flawed.

4.391 By arguing that each of these four bases confirms the absence of a pathway, New Zealand effectively advances alternative accounts of a fire blight risk assessment which, in its view, should be preferred to the Final IRA Report. Requesting that the Panel consider these arguments is tantamount to asking the Panel to conduct a legally impermissible *de novo* review.

4.392 New Zealand's key technical arguments are equally flawed. First, they are based on unreliable evidence and are not appropriate to the *specific* risk assessed in the Final IRA Report. The findings in the *Japan – Apples* dispute do not address the same risk scenario as the Final IRA Report; the Roberts and Sawyer (2008) paper relied upon by New Zealand does not consider unrestricted risk and, in any event, contains flaws in its data set; and the "real world" trade data highlighted by New Zealand is not scientific evidence and cannot be used to draw direct inferences about the disease pathway.

4.393 New Zealand's arguments are also based on a fundamental misunderstanding of the fire blight pathway and the requirements of the SPS Agreement. Completion of the fire blight pathway does not require, as New Zealand suggests, that populations of *E. amylovora* bacteria remain high throughout the entire duration of the entry scenario. The material point in time when bacterial populations are significant is at the time of infection of a suitable host. Further, the SPS Agreement does not recognize any *a priori* limits on the kind of scientific evidence which may be considered in a risk assessment, provided that it meets the scientific community's standard of legitimate science. Thus, New Zealand's attempts to exclude laboratory evidence from review should be rejected. Laboratory studies are a standard scientific method for developing an understanding of what may be possible under field conditions, and may be the only scientific evidence available.

4.394 Finally, New Zealand's critique of the Final IRA Report is superficial and deficient. New Zealand has sought to downplay the critical point that it did not provide the IRA Team with any evidence demonstrating orchard freedom from *E. amylovora* in any apple producing areas. New Zealand has overlooked key elements of the IRA Team's reasoning and failed to appreciate that certain conclusions were tailored to the specific circumstances of this case. Further, in relation to several importation steps, New Zealand has inappropriately attempted to expand its suite of claims by relying on the experts' replies to introduce arguments it failed to make itself previously. New Zealand's arguments on exposure ignore the real challenges faced by risk assessors when dealing with a lack of data and scientific uncertainty. Importantly, New Zealand has failed to show that the extremely small probability interval assigned to this step by the IRA Team is not within the potential range of objectively justifiable views on the matter.

4.395 Australia also notes that the fire blight experts appointed by the Panel support the application of risk management measures for fire blight, and confirm the inadequacy of New Zealand's purported alternative measure (restricting imports to "mature, symptomless apples") to achieve Australia's ALOP. Such support is fundamentally incompatible with New Zealand's assertion that there is no pathway for fire blight through "mature, symptomless apples". Further, the experts expressed strong

support for the assessment of potential consequences in the Final IRA Report. Accordingly, New Zealand has failed to demonstrate any serious flaws in the IRA Team's risk assessment for fire blight, and the Panel should find it to be objectively justifiable.

(iii) *The risk assessment for European canker is objectively justifiable*

4.396 New Zealand's case on European canker is legally flawed and as a result it has failed to meet its burden of proof. Australia has refuted New Zealand's deficient scientific and technical arguments. Moreover, the European canker experts appointed by the Panel acknowledged that there is a risk of introducing European canker into Australia associated with the importation of latently infected New Zealand apples, which was the IRA Team's primary risk scenario.

4.397 The IRA Team's analysis shows that latent fruit infection with European canker is a widely accepted phenomenon in the scientific community and it has been reported in New Zealand. Both experts appointed by the Panel agree that latent fruit infection occasionally occurs in New Zealand. New Zealand's attempt to distance itself from its own official report (i.e., Braithwaite (1996)), which concludes that latently infected apple fruit are a potential pathway for the introduction of European canker, lacks credibility. The relevant CABI datasheet confirms that fruit is one of the plant parts liable to carry the pest in trade/transport. Further, surface-infestation of mature apples occurs in New Zealand, in both the field and in processing, and such infestation can lead to latent infection.

4.398 With respect to the potential for European canker to establish and spread in Australia, the Final IRA Report cites scientific evidence that apples rotting in the field due to European canker can produce spores to act as a source of further infection. This scenario is accepted by one of the experts appointed by the Panel. Dispersal of spores by "only a few metres" is all that would be required for a rotting apple in orchard wholesaler waste, or in a backyard compost heap, to transfer *N. galligena* to a susceptible host. European canker has a wide range of alternative hosts, many of which are present in Australia. In addition, contrary to New Zealand's assertions, there are areas of Australia (including commercial apple growing regions) that have climatic conditions which are conducive to European canker, as shown by Australia's climate analysis.

4.399 New Zealand overplays the significance of the 1950s disease outbreak in Spreyton, Tasmania. New Zealand erroneously attempts to project the experience of this outbreak to the entire Australian continent. Australia also considers that New Zealand has misrepresented what occurred in the movement of Spreyton apples during that time.

4.400 Finally, Australia rejects New Zealand's ongoing attempt to diminish the consequences of European canker. It is widely accepted around the world that the disease has serious consequences. In fact, it is one of only a few pests addressed by the Pipfruit NZ integrated fruit production manual.

4.401 As New Zealand has failed to identify any serious flaws in the IRA Team's risk assessment for European canker, the Panel should be satisfied that it is objectively justifiable.

(iv) *The risk assessment for ALCM is objectively justifiable*

4.402 In relation to ALCM, New Zealand has failed to demonstrate that there was reliable data which was not taken into account by the IRA Team in respect of the prevalence of viable ALCM on New Zealand apples. The probability values chosen by the IRA Team aimed to ensure that the potential for considerable seasonal and geographic variation in ALCM-prevalence was accounted for, in light of the scant information available on the matter.

4.403 Furthermore, New Zealand has failed to establish that sufficient quantities of apples would not be co-located within sufficient proximity to apple host plants so that adult insects could not

emerge and establish in Australia. New Zealand's claim that this would never occur on the basis that it would export the majority of its apples in "retail ready" form is flawed. First, limiting its exports in such a way would be commercially disadvantageous, and secondly, the apples may nevertheless be sent to orchard wholesalers for repackaging or reconditioning. In addition, New Zealand's assertion that apple waste will not be left uncovered for a sufficient length of time to allow adult ALCM to emerge is based on mistaken assumptions relating to waste management in Australia.

4.404 Australia notes that the ALCM expert appointed by the Panel expressed the view that the IRA Team's analysis was objective and coherent on a number of key issues in dispute, including its evaluation of the potential consequences of an ALCM incursion. Similarly, the ALCM expert opined that New Zealand's assertions regarding the time required for adult emergence after removal from cold storage and the flight distance of adult females were unsupported by the evidence available. Finally, the ALCM expert implicitly agreed with Australia that a 600-unit inspection alone, as proposed by New Zealand, would not achieve Australia's ALOP.

4.405 Accordingly, New Zealand has failed to establish any flaws which were so serious that, if absent, would have led to a lower level of assigned risk. The Panel should accordingly accept that the Final IRA Report provides an objectively justifiable risk assessment for ALCM.

(v) *The general measures*

4.406 The general measures at issue are all ancillary requirements to Australia's principal measures for fire blight, European canker and ALCM. Accordingly, the purpose and technical basis of the general measures is inextricably linked to that of the principal measures.

4.407 Australia considers there to be no reason for the Panel or New Zealand to doubt the accuracy of Australia's explanation what its requirement concerning "AQIS involvement" in certain procedures in New Zealand entails. Systems auditing will be the extent of the "AQIS involvement". ISPM No. 20 recognizes that auditing of the systems in an exporting country may be required in the development of new trade. Australia notes that New Zealand has not identified an "alternative" measure to Australia's existing requirement.

(vi) *The IRA Team evaluated likelihood according to the SPS measures which might be applied*

4.408 Australia notes that the IRA Team evaluated a range of potential measures for each of the pests at issue, and that the measures recommended were limited to those necessary to achieve Australia's ALOP. Australia agrees with the compliance panel in *Australia – Salmon (Article 21.5 – Canada)* that the rights and obligations concerning the linkages between a risk assessment and the measures selected are not set out under the mere definition of "risk assessment" in Annex A(4) of the SPS Agreement, but rather in Article 5.1 and Article 5.6. Australia considers that it is disingenuous for New Zealand to complain that the IRA Team failed to properly evaluate certain measures when it has accepted, by conceding Australia's measures are "based on" the Final IRA Report, that there is an adequate relationship between the Final IRA Report and *all* of the measures at issue under Article 5.1. In addition, New Zealand has failed to raise other alternative measures under Article 5.6.

(vii) *Australia's measures are not inconsistent with Articles 5.1, 5.2, 2.2 and 5.6*

4.409 New Zealand's claims under Articles 5.1, 5.2, 2.2 and 5.6 are interdependent and conditional on each other. As a result, should the Panel find the Final IRA Report to provide valid risk assessments within the meaning of the SPS Agreement, it should make consequential findings that all of the measures at issue are consistent with each of those provisions.

4.410 New Zealand concedes that Australia's measures are "based on" the Final IRA Report. Therefore, to the extent that the Panel finds the risk assessments for the three pests at issue to be objectively justifiable, it should find that the measures at issue are consistent with Article 5.1.

4.411 Australia's primary submission is that consistency with Article 5.1 establishes consistency with the Article 2.2 requirement that SPS measures not be "maintained without sufficient scientific evidence". Accordingly, to the extent that the Panel finds the measures at issue to be consistent with Article 5.1, it should also find them to be consistent with Article 2.2. Alternatively, Australia submits that New Zealand has nevertheless failed to establish that Australia's measures are inconsistent with Article 2.2.

4.412 Article 5.2 is an obligation directed at the conduct of risk assessments, rather than to the consistency of particular measures. Therefore, a finding that the risk assessments are valid within the meaning of the SPS Agreement would also mean that the factors under Article 5.2 were taken into account in the Final IRA Report, New Zealand having failed to demonstrate otherwise.

4.413 In relation to Article 5.6, it is undisputed that the "alternative" measures proposed by New Zealand would not achieve the same degree of risk reduction as the measures at issue. New Zealand's claims that restricting imports to "mature, symptomless apples" would be sufficient in regards to the risks associated with fire blight and European canker, and that a 600-unit inspection would be sufficient in regards to ALCM rest on its flawed belief that the unrestricted risk for those pests meets Australia's ALOP. Therefore, a finding that the Final IRA Report presents valid risk assessments means that New Zealand has not identified alternative measures which would achieve Australia's ALOP. Accordingly, the Panel should find that Australia's measures are consistent with Article 5.6.

(viii) Australia's measures are not inconsistent with Article 5.5

4.414 Australia recalls its view that its defence in respect of Article 5.5 was prejudiced by New Zealand's failure to specify the basis of its complaint in its panel request.

4.415 Australia has comprehensively refuted New Zealand's contention that New Zealand apples and Japanese nashi pears have similar risk profiles. Unlike the situation with New Zealand apples, Japan has measures in place to maintain area freedom from the relevant pests for nashi pears exported to Australia. Furthermore, the level of risk is proportional to the volume of trade in a product, and Australia notes that there have been no imports of Japanese nashi pears since 2003 and minimal trade before that.

4.416 Australia's measures for New Zealand apples and Japanese nashi pears are commensurate to the different level of risk associated with each product. Accordingly, New Zealand has not demonstrated any inconsistency in the application of Australia's ALOP which has resulted in discrimination or a disguised restriction on international trade.

(ix) New Zealand's undue delay claim remains outside the scope of this dispute

4.417 New Zealand's undue delay claim remains outside the Panel's terms of reference. The Panel's preliminary ruling limited the measures at issue to the requirements listed in bullet point form in New Zealand's panel request. Since that ruling, New Zealand has constantly shifted the basis of its undue delay claim in an attempt to bring it within the Panel's terms of reference.

4.418 New Zealand currently refers to the "IRA process" and Australia's quarantine framework in the context of its undue delay claim, but neither were identified in New Zealand's panel request.

Furthermore, New Zealand's claim that the "IRA process" checked and fulfilled the measures at issue, ignores the ordinary meaning of the text of Article 8 and Annex (C)(1).

(e) Conclusion

4.419 Australia has identified serious deficiencies in New Zealand's legal arguments and evidence, and does not consider that New Zealand has impugned the risk assessments for fire blight, European canker or ALCM. Accordingly, New Zealand has failed to establish that any of Australia's measures are inconsistent with the relevant provisions of the SPS Agreement.

5. Executive summary of Australia's opening oral statement at the second substantive meeting

(a) Introduction

4.420 This case concerns the conduct of risk assessments by WTO Members in the "real world", where the scientific evidence available is often not comprehensive, the limited scientific data available may not fully resolve uncertainties about elements of potential risk pathways, and risk assessors must necessarily and legitimately exercise expert judgment to interpret available scientific data and to address uncertainty.

4.421 Unless New Zealand can establish serious flaws in Australia's risk assessments for fire blight, European canker or ALCM, the Panel should find that the Final IRA Report is objectively justifiable in light of Australia's ALOP. New Zealand has not done so and accordingly its case should be dismissed.

(b) The practical realities of conducting risk assessments

4.422 Dr Schrader confirmed that lack of data is a problem with almost all plant risk assessments, particularly where rare events are concerned. As a result, nearly every risk assessment will involve expert judgment. New Zealand takes the restrictive view that scientific evidence may not be relied upon if it was generated in a laboratory, and that risk pathways are not able to be considered unless they have been historically documented and experimentally confirmed in the field. If New Zealand's view were accepted, risk assessments would be invalid unless the scientific evidence was absolute in its completeness and certainty. New Zealand's view fails to accord with the reality highlighted by the experts and Biosecurity New Zealand's own *Risk Analysis Procedures*. It also runs contrary to the guidance provided in previous WTO SPS cases.⁶⁴⁸

(c) Sufficiency of scientific evidence is not equivalent to scientific certainty

4.423 What will be "sufficient" scientific evidence for the imposition of SPS measures must be assessed according to the specific circumstances and evidence available for each pest, taking into account the ALOP. By asserting that scientific evidence will only be "sufficient" if facts are experimentally proven under orchard conditions⁶⁴⁹, New Zealand effectively argues that "sufficient scientific evidence" requires "scientific certainty". However, full scientific certainty does not exist in the real world of plant risk assessments.

⁶⁴⁸ See, for example, Panel Report on *Japan – Apples*, para. 8.98; Appellate Body Report on *EC – Hormones*, para. 187.

⁶⁴⁹ For example, see New Zealand's second written submission, paras. 2.111-2.121.

4.424 Australia agrees that the "conclusions drawn by the Member assessing the risk [must] find sufficient support in the scientific evidence relied upon".⁶⁵⁰ But certain steps in any given pathway analysed will be better supported by direct or experimental evidence than others, because some issues have been subject to greater levels of investigation, while others may be very difficult to replicate experimentally to produce reliable results. The sufficiency of scientific evidence relied upon by a Member is a judgment to be made in relation to the *overall* risk assessment.

4.425 Australia acknowledges that certain steps in the pathways assessed were better supported by evidence than others in the Final IRA Report. In those latter cases, expert judgment was employed. But this does not undermine the overall sufficiency of scientific evidence relied upon in the Final IRA Report.

4.426 In Australia's view, the mere fact that a pathway has not been historically confirmed is no reason to dismiss a risk as pure speculation. The experts agreed with this view and Dr Paulin recognized the legitimate role of using hypotheses in conducting risk assessments. It is common practice for WTO Members – including New Zealand itself⁶⁵¹ – to impose SPS measures on fruit imports despite there being no historically proven pathway for particular diseases. If fruit can be infected and carry the causal organism of a particular disease, then it has the *potential* to introduce that disease to the importing country. In such circumstances, a risk assessment is based on the biology of the disease.

4.427 New Zealand denies that it is judging what risks are significant for Australia. However, it does precisely this when it argues that the standard of sufficient scientific evidence contemplated by the SPS Agreement can only be met by conclusive, historical proof of a pathway. This is because a judgment as to whether the likelihood of a pathway being completed is "insignificant" is a value judgment about the acceptable level of risk. The key issue is whether or not the risk exceeds *Australia's* ALOP.

(d) Standard of review and burden of proof remain fundamentally important

4.428 Australia has not sought to "shelter" the Final IRA Report from review, as New Zealand has claimed.⁶⁵² Rather, Australia has argued that the Panel should begin its examination with the Final IRA Report. Australia recognizes the legitimacy of WTO scrutiny, but any review must be consistent with the "delicate and carefully negotiated balance" of rights and obligations contained in the SPS Agreement. The substance of Australia's submissions on standard of review has been confirmed by the Appellate Body in *US/Canada – Continued Suspension*.⁶⁵³

4.429 New Zealand's burden of proof, which flows from the standard of review, requires it to establish serious flaws with the risk assessments at issue before the Panel may find that they are not objectively justifiable. Moreover, the objective justifiability of a risk assessment is not impugned unless New Zealand has demonstrated that any serious flaws identified suggest to the Panel that, if absent, there *would* have been a lower level of assigned risk – not merely that this *might* have happened.⁶⁵⁴

⁶⁵⁰ Appellate Body Reports on *US/Canada – Continued Suspension*, para. 591.

⁶⁵¹ New Zealand has in place measures to protect against the entry of certain pathogens on papaya and lychees: *Bipolaris hawaiiensis*, *Pestalotiopsis sp.* and *Pytophthora capsici*.

⁶⁵² New Zealand's second written submission, paras. 1.5 and 1.8.

⁶⁵³ Australia's second written submission, paras. 13-18; Appellate Body Report on *US/Canada – Continued Suspension*, paras. 590-615.

⁶⁵⁴ Appellate Body Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.57.

4.430 New Zealand has to meet its burden of proof. It cannot rely on either the Panel or the experts to make its case.⁶⁵⁵ Furthermore, these proceedings do not constitute a "peer review" of the Final IRA Report, whereby the Panel can rely on the experts to choose a preferred view of the science, because doing so would constitute a *de novo* review. Multiple legitimate opinions may result where there is scientific uncertainty, such as when there is a lack of data.

(e) The Final IRA Report constitutes a scientific opinion

4.431 New Zealand argues that the Final IRA Report "does not itself constitute independent scientific opinion or scientific evidence".⁶⁵⁶ But this is inconsistent with the views of past panels and the Appellate Body, who have accepted that risk assessments unquestionably constitute scientific opinion.⁶⁵⁷ Thus, if the risk assessments at issue are objectively justifiable, Australia is entitled to rely upon them as the basis of its measures, whether or not the conclusion on risk is a "divergent or minority opinion".

(f) New Zealand seeks to revive its case

4.432 New Zealand has attempted, in its rebuttal submission, to revive its case by introducing new arguments which it had previously failed to pursue. For example, New Zealand has used its rebuttal submission to attempt to expand its claims under Article 5.6 by seeking to introduce further potential "alternative" measures for the three pests at issue.⁶⁵⁸ The Panel should not allow this to occur.

(g) The role of experts is limited

4.433 According to the Appellate Body in *US/Canada – Continued Suspension*, experts assisting panels in SPS disputes have a very specific and limited role: to provide *advice* to the panel and to *assist* the panel on the technical and scientific aspects of this dispute. Panels may not defer judgment to experts on matters which ultimately require the panel to draw legal conclusions, such as what amounts to "sufficient scientific evidence". The experts' views should not be considered *determinative* of the issues in dispute, especially where the question is not whether something can occur, but how *likely* it is to occur. A rigorous review of *any* risk assessment will always highlight particular points on which qualified and respected scientists disagree. It is not for the Panel to choose between different views.

(h) Methodology

4.434 Australia has demonstrated that New Zealand's assertions of fundamental flaws in the semi-quantitative methodology used in the Final IRA Report contain significant technical errors and lack evidentiary support. New Zealand has failed to make its case on methodology.

4.435 In the meeting with the experts, Dr Sgrillo advised that the semi-quantitative model used in the Final IRA Report was acceptable. He observed that the assessment of the likelihood of entry, establishment and spread was conducted on a quantitative basis, while the evaluation of consequences was conducted on a qualitative basis.

⁶⁵⁵ See Appellate Body Report on *Japan – Agricultural Products II*, para. 129.

⁶⁵⁶ New Zealand's opening oral statement at the first meeting of the Panel with the Parties, para. 49; New Zealand's second written submission, paras. 2.76, 2.107, 2.314.

⁶⁵⁷ See Appellate Body Report on *EC – Hormones*, para. 194; Panel Report on *EC – Marketing and Approval of Biotech Products*, paras. 7.3059-7.3060; Appellate Body Reports on *US/Canada – Continued Suspension*, para. 591.

⁶⁵⁸ See New Zealand's second written submission, paras. 2.894-2.895; New Zealand's first written submission, paras. 4.490, 4.491, 4.513.

4.436 New Zealand takes issue with the use of the probability interval $0-10^{-6}$, in particular, the maximum value of 10^{-6} , or one in a million. New Zealand asserts that this maximum value is "significantly greater than can be justified on the basis of known data", including trade data.⁶⁵⁹ Australia has demonstrated that New Zealand's reliance on trade data is flawed.⁶⁶⁰

4.437 There is a fundamental contradiction in New Zealand's case which is starkly illustrated by its claim that trade data may support its case and yet the Final IRA Report is to be judged strictly against experimental evidence under orchard conditions. Indeed, New Zealand insists that the IRA Team should have used trade data to inform its expert judgment.

4.438 New Zealand asserts that, in terms of the volumes of apples that may be exported to Australia, the chance of something occurring once in a million apples may not be seen to be negligible.⁶⁶¹ It states that:

"[A]n adverse event with a probability of 1×10^{-6} on a per-apple basis is equivalent to an expected occurrence of once in a million apples, or 150 times per year, based on ... Australia's estimate of the most likely volume of apples traded (that is, 150 million apples per annum)."⁶⁶²

4.439 New Zealand creates a misleading impression in referring to an event occurring 150 times every year. It does not specify the nature of the adverse event, where it occurs on a pathway, and whether that event would occur in the total population of 150 million apples. Without the specific case being given, New Zealand's calculation lacks any concrete connection to the Final IRA Report.

4.440 New Zealand also notes that the mean of the interval $0-10^{-6}$, when applied as a uniform distribution, is 5×10^{-7} , or one in two million. It states that, if an adverse event has a probability of occurring once in two million apples, then, in a population of 150 million imported apples, 75 occurrences would occur.⁶⁶³ Again, without the specific case being given, New Zealand's calculation is in the abstract and lacks any concrete connection to the Final IRA Report.

4.441 In this regard, Australia recalls that, in the meeting with the experts, Dr Sgrillo acknowledged that, if only a proportion of a total population of apples was infested, then the expected number of events would be reduced proportionately. Based on his example of applying one in a million to 200 million apples, giving 200 events, Dr Sgrillo agreed that if the infested population was only 1 per cent of the total population, or two million apples, then the number of expected events would be two.

4.442 New Zealand asserts that there was "no evidence, presented anywhere" that there was a "structured or recognized" process in place for eliciting the opinions of IRA Team members.⁶⁶⁴ New Zealand's error in making this assertion was highlighted in the meeting with experts when Australia referred the Panel and New Zealand to Appendix 1 of the Final IRA Report, which contains a summary of key points of the elicitation process.

4.443 New Zealand's assertion that the semi-quantitative methodology overestimates the likely volume of trade in apples from New Zealand is based on faulty suppositions. New Zealand *wrongly* supposes that: Australian consumers will not buy the main varieties of apples it produces, such as Royal Gala and Braeburn; Australian supermarkets will be unlikely to stock New Zealand apples;

⁶⁵⁹ New Zealand's first written submission, p. 95.

⁶⁶⁰ See Australia's first written submission, paras 308-311; New Zealand's second written submission, paras. 247-263.

⁶⁶¹ New Zealand's first written submission, para. 4.180.

⁶⁶² New Zealand's second written submission, para. 2.342.

⁶⁶³ New Zealand's first written submission, para. 4.191.

⁶⁶⁴ New Zealand's second written submission, para. 2.348.

the volume of New Zealand apples entering the Australian market would lead to large price falls, making its exports uneconomic; and New Zealand's apple exporters will not divert apples to the Australian market. As to the economic viability of New Zealand apple exports, Australia recalls the views of advisors to the New Zealand apple industry that Australia represents a significant export opportunity.

(i) Fire blight

(i) *The fire blight case is essentially about the acceptable level of scientific uncertainty in risk assessments*

4.444 The case for fire blight essentially comes down to the degree of scientific uncertainty that the SPS Agreement can tolerate in a risk assessment. What is acceptable will depend on how the elements of uncertainty – that is, what we do not know, and perhaps cannot prove about fire blight – measure up against what we do know and have proven about fire blight.

4.445 New Zealand's burden of proof is central to the fire blight case. New Zealand must show that the elements of uncertainty result in flaws so serious that, if absent, *would* have led to a lower level of overall assessed risk.⁶⁶⁵

4.446 In this regard, it is significant that the fire blight experts not only confirmed that there is a potential pathway for fire blight through mature apples⁶⁶⁶, but that there is a real risk present to be assessed and managed. Dr Paulin explicitly supported Australia's two principal risk reduction measures, supporting the IRA Team's view that the risk associated with that pathway is above Australia's ALOP.

(ii) *New Zealand's "pathway" argument is the core of its fire blight case*

4.447 The central pillar of New Zealand's argument is the claim that there is no scientific evidence supporting a pathway for fire blight through mature, symptomless apples.⁶⁶⁷ In effect, New Zealand claims that risks do not exist unless the pathway has been historically documented and experimentally proven.

4.448 However, this requirement has no basis in the SPS Agreement or the international standards.⁶⁶⁸ Dr Schrader confirmed that the absence of a historical pathway is not a sound reason for excluding a risk.⁶⁶⁹ Similarly, Articles 5.1 and 2.2 do not refer to pathways and do not impose any requirement that Members assess only the pathways that have been historically documented.

(iii) *The fire blight pathway is substantially confirmed*

4.449 The fire blight experts confirmed that the pathway for fire blight through mature apples is far from being wholly "speculative". The pathway is substantially confirmed with some elements of uncertainty.

⁶⁶⁵ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.57. See Australia's first written submission, para. 346.

⁶⁶⁶ See also reply of Dr Paulin to Panel questions 16 and 45, in List of Replies from the scientific experts to questions posed by the Panel.

⁶⁶⁷ See for example New Zealand's second written submission, paras. 2.104, 2.108, 2.110, 2.111, 2.120, 2.123, 2.127, 2.451-2.454.

⁶⁶⁸ For example, ISPM No. 11.

⁶⁶⁹ Reply of Dr Schrader to Panel question 45, in List of Replies from the scientific experts to questions posed by the Panel; Oral comment of Dr Schrader at the experts' meeting, 30 June 2009.

4.450 It is beyond doubt that live *E. amylovora* will enter Australia on the surface of mature apples if trade occurs.⁶⁷⁰ It is beyond doubt that Australia has suitable conditions for the establishment of fire blight disease.⁶⁷¹ It is also beyond doubt that if fire blight were to establish in Australia, there is the potential for spread within geographic regions.⁶⁷² Finally, it is beyond doubt that fire blight has the potential to cause severe economic and biological loss.

4.451 Only *one* step in the pathway is uncertain, and that is whether *E. amylovora* can be transmitted from an apple to a susceptible host plant and initiate a fire blight infection. But even this step is supported by indirect evidence that transmission can occur. Dr Paulin confirmed that rotting apples discarded in an orchard can provide a possible source of inoculum.⁶⁷³ The experts also confirmed that vectoring through pollinating insects could occur in the way described by the IRA Team.⁶⁷⁴ Finally, the IRA Team's view that small numbers of bacteria can multiply to cause infections in susceptible hosts is supported by scientific evidence.

4.452 When this evidence is taken together, the IRA Team's judgment that transmission could occur in a rare case can hardly be dismissed as "speculation".⁶⁷⁵ Indeed, Australia's view is corroborated by other WTO Members who impose very similar risk management measures to Australia.⁶⁷⁶

(iv) *New Zealand's evidence is not relevant to Australia's circumstances*

4.453 Even leaving these issues to one side, New Zealand cannot simply assert that the pathway is "hypothetical". It must prove this point with evidence and argument.

4.454 New Zealand's pathway argument, and indeed its fire blight case, rests primarily on three pieces of evidence: *Japan – Apples*, Roberts and Sawyer (2008) and "real world" trade data. It is highly significant that each of these three bases have either been discredited by Australia⁶⁷⁷, rejected by the experts as irrelevant or inappropriate⁶⁷⁸, or both. Recently, New Zealand has asserted that several other studies also point to a lack of a pathway. However, much of this evidence⁶⁷⁹ is unreliable for drawing conclusions about the risk in Australia's circumstances.

4.455 Hale *et al.* (1996) and Taylor *et al.* (2003a) do not say anything about rare events as the sample sizes are not comparable to commercial volumes of apples. Roberts *et al.* (1998), like Roberts

⁶⁷⁰ CABI. Indeed, the vast preponderance of scientific evidence accept that *E. amylovora* will be found on the surface of apple fruit when sourced from areas where fire blight is endemic.

⁶⁷¹ Australia's first written submission, para. 482.

⁶⁷² Australia's first written submission, para. 485.

⁶⁷³ Reply of Dr Paulin to Panel question 21, in List of Replies from the scientific experts to questions posed by the Panel.

⁶⁷⁴ Even New Zealand agrees that insects are a means of secondary spread. New Zealand's reply to Panel question 61 after the first substantive meeting, para. 96. Reply of Dr Paulin to Panel question 35, in List of Replies from the scientific experts to questions posed by the Panel.

⁶⁷⁵ New Zealand's first written submission, paras. 4.8, 4.237, 4.252; New Zealand's second written submission, paras. 2.492 and 2.452.

⁶⁷⁶ See Australia's second written submission, paras. 342 and 343.

⁶⁷⁷ In relation to *Japan – Apples*, see Australia's first written submission, paras. 250-262; Australia's reply to Panel question 40 after the first substantive meeting; Australia's second written submission, paras. 325-329. In relation to Roberts and Sawyer (2008), see Australia's first written submission, paras. 363-376; Australia's second written submission, paras. 330-337 and Annex 1. In relation to trade data, see Australia's first written submission, paras. 308-311; Australia's second written submission, paras. 247-263 and 338-343.

⁶⁷⁸ Reply of Dr Paulin to Panel questions 41 and 44, in List of Replies from the scientific experts to questions posed by the Panel; Reply of Dr Deckers to Panel questions 41 and 44, in List of Replies from the scientific experts to questions posed by the Panel.

⁶⁷⁹ With the exception of Taylor *et al.* (2003b), as Australia has discussed.

and Sawyer (2008), is focussed on restricted risk and therefore indicates nothing about potential risks when trade is unrestricted.⁶⁸⁰

4.456 Finally, much of the scientific evidence New Zealand relies upon concludes that the pathway is "negligible", not that it does not exist. This is important: "negligible" is not zero, nor does it mean that an event will not occur, unless you define "negligible" as "insignificant" or "not worth considering". But, the significance or otherwise of a potential event is ultimately a value judgment associated with ALOP and, therefore, a judgment for Australia alone.⁶⁸¹

(v) *New Zealand has not demonstrated serious flaws in the Final IRA Report*

4.457 Once New Zealand's pathway argument falls away, the only remaining question is whether New Zealand has established serious flaws in the Final IRA Report. New Zealand has consistently failed to show any serious flaws in the levels of probability assigned to key steps in the pathway.

4.458 New Zealand asserts that the probability of 1 given for importation step 1 is overestimated since *E. amylovora* cannot be present in all source orchards in New Zealand.⁶⁸² However, under Article 6 of the SPS Agreement, it is up to *exporting* Members to "objectively demonstrate" disease free areas and areas of low pest prevalence. It would be very surprising if a lesser standard of objective proof was required under Article 5.1. In this case, New Zealand had many opportunities to provide the relevant evidence to the IRA Team but declined to do so.⁶⁸³ It is therefore not credible for New Zealand to effectively argue that it has a claim to area freedom when it clearly does not.

4.459 Similarly, New Zealand implies that, under importation step 4, the IRA Team should have assumed that that an undefined number of packing houses achieve equivalence to Australia's disinfection measure. However, New Zealand has not provided "objective" proof as to whether disinfectant is applied effectively.⁶⁸⁴ Accordingly, New Zealand has no legitimate claim of equivalence pursuant to Article 4.1.

4.460 Importation steps 2, 3 and 5 make the most significant contribution to the probability of entry. However, New Zealand's arguments on importation step 2 are not credible in light of its failure to acknowledge the critical assumptions underpinning the IRA Team's analysis⁶⁸⁵ and its insistence that endophytic infection is relevant to the IRA Team's assessment in the face of clear and explicit statements to the contrary.⁶⁸⁶ In relation to importation steps 3 and 5, New Zealand led *no* substantive evidence and argument of its own in the first stages of this dispute. The Panel should take care that it does not inadvertently make the case for New Zealand by allowing the experts' replies to plug the significant gaps in New Zealand's evidence.⁶⁸⁷

4.461 Even leaving the legal concerns aside, the experts' replies do not raise an inference of serious flaws. New Zealand may have shown that the experts had some doubts about some of the IRA Team's use of evidence. But all that this means is that the experts did not agree with the IRA Team's analysis in its entirety. It is simply not enough for New Zealand to point to minor flaws and *assume* that they are sufficient to overturn the risk assessment. New Zealand has to *prove* that the absence of any shortcomings would have led to a lower level of assessed risk, and in this it has failed.

⁶⁸⁰ Australia's second written submission, Annex 1.

⁶⁸¹ See European Communities' third party submission, para. 33.

⁶⁸² New Zealand's second written submission, para. 2.402.

⁶⁸³ Australia's IRA, Part B, p. 54.

⁶⁸⁴ Australia's second written submission, para. 382.

⁶⁸⁵ Australia's second written submission, paras. 371-373.

⁶⁸⁶ Australia's second written submission, para. 370.

⁶⁸⁷ Appellate Body Report on *Japan – Agricultural Products II*, para. 129. See also, Australia's second written submission, para. 5.

(j) European canker

4.462 At the experts' meeting, Professor Latorre reiterated that there is a risk of introducing *N. galligena* associated with the importation of latently infected apple fruit.⁶⁸⁸ Both experts agreed that the long distance spread of European canker via apple fruit could not be ruled out.⁶⁸⁹

4.463 Contrary to what New Zealand asserts, the Final IRA Report contains an objective, coherent and substantive analysis of the environmental conditions, including climate, relevant to the establishment and spread of European canker.⁶⁹⁰ The validity of this analysis has been confirmed by the work undertaken by the Bureau of Rural Sciences (BRS).⁶⁹¹

4.464 Rather than identifying any serious flaws in the IRA Team's consideration of climate, New Zealand has simply introduced an alternative climate analysis in an attempt to impose its own view of the science on Australia. There is ongoing debate in the scientific community regarding the climatic conditions required for European canker development, resulting in a variety of predictive models.⁶⁹² Dr Swinburne confirmed that there is no complete model but rather a range of models which are yet to be joined up, and that expert judgment was required.

4.465 The BRS climate analysis draws on various predictive models, *including New Zealand's own Beresford and Kim model*, to demonstrate the climatic similarity between parts of Australia and those areas of the world where European canker is present.⁶⁹³ It shows that, if European canker entered Australia, it could establish and spread to host plants in commercial apple growing regions, such as the Adelaide Hills in South Australia, and metropolitan areas, such as Sydney and Melbourne. Both European canker experts accepted this at the experts' meeting.

4.466 The alleged unsuitability of Australia's climate lies at the core of New Zealand's case on European canker. It underpins New Zealand's arguments on spore production, dispersal and infection; on establishment and spread; on alternative hosts; on the Spreyton disease outbreak; and on consequences. Therefore, once you accept the reality that New Zealand does not have the only legitimate predictive model for European canker development, its case falls away.⁶⁹⁴

4.467 New Zealand continues to equivocate on the incidence of latent fruit infection in New Zealand which was the focus of the IRA Team's analysis under importation step 2. However, fruit rot occurrences have been reported in New Zealand and it follows that latent fruit infection does occasionally occur in New Zealand.⁶⁹⁵ This was the view of the IRA Team⁶⁹⁶ and it was accepted by Dr Swinburne.

4.468 Contrary to what New Zealand asserts, the IRA Team's view that discarded infected apples can produce spores (primarily conidia) which disperse and initiate infection, is legitimate science.⁶⁹⁷ This view is consistent with the biology of fungal pathogens as evidenced by photographic evidence

⁶⁸⁸ See reply of Dr Latorre to Guideline (g) and Panel question 65, in List of Replies from the scientific experts to questions posed by the Panel.

⁶⁸⁹ See also reply of Dr Swinburne to Panel question 64, in List of Replies from the scientific experts to questions posed by the Panel.

⁶⁹⁰ Australia's IRA, Part B, pp. 119-120, 137, 140, and 141.

⁶⁹¹ Australia's first written submission, Annex 2; Australia's second written submission, Annex 2.

⁶⁹² Australia's second written submission, Annex 2, pp. 249-250.

⁶⁹³ Australia's second written submission, Annex 2, pp. 251-257. See also Australia's first written submission, Annex 2, Figure 10.

⁶⁹⁴ Australia's second written submission, paras. 532-550.

⁶⁹⁵ Australia's second written submission, paras. 473-485.

⁶⁹⁶ Australia's IRA, Part B, p. 123.

⁶⁹⁷ Australia's second written submission, paras. 507- 521.

showing masses of conidia on rotten fruit.⁶⁹⁸ It also finds support in Professor Latorre's view that asymptomatic but infected apples could develop symptoms and eventually sporulate during transit and commercialisation in Australia⁶⁹⁹, and that rotted fruits discarded near susceptible hosts could be a source of inoculum for infections in new areas.⁷⁰⁰

4.469 New Zealand's criticism of the IRA Team's consequences analysis disregards Australia's particular circumstances, including that there are a wide range of alternative hosts in Australia.⁷⁰¹ Plant pathology information from around the world⁷⁰² invariably refers to European canker as having serious consequences. Dr Swinburne noted the occurrence of 5 per cent fruit rot at East Malling in the UK⁷⁰³, an area which only had marginal climatic suitability for development of the disease. This is consistent with the IRA Team's "moderate" rating for European canker consequences.

4.470 In sum, although there is a low risk associated with importing New Zealand apples, it exceeds Australia's ALOP. Accordingly, the IRA Team determined that it was necessary to source apples from New Zealand export orchards or blocks free of the disease. Professor Latorre reiterated that this is a reasonable risk mitigation measure.⁷⁰⁴ Both experts agreed that requiring New Zealand to export "mature, symptomless apples" would not achieve Australia's ALOP.

(k) ALCM

4.471 The Panel's consideration of the ALCM risk assessment needs to be cognisant of the significant lack of data available on several of the key issues in dispute – including the viability of ALCM on New Zealand apples. ALCM is present in only a few countries and, as Professor Cross confirmed, there has been relatively little research conducted or reliable data generated on this pest.

4.472 During these proceedings, New Zealand has provided new data on a number of issues in its attempt to criticise the IRA Team's evaluation of ALCM.⁷⁰⁵ Obviously, however, the IRA Team could not have considered information that was not available to it during the IRA process. Australia recognizes that this new information would need to be taken into account in any review of the import conditions. But it is clear that further reliable data is required, and New Zealand is in the best position to provide the appropriate information.

4.473 New Zealand does not seriously dispute that ALCM could establish in Australia from a biological perspective. Professor Cross' reference to the "powerful life force" in the context of the insect's potential survival in a new environment was significant in this regard. Rather, New Zealand relies on its assertion that the "majority" of its exports will be in the "retail ready" form, which New Zealand contends means that insufficient numbers of infested apples would come within proximity of suitable hosts. And secondly, that "Australian agricultural waste practices would preclude any opportunity for ALCM establishment" because of New Zealand's conjecture that apple

⁶⁹⁸ Exhibit NZ-10: McCartney (1967), p. 279.

⁶⁹⁹ Reply of Dr Latorre to Panel question 65, in List of Replies from the scientific experts to questions posed by the Panel.

⁷⁰⁰ Reply of Dr Latorre to Panel question 69, in List of Replies from the scientific experts to questions posed by the Panel.

⁷⁰¹ Australia's second written submission, paras. 578-580.

⁷⁰² Australia's second written submission, Annex 3.

⁷⁰³ Exhibit AUS-142: Berrie (1989).

⁷⁰⁴ Reply of Dr Latorre to Guideline (g), in List of Replies from the scientific experts to questions posed by the Panel.

⁷⁰⁵ New Zealand's advice that the August 2005 data related to *occupied* cocoons in New Zealand's response to the experts' factual queries, 17 February 2009; New Zealand's clarification of the Rogers *et al.* (2006) paper in Exhibit NZ-102; data on adult emergence in Sandanayaka and Rogers (2009), Exhibit NZ-119.

waste is never left exposed in Australia.⁷⁰⁶ In Australia's view, New Zealand has failed to establish the validity of either of these propositions. Professor Cross confirmed that if large volumes of apples were directed to orchard packing houses, the risks would be considerable.

4.474 Neither Australia nor New Zealand is in a position to specify with any degree of precision how frequently the mode of trade would be via bulk fruit as opposed to "retail ready" fruit. It will depend on commercial considerations which will vary according to the market circumstances at a particular time.

4.475 And even if the "majority" of apples were imported retail ready, this does not mean that insufficient quantities would be sent to orchard wholesalers for repackaging or reconditioning.⁷⁰⁷ Similarly, New Zealand has failed to establish that apple waste would be managed in the way that it asserts, and that groups of apples would never be left out of cold storage near host plants for a sufficient length of time.⁷⁰⁸ The Final IRA Report illustrates that there would be more than enough infested apples distributed to orchard packing houses for there to be a reasonable likelihood of an establishment event taking place⁷⁰⁹, even if the actual level of infestation of New Zealand apples is somewhat lower than the IRA Team assumed on the basis of the August 2005 data.

4.476 Professor Cross validated the IRA Team's judgment on the question of adult emergence from cold storage, when he confirmed at the experts' meeting that adults could potentially emerge very quickly. New Zealand's claim that "the IRA's conclusions were based on the assumption that all ALCM present on New Zealand apples would simultaneously emerge as soon as the apples were removed from cold storage"⁷¹⁰ is simply wrong. The IRA Team's analysis was focussed on "the likelihood of *at least one* establishment and spread event happening" in light of the number of apples that might arrive at particular locations.⁷¹¹ Emergence of individuals over a period of time does not mean that a mating pair could not emerge simultaneously. Further, Professor Cross has made clear that the IRA Team's consideration of flight distance was reasonable.

4.477 In circumstances where the unrestricted risk is above Australia's ALOP, Dr Sgrillo agreed with Australia that the underlying level of infestation is the appropriate factor for determining the requisite rate of inspection. New Zealand's proposed 600-unit inspection would be insufficiently sensitive to reduce the risk to Australia's ALOP given the low level of ALCM-infestation on New Zealand apples.⁷¹²

(l) The measures at issue

4.478 Australia considers that the Panel may make findings in respect of each of the remaining measures at issue in this dispute. However, New Zealand has failed to demonstrate that each of those measures fall within the definition of "SPS measure" when taken alone.

4.479 The description of the measure listed at the eighth bullet point in New Zealand's panel request suggests that registered packing houses which process apples intended for Australia may not also

⁷⁰⁶ For example, see New Zealand's second written submission, paras. 2.252, 2.750, 2.752, 2.754.

⁷⁰⁷ See Australia's second written submission, paras. 651-654; Australia's first written submission, paras. 781-783.

⁷⁰⁸ See Australia's second written submission, paras. 659-665.

⁷⁰⁹ See Australia's second written submission, paras. 644-649.

⁷¹⁰ New Zealand's second written submission, para. 2.741 (footnote omitted).

⁷¹¹ Australia's IRA Report, Part B, p. 34 (emphasis added).

⁷¹² Also, see Australia's second written submission, paras. 682-687.

process apples sourced from non-registered orchards or apples intended for other markets. This is incorrect.⁷¹³

(m) Conclusion

4.480 The importation of US table grapes provides a "real-world" example of Australia's commitment to seeing trade flow freely within the bounds of its ALOP. Based on the scientific data collected since trade began, the measures have been adjusted five times. The measures are now less trade-restrictive and trade has grown. The same review mechanisms are available in the Final IRA Report for New Zealand apples. Australia stands ready to allow commercially valuable trade in New Zealand apples to occur.

6. Australia's closing oral statement at the second substantive meeting

(a) Introduction

4.481 It is beyond dispute that this case raises a large number of complex scientific questions. There are three risk assessments at issue: one each on a bacterium, a fungus and an arthropod. Given the complexity of the issues, it is clear why the Panel's role is not to undertake its own risk assessment.

(b) Standard of review

4.482 Australia submits that this means that the Panel must find serious flaws in the Final IRA Report if it is to decide that Australia has acted inconsistently with its obligations. New Zealand has provided no serious alternatives to the "serious flaws" burden of proof. In this regard, the Panel should follow the clear guidance that the Appellate Body has provided on the role of experts in SPS cases.

4.483 In any event, New Zealand has not established any such serious flaws that would impugn the objective justifiability of the three risk assessments at issue. Accordingly, its challenge against Australia's measures must fail.

(c) Transparency

4.484 New Zealand repeatedly claims that the Final IRA Report is not transparent. But New Zealand fails to acknowledge that the Final IRA Report is among the most transparent plant risk assessments prepared by any WTO Member. The very fact that New Zealand has been able to challenge its reasoning and conclusions in such detail testifies to its transparency. New Zealand's own risk assessments – which in many cases remain entirely unpublished – contain far less detail about the reasoning and conclusions than the Final IRA Report.

4.485 New Zealand has been unable to point to any obligation in the SPS Agreement that requires transparency in risk assessments beyond that provided in the Final IRA Report. WTO Members agreed on a range of disciplines to apply to risk assessments, and they are set out clearly in the SPS Agreement. On the issue of transparency, the Final IRA Report exceeds the standards required.

(d) Methodology

4.486 Australia considers that in the course of the meeting with the experts and the second substantive meeting there has been a valuable examination of the issues relating to the methodology

⁷¹³ See Australia's IRA, Part B, p. 317.

used in the Final IRA Report. Australia has shown that New Zealand's assertions on methodology are deeply and irretrievably flawed.

4.487 Australia has identified a fundamental contradiction in New Zealand's case that, on the one hand, it seeks to support its own case with trade data, yet, on the other hand, it requires the Final IRA Report to be judged strictly against experimental evidence. New Zealand has not addressed this contradiction.

4.488 Australia also notes the discussion of the interval $0-10^{-6}$, in particular, the exchanges between the Panel and the Parties this morning. In this regard, Australia recalls the fundamental difference between the total population and the relevant population. The Chairman's funnel was a useful analogy.

(e) Fire blight

4.489 The Final IRA Report is the scientific basis of Australia's measures, and therefore, the fate of those measures, stand or fall with its validity.

4.490 Before the Panel gets to the question of whether the risk assessment is valid, it must first be satisfied that New Zealand has made out a convincing case on fire blight. If the Panel thinks New Zealand has, then it must ask whether Australia has provided an appropriate defence of its measures. But if the Panel does not think New Zealand has made out its case, if the Panel has doubts about whether New Zealand has led adequate evidence and argument to prove that the fire blight risk assessment is seriously flawed, then the Panel must dismiss New Zealand's case for failure to meet its burden of proof.

4.491 In the case of fire blight, there is a genuine question about whether New Zealand has met its burden of proof. Its primary contention – that there is no pathway for fire blight through mature apples – has been shown to be wholly without basis by Australia and confirmed by Dr Deckers and Dr Paulin. The three key evidentiary pillars of New Zealand's case, have been discredited and shown to be irrelevant. In its opening statement, New Zealand attempted once again to elevate the findings in *Japan – Apples* to the status of scientific evidence⁷¹⁴ and has done so again in its closing statement. However, New Zealand still ignores the critical point that legal findings on the sufficiency of evidence led by the Parties in dispute cannot be converted into scientific facts.⁷¹⁵

4.492 This is not a case of expert equivocation or doubt. All of the experts agreed that fire blight has serious consequences. Indeed, Dr Schrader noted that where the impact of a pest is high and there are open questions about entry, then uncertainties in the data should not prevent the application of measures. As New Zealand has put no substantive argument on this issue of consequences either in its second written submission, or in the course of the second substantive meeting, Australia now considers that this point is undisputed.

4.493 Even more significantly, Dr Deckers and Dr Paulin both confirmed clearly that the risk of fire blight through mature apples is a real one – a risk worth assessing, and more importantly, one that necessitates risk management. Australia's principal risk management measures have been endorsed without qualification, and neither expert adjusted their view that mature, symptomless apples will not

⁷¹⁴ Despite its claim that *Japan – Apples* is not scientific evidence, and not a risk assessment. See New Zealand's reply to Panel's question 116 after the first substantive meeting.

⁷¹⁵ Australia notes that Japan did not lead sufficient evidence in its risk assessment on many of the scientific issues in *Japan – Apples*. This had a material impact on the evidentiary findings in that case, as is evident from the panel report itself (see Panel Report on *Japan – Apples*, paras. 8.147, 8.167 and 8.175). See Australia's first written submission, paras. 257-259.

meet Australia's ALOP. In Australia's view, these comments must bear significant weight in determining whether the ultimate conclusion in the fire blight risk assessment meets acceptance within the scientific community.

4.494 As Australia stated, only one step in the risk assessment is subject to any real degree of uncertainty. And on this issue, the Panel has heard extensively from the experts. The experts confirmed that the scientific evidence on this issue is highly uncertain and only tells us directly about what is probable, but not what might happen exceptionally. Thus, it is easy to see how WTO Members concerned only with common risks could be satisfied on the evidence that the risk, for them, would be insignificant.

4.495 But for WTO Members such as Australia, who are concerned with rare events, the evidence discloses no such certainties. Therefore, the IRA Team had to exercise expert judgment to extrapolate from the available evidence to draw a conclusion about whether a rare event could occur. Dr Paulin has told us clearly that these sorts of inferences are "not outside science". Accordingly, the key question is whether the Panel is satisfied that the IRA Team's judgment that this event could occur is a rational inference from the evidence.

4.496 Australia does not have to establish that mature apples *have been* the vehicle for transmission of fire blight. Nor does Australia have to show it is *likely* to happen. When talking about a potential pathway, all that has to be shown is that it can rationally happen, that the probability range assigned to that step is acceptable, and that the potential risk is above Australia's ALOP.

4.497 On each of these points, the IRA Team's analysis was directly vindicated by the experts. When asked directly whether the IRA Team had presented evidence which shows that mature fruit can transmit fire blight, both Dr Paulin and Dr Deckers said "yes". When asked directly whether the probability range assigned to this step – that is, (0-10⁻⁶) – was acceptable, both experts said "yes". Finally, when asked directly whether there was a risk of fire blight through mature apples, both experts again said "yes". Dr Deckers was very clear on this point – for him, the risk was real and not exaggerated.

4.498 Australia considers that the exposure analysis in the Final IRA Report has been shown to be rational and to constitute legitimate science according to the standards of the scientific community. In deciding whether the Panel can accept this view, it may be worth considering the alternative view of this evidence that New Zealand has put before the Panel in its arguments. New Zealand asserts, on the basis of evidence including Hale *et al.* (1996) and Taylor *et al.* (2003a) that transmission does not occur, and will never occur. The experts unanimously confirmed that this view is incorrect. Thus, to the extent that there is any choice between the two positions put before the Panel, it is important to keep in mind that while Australia's position is rational on the available science, New Zealand's position is not.

4.499 This is the only real step in contention as New Zealand has failed to make a case on the key importation steps, through failure to lead any credible evidence of its own. This was highlighted in New Zealand's responses to questions put by Australia where New Zealand had failed to point to any evidence apart from the experts' replies.⁷¹⁶ But as New Zealand itself acknowledged, experts replies are not evidence in themselves, but can only verify the arguments and evidence of the Parties. Accordingly, as Australia considers that the experts have supported the key elements of the IRA Team's reasoning, Australia considers that New Zealand's case on fire blight fails.

⁷¹⁶ Australia notes that para. 4.228 of New Zealand's first written submission and para. 2.426 of New Zealand's second written submission (as referred to by New Zealand this afternoon) do not refer to dump tank contamination and do not refer to any scientific evidence.

(f) European canker

4.500 The foundation of New Zealand's case on European canker is that Australia's climatic conditions are unsuitable for the development of the disease. However, there are areas of Australia, including commercial apple growing regions, which have climatic conditions suitable for the establishment and spread of European canker.

4.501 The practical reality is that climate analysis is a complex area necessitating expert judgment. In the real world there is no single universally accepted epidemiological model for predicting the establishment and spread of European canker. Accordingly, there is no reason why New Zealand's climate analysis should be regarded as the only legitimate scientific view.

4.502 After reviewing a wide range of scientific evidence the IRA Team concluded that there was a risk of introducing European canker into Australia associated with the importation of latently infected New Zealand apple fruit. Both European canker experts appointed in this dispute agree that this is so. The only contested issue relates to the level of this risk.

4.503 The risk associated with introducing European canker certainly exceeds Australia's ALOP. The IRA Team determined that it was necessary to source apples from New Zealand export orchards or blocks free from the disease. This is a reasonable and practical risk mitigation measure considering the serious consequences of the disease which is absent in Australia; both European canker experts agree that a measure simply requiring "mature symptomless apples" would not achieve Australia's ALOP.

(g) ALCM

4.504 As Australia has pointed out on ALCM, it is not possible to be definitive as to the important issue of mode of trade in advance of trade commencing. New Zealand's most recent "evidence" in this regard (Exhibit NZ-136) relates only to kiwi fruit and not to apples. Further, it indicates that only a "portion" of New Zealand kiwi fruit are exported to Australia in "retail ready" condition. This is far from the guaranteed "majority" of New Zealand apples that New Zealand would have the Panel uncritically accept. In any event, even if the "majority" of New Zealand apples *were* imported in "retail ready" condition, the IRA Team still found that more than enough ALCM-infested apples would end up at orchard packing houses together to pose an establishment risk.⁷¹⁷

4.505 As Australia has already acknowledged, there is a significant lack of data available in relation to ALCM, including on viability. Any change in this regard largely depends on New Zealand – unless it provides further data or carries out further research, the lack of data means significant uncertainty will remain. Australia notes that New Zealand was unable to provide further data on viability levels when this was requested by the experts earlier in the year 2009.⁷¹⁸

4.506 If the present data were to be considered insufficient, any review would suffer the same problem in the absence of further information. The IRA process contemplates review on the basis of new information and Australia stands ready to do this. However, without new data, any review will face the same difficulties as faced by the IRA Team. This is the real world which confronts Australia.

(h) Article 5.6

4.507 On Article 5.6, New Zealand's opening statement makes it clear that the only "alternative" measures that the Panel should consider are "mature, symptomless apples" for fire blight and

⁷¹⁷ Australia's IRA, Part B, p. 174, Table 43; Australia's second written submission, paras. 644-649.

⁷¹⁸ Communication from New Zealand to the Panel, 9 April 2009.

European canker, and a 600-unit inspection for ALCM. New Zealand did not mention any other potential alternative measures.

(i) The Panel's evaluation of the measures

4.508 It is also clear from this second substantive meeting that New Zealand indicated no objection with the Panel evaluating each of the measures at issue on a collective basis, rather than each individually. In Australia's view, this would be the appropriate approach.

(j) Real world measures

4.509 Finally, the real world of apple production and trade inevitably involves damaged fruit, discarded waste, diverse handling procedures and inevitable, unpredictable human interaction. The real world does not involve monolithic, sterile procedures. New Zealand has not offered any alternative measures on any of the pests that meet Australia's ALOP.

4.510 As is clear from a reading of the Final IRA Report, and acknowledged by New Zealand, the IRA team considered a number of different measures in relation to each pest. For each of the pests, it recommended the least restrictive measure of those which would achieve Australia's ALOP. For most pests considered in the Final IRA Report, it found that no risk management measures were necessary to achieve Australia's ALOP. For the three pests at issue, it recommended risk management measures largely endorsed by the experts.

4.511 On fire blight, the experts have confirmed that Australia's principal measures – symptomless orchards and chlorine treatment – are warranted. On European canker, they have agreed that measures to ensure pest-free places of production would be necessary to reduce the risk to Australia's ALOP.

4.512 On ALCM, the expert expressed the view that the intensity of any inspection would need to be determined by reference to more reliable data such as viability. But the best existing data indicates that the only alternative measure proposed by New Zealand – a 600-unit inspection – would *not* reduce the risk below Australia's ALOP because it is insufficiently sensitive.

4.513 It is important for the Panel to recognize the real world constraints that apply to the formulation of risk management measures. The reality is that there are a limited number of approaches that can be taken to risk management for any given pest. New Zealand has proposed no alternative measures for any of the pests that would meet Australia's ALOP. Australia would ask that the Panel bear this in mind when considering how best to secure a positive solution to this dispute.

(k) Conclusion

4.514 In conclusion, Australia reaffirms its position that New Zealand has failed to establish any serious flaws in the risk assessments for fire blight, European canker and ALCM.

V. ARGUMENTS OF THE THIRD PARTIES⁷¹⁹

A. CHILE

1. Chile's written submission

5.1 Chile expressed its interest in participating as a Third Party in this dispute, both as an exporter of apples and from a systemic viewpoint, as it considers strict compliance with the disciplines of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) to be crucial.

5.2 The fundamental disciplines of the SPS Agreement include those set forth in Article 2.2, which stipulates that the sanitary and phytosanitary measures applied by a Member must be based on scientific principles and maintained with sufficient scientific evidence. It is also vitally important that sanitary and phytosanitary measures be applied only to the extent necessary to protect human, animal or plant life or health.

5.3 The foregoing lends support to the rule established in Article 2.3, whereby such measures shall not be applied in a manner which would constitute a disguised restriction on trade.

5.4 A second set of fundamental disciplines is set out in Article 5 of the SPS Agreement, which provides that sanitary or phytosanitary measures shall be based on an assessment, as appropriate to the circumstances, of the risks. Article 5 also regulates how Members must carry out such risk assessment and determine the appropriate level of sanitary or phytosanitary protection. In particular, Members are required, when determining the appropriate level of sanitary or phytosanitary protection, to take into account the objective of minimizing negative trade effects.

5.5 Annex A to the SPS Agreement contains a precise definition of the concept of risk assessment and, as noted by New Zealand in paragraph 4.155 of its First Written Submission, establishes a three-pronged test to be applied by Members when assessing a risk. Adherence to this definition and to the related test ensures proper compliance with Article 5.1 of the SPS Agreement.

5.6 With regard to the scientific basis required for sanitary and phytosanitary measures, Chile believes that the Panel must follow the Appellate Body's approach, in the sense that, for there to be a sufficient scientific basis, there must be a rational or objective relationship between the measure and the scientific evidence, and this will be determined in the light of factors such as the characteristics of the measure and the quality of the scientific evidence.

5.7 In this dispute, New Zealand contests the restrictions that have affected its exports of apples to the Australian market. These restrictions stem from the application of phytosanitary measures that have made it impossible for this product to enter Australia.

5.8 Chile acknowledges the right claimed by Australia to determine its own level of protection as it deems appropriate, as provided for in the definition in Annex A, paragraph 5, to the SPS Agreement. Accordingly, as pointed out by Australia, neither the complaining party nor the Panel may substitute the criteria that the Import Risk Analysis (IRA) team took into consideration before applying the protective measure. However, even if Australia were to have such a right, this does not mean that it can impose measures at a level established at its own discretion. Australia is, in particular, required to base its measure on the provisions of Articles 2 and 5 of the SPS Agreement in

⁷¹⁹ This section on the arguments of the Third Parties is based on the executive summaries submitted by the Third Parties to the Panel.

respect of risk assessment and the rationale behind the determination of an appropriate level of protection.

5.9 In the light of the foregoing, the phytosanitary measures contested by New Zealand must be based on scientific principles and applied in such a way as not to constitute a disguised restriction on trade. It is therefore the responsibility of the Panel to examine whether Australia, when assessing its risks and deciding on a certain level of protection, adhered to the above-mentioned requirements.

5.10 Chile believes that, given the different and even conflicting scientific opinions in this dispute in respect of the pests covered by Australia's risk assessments (fire blight, European canker, and apple leafcurling midge), the Panel may have recourse to Article 11.2 of the SPS Agreement.

5.11 With regard to the relevance in this case of analysing the criteria or reasoning contained in the Panel and Appellate Body reports relating to *Japan – Apples (DS245)*, Chile believes that the Panel must properly interpret the relevant Articles of the SPS Agreement, as stated in the reports concerning that dispute. The foregoing does not, however, free the Panel from its obligation to make an objective assessment of the matter, as required under Article 11 of the Dispute Settlement Understanding (DSU). Even though one of the pests in question is the same as in *Japan – Apples* (fire blight), the conditions in Australia may differ from those in Japan.

5.12 That said, Chile agrees with New Zealand that the criteria used to interpret the relevant rules of the SPS Agreement in *Japan – Apples* must be applied in the same way in this dispute. Chile considers it important to distinguish this situation from others through the particular circumstances involved in the case, which must be determined by this Panel.

5.13 Although *Japan – Apples* presents similarities to this case, the task of the current Panel is to study the Australian measures contained in the mandate given by the DSB, while taking into particular consideration the specific nature of the justification for these measures, in relation to the risks assessed in the light of the real circumstances of the case at issue. Only when the Panel has established the specific circumstances surrounding the Australian measure might it be useful to consider any criteria already used in *Japan – Apples*.

5.14 Lastly, Chile would like to refer to the requirements under Article 8 of the SPS Agreement. Members are required to observe the provisions of Annex C to the SPS Agreement in the operation of control, inspection and approval procedures. The rule stipulating that such procedures are to be undertaken and completed without undue delay is relevant in this respect. In this case, the eight years it took the Australian authorities to complete the risk assessment seems far too long and it is therefore of particular importance that the Panel rule on whether the procedure followed is consistent with the provisions mentioned.

2. Chile's oral statement

5.15 Chile appreciates this opportunity to provide the Panel with our views on this important dispute. Although Chile does not have anything more to add to our written statement, Chile would like, briefly, to stress three points:

5.16 First, Article 5.4 and 5.5 of the SPS Agreement establishes the principles contained in the determination of the appropriate level of sanitary or phytosanitary protection, that is, the objective of minimizing negative trade effects and the avoidance of arbitrary or unjustifiable distinctions in the levels Members consider to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade.

5.17 These elements must be taken into account by the Panel in order to evaluate the Australian measures challenged by New Zealand. In this regard, Chile would like to reiterate its suggestion that, as contemplated in Article 13.2 of the DSU, the Panel, in performing this task, seek information from any relevant source and consult experts to obtain the opinion on the scientific elements comprised in this case.

5.18 Second, regarding the undue delay claim under Article 8 and Annex C of the SPS Agreement, Chile reiterates its concern about the long time taken by the Australian authorities to complete its approval procedures for access to their market. Such a long time of delay, as in the case of New Zealand apples, creates insurmountable barriers to the access of a product to a certain market.

5.19 Finally, regarding Australia's request to the Panel to adopt a preliminary ruling concluding that New Zealand claim on undue delay of the IRA process is outside the scope of this dispute, Chile is concerned about the insistence on discussing procedural issues at this stage in this dispute, which, in Chile's opinion, affects the nature of the WTO dispute settlement mechanism, and in particular the prompt resolution of the substance of the case. Likewise, Chile understands that the claim related to Article 8 and Annex C of the SPS Agreement, is covered by its request for a panel (WT/DS367/5). In consequence, it is within the terms of reference of the Panel.

B. EUROPEAN COMMUNITIES

1. Executive summary of the European Communities' written submission

(a) Introduction

5.20 The European Communities sees international trade as a powerful means to increase States' and citizens' welfare on a global level. However, greater trade sometimes carries risks which may outweigh the possible benefits which countries and citizens may derive from it. An appropriate balance must be found.

5.21 Trade disputes concerning SPS measures raise delicate issues insofar as the imperatives of free commerce must be balanced against the legitimate right for countries to protect those public interests at the level their democratically elected bodies consider appropriate. In the light of this, the tasks conferred to the interpreter of the pertinent legal rules ought to be exercised with particular prudence and cautiousness.

(b) Legal assessment

(i) *Articles 2.2 and 5.1 of the SPS Agreement*

5.22 As a preliminary matter, the European Communities would like to stress it agrees with Australia that New Zealand has wrongly treated Articles 2.2 and 5.1 as sources of distinct obligations. The European Communities notes that the Appellate Body has already clarified that Articles 2.2 and 5.1 of the SPS Agreement should be read *constantly together*. In fact, Article 5.1 may be reviewed as a specific application of the basic obligations contained in Article 2.2 of the SPS Agreement.

5.23 Article 2.2 of the SPS Agreement sets out a general rule requiring WTO Members to have "sufficient scientific evidence" as basis for their SPS measures. In *Japan – Agricultural Products II*, the Appellate Body has held that "sufficiency" is a "relational concept" which requires the existence of a sufficient or adequate relationship between two elements, *in casu*, between the SPS measure and the scientific evidence, and having regard to the importing Member's appropriate level of protection.

5.24 According to Australia, this scientific evidence is a risk assessment: the Final IRA. In the light of this, the Panel should, first of all, assess whether the Final IRA constitutes a risk assessment within the meaning of the SPS Agreement.

5.25 The first clause of paragraph 4 of Annex A to the SPS Agreement defines the "risk assessment". The Appellate Body, in *Australia – Salmon*, has clarified that the type risk of assessment relevant in the present dispute is composed by a three step analysis. The Panel must thus assess whether the Final IRA fulfils those requirements in the light of New Zealand's claims.

5.26 In this regard, the Panel should firstly determine whether the Final IRA is so fundamentally flawed or biased that under no circumstances can it be considered as being supported by science. Secondly, the Panel should verify whether the Final IRA, for each pest, identifies some risk reduction measures and evaluates their relative effectiveness in reducing the overall disease risk. This bearing in mind that there is no obligation to assess all possible measures.

5.27 Having concluded on whether the Final IRA is a risk analysis within the meaning of Article 5.1, the next step for the Panel would be to verify that the measures at issue are "based on" this risk assessment.

5.28 The Panel should thus assess whether there is a reasonable or rational relationship between the Final IRA and the measures at issue. Accordingly, it should examine whether the Final IRA sufficiently warrants or reasonably supports the measures at issue. In this exercise, a sufficient degree of latitude should be given to Member's choices. In fact, the expression "based on" should not be understood to mean that an SPS measure must absolutely conform to the standard.

(ii) *Article 5.2 of the SPS Agreement*

5.29 Notably, Article 5.2 lists (non-exhaustively) some factors that a WTO member conducting a risk assessment should take into account. However, this article does not provide for what weight, importance and relevance these factors must be given. In the light of this, the European Communities believes that the Panel cannot find a breach of this provision unless the member claiming the violation proves that the risk assessment did not take into account *at all* those factors.

(iii) *Articles 5.5 and 2.3 of the SPS Agreement*

5.30 Preliminarily, it is appropriate to recall that the Appellate Body clarified the scope of this provision in *EC – Hormones*, when it stated that: "[it] does not establish a legal obligation of consistency of appropriate levels of protection... It is only arbitrary or unjustifiable inconsistencies that are to be avoided."

5.31 Further, in the same case the Appellate Body added that a complaint of violation of Article 5.5 must show the presence of the following three distinct and cumulative elements. In the first place, there must exist situations which can be objectively compared. The situations exhibiting differing levels of protection must thus present some common element or elements sufficient to render them comparable. In the second place, a certain difference in the treatment of those situations may not be conclusive on the breach of Article 5.5. In fact, this difference of treatment must be so clear and so significant to amount to "arbitrary or unjustifiable inconsistency". Finally, these differences must produce discrimination or a disguised restriction of international trade. In other words, the application of the measures at issue must either result in a different, and worse, treatment of some goods or constitute a hidden form of protectionism.

5.32 In past disputes, the WTO judicial bodies have often looked at "warning signals" and other additional factors which would hint at arbitrary or unjustifiable distinctions. In the light of the above,

the European Communities urges this Panel to assess the warning signals and additional elements indicated by New Zealand with an appropriate degree of prudence. Only when several and clear signals point in one and the same direction should a panel conclude that a different treatment results in a discrimination or constitutes a disguised restriction of trade.

5.33 With regard to Article 2.3, in the light of New Zealand's claims, it seems to the European Communities that whether the measures at issue are inconsistent with Article 2.3 depends only on the Panel's findings on Article 5.5.

(iv) Article 5.6 of the SPS Agreement

5.34 Footnote 3 to Article 5 explains that a national measure is not inconsistent with Article 5.6 unless there exists an alternative measure which meets the following three cumulative conditions: is reasonably available taking into account technical and economic feasibility; achieves the appropriate level of sanitary or phytosanitary protection; and is significantly less restrictive of trade.

5.35 The fact that alternative measures must be "reasonably available" and "significantly less restrictive" implies that an appropriate degree of deference must be given to Members' choices of SPS measures. The case-law makes it clear that it is for the complaining Member to make a prima facie case of violation of Article 5.6. Accordingly, this member has to suggest alternative measures which meet the three-pronged test mentioned above. The application of this provision in past cases shows that Article 5.6 places a high evidentiary burden upon complaining Members.

(v) Article 8 and Annex C(1)(a) of the SPS Agreement

5.36 The European Communities wishes to point out that the obligation to undertake and complete the procedures necessary to check and ensure the fulfilment of SPS measures can be breached only when the length of these procedures appears, in light of all the evidence, scientific and otherwise, abnormal or excessive.

5.37 The complaining Member has therefore to prove that there have been significant delays without any objective or rational explanation. In other words, it has to show that the process has been delayed either intentionally in order to have trade restrictions in place for a longer time, or because of evident and significant negligence on the part of the responsible authorities.

5.38 The European Communities agrees with the Parties that it is not possible to draw in abstract terms from the provisions of Annex C(1)(a) a general obligation to decide within a shorter or longer period of time. The European Communities considers that the Panel ought to be particularly cautious in its application of these provisions since procedures to assess risks to human, animal and plant life or health and possible counter-measures are notoriously delicate, complex and time-consuming. In particular, it is the SPS Agreement itself that, by imposing a certain number of steps and requirements for, and demanding that a certain number of elements be taken into account in, a risk assessment, necessarily implies longer time-periods where appropriate.

(c) Conclusions

5.39 Governments need to find an appropriate balance between trade and addressing their legitimate SPS concerns, including adopting measures which appear necessary for the protection of human, animal or plant life or health. The European Communities believes that the provisions of the SPS Agreement constitutes a set of well-balanced and wise rules that preserves the rights of WTO Members to adopt the SPS measures they consider necessary while preventing hidden forms of protectionism.

5.40 The European Communities considers that these provisions should equally be interpreted and applied in a balanced manner. Indeed, an over-extensive interpretation of the role of WTO judicial bodies in SPS disputes would risk to impinge upon the role of national authorities when determining their ALOP. On this point, the European Communities largely agrees with the legal considerations developed by Australia on the issue of the standard of review. Therefore, the European Communities urges the Panel to be conscious of the scope and limits of the role attributed to it under the Understanding on rules and procedures governing the settlement of disputes (the DSU) and the SPS Agreement.

2. Executive summary of the European Communities' oral statement

(a) Introduction

5.41 The European Communities makes its third party oral statement because of its systemic interest in the correct interpretation of the SPS Agreement and, being a large producer, consumer and trader of apples, because of its substantial trade interest in the present matter. The European Communities stresses how the importance of this dispute goes well beyond the impact it may have on international trade in apples, since it raises various interpretative issues on several key provisions of the SPS Agreement.

(b) Australia's request for a ruling on New Zealand's claim of undue delay

5.42 The European Communities has some doubts on the correctness of Australia's arguments on this point. New Zealand's panel request asserts that the 17 measures listed are "*both individually and as a whole* inconsistent with the obligations of Australia under the SPS Agreement". Challenging the alleged undue delay of the "IRA process" appears therefore to be tantamount to contesting the undue delay with respect to those 17 measures, at least as a whole. In addition, the fact that the 17 measures are imposed and regulated by the Final IRA means that the alleged delay in undertaking and completing its approval inevitably and automatically affected the 17 measures duly identified by New Zealand in its panel request.

5.43 Turning to the substance of the matter, the European Communities believes that, the necessary time is a function of the particular circumstances, and as long as the necessary information is not forthcoming, the passage of time may (or may not) be justified. The European Communities can easily envisage circumstances in which it may take very many years to determine whether or not a given product meets the importing Member's acceptable level of protection. The key point is that whether or not the passage of time is justified can only be judged *on the merits of the case* – and not on the basis of an assertion that at some random point in time the importing Member must adopt a final decision.

(c) The role of *amicus curiae* briefs

5.44 The European Communities considers that the case-law developed so far by the WTO judicial bodies is sound and properly balances the different interests mentioned above. On the basis of this jurisprudence, it seems to the European Communities that the present Panel has the authority to accept the submitted brief, and should decide whether to do so on the basis of the potential pertinence and usefulness of such a document, and the extent to which the substance of the brief is taken up by either party in a timely manner.

5.45 Having reviewed this particular *amicus curiae* brief, the European Communities doubts that it could be of any real assistance to the Panel. However, should the Panel decide to accept this brief, the European Communities believes that the facts and arguments set out therein should be taken into account by the Panel to the extent that Parties or Third Parties decide to adopt the views expressed

therein in their own submissions and arguments to the Panel, or are specifically given an opportunity to comment.

(d) The use of experts in panel proceedings

5.46 In the event that the Panel would decide that there is a need to seek expert advice, the European Communities believes that it is imperative that their role be clearly determined. Experts' opinions should be confined to assess the scientific evidence submitted by the Parties in order to determine whether that evidence is sound or plausible. It is neither the panel's nor the experts' role to engage in *de novo* review of the evidence or to conduct their own risk assessments. Similarly, if there exist different scientific opinions, or if there are scientific questions that are yet to be resolved, that is a matter that a panel must take into consideration. It is therefore crucial that panels bear in mind the proper role of experts when they formulate their questions to them.

(e) The Panel's standard of review under the SPS Agreement

5.47 The European Communities believes that Australia is quite right when it contends that "the standard of review should be informed by the particular covered agreement(s) and obligation(s) at issue in a given dispute". The European Communities recalls what the Appellate Body held on this point in *EC – Hormones*.

5.48 An objective assessment *of the matter* before a panel means that this Panel must first of all determine what that matter actually is. And, what that matter is depends necessarily on the provision(s) of the covered agreement(s) that the Panel must interpret and apply in the case at hand. It is these provisions which determine the scope and limits of the Panel's role. Different provisions of the covered agreements may grant the WTO judicial bodies with a more stringent or more lenient power to review the contested national measures. The European Communities believes that, especially in disputes which concern the SPS Agreement such as the present one, it is absolutely crucial for the Panel to have a clear stance on the standard of review which should be followed. A wrong standard of review would lead to a failure to conduct an objective assessment of the matter in breach of Article 11 of the DSU.

(f) Conclusions

5.49 The SPS Agreement, if properly interpreted and applied, constitutes a well-balanced framework that preserves the rights of WTO members to adopt the SPS measures they consider necessary while preventing hidden forms of protectionism. The European Communities urges the Panel to interpret and apply the SPS Agreement with the same prudence and cautiousness with which the WTO Members drafted it.

C. JAPAN

1. Executive summary of Japan's written submission

(a) Introduction

5.50 As a Third Party to this dispute, Japan would like to address, from a systematic viewpoint to ensure fair and objective application of the Agreement on the Application of Sanitary and Phytosanitary Measures agreements (hereinafter "SPS Agreement"), whether Australia's measures for the importation of New Zealand apples are inconsistent with its obligation under Articles 2.2, 5.1, 5.2, and 5.5 of the SPS Agreement.

5.51 Many of the issues in this dispute relate to questions of facts on which Japan is not in a position to comment. In fact, scientific knowledge has not been fully accumulated enough in Japan with regard to the pests at issue, especially European canker and apple leafcurling midge. Further, there is no case that could be direct reference to this case in respect to the countries, phytosanitary circumstances, risk assessment and other conditions. New Zealand heavily relies on the conclusions in the *Japan – Apples* case to support its argument and even argues that "conclusion of the DSB was directly applicable to the circumstances of New Zealand apples."⁷²⁰ The *Japan – Apples* case may be applicable to this case to some extent, but the case is not directly applicable to this case. Japan, thus, limits its submission to issues of legal interpretation raised by some of the claims submitted by New Zealand.

(b) Arguments

(i) *Consistency of the measures with Article 2.2 of the SPS Agreement*

5.52 New Zealand submits that Australia's measures are inconsistent with the obligation in Article 2.2 which creates an obligation for the Member to ensure that any *SPS measures* are not maintained without sufficient evidence. New Zealand further argues that there is no "rational or objective relationship" between the measures imposed by Australia and scientific evidence.

5.53 The Appellate Body addressed "whether there is a rational relationship between an SPS measure and the scientific evidence is to be determined on a case-by-case basis and will depend upon the particular circumstances of the case, including the characteristics of the measure at issue and the quality and quantity of the scientific evidence."⁷²¹

5.54 Japan agrees to Australia's understanding that "sufficiency" is a concept to be evaluated on a case-by-case basis, which requires specific scientific evidence on these pests. However, Japan considers that not enough scientific knowledge has been accumulated in Japan with regard to the pests at issue;⁷²² therefore Japan would not comment on the question.

(ii) *Consistency of the measures with Article 5.1 of the SPS Agreement*

5.55 New Zealand concludes that "Australia's breach of Article 2.2 in this case indicates that it is likely not to be in compliance with Article 5.1."⁷²³ In this regard, Japan recalls that both panels and the Appellate Body have made it clear that the basic rights and obligations are provided in Article 2 whereas more specific and detailed rights and obligations are articulated in Article 5.⁷²⁴ While it may be reasonable to presume that breach of Article 5.1 suggests breach of Article 2.2, it does not follow, as New Zealand argues, that breach of Article 2.2 indicates breach of Article 5.1. Although Article 2.2 provides an important context in analyzing the consistency of measure under Article 5.1, obligations under these two provisions are distinct.

5.56 Japan refrains from detailed argument as they largely depend on pertinent facts, but Japan nevertheless raises two points: First, the quantitative method is one of the "well recognized"⁷²⁵ means of risk assessment, as New Zealand admits. Second, Japan considers that even if the Panel finds that the quantitative approach is not sufficient to evaluate "likelihood", it does not necessarily lead to the

⁷²⁰ New Zealand's first written submission, para. 2.4.

⁷²¹ Appellate Body Report on *Japan – Agricultural Products II*, para.84.

⁷²² See para. 5.51 above.

⁷²³ New Zealand's first written submission, para. 4.152.

⁷²⁴ Appellate Body Report on *EC – Hormones*, para. 250; Panel Report on *Australia – Salmon*, paras. 8.47-8.48.

⁷²⁵ New Zealand's first written submission, para. 4.162.

conclusion that the IRA fails to evaluate "likelihood" and does not constitute a risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A.

(iii) *Consistency of the measures with Article 2.2 of the SPS Agreement*

5.57 New Zealand submits that Australia's measures are inconsistent with its obligations under Article 5.2. As Australia points out, Japan submits that New Zealand interprets the phrase "to take into account" to mean "to give genuine consideration"⁷²⁶, although the latter phrase does not appear in Article 5.2 or any of the related provisions.

5.58 Japan disagrees with the legal interpretation by New Zealand with regard to the phrase "taken into account" in Article 5.2. Following the interpretations by the panel⁷²⁷, Japan is of the view that the factors listed in Article 5.2 should be considered that a failure to respect each and every aspect of these factors would not necessarily, *per se*, constitute a violation of Article 5.2.

5.59 Japan agrees with Australia in that New Zealand's interpretation that the factors listed in Article 5.2 must be "give[n] genuine consideration" may result in a situation, in this particular case, where Australia and the IRA Team should have agreed with New Zealand's own view regarding the relevant technical factors.⁷²⁸

(iv) *Consistency of the measures with Article 5.5 of the SPS Agreement*

5.60 With regard to its inconsistency with the obligation of Article 5.5 of the SPS Agreement, New Zealand refers to the "measures" for Japanese Nashi instead of its "level of protection". New Zealand argues that "the substantial difference in the sanitary measures applied by Australia" is "evidence of a clear difference in the level of protection applied".⁷²⁹

5.61 Japan considers that a complainant must establish that the respondent applies distinctions in the "levels" of protection in different situations, as the panel in *Australia – Salmon* stated that "imposing the same sanitary measure for different situations does not necessarily result in the same level of protection."⁷³⁰ Japan is also of the view that to achieve a Member's appropriate "level of protection" "measures" need to be determined by examining the "risks" with the importation of a particular product. Additionally, the "risks" should be considered with the "situation."

5.62 The above factors are interrelated and necessary for the argument of the level of protection. In this regard, Japan sees that New Zealand's argument is incomplete.

(c) **Conclusion**

5.63 Japan respectfully requests the Panel to examine carefully the facts presented by the Parties to this dispute in light of Japan's arguments above to ensure fair and objective application of the SPS Agreement.

2. Japan's oral statement

5.64 Japan appreciates this opportunity to present its views in this dispute. At this meeting, Japan will not repeat its arguments set out in its written submission. Rather, Japan would like to make a few

⁷²⁶ New Zealand's first written submission, para. 4.411.

⁷²⁷ Panel Report on *Japan – Apples*, para. 8.241.

⁷²⁸ Australia's first written submission, para. 879.

⁷²⁹ New Zealand's first written submission, paras. 4.439 and 4.443.

⁷³⁰ Panel Report on *Australia – Salmon*, para. 8.123.

observations on general points that Japan considers to be relevant for the Panel to take into account in disposing the case at hand.

- (a) Determination of the appropriate level of protection in the SPS Agreement as a "prerogative" of a WTO Member

5.65 According to the definition set forth in paragraph 5 of Annex A of the SPS Agreement, a WTO Member has the sole authority to determine the appropriate level of sanitary or phytosanitary protection it considers appropriate to protect human, animal or plant life or health within its territory. In the words of the Appellate Body, "the determination of the appropriate level of protection, a notion defined in paragraph 5 of Annex A, as 'the level of protection deemed appropriate by the Member establishing a sanitary ... measure', is a *prerogative* of the Member concerned".⁷³¹ This is also confirmed in the preamble of SPS Agreement which states that the use of harmonized sanitary and phytosanitary measures is desired "without requiring Members to change their appropriate level of protection ..."

5.66 This Members' prerogative is not limitless; it is subject to certain constraints set forth in, for instance, Article 5.4 and 5.5, which recognize the needs to minimize negative trade effects and to avoid arbitrary or unjustifiable distinction in the levels of protection in different situations that would result in discrimination or a disguised trade restriction. This suggests that the SPS Agreement recognizes a delicate balance between the negative effects on trade that the SPS measures may have and the need to protect human life or health, or to animal and plant life or health. In other words, in Japan's view, the SPS Agreement embodies WTO Members' recognition that a proper and delicate balance be struck and thus maintained between the legitimate rights of member to determine the appropriate level of protection against risks to human, animal and plant life and health, "that determines the SPS measures"⁷³², on the one hand, and the duty of the same member to ensure that its SPS measures be less trade restrictive, on the other hand.

5.67 Therefore, Japan would like to request the Panel to pay due regard to such delicate balance recognized in the SPS Agreement in examining the issues before it in this proceeding.

- (b) Burden of proof

5.68 With regard to the allocation of burden of proof in proceedings under the SPS Agreement, the Appellate Body agreed with the panel below in *EC – Hormones* that this issue is one "of particular importance, in view of the nature of disputes under [the SPS] Agreement" because "[s]uch disputes may raise multiple and complex issues of fact". The Appellate Body further approvingly described the panel's ruling that "[t]he initial burden lies on the complaining party, which must establish a prima facie case of inconsistency with a particular provision of the SPS Agreement on the part of the defending party, or more precisely, of its SPS measure or measures complained about."⁷³³

5.69 According to this allocation of the burden of proof in the proceeding under the SPS Agreement, Japan considers that in this case the Panel should begin its analysis by examining whether New Zealand has "presented evidence and legal arguments sufficient to demonstrate"⁷³⁴ that Australia's measures at issue are inconsistent with the provisions of the SPS Agreement cited in the Panel request. In other words, the initial question before the Panel is whether New Zealand has made out a prima facie case by satisfying its evidentially and legal burden of proof in respect of claims it has advanced. "Only after such a prima facie determination ha[s] been made by the Panel may the

⁷³¹ Appellate Body Report on *Australia – Salmon*, para. 199.

⁷³² Appellate Body Report on *Australia – Salmon*, para. 203.

⁷³³ Appellate Body Report on *EC – Hormones*, paras. 97-98.

⁷³⁴ Appellate Body Report on *EC – Hormones*, para. 109.

onus be shifted to" Australia "to bring forward evidence and arguments to disprove the complaining party's claim".⁷³⁵

5.70 Taking as an example New Zealand's claim that Australia's measures are inconsistent with Article 5.6, Japan agrees with the European Communities that "it is for the complaining Member to make a prima facie case of violation of Article 5.6".⁷³⁶ Specifically, New Zealand must prove that there is an alternative SPS measure which (1) is reasonable available for Australia, (2) achieves the appropriate level of sanitary or phytosanitary protection of Australia, and (3) is significantly less restrictive than the contested measure.

5.71 Japan would like to stress again that the allocation of burden of proof is important in the proceedings under the SPS Agreement.

D. CHINESE TAIPEI

1. Executive summary of Chinese Taipei's written submission

(a) Introduction

5.72 The Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu (hereinafter referred to as "Chinese Taipei"), as a Third Party in this proceeding, makes this Third Party submission because of its interest in the correct interpretation and application of the Agreement on the Application of Sanitary and Phytosanitary Measures (the "SPS Agreement"). In addition, as an importer of Australian and New Zealand apples, Chinese Taipei has a substantial trade interest in the dispute before the Panel.

5.73 This submission will address the following issues:

- (a) Application of the "necessity" test to Australia's contested measures; and
- (b) whether Australia's appropriate levels of protection between New Zealand apples and Japanese pears are comparable.

(b) Legal arguments

(i) *Application of "necessity" test to Australia's SPS measures*

Substantive requirements of the "necessity" test in the SPS Agreement

5.74 In examining whether a measure satisfies the "necessity" test, according to the structure of Article 2.2 of the SPS Agreement, in Chinese Taipei's view, three elements should be established: (1) the measure at issue is a sanitary or phytosanitary ("SPS") measure; (2) the objective is to protect human, animal or plant life or health; and (3) implementation of the measure is necessary to achieve the objective.

5.75 Chinese Taipei notes that in *Australia – Salmon* and *Japan – Agricultural Products II*, a three-pronged test was established by the Appellate Body to determine "necessity" as defined in Article 5.6 and Footnote 3 of the SPS Agreement, i.e., any given SPS measure must:

- (a) Be available taking into account technical and economic feasibility;

⁷³⁵ Appellate Body Report on *EC – Hormones*, para. 109.

⁷³⁶ European Communities' Third Party submission, paras. 64-69.

- (b) achieve the Member's appropriate level of SPS protection; and
- (c) be significantly less trade restrictive than the SPS measure being contested.

The three elements are cumulative in the sense that all of them have to be met.

Australia's contested measures must satisfy the three-pronged test to establish their necessity

5.76 While there is no international standard, guideline, or recommendation addressing the three diseases in this dispute, Article 5.6 of the SPS Agreement and the aforementioned three-pronged test should serve as baselines in determining whether Australia's measures are "necessary" to protect human, animal or plant life or health. Accordingly, Chinese Taipei suggests that the Panel carefully consider whether the alternative measures raised by New Zealand would satisfy Australia's SPS requirements.

- (ii) *Whether Australia's appropriate levels of protection between New Zealand apples and Japanese pears are comparable*

Determination of Appropriate Level of Protection in the SPS Agreement

5.77 In *EC – Hormones*, the Appellate Body concluded that absolute or perfect consistency of appropriate level of protection ("ALOP") is not a legal obligation, since Members revise their ALOPs frequently on an *ad hoc* basis and over time, as different risks present themselves. This indicates that Members, instead of a panel or the Appellate Body, have authority to determine their own ALOPs.

5.78 Whereas the Appellate Body in *EC – Hormones* focused on Members' *authority*, the Appellate Body in *Australia – Salmon* determined rather that Members have implicit *obligations* to comply with their own ALOPs.

5.79 Given these possibilities, Chinese Taipei believes that WTO Members should be granted the authority to determine their own ALOPs. At the same time, Members should not be free to act in this respect without any constraint. Article 5.5 imposes restrictions on Members' authority in establishing their ALOPs, in order to guard against arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Furthermore, this Article also ensures that SPS measures are not established or maintained in a manner that is more trade-restrictive than necessary, taking into account technical and economic feasibility.

Distinction between appropriate levels of protection can be made only in comparable situations

5.80 In the present dispute, New Zealand claims that Japanese pears, which may bring equivalent or higher risks of Japanese *Erwinia* and brown rot, are subject to less trade-restrictive measures. While Japanese *Erwinia* is similar to *Erwinia amylovora* (fire blight), and brown rot also has similarities to European canker, Australia applies different ALOPs to the import of its apples compared to Japanese pears. As a result, Australia's contested measures constitute arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

5.81 In *EC – Hormones*, the Appellate Body stated that three elements should be met cumulatively before claiming a violation of Article 5.5 of the SPS Agreement. They are:

- (a) That a Member imposing a measure that results in a dispute with one or more other Members has adopted its own levels of sanitary protection against risks to human life or health in several different situations;

- (b) that the levels of protection exhibit arbitrary or unjustifiable differences in their treatment of different situations; and
- (c) that the arbitrary or unjustifiable differences result in discrimination or a disguised restriction of international trade.

5.82 For the first element the Appellate Body stated in the *EC – Hormones* that different situations in which Members have exhibited varying levels of protection cannot be compared unless they present some common element or elements sufficient to render them comparable. Thus, mere differences in levels of protection cannot be used as a basis for determining arbitrariness in the measure in question. In examining the "comparability" of different situations, the Appellate Body stated, in *Australia – Salmon*, that such common elements are present where situations involve a risk of entry, establishment or spread of the same or a *similar* disease, or where situations involve a risk of the same or *similar* associated potential biological and economic consequences. In short, categorizing risks or situations as *similar* requires a comparison of both the relevant likelihood and the corresponding consequences caused by similar diseases.

5.83 Chinese Taipei agrees that with the objective of achieving consistency in the application of the ALOP, Members should establish equivalent or *similar* ALOPs in situations that involve a risk of entry, establishment or spread of the same or a *similar* disease, or that involve a risk of the same or *similar* associated potential biological and economic consequences. On the other hand, diseases or their associated biological and economic consequences at issue must be shown to be the same or *similar* before any further analysis of potential violation of Article 5.5 of the SPS Agreement. If the different situations involving apples from New Zealand and Japanese pears are not comparable, it is inappropriate to use the differences between the ALOPs set up by Australia for New Zealand apples and for Japanese pears as a means of establishing arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

5.84 Accordingly, in Chinese Taipei's view, comparability should be the prerequisite for examining any possible breach of Article 5.5, and it would be of systemic benefit to establish criteria for determining disease comparability.

(c) Conclusion

5.85 Whether Australia's measures violate Article 2.2 and 5.6 of the SPS Agreement depends on whether the contested measures are applied to the extent necessary to protect human, animal or plant life or health. That is, if an alternative measure able to achieve Australia's ALOP does exist and is both less trade-restrictive and technically and economically feasible, then the legitimacy of Australia's contested measures will be undermined.

5.86 As to whether the ALOPs established by Australia between New Zealand apples and Japanese pears results in arbitrary or unjustifiable discrimination or a disguised restriction on international trade, the first step is to determine whether the situations are identical or *similar* enough to be comparable. It is Chinese Taipei's viewpoint that there would be systemic benefit in establishing criteria to determine *similarities* in this dispute.

5.87 Chinese Taipei notes that both Parties to the dispute referred to Chinese Taipei with respect to the existence of the pest at issue and its relevant SPS regulatory regimes. Chinese Taipei has provided some factual information in the Supplementary Information attached to its Submission for the Panel's reference.

5.88 Chinese Taipei respectfully requests the Panel to take into account the above observations and comments in its deliberations, and hope the Panel will find the views helpful.

2. Chinese Taipei's oral statement

5.89 At the Panel's meeting with Third Parties, Chinese Taipei reiterated the arguments contained in its written submission.

E. UNITED STATES

1. Executive summary of the United States' written submission

(a) Introduction

5.90 The United States welcomes the opportunity to provide the Panel with its views in this dispute, in which New Zealand challenges Australia's imposition of phytosanitary measures for the importation of its apples under the Agreement on the Application of Sanitary and Phytosanitary Measures ("SPS Agreement"). As the Panel is aware, the United States was the complaining party in *Japan – Apples*, a dispute that dealt with fire blight restrictions imposed by Japan for the importation of US apples. In light of that experience, the United States considers it appropriate to offer its views on the scientific evidence and the merits of some of New Zealand's claims, particularly in relation to fire blight. The United States, as a major agricultural exporter and importer, has a strong interest in the proper interpretation and application of the SPS Agreement.

(b) The Panel should make an objective assessment of the matter before it pursuant to Article 11 of the DSU

5.91 In the view of the United States, Australia has failed to correctly set forth the applicable standard of review in this dispute. Australia maintains that the Panel should provide it "considerable deference" in assessing the scientific basis of sanitary and phytosanitary ("SPS") measures evaluated in its risk assessment. But such an interpretation does not comport with Article 11 of the Understanding on Rules and Procedures Governing the Settlement of Disputes ("DSU"), which requires a panel to make "an objective assessment of the facts".

5.92 The United States considers that a panel's obligation to make "an objective assessment of the facts" pursuant to Article 11 of the DSU is also important to understanding the relevance of reports by prior panels and the Appellate Body. The United States is of the view that adopted reports by prior panels and the Appellate Body should be considered for their persuasiveness, but they are not binding on subsequent panels and need not be followed.

(c) Article 2.2 of the SPS Agreement requires sufficient scientific evidence

5.93 The obligation in Article 2.2 not to maintain an SPS measure "without sufficient scientific evidence" requires that there be a rational or objective relationship between the SPS measure and the scientific evidence.

5.94 As was also the case during *Japan – Apples*, there is still no scientific evidence that mature, symptomless apples transmit fire blight disease. The scientific evidence further demonstrates that apples are not a pathway for the disease. And Australia has provided no scientific evidence establishing either that mature, symptomless apples transmit fire blight disease or that they are a pathway for disease. Accordingly, the United States considers that the measures for fire blight that Australia imposes on apples from New Zealand are maintained without sufficient scientific evidence, in violation of Article 2.2 of the SPS Agreement.

5.95 The vast scientific literature on fire blight establishes that mature, symptomless apples have never transmitted fire blight, nor do they play a role in the transmission of the disease. Two important

studies conducted a critical review of all published data on the presence of *Erwinia amylovora* (fire blight bacteria) on or in mature, export-quality apples and estimated the theoretical probability of transmission of the disease via those fruit. The first study, published by Roberts *et al.* in 1998, estimated the risk of establishing new outbreaks of fire blight in previously blight-free areas, and found this risk to be so small as to be insignificant. The second study, published by Roberts and Sawyer in 2008, updates the Roberts *et al.* 1998 study and estimates that the probability of an outbreak of fire blight due to trade in export-quality apple fruit was dramatically lower than originally projected in the 1998 study. Australia attempts to discredit this comprehensive and significant 2008 study because it contradicts the findings of Australia's risk assessment. But Australia's contentions lack merit.

5.96 Three key factors are necessary for the infection of apple fruit with European canker: (1) conducive climatic conditions; (2) the presence of a susceptible host; and (3) a sufficient concentration of inoculum. Favourable occurrence of all three of these factors is necessary for infection of apple fruit to occur. In light of these three factors, and the US knowledge of the disease, the United States does not consider that Australia has adduced sufficient scientific evidence to establish that apples will be latently infected with European canker and can transfer the disease to susceptible hosts.

5.97 In Australia's discussion of apple leafcurling midge (ALCM), it notes that the United States has a regulatory programme in place for the export of apples from New Zealand to the United States. The United States makes one point of clarification regarding this regulatory programme. The US inspection levels used for apples from New Zealand are not targeted to ALCM, but a different pest – light brown apple moth.

(d) Article 5.1 requires that SPS measures be based on a risk assessment

5.98 Article 5.1 of the SPS Agreement provides that "Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal, or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations". The United States has concerns with Australia's "Final Import Risk Analysis for Apples from New Zealand" ("IRA") relating to both Australia's general methodology and its evaluation of the scientific evidence, particularly with respect to fire blight and European canker. Australia has not been consistent regarding its methodological approach with respect to its use of a semi-quantitative model – both within the IRA and in other risk assessments that it has conducted for other products. The United States has previously explained its concerns to Australia in comments that it submitted on a draft IRA published by Australia.

5.99 Australia's use of a semi-quantitative model for fire blight and European canker contributed to a flawed risk assessment. For fire blight, this is evidenced by the various values that Australia assigns to different steps in its analysis. In several instances, Australia extrapolates values for risk levels in the absence of, or contrary to, the scientific evidence. For European canker, among other concerns, the United States considers that the transfer scenario of the disease set forth in the IRA from mature, export quality apples is highly unlikely. And for both fire blight and European canker, Australia has not evaluated the likelihood of entry, establishment, and spread of the diseases according to the SPS measures that might be applied.

(e) Arbitrary or unjustifiable distinctions in the level of protection under Article 5.5

5.100 In understanding Article 5.5, the United States considers it important to recognize that the SPS Agreement allows each Member to establish its own appropriate level of protection and that Article 5.5 does not prohibit a Member from having different appropriate levels of protection in different situations.

- (f) Article 5.6 requires that SPS measures not be more trade restrictive than necessary to meet a Member's appropriate level of protection

5.101 The United States considers that there is an alternative measure for fire blight that is reasonably available, achieves Australia's appropriate level of protection, and is significantly less restrictive to trade than Australia's fire blight measures: restricting importation to mature, symptomless apple fruit. This measure follows from the scientific evidence that mature, symptomless apple fruit are not a pathway for the disease and thus will not result in transmission of fire blight to Australia. In the absence of any evidence that mature, symptomless apples transmit the disease, the United States submits that Australia has imposed fire blight measures that are more trade-restrictive than required to achieve its appropriate level of protection.

- (g) Undue delay under Article 8 and Annex C

5.102 Article 8 of the SPS Agreement provides that "Members shall observe the provisions of Annex C in the operation of control, inspection, and approval procedures", and paragraph 1(a) of Annex C states that "Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that: (a) such procedures are undertaken and completed without undue delay." The United States shares New Zealand's concerns about undue delay by Australia regarding its import risk assessments for foreign apples. As Australia has done with apples from New Zealand, it continues to block access to its market for US apples due to longstanding quarantine restrictions. The United States suffered a long delay in the commencement of a risk assessment for US apples, which was further compounded by the lengthy delays in Australia's IRA for apples from New Zealand.

2. Executive summary of the United States' oral statement

5.103 The United States would like to provide a short summary of some of the key issues addressed in our Third-Party written submission and make a few brief points on the following topics raised in other third-party submissions: (1) the standard of review for a claim relating to whether there is a risk assessment within the meaning of Article 5.1 of the Agreement on the Application of Sanitary and Phytosanitary Measures ("SPS Agreement"); (2) the proper interpretation of Article 5.2; (3) the "necessity" of a measure under Articles 2.2 and 5.6; and (4) undue delay under Article 8 and Annex C.

- (a) Key issues in the US written submission

5.104 The US third party submission focused on New Zealand's claims under Articles 2.2 and 5.1 of the SPS Agreement. The United States agrees with New Zealand that Australia's fire blight measures are inconsistent with Article 2.2 because there is no scientific evidence that mature, symptomless apples transmit fire blight disease. Mature, symptomless apples are not a pathway for fire blight disease. As for European canker, the United States similarly concurs with New Zealand that Australia has not adduced sufficient scientific evidence to establish that apples will be latently infected with the disease and can then transfer it to susceptible hosts in Australia. In terms of New Zealand's Article 5.1 claims, the United States also has concerns regarding Australia's risk assessment, relating both to its general methodology and its evaluation of the scientific evidence. Australia's use of a semi-quantitative model for its risk assessment for fire blight and European canker contributed to a flawed risk assessment. For fire blight, Australia's risk assessment often extrapolates values for risk levels in the absence of, or contrary to, scientific evidence.⁷³⁷ For European canker, the transfer

⁷³⁷ United States' Third Party submission, paras. 63-72.

scenario for the disease set forth in Australia's risk assessment for mature, export-quality apples is highly unlikely.⁷³⁸

(b) Standard of review for a risk assessment under Article 5.1

5.105 The European Communities ("EC") argue in their written submission that the proper role of the Panel in reviewing Australia's risk assessment is to determine whether the risk assessment is "so fundamentally flawed or biased that under no circumstances can it be considered as being supported by science."⁷³⁹ By taking this position, the EC, like Australia, advocates an extremely deferential standard of review for risk assessments conducted pursuant to Article 5.1. But as explained in the US written submission in response to a similar argument by Australia, this deferential standard of review is not correct.⁷⁴⁰

5.106 Article 11 of the Understanding on Rules and Procedures Governing the Settlement of Disputes ("DSU") provides the applicable standard of review for panels in disputes under WTO covered agreements, including the SPS Agreement. Article 11 requires a panel to "make an objective assessment of the facts of the case and the applicability of and conformity with the relevant covered agreements." Thus, the proper role of the Panel in this dispute is to make an objective assessment of whether Australia's measures are "based on" a risk assessment, including whether the scientific evidence presented in Australia's risk assessment supports the conclusions of that risk assessment.

(c) The proper interpretation of Article 5.2

5.107 Article 5.2 requires that a risk assessment must "take into account" certain factors, such as available scientific evidence and relevant processes and production methods. Australia argues that New Zealand incorrectly interprets the phrase "take into account" as meaning to "give genuine consideration" to the factors enumerated in Article 5.2, and Japan concurs.⁷⁴¹ The EC submits that Article 5.2 is not breached unless the complaining party "proves that the risk assessment did not take into account *at all* those factors"⁷⁴² (italics added). But the phrase "to take into account" is not qualified in the manner stated by the EC.

5.108 Further, both Australia and New Zealand have cited the panel report in the dispute *US – Continued Suspension* for that panel's interpretation of Article 5.2 and the phrase "take into account". There, the panel explained that "taking available scientific evidence into account does not require that a Member conform its actions to a particular conclusion in a particular scientific study". The panel further stated that "the requirement in Article 5.2 is to ensure that a Member, when assessing risk with the aim of formulating an appropriate SPS measure, has as wide a range as possible of scientific information before it to ensure that its measures will be based on sufficient scientific data and supported by scientific principles".⁷⁴³

5.109 The United States agrees with both Parties that the Panel should consider the panel's interpretation in *US – Continued Suspension* in formulating its views on Article 5.2 and whether Australia has properly taken into account the factors listed in Article 5.2. The United States also notes that the aforementioned dispute is currently on appeal, and the Appellate Body is scheduled to issue its report on October 16, 2008. Thus, the Panel will have the benefit of any articulation by the Appellate Body of its understanding of Article 5.2 prior to resolving this dispute.

⁷³⁸ United States' Third Party submission, para. 76.

⁷³⁹ European Communities' Third Party submission, para. 30.

⁷⁴⁰ United States' Third Party submission, paras. 3-8.

⁷⁴¹ Japan's Third Party submission, paras. 17-21.

⁷⁴² European Communities' Third Party submission, para. 51.

⁷⁴³ Panel Report on *US – Continued Suspension*, para. 7.480.

(d) The "necessity" of a measure under Articles 2.2 and 5.6

5.110 The United States now turns to an issue raised by the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu ("Chinese Taipei") regarding whether an SPS measure is "necessary" to protect human, animal, or plant life or health under Article 2.2 and the relationship between Articles 2.2 and 5.6. Chinese Taipei submits that in the absence of international standards, guidelines, or recommendations, Article 5.6 should be used to determine whether a SPS measure is necessary, as required by Article 2.2.⁷⁴⁴ The United States believes that in this dispute, the Panel need not make findings on the precise relationship between Articles 2.2 and 5.6.

5.111 Rather, because New Zealand has made specific claims under Article 5.6, the Panel can simply address those claims. This is particularly true because New Zealand's Article 2.2 claims primarily relate to whether Australia's measures are maintained without sufficient scientific evidence and not whether they are necessary for the protection of human, animal, or plant life or health. New Zealand's arguments regarding the necessity of Australia's measures are made with respect to its claims under Article 5.1 and 5.6.⁷⁴⁵

(e) Undue delay under Article 8 and Annex C

5.112 The United States also would like to address an issue of undue delay under Article 8 and Annex C raised by the European Communities. The European Communities states that it is not possible to draw from Annex C, paragraph 1(a), a general time frame for deciding on procedures to check and ensure the fulfilment of SPS measures. The European Communities then asserts that the justified time period could be quite lengthy, extending "to many years or even decades" depending on the "exporter's anticipated profits".⁷⁴⁶ But an "exporter's anticipated profits" should have no bearing on whether procedures to check and ensure the fulfilment of SPS measures are undertaken and completed without undue delay. Such profits anticipated by exporters in no way affect a Member's ability to proceed with its procedures "as promptly as possible," as the panel in *EC – Approval and Marketing of Biotech Products* considered necessary.⁷⁴⁷

(f) Conclusion

5.113 Finally, in Australia's oral statement, it alleged that there were "serious flaws" in the United States' Third-Party submission and stated that it would address these flaws in subsequent stages of the dispute. Of course, the United States would not have an opportunity to comment or correct any errors in its submission in subsequent stages. The United States would like to suggest an alternative approach: Australia could pose questions to the United States on those "serious flaws" in the United States' submission so that the United States could provide clarifications or corrections. This could be of assistance to both of the Parties and to the Panel in its efforts to produce a high-quality panel report as set out in Article 12.2 of the DSU.

VI. INTERIM REVIEW

6.1 The Panel issued its interim report to the Parties on 31 March 2010. On 15 April, in accordance with Article 15 of the Dispute Settlement Understanding (DSU) and paragraph 14 of the Panel's Working Procedures, New Zealand and Australia submitted written comments and requested the Panel to revise precise aspects of the interim report. On 22 April, New Zealand and Australia

⁷⁴⁴ Chinese Taipei's Third Party submission, para. 17.

⁷⁴⁵ New Zealand's first written submission, para. 4.6.

⁷⁴⁶ European Communities' Third Party submission, para. 75.

⁷⁴⁷ *EC – Approval and Marketing of Biotech Products*, para. 7.1498.

submitted written comments on each other's comments and requests for interim review. Neither Party requested an interim review meeting with the Panel.

6.2 Where appropriate, the Panel has modified certain aspects of its interim report, in the light of the Parties' comments and requests, as explained below. The Panel has also made certain revisions and corrections for the purposes of clarity and accuracy. Section VI of this report summarizes these changes. References to paragraph numbers and footnote numbers used in Section VI of the report are to those in the interim report, except as otherwise noted.

A. INTERIM REVIEW CHANGES TO DESCRIPTIVE PART

1. Description of Panel proceedings

6.3 Australia requests that paragraphs 1.35 and 1.36 of the interim report be modified to include a reference to "the delays in providing draft questions to the Parties for comment or the time given to comment them".⁷⁴⁸ Paragraphs 1.41 to 1.43 of the interim report described the delays in the timetable as a result of the Panel's difficulties in identifying available experts and preparing written questions. New language has been added into paragraph 1.43 to note the Panel's additional delay in providing the proposed questions for the experts to the Parties. The Panel notes that Parties were always kept informed of the delays and consulted about all modifications to the timetable. At no time in the proceedings did either of the Parties express concerns regarding the delay in receiving the proposed questions or the time given to comment on them. In particular, no such concern was expressed when, on 11 November 2008, the Panel consulted the Parties on the need to revise the timetable, nor when the proposed questions were sent to Parties on 15 December 2008, nor, finally, when Parties submitted their comments on the proposed questions on 19 December 2008.

6.4 Australia also requests that paragraph 1.40 of the interim report be modified to note that, in its letter of 19 December 2008, Australia had "raised concerns regarding aspects of the draft guidelines for the experts and a range of the draft questions to them".⁷⁴⁹ The fact that both Parties commented on 19 December 2008 on the proposed questions for the experts is already noted in paragraph 1.36 of the report. Additional language has been added to paragraph 1.40 to note that some of the procedural concerns regarding the expert consultation process were raised by Australia on 19 December 2008, when providing its comments on the Panel's proposed questions to the experts, although at the time those concerns were not qualified by Australia as "due process concerns".

2. Pests at issue

6.5 Australia requests an amendment to paragraph 2.12, "to ensure that the pathology of European canker is accurately represented in the Panel report".⁷⁵⁰ New Zealand rejects the request. In New Zealand's view, the Panel's statement "is a general one that holds true for any host plant tissue susceptible to *N. galligena* (including fruit)".⁷⁵¹ To address Australia's request, the Panel has inserted

⁷⁴⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 3.

⁷⁴⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 4.

⁷⁵⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 7.

⁷⁵¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 6.

additional language in paragraph 2.12, using text from Swinburne (1975)⁷⁵², the relevant reference in the IRA.⁷⁵³

6.6 Australia requests that the Panel provide details of the potential consequences of the entry, establishment and spread of the pests at issue in paragraphs 2.1 to 2.25.⁷⁵⁴ New Zealand rejects the request. In New Zealand's view, the consequences for the relevant pests are a contested issue and it would not be appropriate to include this aspect in the factual section of the report.⁷⁵⁵ A description of the relevant sections in the IRA's discussion regarding the potential biological and economic consequences associated with the entry, establishment and spread of the pests at issue is already included in the relevant sections of the report.⁷⁵⁶ Accordingly, the Panel sees no reason to modify paragraphs 2.1 to 2.25 in this respect.

3. Previous risk assessment

6.7 Australia requests an amendment to paragraph 2.31, to better reflect the chronology of the adoption of the IRA.⁷⁵⁷ New Zealand rejects the request. In New Zealand's view, the chronology is accurate.⁷⁵⁸ The Panel has amended paragraphs 2.30 and 2.31 to better reflect that an earlier risk assessment had been initiated by the Australian Quarantine and Inspection Service (AQIS) in 1996 and released in 1998.

B. INTERIM REVIEW CHANGES TO THE FINDINGS SECTION

1. Experts' selection and consultation process

6.8 Australia requests an amendment to paragraph 7.3, to include its concern regarding "the Panel's use of the experts in areas that were outside the field of expertise for which they were appointed and on which the parties were consulted". This concern would have been flagged by Australia in its comments on the experts' replies to questions and would have been different from the separate concern regarding "the experts' alleged lack of competence in certain areas in which the Panel posed questions or the experts expressed opinions".⁷⁵⁹ New Zealand requests that, if the category of concerns identified by Australia is noted, in accordance with the reference provided by Australia it should omit the expression "on which the parties were consulted", which is not present in Australia's submission.⁷⁶⁰ The Panel has amended paragraph 7.3 in the manner requested by Australia, also taking into account New Zealand's suggestion.

⁷⁵² Swinburne, "European Canker of Apple (*Nectria galligena*)" (1975), in Exhibit NZ-9.

⁷⁵³ Australia's IRA, Part C, p. 102.

⁷⁵⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 8.

⁷⁵⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 7.

⁷⁵⁶ For example, paras. 7.455-7.459, 7.757-7.761 and 7.873-7.874 of the interim report.

⁷⁵⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 9-11.

⁷⁵⁸ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 8.

⁷⁵⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 12.

⁷⁶⁰ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 9.

6.9 Australia requests that paragraphs 7.11 and 7.21 be amended to note Australia's reason for seeking two experts for each of the three pests at issue.⁷⁶¹ The Panel has amended paragraph 7.11, which notes Australia's expressed concerns, in the manner requested by Australia. The Panel has also made related changes in paragraphs 7.20 and 7.21.

6.10 Australia requests the Panel remove from paragraph 7.15 the reference to Australia expressing the hope that further delays in the proceedings could be avoided. In Australia's view, the statement it had made on 20 November 2008 "was intended to be helpful to the Panel" and was not "any implied complaint about delays that had occurred to date".⁷⁶² New Zealand rejects the request. In New Zealand's view, the reference to Australia's statement is accurate.⁷⁶³ The sentence has been removed from paragraph 7.15, as requested by Australia.

6.11 Australia requests that in paragraphs 7.16, 7.27 and 7.28 of the report the word "alleged" be removed when referring to the "alleged connection" argued by Australia between one of the experts and New Zealand. In Australia's view, the word "alleged" suggests that Australia did not support its contention.⁷⁶⁴ New Zealand rejects the request. In New Zealand's view, the word has been used appropriately in these paragraphs.⁷⁶⁵ The Panel notes that the use of the word "alleged" in the report implies only that this issue refers to an allegation that was raised by Australia. Moreover, the Panel ultimately found no evidence of such connection. Accordingly, the Panel sees no reason to remove or replace the word "alleged".

6.12 Australia requests that the Panel remove the expression "[i]n the absence of any explanation or evidence from Australia in this regard" from the last sentence in paragraph 7.34. Australia argues that, while it "does not contest that the Panel may properly arrive at the view that [the] connection [between one of the experts and New Zealand researchers] does not 'raise doubts regarding his independence and impartiality or his capacity to provide expert advice' to the Panel", the Panel should acknowledge that Australia did not simply assert a connection where none existed.⁷⁶⁶ The Panel notes that the expression objected to by Australia is tied to the preceding sentence and refers to the fact that no explanation or evidence was provided by Australia about how "Dr Cross's participation in a joint research project and publication with researchers from HortResearch New Zealand would call into question Dr Cross's independence and impartiality, or create actual or potential, direct or indirect, conflicts of interest". Accordingly, the Panel sees no reason to remove the expression from paragraph 7.34. The Panel has, however, made small changes in the language of the last sentence of the paragraph.

6.13 Australia requests that in paragraph 7.35 the Panel change the phrase "Australia objected to two questions being posed to Dr Cross on the flight range of ALCM, arguing that this *created a potential conflict of interest*", to "Australia objected to two questions being posed to Dr Cross on the

⁷⁶¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 13-14.

⁷⁶² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 15.

⁷⁶³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 10.

⁷⁶⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 16.

⁷⁶⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 11.

⁷⁶⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 18.

flight range of ALCM, arguing that this *may create a potential conflict of interest*", to more accurately reflect Australia's original statement.⁷⁶⁷ The Panel has made the change requested by Australia.

6.14 Australia requests that the Panel include in paragraphs 7.37 and 7.38 a mention to Australia's concern, expressed on 19 December 2008, that experts should not have been permitted to choose the questions that they responded to, but rather the Panel should have allocated the questions to the experts, based on the experts' relevant areas of expertise.⁷⁶⁸ The Panel has made the change requested in 7.37. Having noted Australia's concern in paragraph 7.37, the Panel sees no need to note it again in paragraph 7.38.

6.15 Australia requests that in paragraph 7.39 of the report the word "allegedly" be removed when referring to the Panel *allegedly* having posed written questions to the experts that either did not appear in the draft questions originally provided to the Parties or were substantially modified from the draft list of questions. In Australia's view, the word "allegedly" suggests that Australia did not substantiate its point.⁷⁶⁹ The Panel notes that the use of the word "allegedly" in this report implies only that this issue refers to an allegation that was raised by Australia. Accordingly, the Panel sees no reason to remove or replace the word "allegedly". In any event, and in the light of Australia's request, the Panel has removed the quotation marks from the word "new" in subheading (b) in page 179.

6.16 Australia requests that the report be amended to note that, contrary to what paragraph 7.43 would appear to suggest, in its responses to the Panel's questions after the second substantive meeting Australia did not refer only to *new questions*, but also to *modified or amended questions*.⁷⁷⁰ The Panel has made the change requested in paragraph 7.43. The Panel has also made related changes in paragraphs 7.46, 7.59 to 7.63 and 7.66. For the same reason, a new paragraph has been inserted after paragraph 7.50.

6.17 Australia requests that the third sentence be deleted from paragraph 7.61, because this sentence "is not referenced by a footnote or otherwise supported".⁷⁷¹ New Zealand rejects the request. In New Zealand's view, the sentence objected to "accurately reflects the thrust of Australia's comments" in relation to Panel question 37 to the experts.⁷⁷² The Panel has added a footnote reference to the sentence in question.

2. Whether the measures identified by New Zealand are challengeable under the SPS Agreement

6.18 Australia requests that paragraph 7.104 be amended to reflect more accurately Australia's submissions on whether a particular measure falls within the definition of an "SPS measure".⁷⁷³ New Zealand rejects the request. In New Zealand's view, Australia is trying to recharacterize its arguments

⁷⁶⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 19 (emphasis added).

⁷⁶⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 20.

⁷⁶⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 22.

⁷⁷⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 24-26.

⁷⁷¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 27.

⁷⁷² Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 12.

⁷⁷³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 28-29.

in relation to a distinction between principal and ancillary measures.⁷⁷⁴ Having considered the language used by Australia in its second written submission, the Panel has amended paragraph 7.104 in the manner requested by Australia.

6.19 Australia also requests that paragraph 7.105 be amended to reflect more accurately Australia's submissions on the relevance of the reasoning of the *US – Export Restraints* panel for the definition of an "SPS measure". Australia requests that the third sentence in that paragraph be deleted and replaced with excerpts from Australia's responses to the Panel's questions.⁷⁷⁵ New Zealand rejects the request. In New Zealand's view, the sentence objected to has accurately reflected Australia's argument.⁷⁷⁶ Having considered Australia's written submissions and its responses to the Panel's questions, the Panel has added the text proposed by Australia to paragraph 7.105, but it has not deleted the disputed sentence. In a related request, Australia asks the Panel to amend paragraphs 7.175 to 7.179, which deal with the distinction between principal and ancillary measures.⁷⁷⁷ The Panel has accordingly incorporated a new paragraph after paragraph 7.174 and has made changes to paragraph 7.175.

6.20 Australia requests that paragraph 7.106 be amended for the sake of completeness, to reflect more accurately Australia's submissions on why its arguments would not raise systemic concerns.⁷⁷⁸ Having considered Australia's second written submission, the Panel has added the text proposed by Australia to paragraph 7.106.

6.21 Australia requests that paragraph 7.121, in the section containing the Panel's analysis on whether the measures identified by New Zealand are challengeable under the SPS Agreement, be amended to clarify the meaning of the first sentence. Australia also requests that the last sentence of the paragraph be revised, in order to accurately reflect how Australia would respond to a lack of compliance with any of the measures at issue.⁷⁷⁹ The Panel has amended the first sentence of paragraph 7.121 as requested by Australia. Also, having considered Australia's written submissions and its responses to the Panel's questions, as well as the description of the measures in other parts of the report, the Panel has amended the last sentence of paragraph 7.121.

6.22 Australia requests that the Panel's findings "in respect to whether particular measures at issue in this dispute are 'SPS measures'", contained in paragraphs 7.122 to 7.171, be revised, so that those findings are confined to groups of related measures rather than to individual measures. Australia submits that findings on individual measures would be unnecessary for resolving this dispute. Australia suggests that other sections of the report would also need to be adjusted accordingly.⁷⁸⁰ New Zealand rejects the request. In New Zealand's view, Australia's request is "based on a fundamental misreading of the interim report".⁷⁸¹ The Panel considers Australia's request is inconsistent with the approach followed in the Panel's report. Indeed, the Panel has examined the

⁷⁷⁴ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 13.

⁷⁷⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 30-33.

⁷⁷⁶ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 14.

⁷⁷⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 64-69.

⁷⁷⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 34-35.

⁷⁷⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 36-40.

⁷⁸⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 41-51.

⁷⁸¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 15-18.

measures both collectively, and individually. The Panel has also reserved its right to analyse various related measures jointly, under specific provisions of the SPS Agreement. Accordingly, the Panel sees no reason to modify paragraphs 7.122 to 7.171 in this respect.

6.23 Australia argues that there are "a number of errors" in subparagraphs (b), (e), (g) and (k) of paragraph 7.140, in the section containing the Panel's analysis on whether the measures identified by New Zealand are challengeable under the SPS Agreement. Australia requests that the whole of paragraph 7.140 be deleted. Alternatively, Australia requests that "appropriate changes be made" in the paragraph to reflect its objections.⁷⁸² New Zealand rejects the request. In New Zealand's view, Australia has failed to identify errors that would warrant deleting the whole of paragraph 7.140. At the same time, New Zealand submits that Australia's objection to subparagraph (b) could be addressed by amending the first sentence of that subparagraph.⁷⁸³ The Panel sees no reason to delete the whole paragraph 7.140. Having considered the description of the measures in Australia's IRA, however, the Panel has amended subparagraphs (b), (g) and (k).

6.24 Australia requests that the first sentence in paragraph 7.157 be deleted, and a consequential change be made in paragraph 7.158, to clarify that neither the IRA nor the IRA process are measures at issue in the dispute.⁷⁸⁴ Australia also requests that a word be replaced in paragraph 7.158.⁷⁸⁵ The Panel sees no reason to amend paragraphs 7.157 and 7.158. The report does not define the IRA nor the IRA process as measures at issue in the dispute. The report notes, however, that the measures at issue are spelt out in the IRA. Also, replacing the word as suggested by Australia would change the meaning of the sentence in question.

6.25 Australia requests that the Panel revise its analysis of the issues discussed in paragraphs 7.175 to 7.179. Australia submits that these paragraphs imply that Australia relied mainly, or exclusively, on the reasoning of the panel in *US – Export Restraints*. In Australia's view, it is not appropriate for the Panel to treat Australia's points relating to *US – Export Restraints* in isolation from Australia's principal submission in respect of "SPS measures" set out Annex A(1).⁷⁸⁶ New Zealand rejects the request. In New Zealand's view, Australia appears to seek to downplay its reliance on *US – Export Restraints*, which was central to Australia's distinction between principal and ancillary measures. In New Zealand's view, Australia's request contradicts the statements made during the proceedings. New Zealand adds that, in the light of Australia's reliance on *US – Export Restraints*, the Panel's statements in paragraph 7.179 are important and should be retained.⁷⁸⁷ Having considered the text of the IRA, Australia's submissions and responses to the Panel's questions, as well as New Zealand's interim review comments, the Panel has inserted a new paragraph after paragraph 7.174 and has made small amendments to paragraph 7.175.

6.26 Australia requests that paragraph 7.180, in the section containing the Panel's analysis regarding the alleged distinction between principal and ancillary measures, be amended to note that "most of the experts ... supported the notion that certain of the measures at issue could be distinguished on the basis of their purpose in respect of risk reduction, even if they disagreed on

⁷⁸² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 52-59.

⁷⁸³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 19.

⁷⁸⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 60-61.

⁷⁸⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 62-63.

⁷⁸⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 64-69.

⁷⁸⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 20.

which measures would fall into which category."⁷⁸⁸ New Zealand rejects the request. In New Zealand's view, the last sentence of the paragraph "correctly characterizes the experts' views".⁷⁸⁹ The Panel sees no reason to amend paragraph 7.180. The Panel has, however, added references in a footnote to paragraph 7.180, as requested by Australia and New Zealand.⁷⁹⁰

6.27 Australia requests that the Panel reconsider its analysis of the issues discussed in paragraphs 7.182 and 7.183. In Australia's view, "the Panel appears to have misunderstood the nature of Australia's submissions on the suggested grouping of relevant measures".⁷⁹¹ Having considered the text of the IRA, and Australia's submissions and responses to the Panel's questions, the Panel has made changes in paragraphs 7.183 and 7.184 to address Australia's request.

3. New Zealand's claims under Articles 2.2, 5.1 and 5.2 of the SPS Agreement

(a) Order of analysis

6.28 New Zealand requests that paragraph 7.191, in the section that summarizes its arguments, be amended. New Zealand proposes that additional text be inserted in that paragraph to better reflect its argument regarding Australia's view that a considerable deference should be accorded to Members' risk assessments.⁷⁹² Having considered New Zealand's statement at the first substantive meeting with the Panel, the Panel has amended paragraph 7.191 in the manner requested by New Zealand.

6.29 Australia requests that paragraph 7.192, in the section that summarizes New Zealand's arguments, be amended. Australia proposes that the report reflect that a response from New Zealand was directed at arguments raised by Australia that are specific to this dispute.⁷⁹³ New Zealand rejects the request. In New Zealand's view, Australia did not clarify in the course of the proceedings that its arguments were "specific to this dispute".⁷⁹⁴ The Panel sees no reason to amend paragraph 7.192.

6.30 Australia requests that paragraphs 7.198 and 7.199, in the section that summarizes its arguments, be amended in order to better reflect Australia's submissions. In Australia's view, these paragraphs should be revised and new text should be added to reflect Australia's elaboration of its arguments after the first written submission and in the light of the Appellate Body's report in *US/Canada – Continued Suspension*. Australia also requests that the expression originally used by Australia that the IRA was "objective and credible" be replaced with "objective and coherent" throughout the report, including in paragraph 7.200, to reflect the change in language in Australia's latter submissions.⁷⁹⁵ New Zealand rejects Australia's request to amend paragraphs 7.198 and 7.199. In New Zealand's view, Australia's arguments are set out in detail elsewhere in the report and it would

⁷⁸⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 70-71.

⁷⁸⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 21.

⁷⁹⁰ Communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, para. 2; Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 2.

⁷⁹¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 72-73.

⁷⁹² Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 2.

⁷⁹³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 74-75.

⁷⁹⁴ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 22.

⁷⁹⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 76-82.

be unnecessary and inappropriate to insert lengthy new sections in this part of the report.⁷⁹⁶ Having considered Australia's submissions, its statements at the second substantive meeting with the Panel and its subsequent responses to the Panel's questions, the Panel has amended paragraph 7.198 and incorporated new text after this paragraph to address Australia's request. The expression originally used by Australia "objective and credible" has been replaced with "objective and coherent" in paragraphs 7.199 and 7.202 in the manner requested by Australia. Further, a footnote has been added to paragraph 7.199, noting that the expression used by Australia in its first written submission was later changed to "objective and coherent". The expression was not changed in paragraph 7.200, which contains a quote from Australia's first written submission.

6.31 Australia requests that paragraph 7.203 in the section containing the Panel's analysis, be amended, because in its view it is incorrect to characterize New Zealand's claims under Articles 2.2, 5.1 and 5.2 as "separate and autonomous".⁷⁹⁷ New Zealand rejects Australia's request. In New Zealand's view, the Panel's characterization is correct.⁷⁹⁸ The Panel notes that arguments made by New Zealand under one claim were at times also used by New Zealand to support other claims. The Panel considers, however, that New Zealand advanced separate and autonomous claims under Articles 2.2, 5.1 and 5.2 of the SPS Agreement. Accordingly, there is no reason to amend paragraph 7.203 in this respect.

(b) Standard of review

6.32 Australia requests that paragraphs 7.214 and 7.215, in the section describing the Parties' arguments, be amended to better reflect Australia's arguments as they were developed over various submissions and, in particular, in light of the Appellate Body's report in *US/Canada – Continued Suspension*. Australia also requests that the first sentence in paragraph 7.214 note that its argument was that the standard of review applied by the Panel should be specific to the SPS Agreement and also to the particular obligation in question.⁷⁹⁹ Having considered Australia's first written submission, to which Australia referred to in its request, the Panel has made some amendments to paragraph 7.214. The Panel notes that footnotes to that paragraph are clear that the references are to Australia's first written submission, to its statements at the first substantive meeting with the Panel and to its subsequent responses to the Panel's questions after that meeting.

6.33 Australia requests that paragraph 7.220 be amended, because New Zealand incorrectly described Australia's argument as suggesting that New Zealand should demonstrate the existence of serious flaws at each step of the risk assessment.⁸⁰⁰ New Zealand rejects Australia's request. In New Zealand's view, it is inappropriate for Australia to propose amending a paragraph summarizing New Zealand's arguments.⁸⁰¹ Having considered New Zealand's submissions and its responses to the Panel's questions after the second substantive meeting, the Panel sees no reason to amend paragraph 7.220.

⁷⁹⁶ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 23.

⁷⁹⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 83-84.

⁷⁹⁸ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 24.

⁷⁹⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 85-86.

⁸⁰⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 87-89.

⁸⁰¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 25.

6.34 Australia requests that, for completeness, paragraph 7.225, in the section containing the Panel's arguments, be amended. In its view, as the Panel refers to "Australia's reliance upon the panel report in *Australia – Salmon (Article 21.5 – Canada)*", it should "also set out paragraph 7.57 of [that] compliance panel's report".⁸⁰² New Zealand rejects Australia's request. In New Zealand's view, the paragraph of the *Australia – Salmon (Article 21.5 – Canada)* compliance panel report identified by Australia is not directly relevant to the Panel's general discussion on the standard of review.⁸⁰³ The Panel sees no reason to amend paragraph 7.225.

(c) Summary of the Parties' arguments under Articles 5.1 and 5.2 of the SPS Agreement

6.35 Australia requests that, for completeness, paragraphs 7.228 to 7.233, in the section describing the Parties' arguments, be amended. Australia suggests that this section include arguments made by New Zealand relating to the *Japan – Apples* dispute.⁸⁰⁴ New Zealand rejects Australia's request to amend these paragraphs. New Zealand notes that its arguments are set out in part IV of the report and it would be unnecessary to insert further references in this part of the report.⁸⁰⁵ The Panel sees no reason to amend paragraphs 7.228 to 7.233.

6.36 Australia requests that the Panel record in this section Australia's response to New Zealand's argument, noted in paragraph 7.231, that Article 5.2 of the SPS Agreement contains an obligation to give "genuine consideration" to a number of factors listed in that provision.⁸⁰⁶ Having considered Australia's written submissions, the Panel has added a new paragraph immediately after paragraph 7.235, as requested by Australia.

6.37 With respect to paragraphs 7.232 to 7.236, Australia requests that the Panel record its "overall contention with respect to each pest risk assessment, that ... if New Zealand has successfully demonstrated any flaws, they are only minor ones, and do not undermine the overall objective justifiability of the particular risk assessment at issue".⁸⁰⁷ Having considered Australia's written submissions, the Panel has added new text into paragraph 7.232, as requested by Australia.

(d) Requirements regarding fire blight

6.38 The Panel has amended paragraph 7.242, as requested by Australia.⁸⁰⁸

6.39 Australia requests that paragraph 7.253, in the section containing the Panel's analysis on the alleged overestimation for importation step 1 for fire blight, be amended. In Australia's view, this paragraph contains a reference that relates to "[t]he issue of pollution of fruit surface [which] is relevant to Importation step 2, not Importation step 1". Australia requests therefore that the Panel delete the sentence with that reference from the paragraph or, alternatively, move this sentence to the section dealing with importation step 2. Australia also requests that the Panel replace the word

⁸⁰² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 90.

⁸⁰³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 26.

⁸⁰⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 91.

⁸⁰⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 27.

⁸⁰⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 92-93.

⁸⁰⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 94.

⁸⁰⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 95.

"cautioned", when referring to one of the experts' comments, with the expression "expressed the view". In the same paragraph, Australia requests the Panel to amend the reference to the experts' comments, in order that such reference is reproduced more accurately.⁸⁰⁹ New Zealand rejects Australia's request to amend this paragraph. In New Zealand's view, the reference to the expert's response relates to importation step 1, so it would be appropriate for this sentence to remain in paragraph 7.253. New Zealand adds that the word "cautioned" is correctly used in the paragraph.⁸¹⁰ The Panel considers that the sentence objected to by Australia is relevant for the discussion of importation step 1 and, therefore, sees no reason to delete it or move it to a different section. Having considered the text of the experts' response to one of the Panel's questions, the Panel has made other changes in paragraph 7.253 to address Australia's request.

6.40 Australia requests that paragraph 7.254 be amended. This paragraph includes a reference that, in Australia's view, "relates to the chance of fruit contamination surface, which is relevant to Importation step 2, not Importation step 1". Australia requests that the Panel delete the sentence with the reference from the paragraph or, alternatively, move this sentence to the section dealing with importation step 2.⁸¹¹ New Zealand rejects Australia's request to amend this paragraph. In New Zealand's view, the reference to the expert's response relates to importation step 1, so it would be appropriate for this sentence to remain in paragraph 7.254.⁸¹² The Panel considers that the sentence objected to by Australia is relevant for the discussion of importation step 1 and, therefore, sees no reason to delete it or move it to a different section.

6.41 Australia requests that a sentence be added to paragraph 7.258, in the section describing New Zealand's arguments on the alleged overestimation for importation step 2 for fire blight, in order to note that New Zealand is referring to a paper by Roberts and Sawyer (2008). In Australia's view, this would also provide context for the subsequent reference to that paper in the summary of Australia's arguments.⁸¹³ New Zealand suggests that, in order to provide context, a reference to other paragraphs in New Zealand's first written submission and in New Zealand's comments on Australia's responses to questions after the second substantive meeting, be added to footnote 1219 to paragraph 7.258.⁸¹⁴ The Panel has added the references requested by Australia and New Zealand.

6.42 Australia requests that new text be added to paragraph 7.260, in order to convey more fully Australia's argument regarding Roberts and Sawyer (2008).⁸¹⁵ New Zealand rejects Australia's request. In New Zealand's view, Australia's arguments on Roberts and Sawyer (2008) are summarized in a different section, namely in paragraph 7.428. New Zealand suggests that the additional references noted by Australia could be added to the footnote to paragraph 7.428; it also suggests that additional references to New Zealand's submissions could also be included in that footnote.⁸¹⁶ The Panel has added, in paragraph 7.260 and in the footnote to paragraph 7.428, the text

⁸⁰⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 96-100.

⁸¹⁰ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 28.

⁸¹¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 101-102.

⁸¹² Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 29.

⁸¹³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 103-105.

⁸¹⁴ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 30.

⁸¹⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 106.

⁸¹⁶ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 31.

and the references requested by Australia; it has also added in the footnote to paragraph 7.428 the references requested by New Zealand.

6.43 Referring to paragraph 7.267, Australia requests that the Panel record Australia's argument in its first written submission, regarding the experiment reported in the paper by van der Zwet *et al.* (1990).⁸¹⁷ New Zealand requests that, if the Panel includes the references provided by Australia, it also include references to New Zealand's second written submission.⁸¹⁸ The Panel has inserted into the footnote to paragraph 7.267 the references requested by Australia and New Zealand.

6.44 The Panel has amended paragraph 7.290, as requested by Australia.⁸¹⁹

6.45 Australia requests that paragraph 7.299, in the section containing the Panel's analysis on the alleged overestimation for importation step 4 for fire blight, be amended. Australia requests that the Panel change the expression that refers in that paragraph to disinfection as "a routine procedure in the packing house", with "a procedure used in some 53 per cent of packing houses". Australia suggests that the latter expression is more accurate and is based on information provided by New Zealand.⁸²⁰ New Zealand rejects Australia's request. New Zealand submits that the use of the expression is appropriate. New Zealand notes that disinfection is defined as one of the "routine procedures that occur in New Zealand packing houses".⁸²¹ The Panel notes that paragraph 7.299 is part of the Panel's analysis of the IRA's reasoning regarding importation step 4. Importation step 4 refers to the likelihood that infected or infested fruit remains infected or infested after routine processing procedures in the packing house. According to the IRA, these "routine procedures in the packing house" include pre-cooling, washing, disinfection, brushing, waxing, sorting and grading, packaging and cold storage.⁸²² Accordingly, the Panel sees no reason to amend paragraph 7.299.

6.46 Australia requests that paragraph 7.316, in the section containing the Panel's analysis on the alleged overestimation for importation step 5 for fire blight, be amended. Noting a reference to a study by Vanneste (2008) in the statement of an expert included in that paragraph, Australia requests that the Panel record that this evidence "became available in 2008, that is, *after* the IRA was completed and during proceedings in the current dispute".⁸²³ New Zealand suggests that the reference to Vanneste (2008) may have been a typographical error, because there is no reference to this study in the IRA or by either of the Parties. New Zealand suggests that the expert may have been referring to Vanneste (2006), which was submitted as an exhibit by New Zealand and is part of the record. New Zealand notes further that the IRA refers to a different study, which Vanneste co-wrote in 2004, that reaches similar conclusions to those expressed by the expert in paragraph 7.316. New Zealand submits that, in these circumstances, it would be appropriate to remove the reference to Vanneste

⁸¹⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 107.

⁸¹⁸ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 32.

⁸¹⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 108.

⁸²⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 109.

⁸²¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 33.

⁸²² Australia's IRA, Part B, pp. 76-77.

⁸²³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 110 (original emphasis).

(2008) from paragraph 7.316.⁸²⁴ Accordingly, the Panel has removed the reference to Vanneste (2008) from paragraph 7.316.

6.47 Australia requests that paragraph 7.327, in the section containing the Panel's analysis on the alleged overestimation for importation step 6 for fire blight, be amended. This paragraph includes a reference to an expert's answer that, in Australia's view, "is not relevant to the Panel's finding at this importation step [6], as it related to disinfection procedures which are assessed at Importation step 4". Australia requests that the Panel remove the reference to the expert's answer in this paragraph.⁸²⁵ New Zealand rejects Australia's request to amend this paragraph. In New Zealand's view, it would be inappropriate to remove the reference to the expert's response in this paragraph, because it relates to importation step 6.⁸²⁶ The Panel considers that the disputed answer is relevant for the discussion of importation step 6 and, therefore, sees no reason to delete it from paragraph 7.327.

6.48 Australia requests that paragraph 7.349, in the section that summarizes Australia's arguments on the alleged overestimation for the overall probability of importation for fire blight, be amended, because in Australia's view in its current form it could lead to a mischaracterization of its position.⁸²⁷ The Panel has amended paragraph 7.349, as requested by Australia.

6.49 The Panel has amended paragraph 7.355, as requested by Australia, in order to clarify that the text is not a quotation.⁸²⁸

6.50 Australia requests that paragraph 7.362, in the section that summarizes Australia's arguments on the IRA's analysis of the probability of entry, establishment and spread of fire blight, be amended, because in Australia's view in its current form it is not clear whether it intends to reproduce Australia's argument or New Zealand's assertions. Australia argues that if the intention of the paragraph is to reproduce Australia's argument, it would be an incorrect characterization of its position.⁸²⁹ Having considered Australia's first written submission, the Panel has amended paragraph 7.362 to address Australia's request.

6.51 Australia requests that the Panel remove the first sentence in paragraph 7.376, in the section containing the Panel's analysis on the IRA's reasoning on proximity for fire blight. In this sentence, the Panel notes that, "[c]onsulted by the Panel, the experts expressed scepticism regarding some of the scenarios considered under the IRA's proximity analysis". Australia argues that the sentence attributes an emphasis that is not present in the answers of one of the experts.⁸³⁰ New Zealand rejects Australia's request. In New Zealand's view, the word "scepticism" has been used appropriately in

⁸²⁴ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 34.

⁸²⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 111-112.

⁸²⁶ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 36.

⁸²⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 113-114.

⁸²⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 115.

⁸²⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 116-118.

⁸³⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 119.

connection with the responses of experts consulted by the Panel.⁸³¹ The Panel sees no reason to amend paragraph 7.376.

6.52 Australia requests that the Panel amend the introductory sentence in paragraph 7.398, in the section containing the Panel's analysis on the IRA's reasoning on exposure for fire blight. In this sentence, the Panel refers to "the theoretical possibility of an insect taking a few bacterial cells to the hypanthium of a flower of an host plant". Australia requests that the Panel remove the word "theoretical", arguing that "[t]his was not a term used by the experts".⁸³² New Zealand rejects Australia's request. In New Zealand's view, the word "theoretical" has been used appropriately by the Panel.⁸³³ Having considered the response of the expert to a Panel question that is referred to in paragraph 7.398, the Panel sees no reason to amend paragraph 7.398.

6.53 Australia requests that the Panel amend a sentence in paragraph 7.427, in the section containing the Panel's conclusions regarding entry, establishment and spread for fire blight. This sentence records the opinion of the experts consulted by the Panel that the studies cited "*maximized* the theoretical risk of introduction of *Erwinia amylovora* with potentially infested apples fruits..." Australia requests that the Panel remove the word "theoretical", arguing that "[t]he term was not used by the experts".⁸³⁴ New Zealand rejects Australia's request. In New Zealand's view, the word "theoretical" has been used appropriately by the Panel. New Zealand notes additionally that the sentence objected to by Australia refers to the response of an expert to a Panel's question and the expert specifically uses the word "theoretical".⁸³⁵ Having considered the response of the expert to a Panel question that is referred to in paragraph 7.427, the Panel sees no reason to amend paragraph 7.427. The Panel has, however, added references two footnotes to paragraph 7.427, as requested by Australia and New Zealand.⁸³⁶

6.54 Australia requests that the Panel amend a sentence in paragraph 7.429. In Australia's view, this sentence, which refers to the possible effect of proximity to orchards, does not correctly reflect the IRA's conclusions regarding fire blight.⁸³⁷ Having considered the text of the IRA and the opinions expressed by the experts, the Panel has amended paragraph 7.429 to address Australia's request.

6.55 Australia requests that the Panel amend a sentence in paragraph 7.437. In Australia's view, this sentence does not accurately reflect the response of an expert consulted by the Panel.⁸³⁸ Having considered the response provided by the expert to the question that is referred to in the sentence objected to by Australia, the Panel has amended paragraph 7.437.

⁸³¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 37.

⁸³² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 120-121.

⁸³³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 38.

⁸³⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 122-123.

⁸³⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 38.

⁸³⁶ Communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, para. 4; Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 4.

⁸³⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 124-125.

⁸³⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 126-128.

6.56 The Panel has amended paragraph 7.442, rearranging the order of the sentences and setting out the quotation from an expert's response to a Panel's question, as requested by New Zealand.⁸³⁹

6.57 Australia requests that the Panel amend the first sentence in paragraph 7.447, in the section describing New Zealand's arguments on the potential biological and economic consequences associated with fire blight, in order to clarify that the expression to "unsubstantiated assumptions" in New Zealand's submission is referring to a paper by Roberts (1991).⁸⁴⁰ Australia also requests that the Panel amend the fourth sentence in order to clarify that New Zealand's argument that "the impact of fire blight on pipfruit production in non-outbreak years is inconsequential" is based on its own experience.⁸⁴¹ Australia additionally requests that the Panel amend the fifth sentence in order to clarify that New Zealand's argument on pipfruit production losses from a fire blight outbreak are based on evidence from New Zealand. Australia requests that the same sentence note New Zealand's statement that production losses "may occasionally be significant at a local level only".⁸⁴² New Zealand rejects the first of Australia's requests. In New Zealand's view, the Panel has correctly summarized its argument, which was not merely directed at Roberts (1991).⁸⁴³ Having considered New Zealand's first written submission, the Panel generally sees no reason to amend paragraph 7.447. The Panel has, however, clarified in the sentence that, in its written submission, New Zealand referred to the impact of fire blight on pipfruit production *in New Zealand*. The Panel has also corrected footnote 1525, as requested by Australia and New Zealand.⁸⁴⁴ It has additionally corrected footnote 1528, as requested by New Zealand.⁸⁴⁵ The text suggested by Australia on the possibility of production losses at a local level was already part of paragraph 7.447.

6.58 Australia requests that the Panel include a sentence in the section describing Australia's arguments on the potential biological and economic consequences associated with fire blight (paragraphs 7.450 to 7.454), in order to reflect its contention that "New Zealand had put no substantive argument on the issue of the assessment of the consequences of fire blight either in its second written submission or at the second hearing".⁸⁴⁶ New Zealand rejects Australia's request. New Zealand notes that Australia's argument, which was made at the second substantive meeting with the Panel, is contained in part IV of the report. In New Zealand's view, it is not necessary to repeat this argument in paragraphs 7.450 to 7.454.⁸⁴⁷ Having considered Australia's statement at the second substantive meeting with the Panel, the Panel has added the text proposed by Australia to paragraph 7.453.

⁸³⁹ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 5.

⁸⁴⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 129-131.

⁸⁴¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 133.

⁸⁴² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 134-135.

⁸⁴³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 39.

⁸⁴⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 132; Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 5.

⁸⁴⁵ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 5.

⁸⁴⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 136-137.

⁸⁴⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 40.

6.59 Australia requests that a sentence be amended in paragraph 7.473, in the section describing New Zealand's arguments on the alleged methodological flaws identified by New Zealand. In Australia's view, text should be added to the first sentence in that paragraph to note "that New Zealand places reliance on trade data to support its position regarding the use of 1×10^{-6} as the maximum value for 'negligible'."⁸⁴⁸ New Zealand rejects Australia's request. In New Zealand's view, it is inappropriate for Australia to propose amending a paragraph summarizing New Zealand's arguments. New Zealand submits that the additional text proposed by Australia "reflect[s] Australia's comments on New Zealand's argument, rather than the argument made by New Zealand."⁸⁴⁹ Having considered New Zealand's first written submission, the Panel sees no reason to amend paragraph 7.473. The footnote to that paragraph, however, has been amended, as requested by Australia to provide additional context to the sentence.

6.60 Australia requests that the first sentence in paragraph 7.474, in the section describing its arguments on the alleged methodological flaws identified by New Zealand, be amended. In Australia's view, the second part of the sentence should be removed, because it "incorrectly refers to alternative definitions [of 'negligible risk'] proposed by New Zealand".⁸⁵⁰ Also in paragraph 7.474, Australia requests that a clarification be added to a sentence, to refer to the use of the interval between 0 and 10^{-6} in the IRA as a "uniform distribution".⁸⁵¹ Regarding the first of Australia's requests, New Zealand suggests that, while Australia is correct, this concern could be remedied by simply replacing a word rather than by deleting the whole text.⁸⁵² Having considered Australia's submissions, the Panel has made all the amendments requested by Australia. The Panel has also made a correction in the second sentence of the paragraph, as requested by Australia.⁸⁵³

6.61 Australia requests that paragraph 7.475, in the section describing its arguments on the alleged methodological flaws identified by New Zealand, be amended. In Australia's view, its arguments are not properly reflected in that paragraph. Australia suggests an alternative text for the paragraph.⁸⁵⁴ Having considered Australia's submissions, the Panel has made the amendments requested by Australia.

6.62 Australia requests that paragraphs 7.486 and 7.487, in the section describing its arguments on the alleged methodological flaws identified by New Zealand, be amended. Australia requests that the Panel add the word "uniform", when referring to the distribution, in the first sentence of paragraph 7.486. Australia also suggests the addition of a text after paragraph 7.487, to record one of its arguments.⁸⁵⁵ Having considered Australia's submissions, the Panel has made the amendments requested by Australia.

⁸⁴⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 138-140.

⁸⁴⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 41.

⁸⁵⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 141.

⁸⁵¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 143.

⁸⁵² Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 42.

⁸⁵³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 142.

⁸⁵⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 144-145.

⁸⁵⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 146-147.

6.63 Australia requests that paragraph 7.488, in the section describing the Panel's analysis on the alleged methodological flaws identified by New Zealand, be amended. Australia requests that the Panel delete the words "but in the circumstances of this case" from the last sentence in the paragraph. Australia also requests that a reference be added into one of the footnotes of the paragraph.⁸⁵⁶ New Zealand rejects Australia's request to delete words from the last sentence in the paragraph.⁸⁵⁷ In the Panel's view it is correct to refer that the statement contained in the last sentence in the paragraph refers to the use of a uniform distribution in the circumstances of this case. Accordingly, the Panel sees no reason to amend paragraph 7.488. A footnote to that paragraph, however, has been amended to add the reference noted by Australia.

6.64 The Panel has corrected footnote 1597 to paragraph 7.489, as requested by Australia.⁸⁵⁸

6.65 The Panel has corrected paragraph 7.499 in the manner requested by Australia and New Zealand.⁸⁵⁹

(e) Requirements regarding European canker

6.66 Australia requests that paragraph 7.526, in the section containing the Panel's analysis on the alleged overestimation for importation step 2 for European canker, be amended. Australia argues that the IRA cites studies which confirm fruit rot caused by *N. galligena* in New Zealand. Australia submits that the report fails to refer to the relevant studies in this regard or to the experts' acceptance of the possibility of latent infection. Australia adds that the report should acknowledge the situation regarding the limited availability of the data for the IRA Team to access.⁸⁶⁰ New Zealand rejects Australia's request to amend this paragraph. In New Zealand's view, the amendments proposed by Australia are misleading and irrelevant and the paragraph should remain unchanged.⁸⁶¹ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.526, in the manner suggested by Australia.

6.67 Australia requests that the Panel delete the word "mistakenly" from the first sentence of paragraph 7.528, as this word was not used by the expert consulted by the Panel.⁸⁶² New Zealand rejects Australia's request. In New Zealand's view, in light of the expert's reply, it was open for the Panel to infer that the expert considered the IRA to be mistaken. New Zealand also requests that a reference be added into footnote 1650 to the paragraph.⁸⁶³ Having considered Australia's and New Zealand's requests, the Panel has removed the word "mistakenly" and has added a reference to the footnote in question.

⁸⁵⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 148-149.

⁸⁵⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 43.

⁸⁵⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 150.

⁸⁵⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 151; Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 5.

⁸⁶⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 152-156.

⁸⁶¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 44-47.

⁸⁶² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 157.

⁸⁶³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 48-49.

6.68 Australia requests that the Panel delete the first sentence of paragraph 7.531. Australia submits that appropriate climatological conditions have been and are present in New Zealand for European canker development and latent infection.⁸⁶⁴ New Zealand rejects Australia's request. In New Zealand's view, the Panel's statements in this regard are adequately supported.⁸⁶⁵ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.531.

6.69 Australia submits that paragraphs 7.532 and 7.535, in the section containing the Panel's analysis on the alleged overestimation for importation step 2 for European canker, are actually related to importation step 3. Australia requests that the Panel delete the paragraphs or otherwise move them to the appropriate section.⁸⁶⁶ New Zealand rejects Australia's request to delete the paragraphs, but does not object to moving them to the section on importation step 3.⁸⁶⁷ Having considered Australia's request, the Panel has moved the content of paragraphs 7.532 and 7.535 to the section containing the Panel's analysis on the alleged overestimation for importation step 3. Consequent adjustments have been also made to paragraph 7.1198.

6.70 Australia requests that the Panel insert a quote from the response of one of the experts to paragraph 7.533, in the section containing the Panel's analysis on the alleged overestimation for importation step 2 for European canker.⁸⁶⁸ New Zealand requests that, if the Panel decides to add the quote requested by Australia, it also include the immediately following paragraphs of the same expert's response.⁸⁶⁹ Having considered Australia's and New Zealand's requests, the Panel sees no reason to amend paragraph 7.533.

6.71 New Zealand requests that the Panel add a reference to responses of the experts in paragraphs 7.534 and 7.537.⁸⁷⁰ The Panel has added the references in paragraphs 7.534 and 7.537, as requested by New Zealand.

6.72 Australia requests that paragraphs 7.536 to 7.538 refer to the existence of scientific studies that were used in Australia's IRA, in order to ensure that the Parties' arguments are properly reflected. Australia also requests that the Panel include a reference to the acknowledgement made by one of the experts of the paucity of data specific to New Zealand. Australia additionally requests that the Panel note that the statement from one of the experts regarding the fact that *N. galligena* rots are not common in New Zealand, is based on a comparison with Europe.⁸⁷¹ Regarding Australia's last request, New Zealand submits that the report correctly characterizes the expert's response.⁸⁷² Having considered Australia's request, the Panel sees no reason to amend paragraphs 7.536 to 7.538. The Panel notes that the Parties' arguments are reflected in other sections of the report. The Panel

⁸⁶⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 158-160.

⁸⁶⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 50-51.

⁸⁶⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 161-162 and 166-167.

⁸⁶⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 52 and 55.

⁸⁶⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 163-165.

⁸⁶⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 53-54.

⁸⁷⁰ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 6.

⁸⁷¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 168-173.

⁸⁷² Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 56-57.

additionally notes that, in the quote already included in paragraph 7.538, the expert explicitly states that the available information suggests that *N. galligena* rots are not as common in New Zealand as they are in Europe.

6.73 New Zealand requests an addition to paragraph 7.569, in the section containing the Panel's analysis on the alleged overestimation for importation step 3 for European canker. New Zealand submits that this addition would reflect a key point from earlier paragraphs of the Panel's analysis and clarify the relationship of the section with importation step 3. New Zealand also requests an addition to paragraph 7.583, in the section containing the Panel's analysis on the alleged overestimation for importation step 4 for European canker. New Zealand submits that this addition is relevant to the IRA's consideration under importation step 4.⁸⁷³ The Panel has added to paragraphs 7.569 and 7.583 the text requested by New Zealand. For consistency, the Panel has also included additional language in paragraph 7.568.

6.74 Australia requests that paragraph 7.584, in the section containing the Panel's analysis on the alleged overestimation for importation step 4 for European canker, be amended. Australia submits that the quote of an expert's response is incomplete and requests that the Panel delete the introductory part of the paragraph.⁸⁷⁴ New Zealand rejects Australia's request to amend this paragraph. In New Zealand's view, the paragraph correctly characterizes the expert's response.⁸⁷⁵ The Panel has amended paragraph 7.584, as requested by Australia. The Panel has also included the complete text of the expert's response.

6.75 New Zealand requests that the Panel add a footnote reference to the response of an expert to paragraph 7.614, in the section containing the Panel's analysis on the alleged overestimation for importation step 6 for European canker. New Zealand also requests that the Panel add a reference to the responses of two experts in a footnote to paragraph 7.671, in the section containing the Panel's analysis on proximity for European canker.⁸⁷⁶ The Panel has inserted the references into paragraph 7.614 and into footnote 1858 to paragraph 7.671, as requested by New Zealand.

6.76 In paragraphs 7.685, 7.687, 7.689 and 7.712, in the section containing the Panel's analysis on exposure for European canker, New Zealand requests that the Panel replace the expression "clean fruit" with "new hosts", in order to reflect more clearly the issue under exposure and establishment.⁸⁷⁷ The Panel has made the replacement requested by New Zealand.

6.77 New Zealand requests that the Panel insert a reference to experts' responses in footnotes to paragraphs 7.685, 7.689 and 7.699.⁸⁷⁸ The Panel has inserted the references into footnote 1884 to paragraph 7.685 and into footnote 1888 to paragraph 7.689, as requested by New Zealand. As to of the reference requested by New Zealand for paragraph 7.699, the Panel considers it more appropriate to insert the reference into footnote 1901 to paragraph 7.698, instead.

6.78 Australia requests that the Panel either delete the whole paragraph 7.702, or at least the first sentence to that paragraph. Australia submits that it is difficult to see how the Panel could consider

⁸⁷³ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 6.

⁸⁷⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 174-176.

⁸⁷⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 58.

⁸⁷⁶ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, pp. 6-7.

⁸⁷⁷ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 7.

⁸⁷⁸ *Ibid.*

Australia's IRA to have failed to recognize the importance of the number of spores.⁸⁷⁹ New Zealand rejects Australia's request to amend this paragraph. In New Zealand's view, the paragraph correctly characterizes the expert's response.⁸⁸⁰ The Panel sees no reason to delete paragraph 7.702 or even the first sentence to that paragraph. Having considered Australia's request, however, the Panel has slightly amended paragraph 7.702 for clarification. For consistency, the Panel has also made the clarification in paragraphs 7.712, 7.729 and 7.1198, which refer to the same issue.

6.79 Australia objects to several statements made by the Panel in paragraph 7.729, in the section containing the Panel's conclusions regarding exposure, establishment and spread for European canker. Australia submits that these statements, referring to the lack of scientific evidence or adequate support in the IRA on a number of issues, are factually incorrect.⁸⁸¹ New Zealand rejects Australia's objections to this paragraph. New Zealand disagrees with Australia's view that the Panel's statements are factually incorrect.⁸⁸² Having considered Australia's request, the Panel sees no reason to amend paragraph 7.729.

(f) Requirements regarding ALCM

6.80 With respect to paragraphs 7.785, 7.786, 7.804, 7.866 and 7.1303, Australia requests that the Panel combine its consideration of the general issue of viability of ALCM cocoons and the issue of parasitism, rather than considering both issues as potential cumulative errors.⁸⁸³ Although the two issues identified by Australia are linked, the Panel sees no impediment to consider each one separately and, consequently, there is no reason to amend paragraphs 7.785, 7.786, 7.804, 7.866 and 7.1303 in this regard.

6.81 Australia requests that paragraph 7.789, in the section describing the Parties' arguments on the issue of the available data on viability of ALCM cocoons, be amended in order to clarify that the 15 per cent figure cited is part of New Zealand's arguments.⁸⁸⁴ New Zealand rejects Australia's proposed amendment to this paragraph.⁸⁸⁵ In turn, New Zealand requests that the Panel insert a reference to New Zealand's second written submission into footnote 2036 to paragraph 7.789.⁸⁸⁶ The Panel has amended paragraph 7.789, as requested by Australia. The Panel has also inserted into footnote 2036 the reference requested by New Zealand.

⁸⁷⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 177-179.

⁸⁸⁰ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 59.

⁸⁸¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 180-184.

⁸⁸² Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 60-63.

⁸⁸³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 185-188.

⁸⁸⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 189-190.

⁸⁸⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 64.

⁸⁸⁶ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 8.

6.82 Australia requests that paragraph 7.791 be amended to appropriately reflect Australia's position.⁸⁸⁷ New Zealand rejects Australia's proposed amendments to this paragraph.⁸⁸⁸ Having considered Australia's request, the Panel has made partial amendments to paragraph 7.791.

6.83 With respect to paragraphs 7.788 to 7.809, 7.866, 7.1303 and 7.1308, Australia requests that the Panel revise its findings regarding the risk assessment for ALCM. In Australia's view, the Panel appears to have overlooked the fact that the IRA contains two separate analyses.⁸⁸⁹ New Zealand rejects Australia's request, which, in New Zealand's view, is based on a misreading of the report.⁸⁹⁰ Having considered Australia's request, the Panel sees no reason to amend its findings regarding the risk assessment for ALCM.

6.84 As requested by New Zealand⁸⁹¹, paragraph 7.794, in the section containing the Panel's analysis on the issue of the available data on viability of ALCM cocoons, has been amended, in order to identify all the findings of Tomkins *et al.* (1994), and not only those related to cocoon occupancy.

6.85 Australia requests that paragraph 7.798 be amended, so that the Panel acknowledge that certain data was submitted by New Zealand and only became available in the course of the proceedings. Australia also requests that the Panel reflect Australia's submission regarding this information.⁸⁹² New Zealand rejects Australia's proposed amendments to this paragraph. In New Zealand's view, it is clear from the report that the data postdates the IRA. With respect to Australia's second request, New Zealand submits that it is not appropriate to use the interim review as a mechanism to introduce new arguments. New Zealand adds that Australia's new arguments are factually inaccurate and largely irrelevant.⁸⁹³ Having considered Australia's request, the Panel has made partial amendments to paragraph 7.798, in order to emphasize that the information became available during the proceedings having been submitted by New Zealand at the time of its second written submission.

6.86 As requested by New Zealand⁸⁹⁴, text that is relevant to the issue of the likely effect of factoring viability into importation step 2, has been included in the same paragraph 7.794. Australia's additional proposed text for this paragraph and paragraph 7.799⁸⁹⁵ has been included in paragraph 7.796, where it appears more appropriate.

6.87 Australia requests that the second sentence of paragraph 7.819, in the section containing the Panel's analysis on the issue of the flight range for ALCM, be amended, so that the Panel's statement

⁸⁸⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 191-192.

⁸⁸⁸ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 65-67.

⁸⁸⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 193-195.

⁸⁹⁰ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 68-69.

⁸⁹¹ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 8.

⁸⁹² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 196-198.

⁸⁹³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 70-74.

⁸⁹⁴ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 8.

⁸⁹⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 199; Communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, paras. 5-6.

correctly reflects the opinion expressed by one of the experts.⁸⁹⁶ New Zealand rejects Australia's proposed amendment, because the paragraph correctly characterizes the expert's view. New Zealand adds that Australia's assertion is unsupported by evidence submitted in the course of the proceedings.⁸⁹⁷ The Panel has amended the second sentence of paragraph 7.819 in order to reflect more closely the opinion expressed by the expert.

6.88 With respect to paragraphs 7.822 to 7.837, 7.852 to 7.863 and 7.866, Australia requests that the Panel revise its analysis and findings regarding the IRA's assessment of the probability of establishment for ALCM. In Australia's view, the Panel has not reflected nor evaluated the issue of how apple waste would be managed in Australia.⁸⁹⁸ New Zealand rejects Australia's request, which, in New Zealand's view, is inappropriate. New Zealand submits that Australia attempts to recharacterize New Zealand's arguments. New Zealand adds that Australia's assertions are incorrect.⁸⁹⁹ Having considered Australia's request, the Panel sees no reason to amend its analysis and findings regarding the IRA's assessment of the probability of establishment for ALCM.

6.89 As requested by New Zealand⁹⁰⁰, paragraphs 7.823, 7.835 and 7.1284 have been amended to note that the reference to a 13-18 day timeframe in New Zealand's submissions was a proposed minimum time and not a range.

6.90 Australia requests that paragraphs 7.827 to 7.829, in the section describing Australia's arguments on the issue of the period of ALCM emergence, be amended, so that the report fully reflect some of the points made by Australia.⁹⁰¹ New Zealand rejects Australia's proposed amendments to these paragraphs. In New Zealand's view, it is neither necessary nor appropriate to insert lengthy sections of Australia's submissions in this section, as Australia's arguments are set out in detail in other sections of the report.⁹⁰² The Panel has inserted additional language in a new paragraph after paragraph 7.829, in order to address Australia's request.

6.91 As requested by New Zealand⁹⁰³, a reference has been inserted into footnote 2165 to paragraph 7.854, in the section describing New Zealand's arguments on the issue of mode of trade for ALCM.

6.92 Australia requests that paragraph 7.856, in the section describing Australia's arguments on the issue of mode of trade for ALCM, be amended, so that the report acknowledge that New Zealand never contested the IRA's conclusions on a particular point.⁹⁰⁴ New Zealand rejects Australia's proposed amendment to this paragraph. In New Zealand's view, Australia's assertion is factually

⁸⁹⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 200-201.

⁸⁹⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 75.

⁸⁹⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 202-209.

⁸⁹⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 76-79.

⁹⁰⁰ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 8; Communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, paras. 7-8.

⁹⁰¹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 210.

⁹⁰² Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 80.

⁹⁰³ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 9.

⁹⁰⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 211-212.

inaccurate.⁹⁰⁵ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.856.

6.93 Australia requests that the Panel delete the second sentence in paragraph 7.867, in the section containing the Panel's conclusions regarding the IRA's estimation for the likelihood of entry, establishment and spread of ALCM. In Australia's view, in this sentence the Panel inappropriately relies upon an expert's statement that did not relate to the IRA's overall probability of entry, establishment and spread of ALCM, but was rather made in the specific context of importation step 2.⁹⁰⁶ Having considered Australia's request, the Panel has partially amended paragraph 7.867, in order to clarify the manner in which the Panel took into account the expert's opinion in this regard.

6.94 New Zealand requests that paragraph 7.869, in the section describing New Zealand's arguments on the issue of the potential biological and economic consequences associated with ALCM, be amended, so that the report accurately reflect New Zealand's argument. In the same paragraph, New Zealand requests the addition of references in three footnotes.⁹⁰⁷ Australia rejects New Zealand's proposed amendment to this paragraph. In Australia's view, New Zealand should not be permitted to amend its arguments at the interim review stage.⁹⁰⁸ The Panel sees no reason to amend paragraph 7.869, in the manner requested by New Zealand. To avoid any misunderstanding, however, the Panel has made a small amendment in the paragraph. The Panel has included the references in footnotes requested by New Zealand.

6.95 As requested by Australia⁹⁰⁹, paragraph 7.874 has been corrected.

6.96 Australia requests that the Panel delete paragraph 7.876. In Australia's view, in this paragraph the Panel inappropriately relies upon an expert's statement that referred to the effects of a risk management measure, while the IRA consequences assessment was based on unrestricted risk.⁹¹⁰ Having considered Australia's request, the Panel has partially amended paragraph 7.876.

6.97 As requested by New Zealand⁹¹¹, paragraph 7.883, in the section containing the Panel's overall conclusions with respect to requirements regarding ALCM, has been corrected.

4. New Zealand's claim under Article 5.5 of the SPS Agreement

6.98 Australia requests that the Panel amend paragraph 7.906, in the introductory section containing Australia's arguments, in order to provide a more accurate reflection of Australia's submission.⁹¹² The Panel has amended paragraph 7.906 as requested by Australia.

⁹⁰⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 81.

⁹⁰⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 213-214.

⁹⁰⁷ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 9.

⁹⁰⁸ Communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, paras. 9-11.

⁹⁰⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 215-216.

⁹¹⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 217-218.

⁹¹¹ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 9. See also, communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, paras. 12-13.

6.99 Australia requests that the Panel replace the reference to "ALOP" (appropriate level of protection) with "level of protection" in paragraphs 7.933 and 7.958, as well as in a subheading in page 390 of the interim report. In Australia's view, the latter expression is more appropriate.⁹¹³ New Zealand rejects Australia's proposed amendment. In New Zealand's view, Australia has not explained why the expression "level of protection" should be preferred. New Zealand adds that "appropriate level of protection" has been used by the Appellate Body.⁹¹⁴ Having considered Australia's request, and noting that the expression "appropriate level of protection" is contained in the SPS Agreement and has been used by the Appellate Body and previous panels in this context, the Panel sees no reason to replace the expression.

6.100 Australia requests that the Panel amend paragraphs 7.946 and 7.947 to clarify that the Panel's statements contained in those paragraphs are specific to the comparability test, and not necessarily relevant for the remaining elements of an Article 5.5 analysis.⁹¹⁵ The Panel has amended paragraphs 7.946 and 7.947, as requested by Australia.

6.101 Australia requests that the Panel amend paragraph 7.947 to reflect Australia's position more accurately. Australia also requests that the Panel correct a reference in footnote 2300 to paragraph 7.947.⁹¹⁶ New Zealand considers that Australia's proposed amendment is unnecessary, as it is already reflected in the paragraph.⁹¹⁷ The Panel has amended paragraph 7.947, as requested by Australia, and corrected the reference in footnote 2300.

6.102 Australia requests that the Panel amend paragraph 7.986 to qualify a Panel's statement by making it clear that it is a direct result of the nature of New Zealand's claims. Australia suggests that the Panel delete the first sentence of the paragraph.⁹¹⁸ New Zealand considers that paragraph 7.986 is clear and does not require modification.⁹¹⁹ The Panel has amended paragraph 7.986.

6.103 Australia requests that the Panel amend paragraph 7.1035 to make it clear that when the Panel refers to two factors being inconclusive, it is referring to New Zealand's case.⁹²⁰ New Zealand considers that paragraph 7.1035 is clear and does not require modification. In New Zealand's view, the Panel's statement in that paragraph refers to the relative risk of the comparable situations.⁹²¹ The Panel has amended paragraph 7.1035, to clarify the Panel's statement.

⁹¹² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 219-221.

⁹¹³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 222-223 and 231.

⁹¹⁴ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 82.

⁹¹⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 224-227.

⁹¹⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 228-230.

⁹¹⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 83.

⁹¹⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 232-233.

⁹¹⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 84.

⁹²⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 234-236.

⁹²¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 85.

6.104 Australia requests that the Panel amend paragraph 7.1060, because it does not accurately reflect Australia's arguments.⁹²² New Zealand rejects Australia's request. In New Zealand's view, Australia's proposed change would change the meaning of the paragraph.⁹²³ The Panel has amended paragraph 7.1060, to clarify the Panel's statement.

6.105 Australia requests that the Panel revise its findings contained in paragraphs 7.1064 to 7.1067, regarding the presence of the two pests in exports areas.⁹²⁴ New Zealand agrees with the Panel's conclusions in paragraphs 7.1064 to 7.1067 and rejects Australia's request.⁹²⁵ Having considered Australia's request, the Panel sees no reason to amend the findings contained in paragraphs 7.1064 to 7.1067.

6.106 As requested by New Zealand⁹²⁶, the word "certified" has been deleted from the first sentence in paragraph 7.1071.

5. New Zealand's claim under Article 5.6 of the SPS Agreement

6.107 Australia requests that the Panel amend the last sentence in paragraph 7.1095, in the section describing the Panel's approach to assessing New Zealand's claim. In Australia's view, this sentence does not accurately reflect Australia's primary argument under Article 5.6.⁹²⁷ The Panel has amended the last sentence in paragraph 7.1095, as requested by Australia.

6.108 Australia requests that the Panel amend paragraph 7.1132, in the section on the measures at issue regarding fire blight and European canker. Australia considers that this paragraph contains a criticism of Australia's qualitative ALOP. Australia requests that, if the Panel retains this material, it acknowledge that Members are under no obligation to quantify their ALOP and the difficulties a Member would face if it attempted to do so.⁹²⁸ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1132.

6.109 With respect to paragraphs 7.1135 and 7.1137, Australia requests that the Panel include a statement to the effect that compliance with the SPS Committee's *Guidelines to further the practical implementation of Article 5.5* and with the various ISPMs is not mandatory and that these documents do not set out enforceable obligations.⁹²⁹ Having considered Australia's request, the Panel sees no reason to amend paragraphs 7.1135 and 7.1137. The report discusses in its descriptive section the nature of ISPMs. The Panel has included, however, a clarification regarding the SPS Committee's *Guidelines to further the practical implementation of Article 5.5* in footnote 2277 to paragraph 7.927.

⁹²² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 237-238.

⁹²³ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 86.

⁹²⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 239-240.

⁹²⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 87.

⁹²⁶ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 10.

⁹²⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 241-242.

⁹²⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 243.

⁹²⁹ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 246.

6.110 Australia requests that the Panel delete paragraph 7.1136, or otherwise amend the paragraph. In Australia's view it would be more correct to state that measures selected must reflect the ALOP. Australia also submits that this paragraph is unnecessary as the relevant point has been addressed elsewhere.⁹³⁰ New Zealand rejects Australia's request and considers that paragraph 7.1136 correctly states the relevant requirements.⁹³¹ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1136.

6.111 Australia requests that the Panel amend paragraph 7.1138, in order to include an acknowledgement that, in some circumstances, the unrestricted risk may exceed the ALOP by only a small amount, but there may be only relatively stringent measures reasonably available and capable of reducing the risk to achieve the ALOP.⁹³² Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1138.

6.112 Australia requests that the words "and to the extent that" be deleted from the last sentence in paragraph 7.1139.⁹³³ The Panel has amended paragraph 7.1139, as requested by Australia.

6.113 Australia requests that the Panel amend paragraph 7.1141. Australia considers that it is inappropriate for the Panel to rely on the experts to reach the conclusion that the IRA's analysis regarding some of the importation steps was exaggerated. Specifically, Australia requests the deletion of two statements and suggests an alternative text. Australia also requests the Panel to replace the word "negligible" in subparagraph (g) with the IRA's actual finding for importation step 7.⁹³⁴ New Zealand rejects Australia's request and considers that there is nothing inappropriate in the Panel's analysis in paragraph 7.1141.⁹³⁵ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1141.

6.114 Australia requests that the Panel amend paragraph 7.1151, to acknowledge that the underlying basis of the IRA's analysis for fire blight and European canker was predominantly concerned with mature, symptomless apples. Australia also requests the Panel to list the number of other potential measures which the IRA evaluated for fire blight and European canker.⁹³⁶ Having considered Australia's request, the Panel has amended paragraph 7.1151 to note Australia's statement that the IRA's analysis for fire blight and European canker was predominantly concerned with mature, symptomless apples.

6.115 Australia requests that the Panel delete the word "theoretical" from the first sentence in paragraph 7.1180. Australia submits that this word was not used by the experts.⁹³⁷ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1180.

⁹³⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 244-245.

⁹³¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 88.

⁹³² Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 247-248.

⁹³³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 249-250.

⁹³⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 251-255.

⁹³⁵ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 89-90.

⁹³⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 256-258.

⁹³⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 259-260.

6.116 Australia requests that the Panel revise paragraph 7.1191. In Australia's view, it is inappropriate for the Panel to rely on experts to confirm that certain events will occur, which are a matter of practical implementation and enforcement by New Zealand and Australian authorities. Australia also requests that footnote 2629 to the paragraph be corrected.⁹³⁸ Having considered Australia's request, the Panel has amended paragraph 7.1191 and footnote 2629.

6.117 New Zealand requests that the Panel amend subparagraph (c) in paragraph 7.1194. Specifically, New Zealand requests the insertion of text to reflect key points from the Panel's analysis under importation step 3.⁹³⁹ The Panel has amended subparagraph (c), as requested by New Zealand.

6.118 With respect to paragraphs 7.1287 and 7.1288, in the section on the measures at issue regarding ALCM with respect to New Zealand's claim under Article 5.6 of the SPS Agreement, Australia requests that the Panel make it clear that the statements regarding what the experts allegedly confirmed or endorsed represent New Zealand's opinion, rather than the Panel's. Australia also requests that footnote 2786 to paragraph 7.1287 be correspondingly deleted or corrected.⁹⁴⁰ New Zealand rejects Australia's request and especially the revision of the footnote to paragraph 7.1287.⁹⁴¹ The Panel has amended paragraphs 7.1287 and 7.1288, as well as footnote 2786 to paragraph 7.1287, to address Australia's request.

6.119 As requested by New Zealand⁹⁴², paragraph 7.1304 has been corrected.

6.120 Australia requests that the Panel amend paragraph 7.1335. Specifically, Australia requests that the Panel reflect Australia's response to New Zealand's argument.⁹⁴³ The Panel has included Australia's proposed text in paragraph 7.1341, in the section describing Australia's arguments.

6.121 The Panel has amended paragraph 7.1336, to address Australia's request.⁹⁴⁴

6.122 Australia requests that the Panel amend paragraph 7.1337. Specifically, Australia requests that the Panel reflect Australia's response to New Zealand's argument.⁹⁴⁵ The Panel has included Australia's proposed text in paragraph 7.1342, in the section describing Australia's arguments.

6.123 Australia requests that the Panel delete part of paragraph 7.1338. In Australia's view, this part relates to Australia's measures regarding fire blight and European canker and is irrelevant for ALCM measures.⁹⁴⁶ The Panel notes that the paragraph in question explains that, according to New Zealand,

⁹³⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 261-262.

⁹³⁹ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 11.

⁹⁴⁰ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 263-265.

⁹⁴¹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 91.

⁹⁴² Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, pp. 11-12. See also, communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, paras. 12-13.

⁹⁴³ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 266-268.

⁹⁴⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 269.

⁹⁴⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 270-271.

⁹⁴⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 272-273.

certain arguments and factors set out in the context of the other two pests also apply to ALCM. Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1338.

6.124 Australia requests that the Panel amend paragraph 7.1354. Specifically, Australia requests that the Panel delete a sentence stating that both Parties agree that a 3,000-unit inspection would effectively result in a fumigation of all lots.⁹⁴⁷ The Panel has amended paragraph 7.1354, to address Australia's request.

6.125 Australia requests that the Panel amend paragraph 7.1355. Specifically, Australia requests that its responding arguments be reflected in this section of the report.⁹⁴⁸ New Zealand rejects Australia's request. In New Zealand's view, Australia's arguments are reflected in other sections of the report and it would not be necessary nor appropriate to insert lengthy parts of Australia's submissions in this section. New Zealand also submits that Australia's proposed text is irrelevant to the issue addressed in this section.⁹⁴⁹ Having considered Australia's request, the Panel sees no reason to amend paragraph 7.1355.

6. New Zealand's claims under Article under Article 8 and Annex C(1)(a) of the SPS Agreement

6.126 As requested by New Zealand, the Panel has amended paragraph 7.1407, in a sentence summarizing New Zealand's claims.⁹⁵⁰

6.127 New Zealand requests that the Panel amend paragraphs 7.1415 to 7.1418, 7.1447 and 7.1448. In New Zealand's view, these paragraphs erroneously suggest that New Zealand argued that the IRA as a whole was a measure in and of itself.⁹⁵¹ Australia rejects New Zealand's request. In Australia's view, New Zealand is attempting to retrospectively repair its undue delay argument as reflected in the report. Australia submits that it is important that the report reflect New Zealand's arguments and that New Zealand should not be permitted to remove the reference to its original claim.⁹⁵² Having considered New Zealand's request, the Panel sees no reason to amend paragraphs 7.1415 to 7.1418, 7.1447 and 7.1448.

6.128 As requested by New Zealand, the Panel has amended paragraph 7.1423, in a sentence summarizing New Zealand's claims.⁹⁵³

6.129 Australia requests that the Panel amend paragraph 7.1431. Specifically, Australia submits that the paragraph does not accurately reflect Australia's position.⁹⁵⁴ The Panel has amended paragraph 7.1431, to address Australia's request.

⁹⁴⁷ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 274-275.

⁹⁴⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 276-277.

⁹⁴⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 92.

⁹⁵⁰ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 12.

⁹⁵¹ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 12.

⁹⁵² Communication from Australia to the Panel, 22 April 2010, Australia's comments on New Zealand's request for review of the interim report, paras. 14-16.

⁹⁵³ Communication from New Zealand to the Panel, 15 April 2010, New Zealand's request for review of the interim report, p. 12.

6.130 Australia requests that the Panel amend paragraph 7.1434. Specifically, Australia submits that the paragraph is not an accurate reflection of Australia's arguments. Australia also requests that the Panel correct a footnote to the paragraph.⁹⁵⁵ As requested by Australia, the Panel has amended paragraph 7.1434, and corrected footnote 3020.

6.131 Australia requests that the Panel delete the last sentence of paragraph 7.1459. Australia submits that this sentence is not an accurate reflection of Australia's position. Alternatively, Australia suggests alternative text for this section.⁹⁵⁶ New Zealand does not object to the deletion of the sentence, but it rejects Australia's proposed alternative language.⁹⁵⁷ As requested by Australia, the Panel has deleted the last sentence of paragraph 7.1459.

6.132 Australia requests that the Panel delete several sections and make other amendments in paragraphs 7.1459 to 7.1462. Australia submits that it is unnecessary for the Panel to make comments on the question of whether an IRA-type process could be a procedure within the meaning of Annex C(1)(a) of the SPS Agreement.⁹⁵⁸ New Zealand objects to the changes and deletions proposed by Australia. In New Zealand's view, Australia's reasons for requesting the deletions are incorrect. New Zealand adds that the passages in these paragraphs are important and should be retained and that Australia's suggested amendments are inappropriate and should be rejected.⁹⁵⁹ Having considered Australia's request, the Panel sees no reason to amend paragraphs 7.1459 to 7.1462.

C. MINOR CORRECTIONS AND ADDITION OF REFERENCES

6.133 Minor corrections were made to the following paragraphs of the interim report, as a result of comments from New Zealand: 2.24, 4.458, 4.459, 4.460, 4.467, 7.229, 7.245, 7.248, 7.252, 7.255, 7.285, 7.333, 7.338, 7.350, 7.358, 7.414, 7.417, 7.428, 7.443, 7.447, 7.512, 7.525, 7.540, 7.568, 7.569, 7.595, 7.607, 7.621, 7.798, 7.901, 7.1047, 7.1049, 7.1141, 7.1143, 7.1144, 7.1152, 7.1164, 7.1198, 7.1249, and 7.1250.

6.134 Likewise, comments from New Zealand resulted in minor corrections to the following footnotes in the interim report: footnote 1167 to paragraph 7.231, footnote 1186 to paragraph 7.240, footnote 1187 to paragraph 7.241, footnote 1194 to paragraph 7.246, footnote 1217 to paragraph 7.258, footnote 1528 to paragraph 7.447, footnote 1530 to paragraph 7.449, footnote 2211 to paragraph 7.885, footnote 2506 to paragraph 7.1118, footnote 2507 to paragraph 7.1118, footnote 2509 to paragraph 7.1120, and footnote 2600 to paragraph 7.1165.

6.135 As a result of comments from New Zealand, additional references have been added into existing footnotes or have been inserted as new footnotes: the addition of a new footnote to paragraph 7.61, the addition of a new footnote to paragraph 7.180, the addition of a new footnote to paragraph 7.375, the addition of two new footnotes to paragraph 7.427, the addition of a new reference in footnote 1607 to paragraph 7.496, the addition of two new footnotes to paragraph 7.540, the addition of a new footnote to paragraph 7.568, the addition of new references in footnote 1901 to paragraph

⁹⁵⁴ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 278-279.

⁹⁵⁵ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, para. 280.

⁹⁵⁶ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 281-284.

⁹⁵⁷ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, para. 93.

⁹⁵⁸ Communication from Australia to the Panel, 15 April 2010, Australia's request for review of the interim report, paras. 285-287.

⁹⁵⁹ Communication from New Zealand to the Panel, 22 April 2010, New Zealand's comments on Australia's request for review of the interim report, paras. 94-96.

7.698, the addition of new references in footnote 2036 to paragraph 7.789, the addition of a new footnote to paragraph 7.798, the addition of a new reference in footnote 2182 to paragraph 7.869, the addition of a new reference in footnote 2183 to paragraph 7.869, the addition of a new reference in footnote 2185 to paragraph 7.869, the addition of a new footnote to paragraph 7.955, the addition of a new footnote to paragraph 7.1122, the addition of a new reference in footnote 2674 to paragraph 7.1213, the addition of a new reference in footnote 2677 to paragraph 7.1216.

6.136 Australia did not request any additional minor corrections.

6.137 In addition to the above, the Panel has made clerical corrections to paragraphs 1.21, 1.41, 1.51, 1.54, 2.1, 2.39, 2.91, 4.80, 7.57, 7.79, 7.151, 7.166, 7.175, 7.184, 7.860, 7.1017, 7.1134, 7.1335 and 7.1405, and to the following footnotes in the interim report: footnote 151 to paragraph 2.6, footnote 754 to paragraph 7.7, footnote 834 to paragraph 7.52, footnote 837 to paragraph 7.57, footnote 851 to paragraph 7.75, footnote 854 to paragraph 7.79, footnote 930 to paragraph 7.115, footnote 933 to paragraph 7.116, footnote 940 to paragraph 7.121, footnote 997 to paragraph 7.151, footnote 1053 to paragraph 7.185, footnote 1880 to paragraph 7.683, footnote 1913 to paragraph 7.708, footnote 2228 to paragraph 7.893, footnote 2373 to paragraph 7.1015 and footnote 2407 to paragraph 7.1030. The Panel also revised the list of abbreviations and added a reference to five panel or Appellate Body reports that were missing from the table of cases cited in the interim report.

VII. FINDINGS

A. AUSTRALIA'S CONCERNS WITH THE EXPERT SELECTION AND CONSULTATION PROCESS

7.1 Australia has raised concerns with specific aspects of the Panel's processes for selecting and consulting the scientific experts.⁹⁶⁰

7.2 In regard to the expert selection, Australia contests:

- (a) That only one expert was selected in the area of ALCM; and,
- (b) The alleged connection of the Panel's sole ALCM expert with the complainant, New Zealand.

7.3 As regards expert consultation, Australia's concerns fall into the following main categories:

- (a) The alleged lack of opportunity for Australia to comment on new or modified questions and on the Panel's limited scope for some questions;
- (b) The Panel's reference in its questions to third party submissions;
- (c) The experts allegedly providing information that went beyond the scope of the Panel's questions⁹⁶¹; and,
- (d) The experts' alleged lack of competence in certain areas in which the Panel posed questions or the experts expressed opinions and the Panel's use of the experts in areas that were outside of the field of expertise for which each expert was selected.⁹⁶²

⁹⁶⁰ See, for example, Australia's communications to the Panel, 9 December 2008 and 19 December 2008. Australia's subsequent submissions followed these previous communications.

⁹⁶¹ See, for example, Australia's comments on the experts' replies to questions, para. 14.

⁹⁶² See, for example, Australia's comments on the experts' replies to questions, paras. 13 and 17.

1. Qualification of concerns expressed by Australia

7.4 Australia has qualified a number of the concerns described above with respect to the Panel's procedure to select and consult experts as "concerns regarding the observance of due process in the experts phase of this dispute".⁹⁶³ These "due process concerns" raised by Australia relate to whether Australia was given the opportunity to comment on new or amended questions posed by the Panel and whether some of the scientific experts consulted by the Panel moved outside of the field of expertise for which they had been selected.⁹⁶⁴

7.5 Any legal proceeding, including WTO proceedings, may raise procedural concerns for the parties involved. By definition, due process concerns are of a procedural nature. However, not all procedural concerns necessarily affect due process. In response to a question by the Panel, Australia accepted the validity of a distinction between procedural concerns that affect due process and other "minor procedural concerns":

"[D]ue process can be understood in the context of WTO disputes as comprehending the protection of a party's right to a fair hearing. As such, this protection must be applied at every stage of a panel's proceedings, including, in the present case, the Panel's selection of, and consultation with, the experts.

The distinction drawn in the Panel's question between procedural concerns and due process concerns appears to suggest that the former would be of less significance than a due process concern. Australia considers that minor procedural concerns would not prejudice a party's right to a fair hearing."⁹⁶⁵

7.6 Australia notes that its argument regarding the information provided by the experts that allegedly went beyond the scope of the Panel's relevant questions "was not intended to raise a due process concern".⁹⁶⁶ Arguably, this concern would therefore fall in the category of "minor procedural concerns".

7.7 The concept of due process is implicit in WTO dispute settlement.⁹⁶⁷ In the words of the Appellate Body, due process constitutes "an obligation inherent in the WTO dispute settlement system"⁹⁶⁸, and it is "fundamental to ensuring a fair and orderly conduct of dispute settlement proceedings."⁹⁶⁹ Due process ensures a fair hearing for the parties to a dispute, through an adequate opportunity to submit claims, arguments and evidence and to respond to the claims, arguments and evidence presented by the other party.⁹⁷⁰ Thus, due process also ensures procedural equality between the parties by "guarantee[ing] that the proceedings are conducted with fairness and impartiality, and that one party is not unfairly disadvantaged with respect to other parties in a dispute."⁹⁷¹ Ultimately,

⁹⁶³ Australia's comments on the experts' replies to questions, para. 15.

⁹⁶⁴ Australia's comments on the experts' replies to questions, paras. 16-17.

⁹⁶⁵ Australia's reply to Panel question 20 after the second substantive meeting, paras. 69-70.

⁹⁶⁶ Australia's reply to Panel question 20 after the second substantive meeting, para. 71.

⁹⁶⁷ Appellate Body Report on *Canada – Continued Suspension*, para. 435, where the Appellate Body explains that "due process considerations are reflected in the *Rules of Conduct*." No reference is made to the DSU. Also, in *India – Patents (US)*, para. 94, the Appellate Body recognizes that "...demands of due process ... are implicit in the DSU..."

⁹⁶⁸ Appellate Body Report on *Chile – Price Band System*, para. 176.

⁹⁶⁹ Appellate Body Report on *Thailand – H-Beams*, para. 88. See also the Appellate Body Report on *Canada – Continued Suspension*, para. 433.

⁹⁷⁰ Appellate Body Report on *Canada – Continued Suspension*, para. 434.

⁹⁷¹ Appellate Body Report on *Canada – Continued Suspension*, para. 433.

due process ensures an objective assessment of the matter by panels, as mandated by Article 11 of the DSU.⁹⁷²

7.8 According to the Appellate Body, due process fully applies to the selection and consultation of experts by panels: "[T]he protection of due process applies to a panel's consultations with experts. This due process protection applies to the process for selecting experts and to the panel's consultations with the experts, and continues throughout the proceedings."⁹⁷³

7.9 If a procedural concern puts at risk the purpose and role of due process in WTO dispute settlement, it is effectively a due process concern, to which panels need to pay special attention. However, it is difficult to state in the abstract whether a specific type of procedural concern affects due process. Only by taking into account the specific circumstances of the case, can a panel assess whether a procedural concern affects due process and thus merits such special attention.

7.10 Accordingly, when analysing the various concerns raised by Australia, on the selection and consultation of experts in this dispute, the Panel will pay special attention to determine whether due process has been prejudiced and whether as a result Australia has been unfairly disadvantaged.

2. Selection of experts

(a) The Panel's selection of only one ALCM expert

7.11 During the expert selection process, Australia expressed its preference that the Panel seek the advice of two experts on each of the three pests at issue (fire blight, European canker and ALCM).⁹⁷⁴ In Australia's view, this would ensure that the Panel "receives advice from a sufficiently diverse pool of expertise".⁹⁷⁵ Australia reiterated this concern after the Panel had selected Dr Jerry Cross as the sole expert on ALCM.⁹⁷⁶

7.12 In turn, New Zealand considered adequate that the Panel select one expert for each of the three pests and, in any event, no more than two experts for each pest.⁹⁷⁷ New Zealand did not raise any objection to the selection of Dr Cross as the sole ALCM expert.

7.13 Neither Article 13 of the DSU, nor Article 11.2 of the SPS Agreement, which jointly provide the legal basis for WTO panels to seek the advice of experts in SPS disputes, specify the number of experts that should be selected for each particular issue. Likewise, the Panel's Working Procedures, adopted after having consulted the Parties, do not refer to a specific number of experts: "The Panel will decide the number of experts in light of the number and type of issues on which advice will be sought, as well as of the different areas on which each expert can provide expertise."⁹⁷⁸

7.14 The Panel extensively consulted the Parties throughout the expert selection process. In accordance with the Panel's Working Procedures and the views expressed by the Parties, the Panel asked the Secretariat of the specialized international agency on plant health – the International Plant Protection Convention (IPPC) –, the Council for International Congresses of Dipterology (CICD), as

⁹⁷² Appellate Body Report on *US – Gambling*, para. 273.

⁹⁷³ Appellate Body Report on *Canada – Continued Suspension*, para. 436.

⁹⁷⁴ See, for example, Australia's communications to the Panel, 4 September 2008 and 20 November 2008.

⁹⁷⁵ Australia's communications to the Panel, 20 November 2008.

⁹⁷⁶ Australia's communication to the Panel, 19 December 2008.

⁹⁷⁷ New Zealand's communications to the Panel, 11 September 2008 and 9 December 2008.

⁹⁷⁸ Working Procedures, 26 March 2008, attached as Annex A-3 to this report, para. 17(d).

well as the Parties, for suggestions of names of possible experts.⁹⁷⁹ Each of these steps was done after consultation with the Parties.⁹⁸⁰

7.15 The Panel consulted the IPPC Secretariat on 15 September 2008, to ask for suggestions of experts in the four areas identified by the Panel (each of the three pests at issue, as well as pest risk assessment).⁹⁸¹ On 23 September 2008, the IPPC Secretariat provided a list with ten potential experts⁹⁸², from which only four confirmed their interest and availability to assist the Panel. None of these four persons was an expert on ALCM. The IPPC Secretariat stated it had difficulties finding suitable ALCM experts, but suggested that with more time it could provide additional names of experts in this field.⁹⁸³ This situation delayed the proceedings and required the Panel to amend the timetable.⁹⁸⁴ At the end of October 2008, the IPPC Secretariat proposed 12 additional names.⁹⁸⁵ Four of them confirmed their interest and availability. Again, none of these four persons were experts on ALCM. Accordingly, the Panel asked the Parties to suggest names of experts on ALCM.⁹⁸⁶ In response to the Panel's request, New Zealand suggested one ALCM expert, Dr Jerry Cross, "as having relevant experience and expertise", and noted that it would not object to having only one ALCM expert, considering the various difficulties in finding appropriate and available experts.⁹⁸⁷ Australia did not propose any expert on ALCM, but suggested that the Panel contact the Council for International Congresses of Dipterology (CICD), to ask for names of ALCM experts.⁹⁸⁸

7.16 In the light of Australia's suggestion, on 25 November 2008 the Panel contacted the CICD.⁹⁸⁹ In response, on 26 November 2008 the Chairman of the CICD suggested one ALCM expert, noting that this expert might be able to suggest further names on behalf of the CICD.⁹⁹⁰ Through contact with the expert suggested by the CICD, the Panel found another ALCM expert, which raised the number of potential ALCM experts to three: one proposed by New Zealand, one proposed by the CICD and one proposed by the expert suggested by the CICD.⁹⁹¹ These three names of ALCM experts were submitted to the Parties for comments.⁹⁹² For different reasons, all three ALCM experts were objected to by at least one of the Parties.⁹⁹³ The expert proposed by the CICD was objected to by both Parties, because he was not available to meet with the Panel and the Parties in Geneva.⁹⁹⁴ The expert proposed by the expert suggested by the CICD was also objected to by both Parties, on the grounds that his expertise was limited to midge taxonomy and that he had limited relevant experience on pest management or field ecology.⁹⁹⁵ The remaining available expert, Dr Jerry Cross, was objected

⁹⁷⁹ Working Procedures, 26 March 2008, attached as Annex A-3 to this report, para. 17(b).

⁹⁸⁰ See, for example, Australia's communications to the Panel, 20 March 2008 and 4 September 2008, and New Zealand's communication to the Panel, 11 September 2008.

⁹⁸¹ Panel's communication to the IPPC, 15 September 2008.

⁹⁸² Electronic communication from the IPPC to the Panel, 23 September 2008.

⁹⁸³ *Ibid.*

⁹⁸⁴ Electronic communication from the Panel to the Parties, 31 October 2008.

⁹⁸⁵ Electronic communications from the IPPC to the Panel, 29 and 30 October 2008.

⁹⁸⁶ Panel's communication to the Parties, 13 November 2008.

⁹⁸⁷ New Zealand's communication to the Panel, 20 November 2008.

⁹⁸⁸ Australia's communication to the Panel, 20 November 2008.

⁹⁸⁹ Panel's communication to the CICD, 25 November 2008.

⁹⁹⁰ Electronic communication from the Chairman of the CICD to the Panel, 26 November 2008.

⁹⁹¹ Panel's communication to the Parties, 5 December 2008.

⁹⁹² *Ibid.*

⁹⁹³ Parties' communication to the Panel, 9 December 2008.

⁹⁹⁴ New Zealand's communication to the Panel, 9 December 2008, and Australia's communication to the Panel, 9 December 2008.

⁹⁹⁵ *Ibid.*

to by Australia on the grounds of an alleged connection with the New Zealand Government and New Zealand researchers.⁹⁹⁶

7.17 On 15 December 2008, the Panel informed the Parties that it had selected a total of seven experts.⁹⁹⁷ Two experts were selected on the basis of their qualifications and specialized expertise on fire blight, European canker and pest risk assessment, respectively, while one of the experts, Dr Jerry Cross, was selected for his expertise on ALCM.

7.18 As described in the preceding paragraphs, the main reason for selecting only one expert on ALCM was the limited pool of available experts on this particular pest.

7.19 The Panel formally began its expert selection process on 15 September 2008⁹⁹⁸ and finalized it on 15 December 2008.⁹⁹⁹ During this three-month period, the Panel consulted specialized agencies and the Parties for names of possible experts. Due to the problems that the Panel faced in finding scientific experts, especially on ALCM, the timetable of the dispute was amended in November 2008, and the proceedings were delayed.

7.20 As noted earlier, neither the DSU, the SPS Agreement, nor the Panel's Working Procedures specify the number of experts to be selected. Accordingly, it was ultimately within the Panel's authority to decide on the number of experts according to the specific circumstances of the dispute, the necessary expertise and the constraints faced. In addition, the Panel is bound by Article 3.3 of the DSU to seek a prompt settlement of the dispute. The Panel noted, however, Australia's expressed preference for two experts to be consulted in each of the three relevant pests. In general, more experts might provide more advice than just one expert and this might be useful to a panel. But this does not imply that consulting one competent expert would not be sufficiently useful for a panel in a given dispute, that this would necessarily narrow the range of scientific expert advice that the Panel would receive, nor that the parties would be prejudiced by the selection of only one expert on a given subject. Despite the delay, and the recourse to specialized agencies and the Parties, the Panel was unable to find a larger number of qualified and available ALCM experts. In the particular circumstances of this case, the Panel had to decide whether to proceed with one selected available expert, with a high degree of expertise as demonstrated by his qualifications, or further delay the proceedings by extending the search for a second expert on the specific pest. Given that the Panel had already consulted the leading agencies and the Parties themselves, there was no guarantee that this further delay would have resulted in finding a suitable additional expert on ALCM. There was, however, the possibility that, with any additional postponement, any of the experts already confirmed could become unavailable. In the Panel's view, further delaying the selection process would have been inappropriate, as it would have hindered the objective of seeking a prompt settlement of the dispute, contrary to Article 3.3 of the DSU and the expressed interest of both Parties.¹⁰⁰⁰ In the light of the above, the Panel decided to seek the advice of only one expert on ALCM, rather than two, as in the case of the two other pests and the issue of pest risk assessment.

7.21 In any event, there is no indication that the selection of one expert on ALCM has prejudiced the Parties' rights in this dispute or impaired the Panel's ability to conduct an objective assessment of the matter before it. This selection in no way undermines the fairness and impartiality of the proceedings, nor the ability of the Panel to obtain sufficient specialized scientific expertise. In particular, Australia has not demonstrated that it suffered any kind of prejudice by the Panel

⁹⁹⁶ Australia's communication to the Panel, 9 December 2008.

⁹⁹⁷ Panel's communication to the Parties, 15 December 2008.

⁹⁹⁸ *Ibid.*

⁹⁹⁹ *Ibid.*

¹⁰⁰⁰ See, for example, Australia's communication to the Panel, 20 November 2008.

consulting only one ALCM expert. The Panel will address the substance of Australia's specific objections to the selection of Dr Cross in the following section.

(b) The alleged connection of the ALCM expert with the complainant

7.22 Australia objected, under paragraph 17(c) of the Panel's Working Procedures, to Dr Jerry Cross being consulted as an expert by the Panel, given Dr Cross's "connection with the New Zealand Government and New Zealand researchers".¹⁰⁰¹ Australia references joint research projects and publications, cited by Dr Cross in his *curriculum vitae*, which – Australia argues – were jointly undertaken with researchers from HortResearch New Zealand. In particular, Australia references a "joint publication with Suckling *et al.*, published in 2007, which indicates a very recent connection with relevant New Zealand researchers, whose work is primarily targeted at facilitating access for New Zealand apples to export markets."¹⁰⁰²

7.23 New Zealand responds that Australia's objection is "without basis". Dr Cross has no connection with the New Zealand Government relevant for the present dispute.¹⁰⁰³ His preliminary conflict of interest statement indicates that he has not received funding from the New Zealand Government in relation to the activity with New Zealand researchers and his collaboration with New Zealand experts can be no basis for a compelling objection.¹⁰⁰⁴

7.24 Under the Rules of Conduct for the DSU applicable to all covered persons in WTO dispute settlement, experts "shall be independent and impartial, shall avoid direct or indirect conflicts of interest ... pursuant to the dispute settlement mechanism, so that through the observance of such standards of conduct the integrity and impartiality of that mechanism are preserved".¹⁰⁰⁵ In accordance with the Working Procedures adopted by the Panel, potential experts were asked to submit a statement of potential conflict of interests, prior to their selection, which was copied to the Parties.¹⁰⁰⁶ Like other persons covered by the Rules of Conduct, experts "shall disclose any information that could reasonably be expected to be known to them at the time which, coming within the scope of the Governing Principle of these Rules, is likely to affect or give rise to justifiable doubts as to their independence or impartiality."¹⁰⁰⁷ According to the Illustrative List annexed to the Rules of Conduct, this disclosure shall include information relating to:

"(a) financial interests (e.g. investments, loans, shares, interests, other debts); business interests (e.g. directorship or other contractual interests); and property interests relevant to the dispute in question;

(b) professional interests (e.g. a past or present relationship with private clients, or any interests the person may have in domestic or international proceedings, and their implications, where these involve issues similar to those addressed in the dispute in question);

¹⁰⁰¹ Australia's communication to the Panel, 9 December 2008. This objection was maintained in Australia's communication to the Panel, 19 December 2008.

¹⁰⁰² Australia's communication to the Panel, 9 December 2008.

¹⁰⁰³ New Zealand's communication to the Panel, 11 December 2008.

¹⁰⁰⁴ *Ibid.*

¹⁰⁰⁵ Rules of Conduct for the Understanding on Rules and Procedures Governing the Settlement of Disputes (WT/DSB/RC/1), 11 December 1996, Section II (Governing Principle).

¹⁰⁰⁶ Working Procedures, 26 March 2008, attached as Annex A-3 to this report, para. 17(c).

¹⁰⁰⁷ Rules of Conduct for the Understanding on Rules and Procedures Governing the Settlement of Disputes (WT/DSB/RC/1), 11 December 1996, Section VI.2 (Self-Disclosure Requirements by Covered Persons).

- (c) other active interests (e.g. active participation in public interest groups or other organisations which may have a declared agenda relevant to the dispute in question);
- (d) considered statements of personal opinion on issues relevant to the dispute in question (e.g. publications, public statements);
- (e) employment or family interests (e.g. the possibility of any indirect advantage or any likelihood of pressure which could arise from their employer, business associates or immediate family members).¹⁰⁰⁸

7.25 In line with the Rules of Conduct¹⁰⁰⁹, the Panel shared the Illustrative List with Dr Cross on 16 December 2008.¹⁰¹⁰ As New Zealand points out, in his preliminary conflict of interest statement, Dr Cross stated that:

"You will see from my publications list that I have collaborated with scientists at HortResearch NZ in the conduct of research into the sex pheromone of apple leaf midge. We have not had any jointly funded research projects. I was a guest speaker at a NZ top fruit conference a couple of years ago. But then again I was a guest speaker at the IFTA [International Fruit Tree Association] 50th anniversary conference in Hobart Australia [in 2007]. ..."¹⁰¹¹

7.26 Subsequently, Dr Cross submitted the disclosure form provided for in Annex 3 of the Rules of Conduct, which states as follows: "... I understand my continuing duty ... to disclose herewith and in future any information likely to affect my independence or impartiality, or which could give rise to justifiable doubts as to the integrity and impartiality of the dispute settlement mechanism; ..."¹⁰¹² No further information in this regard was disclosed by Dr Cross.

7.27 According to Australia, Dr Cross's alleged connection to the New Zealand Government results from his "research projects and publications with researchers from HortResearch New Zealand." As a matter of fact, HortResearch is wholly owned by the New Zealand Government.¹⁰¹³ However, participation in joint research with other scientists who may be affiliated with a government-funded institution does not itself imply a connection with that Government. There is no indication that Dr Cross has worked for the Government of New Zealand, nor that he has received any monetary compensation from that Government. The extent of his collaboration with

¹⁰⁰⁸ Rules of Conduct for the Understanding on Rules and Procedures Governing the Settlement of Disputes (WT/DSB/RC/1), 11 December 1996, Annex 2.

¹⁰⁰⁹ Rules of Conduct for the Understanding on Rules and Procedures Governing the Settlement of Disputes (WT/DSB/RC/1), 11 December 1996, Section VI.1(a).

¹⁰¹⁰ Electronic communication from the Panel to Dr Jerry Cross, 16 December 2008.

¹⁰¹¹ Electronic communication from Dr Jerry Cross, 28 November 2008. See Panel's communication to the Parties, 5 December 2008, whereby this information was sent to the Parties, together with the curriculum vitae of Dr Jerry Cross.

¹⁰¹² Electronic communication from Dr Jerry Cross to the Panel, 16 December 2008.

¹⁰¹³ "HortResearch was formed on 1 July 1992 as one of nine Crown Research Institutes established from several Government departments. [HortResearch is] wholly Government-owned but [earns] revenue through commercial sources (currently about 40 percent) and from a Government funding process where [HortResearch obtains] funding through a competitive investment process in association with other Crown Research Institutes, universities and agencies." Source: <http://www.hortresearch.co.nz/>, consulted on 26 November 2009.

New Zealand scientists at HortResearch and the fact that he did not have "any jointly funded research projects" with these scientists was disclosed by Dr Cross, when initially approached by the Panel.¹⁰¹⁴

7.28 Australia does not submit any additional arguments, nor any specific evidence for the alleged connection of Dr Cross with the New Zealand Government. In the light of the Illustrative List of the *Rules of Conduct* cited above, there is no indication that Dr Cross has any financial, business or property interests "relevant to the dispute in question", nor that he has any professional, other active, employment or family interests in the dispute, under paragraphs (a), (b), (c) and (e) of that List.

7.29 Australia's objection to the selection of Dr Cross, is based on the argument that Dr Cross's "joint research projects and publications with researchers from HortResearch New Zealand" constitute a connection to the New Zealand Government and New Zealand researchers. In this respect, Australia refers only to "a joint publication with Suckling *et al.*, published in 2007" which corresponds to the article submitted by New Zealand as Exhibit NZ-15.¹⁰¹⁵ In Australia's view, this joint publication "indicates a very recent connection [of Dr Cross] with relevant New Zealand researchers, whose work is primarily targeted at facilitating access for New Zealand apples to export markets".¹⁰¹⁶

7.30 The Suckling *et al.* (2007) paper was published in June 2007¹⁰¹⁷, prior to the establishment of the Panel. The paper acknowledges that its research, including Dr Cross's costs of travelling to New Zealand, was supported by Pipfruit NZ Inc. and a contract from New Zealand's foundation for Research Science and Technology to HortResearch.¹⁰¹⁸ The paper addresses the potential of mass trapping as a means to control ALCM.

7.31 As stated by the Appellate Body, when selecting experts, panels must consider "whether there is an objective basis to conclude that an expert's independence or impartiality is likely to be affected or there are justifiable doubts about that expert's independence or impartiality."¹⁰¹⁹ The standard for selecting experts aims at ensuring the fairness and impartiality of the experts' consultation in conformity with due process. The lack of independence and/or impartiality will prejudice the parties' right to a fair proceeding.

7.32 A panel is responsible for ensuring that the selected experts have the necessary qualifications and expertise, and comply with the requirements for independence, impartiality and avoidance of conflicts of interest. Conversely, it is not enough for a party to simply assert an objection regarding the selection of a particular expert. Any party raising such an objection is expected to explain in what manner the expert's independence or impartiality have been or may be compromised.

7.33 It is to be expected that in any specialized area of science, the few knowledgeable experts will frequently engage with each other and may participate in joint research projects, in meetings and conferences, and joint publications. Participation in "joint research projects and publications" are an indication of the qualifications and specialized scientific expertise that, in accordance with its

¹⁰¹⁴ Electronic communication from Dr Jerry Cross, 28 November 2008. See Panel's communication to the Parties, 5 December 2008, whereby this information was sent to the Parties, together with the *curriculum vitae* of Dr Jerry Cross.

¹⁰¹⁵ Suckling DM, JTS Walker, PW Shaw, L-A Manning, P Lo, R Wallis, V Bell, WRM Sandanayaka, DR Hall, JV Cross & AM El-Sayed (2007), "Trapping *Dasineura mali* (Diptera: Cecidomyiidae) in Apples", *Journal of Economic Entomology* 100(3), in Exhibit NZ-15.

¹⁰¹⁶ Australia's communication to the Panel, 9 December 2008.

¹⁰¹⁷ See, <http://www.entsoc.org/Pubs/Periodicals/JEE/index.htm>. This is the website of the journal in which the article was published.

¹⁰¹⁸ Suckling DM, JTS Walker, PW Shaw, L-A Manning, P Lo, R Wallis, V Bell, WRM Sandanayaka, DR Hall, JV Cross & AM El-Sayed (2007), "Trapping *Dasineura mali* (Diptera: Cecidomyiidae) in Apples", *Journal of Economic Entomology* 100(3), in Exhibit NZ-15, p. 750.

¹⁰¹⁹ Appellate Body Report on *Canada – Continued Suspension*, para. 454.

Working Procedures, the Panel was to use as a basis to select scientific experts. *Per se*, this fact is not enough to call into question a researcher's independence and impartiality, nor is it necessarily evidence of a connection with the government of a party. Nor is the fact that some of those "joint research projects and publications" may be funded or supported by institutions associated with the government of a Member. This is particularly true, when, as this Panel's considerable difficulty in identifying experts clearly demonstrates, there is a very small number of experts in the field in question. In such a situation it is all the more likely that "all of the world's experts" will work and collaborate in some way at one time or another. Moreover, the fact that a scientific project or publication is funded by a private organization or a governmental institution is not in itself a reason to call into question the results of the research.

7.34 As noted above, the Panel is responsible of enforcing in its proceedings the standards of independence and impartiality contained in the Rules of Conduct for the DSU. Notwithstanding this fact, in the present case, as the party making an objection to the selection of an expert proposed by the Panel, it was Australia's burden to make the case that Dr Cross's participation in a joint research project and publication with researchers from HortResearch New Zealand would call into question Dr Cross's independence and impartiality, or create actual or potential, direct or indirect, conflicts of interest. In the absence of any explanation or evidence from Australia in this regard, the Panel finds no facts to support the conclusion that Dr Cross's participation in the research that led to the publication of the Suckling *et al.* (2007) paper, raises doubts regarding his independence and impartiality or his capacity to provide expert advice to this Panel.

7.35 When originally consulted by the Panel on the draft questions to the experts, Australia objected to two questions being posed to Dr Cross on the flight range of ALCM, arguing that this may create a potential conflict of interest, as he would be asked to comment on his own work.¹⁰²⁰ Ultimately, the Panel decided to pose both questions. After having received the experts' responses and having held its meeting with the experts and the Parties, the Panel asked Australia its views on how the Panel should consider Dr Cross's answers. In response, Australia considered that Dr Cross did not give "undue weight or importance to his own work on the issue of flight distance, to the detriment of other material available or alternative views on the matter."¹⁰²¹ Indeed, in its subsequent submissions Australia used responses given by Dr Cross to the questions to which Australia had previously objected, to support its arguments.¹⁰²² In other words, there was only one instance where Australia had articulated a specific objection that called into question whether Dr Cross was sufficiently impartial and, ultimately, Australia did not maintain its objection and noted that the expert provided his response in an unbiased manner.

7.36 In *US/Canada – Continued Suspension*, the Appellate Body confirmed the "significant investigative authority" of panels under Article 13 of the DSU and Article 11.2 of the SPS Agreement and the broad discretion of panels in exercising this authority.¹⁰²³ As noted in the previous section on Australia's objections to the selection of a sole expert on ALCM, the Panel faced significant difficulties in selecting experts on ALCM, despite the assistance received from the IPPC, the CICA and the Parties. Having considered the qualifications and conflict of interest statements of Dr Jerry Cross, the Panel found no reasons that would have prevented it from seeking the scientific advice of Dr Cross. In particular, nothing in the objection raised by Australia gave any indication of real or perceived conflicts of interest or any other situation that would have affected Dr Cross's independence and impartiality. As in the case of the other experts, the responses provided by Dr Cross to questions posed by the Panel and the Parties have been extremely rigorous and helpful, for which the Panel is sincerely grateful.

¹⁰²⁰ Australia's communication to the Panel, 19 December 2008, pp. 70 and 76.

¹⁰²¹ Australia's reply to Panel question 28 after the second substantive meeting.

¹⁰²² See, for example, Australia's second written submission, paras. 616, 670-671 and 673.

¹⁰²³ Appellate Body Report on *Canada – Continued Suspension*, para. 439.

3. Consultation of experts

(a) Concerns expressed by Australia

7.37 In accordance with its Working Procedures, the Panel prepared its questions to experts in consultation with the Parties.¹⁰²⁴ As noted in its timetable, on 15 December 2008, the Panel informed the Parties of its proposed questions to the experts. The Parties submitted their comments on the proposed questions on 19 December 2008.¹⁰²⁵ In its communication, Australia made extensive comments on the proposed questions. In addition to numerous specific comments on the Panel's proposed questions to experts, Australia identified a number of more general concerns, namely that in its view some of the proposed questions:

- "Appear to be leading", i.e., they may suggest an answer;
- Address issues that were not raised by New Zealand, including issues raised only in the United States' third party submission;
- Use inconsistent terminology or do not strictly follow the text of the obligations in the SPS Agreement;
- Include "selective, incomplete or potentially misleading" references to Parties' submissions; or, on the contrary,
- Include references to Parties' submissions that go beyond what is necessary for the experts to perform their role.¹⁰²⁶

Additionally, Australia noted that the Panel should ensure that it does not delegate to experts questions on which it is the Panel's responsibility to decide and that the Panel should allocate the questions which experts should respond to, based on the experts' relevant areas of expertise.¹⁰²⁷

7.38 Having revised the proposed questions in the light of the Parties' comments, on 16 January 2009 the Panel sent the final version of the questions to the experts, copied to the Parties. The Panel received written replies from the experts on 9 March and relayed these replies to the Parties on 10 March. On 25 March 2009, the Parties submitted their comments on the experts' responses. In its comments on the experts' responses, Australia raised the following two concerns: that a number of the Panel's questions go to matters that require specialist knowledge which none of the experts selected by the Panel would have; and, that in some of their responses experts provide additional information that does not fall within the scope of the Panel's questions and should only be considered as background information. Australia also noted two concerns that in its view relate to the observance of due process in the expert phase of the dispute, namely that Australia had not been given an opportunity to comment on several questions that were put to the experts and either had not appeared in the draft questions originally provided to the Parties or were substantially modified from the draft; and that, in answering the questions, some of the experts moved outside the field of expertise for which each was selected.

7.39 In its second written submission on 21 April 2009, Australia argues that the Panel addressed "some, but not all," of the "due process concerns" regarding the proposed questions to the experts that

¹⁰²⁴ Working Procedures, 26 March 2008, attached as Annex A-3 to this report, para. 17(f).

¹⁰²⁵ New Zealand's and Australia's communications to the Panel, 19 December 2008.

¹⁰²⁶ Australia's communication to the Panel, 19 December 2008.

¹⁰²⁷ *Ibid.*

were expressed in Australia's letter of 19 December 2008.¹⁰²⁸ Although Australia does not explicitly say so, presumably these specific "due process concerns" were addressed by the Panel when it drafted the revised version of its questions to the experts. The concerns that would have been addressed in the revised draft questions include Australia's allegation that some questions were "leading", used inconsistent terminology, or included "selective, incomplete and potentially misleading" paragraph references, and Australia's request to limit the references to Parties' submissions in the questions. The Panel reaches this conclusion because these specific concerns were not raised again by Australia when the Panel asked Australia to clarify the nature of its due process concerns at the second substantive meeting with the Parties and in its written questions to Australia after the second meeting. In the second written submission, Australia also refers to its "additional due process concern" that the Panel allegedly posed questions to the experts that either did not appear in the draft questions originally provided to the Parties or were substantially modified from the draft.¹⁰²⁹

7.40 Accordingly, the Panel will address the following concerns expressed by Australia:

- That the Panel posed questions to the experts that either did not appear in the draft questions originally provided to the Parties or were substantially modified from the draft;
- That the Panel should have limited its questions to issues raised by New Zealand and should not consider issues raised in Third Parties' submissions or additional information provided by the experts; and,
- That experts should not express opinions outside of the field of expertise for which each was selected.

(b) Whether the Panel posed new questions to experts or modified questions from the draft provided to Parties and whether such new questions affect due process

7.41 As noted above, Australia submits that due process has been affected as the Panel posed several questions to the experts that did not appear in the draft list of questions provided to the Parties on 15 December 2008 for their comments. Australia adds that "[o]ther questions were modified or amended which substantially altered the nature of the original questions."¹⁰³⁰ Australia adds that it "was not given an opportunity to comment in any of these instances".¹⁰³¹

7.42 After the second substantive meeting with the Parties, the Panel asked Australia to clarify the nature of its due process concerns expressed in its comments on the experts' replies to questions. With respect to the specific issue of "new" questions, Australia answered that:

"In paragraph 16 [of its comments on the experts' replies], Australia noted the following concerns:

[S]everal new questions were put to the experts which did not appear in the draft questions provided to the parties for comment. Other questions were modified or amended which substantially altered the nature of the original questions. Australia was not given an opportunity to comment in any of these instances.

¹⁰²⁸ Australia's second written submission, para. 56.

¹⁰²⁹ Australia's second written submission, para. 57.

¹⁰³⁰ Australia's comments on the experts' replies to questions, Australia's communication to the Panel, 25 March 2009, para. 16.

¹⁰³¹ *Ibid.*

The following questions to the experts did not appear in the proposed list of questions sent for comment to the parties: Questions 17, 21, 23, 36, 37, 89 and 121. Australia has already addressed Questions 21, 89 and 121 ... as questions that addressed matters outside the experts' fields of expertise. Australia maintains its position that the Panel, as a matter of due process, should have given it an opportunity to comment on new questions put to the experts which did not appear in the draft questions."¹⁰³²

7.43 Australia had originally referred to both "new questions" and "modified or amended" questions. When asked by the Panel to clarify its due process concern it referred to questions that Australia identified as "questions [that] did not appear in the proposed list of questions sent for comment to the parties", i.e., "new questions" 17, 21, 23, 36, 37, 89 and 121.¹⁰³³ In response to another question from the Panel, Australia also expressed concerns regarding modifications made by the Panel to questions 19, 20 and 27, as a result of comments from New Zealand.¹⁰³⁴

7.44 Australia added that questions 17, 23 and 36 had been proposed by New Zealand, but Australia's position had not been prejudiced by the content of these questions and, accordingly, it had no difficulty with answers by experts to these three questions being drawn upon by the Panel.¹⁰³⁵

7.45 As set out above, in response to the Panel's questions after the second substantive meeting with the Parties, Australia clarified that its concern with questions 21, 89 and 121 is that they allegedly address issues outside of the experts' respective fields of expertise. As a starting point, the Panel notes that none of these questions was truly a "new" question. Question 121 was in the draft list of questions provided to the Parties on 15 December 2008. It relates to the issue of whether it was reasonable to assume that Australia would permit packing houses to leave waste exposed to the elements.¹⁰³⁶ The draft question referred in this regard to paragraph 4.420 of New Zealand's first written submission, paragraphs 898-900 of Australia's first written submission and to Australia's reply to Panel question 100 after the first substantive meeting. In response to the Panel's questions after the second substantive meeting with the Parties, Australia recognizes that draft question 121 was reformulated: "[t]he revised question was also asked as Question 21 under fire blight and Question 89 under European canker."¹⁰³⁷ As a matter of fact, questions 21, 89 and 121 are mere reformulations of draft question 121, referring to the issue of whether it was reasonable for the IRA to assume that Australia would permit packing houses to leave waste exposed to the elements, in respect to the risk assessment for fire blight, European canker and ALCM, respectively. Questions 21, 89 and 121 modified or amended draft question 121 only by posing the same question separately for each of the three pests at issue and by incorporating a reference to relevant sections in Australia's IRA and to a few additional paragraphs in the Parties' submissions, mostly contiguous to those already included in the original references in draft question 121. Therefore, questions 21, 89 and 121 were not "new" questions.

7.46 As regards question 37, Australia raises two objections. First, that the question did not appear in the draft sent to the Parties and therefore Australia was deprived of an opportunity to comment.¹⁰³⁸ Second, that, since Australia did not have the opportunity to comment, question 37 ultimately followed language proposed by New Zealand that limited the scope of the question to "experimental evidence obtained in orchard conditions"¹⁰³⁹, and Australia did not have the opportunity to comment

¹⁰³² Australia's reply to Panel question 20 after the second substantive meeting, paras. 84-85.

¹⁰³³ Australia's reply to Panel question 20 after the second substantive meeting, para. 85.

¹⁰³⁴ Australia's reply to Panel question 22 after the second substantive meeting, para. 128.

¹⁰³⁵ Australia's reply to Panel question 20 after the second substantive meeting, para. 86.

¹⁰³⁶ Proposed questions for experts, Panel's communication to the Parties, 15 December 2008, question 121.

¹⁰³⁷ Australia's reply to Panel question 20 after the second substantive meeting, para. 76.

¹⁰³⁸ Australia's reply to Panel question 20 after the second substantive meeting, para. 85.

¹⁰³⁹ Australia's reply to Panel question 22 after the second substantive meeting, para. 129.

on this issue.¹⁰⁴⁰ Australia states that, by framing the question in this manner, the Panel allowed New Zealand to limit the scope of the question to conform with New Zealand's narrow view of applicable science linked to experimental evidence obtained in orchard conditions and prevented the experts from commenting on the full range of relevant scientific evidence. Australia was not given an opportunity to comment on this approach until the experts had answered these questions. The answers were on the record by then.¹⁰⁴¹ Finally, Australia argued that, as a result of comments from New Zealand, the Panel modified questions 19, 20 and 27, again limiting the questions to natural conditions, without permitting New Zealand an opportunity to comment.¹⁰⁴²

7.47 In response to Australia's arguments, New Zealand asserts that, when asked by the Panel to clarify the nature of its due process concerns after the second substantive meeting, Australia did not contend that due process had been infringed with respect to the "new questions".¹⁰⁴³ New Zealand adds that the Parties had the opportunity to comment on the Panel's draft questions and asserts that Australia provided extensive comments that were taken into account by the Panel.¹⁰⁴⁴ In New Zealand's view, the Panel was entitled to draft additional questions without further consultation with the Parties and Australia subsequently had the opportunity to comment on any substantive matter arising from the experts' responses to these "new questions".¹⁰⁴⁵

7.48 Regarding the alleged limited scope of some of the Panel's questions, New Zealand considers that the experts were not prevented by the Panel's questions from "comment[ing] on the full range of relevant scientific evidence".¹⁰⁴⁶ New Zealand asserts that the experts' responses demonstrate the consideration of laboratory evidence.¹⁰⁴⁷ It also notes that Australia took advantage of "the opportunity to comment on the issue of the scientific evidence considered by the experts" in Australia's comments on the experts' responses and in the meeting with the experts.¹⁰⁴⁸

7.49 In question 37, the Panel asked the experts for their opinion on the following:

"Does the IRA contain an objective and credible analysis, based on respected and qualified scientific sources, for a proposition that the introduction of fire blight via mature apple fruit has ever occurred or could occur, either experimentally or under natural conditions or that populations of *E. amylovora* on mature apple fruit could be the source of fire blight infections under natural conditions? Are you aware of any scientific evidence outside of the IRA for such a proposition?"

7.50 The question posed by the Panel followed two questions that were suggested by New Zealand in its comments on the Panel's proposed questions: "Are you aware of any scientific evidence either in the IRA or otherwise that the introduction of fire blight via mature fruit has ever occurred or could occur, either experimentally or under natural conditions?" and "Are you aware of any scientific

¹⁰⁴⁰ Australia's reply to Panel question 22 after the second substantive meeting, para. 129.

¹⁰⁴¹ *Ibid.* See also, Australia's comments on the experts' replies to questions, communication from Australia to the Panel, 25 March 2009, para. 85.

¹⁰⁴² Australia's reply to Panel question 22 after the second substantive meeting, para. 128.

¹⁰⁴³ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, para. 44.

¹⁰⁴⁴ New Zealand's comment on Australia's reply to Panel question 26 after the second substantive meeting, para. 33.

¹⁰⁴⁵ *Ibid.*

¹⁰⁴⁶ New Zealand's comments on Australia's reply to Panel question 22 after the second substantive meeting, paras. 61 and 64.

¹⁰⁴⁷ New Zealand's comments on Australia's reply to Panel question 22 after the second substantive meeting, para. 64.

¹⁰⁴⁸ New Zealand's comments on Australia's reply to Panel question 22 after the second substantive meeting, para. 62.

evidence that populations of *E. amylovora* on mature apple fruit could be the source of fire blight infections under natural conditions?"¹⁰⁴⁹

7.51 In turn, questions 19, 20 and 27 asked the experts for their opinion on the following:

Question 19: "Please comment on whether there is sound scientific evidence that epiphytic infestations by *E. amylovora* exist on mature apple fruit in quantities that are under natural conditions capable of reproduction; being transferred to a host plant; and ultimately initiating an infection in that host plant?"

Question 20: "Please comment on whether the requirements identified in Australia's IRA, regarding disinfection treatment of apples in the packing house and the disinfecting of packing house equipment before each Australian packing run, are scientifically justified and reasonable? Are you aware of any reliable scientific evidence of *E. amylovora* from harvested apples contaminating packing house equipment? If so, would such bacteria survive the packing house process? Are you aware of any reliable scientific evidence of mechanical transfer in a natural environment of *E. amylovora* from workers' hands to susceptible hosts?"

Question 27: "Please comment on whether the reasoning in Australia's IRA regarding the number of *E. amylovora* bacteria isolated from, and reported on, mature apple fruit that would be sufficient to spread to a susceptible host and initiate an infection under natural (as opposed to laboratory) conditions. Is this evaluation objective and credible? Is it based on respected and qualified scientific sources?"

7.52 Under Articles 13.1 of the DSU and 11.2 of the SPS Agreement, a panel has a broad right to seek information and technical advice from scientific experts. Indeed, under Article 11.2 of the SPS Agreement, a panel engaged in dispute settlement proceedings involving scientific or technical issues under that agreement should "seek advice from experts chosen by the panel in consultation with the parties to the dispute". Expert consultation is part of the broad right of a panel "to seek information and technical advice from any individual or body which it deems appropriate" and to "seek information from any relevant source" and "consult experts to obtain their opinion on certain aspects of the matter" under Article 13 of the DSU. Ultimately, the purpose of expert consultation is to allow a panel to exercise its duty to "make an objective assessment of the matter before it", pursuant to Article 11 of the DSU.

7.53 As stated by the Appellate Body in *US – Shrimp*:

"[T]he DSU accords to a panel established by the DSB, and engaged in a dispute settlement proceeding, ample and extensive authority to undertake and to control the process by which it informs itself both of the relevant facts of the dispute and of the legal norms and principles applicable to such facts. That authority, and the breadth thereof, is indispensably necessary to enable a panel to discharge its duty imposed by Article 11 of the DSU to 'make an objective assessment of the matter before it, including an *objective assessment of the facts of the case* and the *applicability of and conformity with the relevant covered agreements*' (emphasis added)"¹⁰⁵⁰

7.54 As noted above, in the *US/Canada – Continued Suspension* dispute, the Appellate Body confirmed the "significant investigative authority" of panels under Article 13 of the DSU and

¹⁰⁴⁹ New Zealand's comments on proposed questions for experts, New Zealand's communication to the Panel, 19 December 2008, pp. 8-9.

¹⁰⁵⁰ Appellate Body Report on *US – Shrimp*, para. 106.

Article 11.2 of the SPS Agreement and the broad discretion of panels in exercising this authority, including through expert consultation.¹⁰⁵¹

7.55 Paragraph 17(f) of the Working Procedures for the Panel, adopted by the Panel on 26 March 2008, provides that "[t]he Panel will prepare written questions for the experts. Parties will have the opportunity to comment on the proposed questions, or suggest additional ones, before the Panel decides on the final questions to be sent to the experts."¹⁰⁵²

7.56 The timetable adopted by the Panel on 8 April 2008 contemplated that Parties would receive the Panel's proposed list of experts and questions on 22 October 2008, would have five working days until 29 October to submit comments to the Panel and that the Panel would in turn send the questions to experts five working days later.

7.57 In accordance with Articles 12.1 and 12.3 of the DSU, both the Working Procedures and the timetable were drawn up by the Panel after having consulted the Parties. While the Working Procedures granted Parties the right to comment on the draft questions proposed by the Panel and suggest additional questions, the Panel was ultimately responsible for deciding on the final form of the questions that it would pose to the experts.

7.58 No provision was made in the Working Procedures, or in the timetable, allowing either Party the opportunity to comment on questions proposed by the other Party. Nor do the Working Procedures require the Panel to send its revised questions back to the Parties, allowing them a second opportunity for commenting. The practice of granting parties an opportunity to comment on proposed questions and to suggest additional ones has been followed by previous panels that have consulted scientific experts.¹⁰⁵³

7.59 In accordance with the Working Procedures adopted by the Panel, both New Zealand and Australia made comments on the Panel's proposed questions to the experts and suggested additional questions. The comments made by the two Parties were numerous, extensive and not always easy to reconcile. Indeed, the comments received from the Parties were so extensive that on 23 December 2008 the Panel informed the Parties that it would not be in a position to send the questions to experts before the end of the year, as intended. Questions were ultimately sent to experts on 16 January 2009.

7.60 The Parties were aware that, under the Panel's Working Procedures and timetable, they had one opportunity to suggest new questions for the experts to the Panel. Nothing prevented any of the Parties, however, from requesting that the Panel amend its procedures and timetable to allow for an additional round of consultations. Before the Panel finalized and sent its questions to the experts neither Party requested the opportunity to comment on the revised version of the questions, or on the questions suggested by the other Party. In particular, no such request was formulated either when the Panel's Working Procedures and timetable were drawn up, nor at the moment when Parties submitted their respective comments on the proposed questions on 19 December 2008, or after they received a copy of each other's comments on the proposed questions in the period before the questions were sent to the experts. It was only on 25 March 2009, two weeks after the Parties had received the experts' responses from the Panel, that Australia raised for the first time its concern regarding the Panel's posing of "new questions" or "modified questions".

¹⁰⁵¹ Appellate Body Report on *Canada – Continued Suspension*, para. 439.

¹⁰⁵² Working Procedures, 26 March 2008, attached as Annex A-3 to this report, para. 17(f).

¹⁰⁵³ See, for example, Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.26; Panel Report on *Japan – Apples*, para. 6.2; Panel Report on *Australia – Salmon*, para. 6.4; Panel Report on *Japan – Agricultural Products II*, para. 6.2.

7.61 The Panel found no reason to propose *ex officio* an extra step of consultations, particularly since the proceedings had already suffered delays for a number of other reasons. Furthermore, had the Panel allowed for a second round of comments, presumably a Party could still complain that any questions modified or amended in the light of such comments would also need to be consulted on, with the risk of engaging in a circular process of consultations. Because there was no provision that a Party would have an opportunity to comment on questions to experts suggested by the other Party or on modifications made by the Panel as a result of comments from the other Party, as a matter of fact Australia could not have been deprived of such an opportunity by the Panel. Accordingly, there is no evidence that due process has been affected in this respect.

7.62 Nor is due process affected by the content of questions 19, 20, 27 and 37, and namely the focus on "experimental evidence obtained in orchard conditions". Under the Panel's Working Procedures, the Panel was ultimately responsible for deciding on the final form of the questions that it would pose to the experts. Moreover, it is factually incorrect for Australia to assert that question 37 limited the scope of the enquiry to evidence obtained under orchard conditions.¹⁰⁵⁴ Indeed, the first part of the question refers to the possible introduction of fire blight via mature apple fruit "either experimentally or under natural conditions".

7.63 Even assuming that question 37, as well as questions 19, 20 and 27, focused on evidence obtained under orchard conditions, as opposed to evidence obtained in the laboratory, and that this limited the scope of the question in a manner advantageous to New Zealand, there is no evidence that this would have prejudiced Australia's position.

7.64 In the Panel's view, the language of questions 19, 20, 27 and 37 was appropriate in the light of the relevant reasoning of the IRA. As was generally the case, in this question, the Panel asked the experts to initially focus on the reasoning contained in Australia's IRA. The Panel also asked the experts to share their views on whether the IRA's analysis was based "on respected and qualified scientific sources".

7.65 Australia enjoyed ample opportunities to comment on the responses received from the experts, and even to pose questions to the experts with a different focus, if it wished to. In accordance with the Panel's Working Procedures and timetable, Parties first had the opportunity to submit comments on 25 March 2009 on the experts' responses, and then on 9 April on each other's comments on the responses. Parties then had the opportunity to comment again on the issues raised by the experts' responses in their rebuttal submissions due on 21 April. Parties were later able to pose questions orally to the experts on occasion of the meeting with the Panel on 30 June. Indeed, after Australia raised the argument that it was important to focus, not only on evidence obtained in natural conditions, but also on evidence obtained in the laboratory, the Panel posed this specific question to the experts during the meeting with the Parties on 30 June.¹⁰⁵⁵

7.66 There is no indication that in the original written questions posed on 16 January 2009, the experts were prevented "from commenting on the full range of relevant scientific evidence", including evidence obtained under laboratory conditions. The Guidelines for Experts provided in the Panel's questions of 16 January 2009, direct the experts to Australia's IRA and the scientific evidence provided by the Parties, as well as any additional relevant scientific evidence; no limitation is made to a specific type of evidence, obtained either under natural or experimental conditions. Indeed, there

¹⁰⁵⁴ Australia's reply to Panel question 22 after the second substantive meeting, paras. 112-133.

¹⁰⁵⁵ Transcript of the Panel's meeting with experts, paras. 170-172.

are plenty of references in the experts' responses on the specific issue of fire blight to evidence obtained under laboratory conditions.¹⁰⁵⁶

7.67 In sum, the Panel finds that there is no evidence to support Australia's assertion that posing questions 19, 20, 27 and 37 to the experts has prejudiced Australia's position in these proceedings. When, as in the present case, each party is allowed to pose its own questions, to comment on responses received from the experts and to pose subsequent questions to the experts in a meeting with the panel, parties' respective position in the proceedings and due process are initially not prejudiced by the specific formulation of a question posed by a panel to the experts.

(c) Whether the Panel should be prevented from considering issues raised in Third Parties' submissions or additional information provided by the experts

7.68 In its comments on the proposed questions to experts, Australia asserted that "[a] number of proposed questions address issues which New Zealand has not raised".¹⁰⁵⁷ According to Australia, some of the proposed questions "address issues raised solely in the United States' third party submission".¹⁰⁵⁸ In its response to the Panel's questions after the second substantive meeting, Australia reiterated this concern: "as third parties are not parties to the dispute, their submissions cannot constitute evidence and argument that can be used by either party to make the case for it. Nor by the same reasoning can third party submissions provide a basis for questions to be put to the experts."¹⁰⁵⁹

7.69 In response to the Panel's questions after the second substantive meeting with the Parties, Australia identified the following written questions posed by the Panel to the experts on 16 January 2009 as including references to the United States Third Party submission: 20, 25, 29, 33, 41, 88, 125, 129, 132 and 138.¹⁰⁶⁰ Looking at the individual questions and answers, however, Australia indicated that it was only concerned by questions 33, 88, 125, 129 and 132. With respect to these five questions, Australia requested the Panel to disregard in full the responses provided by the experts, "in order to ensure that New Zealand's case should not inappropriately benefit from the responses on issues which it has not raised or substantiated itself".¹⁰⁶¹

7.70 Australia also argues that, because it is up to the complaining party to make its prima facie case of inconsistency, "[e]xpert testimony may not be used as 'evidence' for a claim which either has not been raised by a party or where that claim has been inadequately substantiated with evidence by the relevant party."¹⁰⁶²

7.71 In response to Australia's concern, New Zealand rejects the proposition that a panel cannot draw on third party submissions in posing questions to the scientific experts. In New Zealand's view:

"[T]hird parties have a right to provide argument and evidence on all of the issues that fall within the Panel's terms of reference. The views of the third parties can be considered, discussed, approved of, supported, or disagreed with by the Parties and the Panel. This includes testing what the third parties have said by reference to the

¹⁰⁵⁶ See, for example, Dr Paulin's reply to Panel questions 6, 27, 28, 34, 38, 39, 40 and 42, in List of Replies from the scientific experts to questions posed by the Panel, paras. 49, 191, 205, 238, 255-257, 259-260, 262-263 and 272-273.

¹⁰⁵⁷ Australia's communication to the Panel, 19 December 2008, p. 4, fourth bullet point from the list.

¹⁰⁵⁸ Australia's communication to the Panel, 19 December 2008, p. 4, fifth bullet point from the list.

¹⁰⁵⁹ Australia's reply to Panel question 21 after the second substantive meeting, para. 98.

¹⁰⁶⁰ Australia's reply to Panel question 21 after the second substantive meeting, para. 99.

¹⁰⁶¹ Australia's reply to Panel question 21 after the second substantive meeting, paras. 106-107 and 109-110.

¹⁰⁶² Australia's reply to Panel question 5 after the second substantive meeting, para. 30.

advice of experts. This is fully consistent with the Panel's duty to undertake an objective assessment of the matter, and with ensuring that the right of third parties to have a meaningful role in dispute settlement is preserved."¹⁰⁶³

7.72 New Zealand adds that, in any event, it has properly raised and substantiated all the claims objected to by Australia.¹⁰⁶⁴

7.73 Australia's concerns regarding the Panel's use of information provided by the experts or in Third Party submissions has been framed in connection with the process of expert consultation. Australia argues that New Zealand did not substantiate some of its claims and subsequently attempted to use information provided by the experts or by the Third Parties to cure that deficiency. Australia also argues that the Panel cannot rely on the experts' responses to questions involving Third Party submissions, since it was New Zealand's task to substantiate its claims.

7.74 As noted above when considering Australia's concerns regarding the alleged "new questions", the process of expert consultation is ultimately related to a panel seeking information and technical advice so as to fulfil its duty to "make an objective assessment of the matter before it", pursuant to Article 11 of the DSU. In turn, the "matter" before a panel consists of the claims made in connection with specific measures identified by the complainant, as both claims and measures are reflected in the respective panel's terms of reference.¹⁰⁶⁵

7.75 It is the complaining party's burden to express the nature of its claims in the panel request, by providing a brief summary of the legal basis of its complaint that is sufficient to present the problem clearly. The complainant must identify the provisions in the covered agreements that, in its view, are being breached by the offending measures.¹⁰⁶⁶ Once a claim is properly included within a panel's terms of reference, it is again the burden of the complainant to articulate its claim by providing arguments and evidence necessary to make a prima facie case of inconsistency.¹⁰⁶⁷

7.76 In any event, once a claim is properly put before a panel and the complaining party has submitted its arguments and articulated its complaint, the panel has broad powers of investigation in order to make an objective assessment of the matter. At that point, a panel is not limited by the arguments made by the parties to a dispute; it may develop its own arguments, and it can certainly consider the arguments made by third parties. Australia's proposition that a panel is precluded from considering information put forward by a third party is contrary to the panel's duty to make an objective assessment of the matter. It would also constitute a breach of the rights granted under the DSU to third parties in WTO dispute settlement. Article 10.2 of the DSU provides that third parties "shall have an opportunity to be heard by the panel and to make written submissions to the panel". The Appellate Body has noted in this respect that, not only have third parties the right to make submissions in a dispute, but panels have the legal obligation to consider them. In the words of the Appellate Body:

"[U]nder the DSU, only Members who are parties to a dispute, or who have notified their interest in becoming third parties in such a dispute to the DSB, have a *legal right* to make submissions to, and have a *legal right* to have those submissions considered by, a panel. Correlatively, a panel is *obliged* in law to accept and give due

¹⁰⁶³ New Zealand's comment on Australia's response to Panel question 21 after the second substantive meeting, para. 55.

¹⁰⁶⁴ New Zealand's comment on Australia's response to Panel question 21 after the second substantive meeting, para. 56.

¹⁰⁶⁵ See, for example, Appellate Body Report on *Guatemala – Cement I*, para. 72.

¹⁰⁶⁶ See, for example, Appellate Body Report on *Korea – Dairy*, para. 139.

¹⁰⁶⁷ Appellate Body Report on *Chile – Price Band System*, para. 173.

consideration only to submissions made by the parties and the third parties in a panel proceeding."¹⁰⁶⁸

7.77 In other words, the rights of a third party to make submissions to a panel and the duty of a panel to take into account relevant information provided by a third party in its submission are two sides of the same coin. If panels were prevented from considering information provided by a third party, including arguments and evidence, then third party rights under the DSU would be illusory.

7.78 As noted above, under the Panel's Working Procedures, the Panel was ultimately responsible for deciding on the questions that it would pose to the experts. Nothing prevented the Panel from using information, including arguments and evidence, provided in the submission of a Third Party. Nothing would subsequently prevent the Panel from using such information for the purpose of performing its objective assessment of the matter. Nor would the Panel be prevented from using information provided by the experts in response to the Panel's questions, or in response to questions posed by the Parties themselves during the meeting with the experts, as long as this information is relevant to the matter that is within the Panel's terms of reference.

7.79 As regards questions 33, 88, 125, 129 and 132 to the experts, Australia has not argued that any of these questions were outside of the terms of reference of the Panel. Australia has not alleged that the questions did not relate to claims made by New Zealand that the challenged measures were in breach of specific provisions of the SPS Agreement. Question 33, for example, relates to "importation step 7" in the risk assessment for fire blight. The consistency of the IRA's reasoning with regard to fire blight with the provisions of the SPS Agreement cited by New Zealand is clearly within the Panel's terms of reference.

7.80 Furthermore, Australia's argument would in practice preclude parties from developing their arguments after their respective first written submission. Australia has explicitly contended this. In its first written submission, for example, Australia suggests that, because New Zealand had already identified a number of alleged methodological flaws in Australia's IRA, "New Zealand should not be permitted to expand its claims beyond these so-called 'flaws' at a later time in these proceedings"¹⁰⁶⁹ or that because "New Zealand has not made a claim concerning the effects of brushing, waxing, sorting and grading and packaging as considered by the IRA ... [it] should not be permitted to expand its claims in relation to these issues at a later stage of proceedings".¹⁰⁷⁰ Australia's argument in this regard blurs the distinction developed by the Appellate Body between claims and arguments. As noted by the Appellate Body:

"[T]here is a significant difference between the *claims* identified in the request for the establishment of a panel, which establish the panel's terms of reference under Article 7 of the DSU, and the *arguments* supporting those claims, which are set out and progressively clarified in the first written submissions, the rebuttal submissions and the first and second panel meetings with the parties."¹⁰⁷¹

7.81 In other words, if a claim was properly put by New Zealand before the Panel, and New Zealand had submitted its arguments and articulated its complaint, nothing prevents New Zealand from developing those arguments in the course of the proceedings and referring, if it wishes to do so, to information provided in Third Party submissions or in the responses provided by the scientific experts. There are two limitations in this regard. First, the Panel is precluded from

¹⁰⁶⁸ Appellate Body Report on *US – Shrimp*, para. 101 (original emphasis; footnote omitted).

¹⁰⁶⁹ Australia's first written submission, para. 288.

¹⁰⁷⁰ Australia's first written submission, para. 420. See also, Australia's first written submission, paras. 528, 611, 725, 883, 904 and 906.

¹⁰⁷¹ Appellate Body Report on *EC – Bananas III*, para. 141 (original emphasis).

considering issues that fall outside the terms of reference approved by the DSB. Second, Australia must be granted the right to respond to any arguments made by the complainant and to provide its own counter arguments and relevant evidence. Of course, the burden is still on New Zealand, as the complainant, to develop its *prima facie* case that the challenged measures are in breach of Australia's obligations under the relevant provisions of the covered agreements. With respect to this last point, there is an important limitation of a panel's "significant investigative authority", which the Appellate Body has explained as follows:

"[T]his authority cannot be used by a panel to rule in favour of a complaining party which has not established a *prima facie* case of inconsistency based on specific legal claims asserted by it. A panel is entitled to seek information and advice from experts and from any other relevant source it chooses, pursuant to Article 13 of the DSU and, in an SPS case, Article 11.2 of the *SPS Agreement*, to help it to understand and evaluate the evidence submitted and the arguments made by the parties, but not to make the case for a complaining party."¹⁰⁷²

7.82 In conclusion, to the extent that a specific issue raised by a Third Party was properly within the Panel's terms of reference, and that New Zealand had submitted its arguments and articulated its complaint with respect of the specific claim, the Panel rejects Australia's proposition that it was prevented from addressing that issue in the written questions posed to the experts. To the same extent, the Panel also rejects Australia's proposition that it is prevented from considering information provided by the scientific experts in response to the Panel's questions. The Panel finds no evidence that due process has been negatively affected for any of these two reasons.

(d) Whether the Panel should disregard opinions expressed by the scientific experts outside of the field of expertise for which they were selected

7.83 Australia asserts that some of the written questions that were put to the experts by the Panel on 16 January 2009 would have required specialist expertise and experience in areas other than the respective expertise of the selected experts.¹⁰⁷³ In response to the Panel's questions to the Parties after the second substantive meeting, Australia identified the following questions posed by the Panel as being outside of the field of expertise for which each of the experts was selected: 4, 5, 21, 66, 67, 89 and 121.¹⁰⁷⁴

7.84 According to Australia, questions 4 and 5 relate to Australia's quarantine practices, an area in which none of the experts selected had expertise.¹⁰⁷⁵ Australia requests that the responses to questions 4 and 5 "should not be drawn on to the extent [the experts] express a view on Australia's quarantine practices."¹⁰⁷⁶

7.85 Australia argues that questions 21, 89 and 121 assume that the experts have "expertise in the waste management practices of Australian packing houses". Australia adds however, that it has no objection to the answers to questions 21 and 121, because the respective experts expressed no opinion on the handling of waste apples at Australian packing houses.¹⁰⁷⁷ Australia objects to the experts' responses on question 89, asserting that the respective experts had based their replies "on speculation about the waste management practices of Australian packing houses".¹⁰⁷⁸

¹⁰⁷² Appellate Body Report on *Japan – Agricultural Products II*, para. 129.

¹⁰⁷³ Australia's comments on the experts' replies, para. 13.

¹⁰⁷⁴ Australia's reply to Panel question 20 after the second substantive meeting, para. 72.

¹⁰⁷⁵ Australia's reply to Panel question 20 after the second substantive meeting, para. 74.

¹⁰⁷⁶ Australia's reply to Panel question 20 after the second substantive meeting, para. 75.

¹⁰⁷⁷ Australia's reply to Panel question 20 after the second substantive meeting, paras. 77 and 80.

¹⁰⁷⁸ Australia's reply to Panel question 20 after the second substantive meeting, paras. 78-79.

7.86 Finally, Australia argues that questions 66 and 67 require special expertise in climatic conditions in Australia and New Zealand, respectively.¹⁰⁷⁹ Australia requests that the Panel not draw on the experts' responses expressing a view on the Parties' climatic conditions.¹⁰⁸⁰

7.87 As a related argument, Australia adds that, because of the lack of guidance provided by the Panel in the Guidelines for Experts dated 16 January 2009, in their responses some of the experts moved beyond the area of expertise for which each had been selected.¹⁰⁸¹ Recalling the ruling of the Appellate Body in the *US/Canada – Continued Suspension* dispute, Australia suggests that the Panel improperly gave experts "wide latitude" by failing to request that they answer questions only in the field of expertise for which they were selected and, consequently, there was a lack of fairness in the consultation process.¹⁰⁸² Accordingly, Australia requests that the Panel refrain from drawing "in its report on the responses to those questions where [the experts] go to matters outside [their respective] fields of expertise."¹⁰⁸³

7.88 New Zealand rejects Australia's argument that the experts responded to questions in areas where they lacked specific expertise. According to New Zealand, in answering questions 4 and 5, experts were not required to draw on specific knowledge of Australia's quarantine systems, but were rather asked to base their responses on the IRA and the Parties' arguments.¹⁰⁸⁴ New Zealand notes additionally that Australia did not object to question 67 (draft question 64) when it was originally proposed by the Panel.¹⁰⁸⁵ In New Zealand's view, in their responses to questions 66 and 67 the experts limited themselves to expressing their views on the treatment of climate in the IRA and to assisting the Panel in evaluating evidence brought before the Panel, both functions being within the legitimate role of experts.¹⁰⁸⁶

7.89 New Zealand adds that question 89, like questions 21 and 121, focused on the "'IRA's consideration' of the issue of waste management practices". In other words, experts were being asked to assist the Panel in understanding evidence brought before it, which again is a legitimate role of experts.¹⁰⁸⁷

7.90 Finally, New Zealand considers that there is no basis for Australia's analogy regarding the present case and the reasoning of the Appellate Body on the "wide latitude" accorded to experts in the *US/Canada – Continued Suspension* dispute. The *US/Canada – Continued Suspension* dispute concerned:

"[T]he fact that the experts were not limited in their answers to assisting the panel to understand the ... JECFA risk assessment (which they had helped draft) but rather were asked to respond to questions about the adequacy of the EC's risk assessment

¹⁰⁷⁹ Australia's reply to Panel question 20 after the second substantive meeting, paras. 81-83.

¹⁰⁸⁰ Australia's reply to Panel question 20 after the second substantive meeting, paras. 82-83.

¹⁰⁸¹ Australia's comments on the experts' replies to questions, Australia's communication to the Panel, 25 March 2009, para. 17. See also, Australia's reply to Panel question 20 after the second substantive meeting, para. 90.

¹⁰⁸² Australia's reply to Panel question 20 after the second substantive meeting, paras. 91-92.

¹⁰⁸³ Australia's reply to Panel question 20 after the second substantive meeting, para. 92.

¹⁰⁸⁴ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, para. 40.

¹⁰⁸⁵ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, para. 42.

¹⁰⁸⁶ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, para. 43.

¹⁰⁸⁷ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, para. 41.

(which was directly critical of the JECFA risk assessment).¹⁰⁸⁸ This raised justifiable doubts as to the independence and impartiality of the two experts' replies to these questions and, therefore, gave rise to a due process concern".¹⁰⁸⁹

New Zealand submits that, in the present case, Australia has not raised concerns about the independence and impartiality of the experts, and the issue is rather whether the experts should have been prevented from answering questions which they felt competent to answer.¹⁰⁹⁰

7.91 The common element of Australia's concerns in relation to this point refers to the competence of the scientific experts selected by the Panel to respond to specific questions posed by the Panel and whether the experts may have exceeded their specific expertise in some of their responses.

7.92 The Panel recalls its broad authority, under the DSU and the Working Procedures, to decide on the final form of the questions that it would pose to the experts.¹⁰⁹¹ In each case, questions are related to Australia's IRA and to evidence brought before the Panel, with the objective of seeking the experts assistance to gain a better understanding of the scientific basis and the reasoning contained in Australia's IRA.

7.93 Questions 4 and 5, for example, request the experts to base their responses "on the relevant parts of Australia's IRA, and Parties' arguments" in order to help understand Australia's practice in audits and inspections with regard to the three pests at issue, namely fire blight, European canker and ALCM. The questions refer specifically to measures identified by the IRA. In their respective responses to questions 4 and 5, Dr Paulin, Dr Schrader and Dr Swinburne explicitly reference Australia's IRA or evidence provided by Australia.¹⁰⁹² In other words, both questions focus on the IRA and not on Australia's quarantine practices generally.

7.94 As regards questions 21, 89 and 121, Australia objected to a similar question in the list of proposed questions to experts (draft question 121) on the grounds that "none of the experts have been appointed for any expertise in *Australia's fruit fly management practices* and therefore may have difficulty answering this question".¹⁰⁹³ In response to the Panel's questions to the Parties after the second substantive meeting, Australia argues that draft question 121 was reformulated so as "to ask about the risk associated with waste being left exposed at Australian packing houses, 'taking into account the likelihood of this situation occurring in packing houses in Australia'. ... The revised question was also asked as Question 21 under fire blight and Question 89 under European canker."¹⁰⁹⁴ Although Australia refers to questions 21, 89 and 121 as "new questions", in fact as the Panel has already noted they are mere reformulations of draft question 121.¹⁰⁹⁵ Australia argues that questions 21, 89 and 121 assumed that the experts had "expertise in the waste management practices of Australian packing houses". Australia adds that, in any event, the respective experts had expressed no opinion on the handling of waste apples at Australian packing houses, so Australia had no objection to their answers on questions 21 and 121.¹⁰⁹⁶ Australia objected to the experts' responses to question 89, asserting that in this case the respective experts had based their replies "on speculation about the

¹⁰⁸⁸ (footnote original) Appellate Body Report, *Canada – Continued Suspension*, paras. 461-463.

¹⁰⁸⁹ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, paras. 46-51.

¹⁰⁹⁰ New Zealand's comments on Australia's reply to Panel question 20 after the second substantive meeting, para. 52.

¹⁰⁹¹ See paras. 7.55 and 7.57 above.

¹⁰⁹² Dr Paulin's, Dr Schrader's and Dr Swinburne's replies to Panel questions 4 and 5, in List of Replies from the scientific experts to questions posed by the Panel, paras. 34-36, 41-42 and 43.

¹⁰⁹³ Australia's communication to the Panel, 19 December 2008, p. 87 (emphasis added).

¹⁰⁹⁴ Australia's reply to Panel question 20 after the second substantive meeting, para. 76.

¹⁰⁹⁵ See para. 7.45 above.

¹⁰⁹⁶ Australia's reply to Panel question 20 after the second substantive meeting, paras. 77 and 80.

waste management practices of Australian packing houses".¹⁰⁹⁷ The question refers to "the consideration in Australia's IRA of the risk associated with the practice of packing houses leaving orchard wholesaler waste uncovered and exposed to the elements ... taking into account the likelihood of this situation occurring in packing houses in Australia." The main focus of the question, again, is on the evidence and the reasoning contained in Australia's IRA. As noted above, Australia ultimately did not maintain its objection to questions 21 and 121. With respect to question 89, in the light of Australia's objection, the Panel will disregard the experts' responses.

7.95 Contrary to Australia's contention, questions 66 and 67 do not require special expertise in climatic conditions in Australia and New Zealand. The main focus of both questions is rather the climatic conditions required for the entry, establishment and spread of European canker. Question 66 asks for the experts' assistance to help the Panel analyse whether the scientific research relating to European canker relied upon by Australia's IRA is relevant to climatic conditions in Australia and to the risks of *N. galligena* associated with apples from New Zealand. Question 67 focuses on whether Australia's IRA provides a coherent and analysis of conidia and ascospore production and dispersal in the light of climatic conditions in New Zealand's apple-growing regions during harvest time. For the purpose of responding to both questions, experts were referred to arguments and evidence advanced by the Parties.

7.96 In conclusion, there is no evidence that questions 4, 5, 66 or 67 were inappropriately formulated by the Panel. None of these questions required scientific experts to go beyond the field of expertise for which each one was selected. Each of these questions relates to issues that are essential for the Panel to understand the scientific basis underlying Australia's IRA, and whether the reasoning articulated in the IRA on the basis of the scientific evidence is coherent and objective. As for question 89, in the light of Australia's objection, the Panel will disregard the experts' responses.

7.97 An additional point relates to whether the Panel failed to provide adequate guidance to the experts when posing its written questions on 16 January 2009 and improperly allowed them "wide latitude" in their responses. Australia notes that in its comments on the draft list of questions provided to the Parties on 15 December 2008, it suggested that the Panel instruct experts to "answer only questions in the field in relation to which [each was] appointed by the Panel (i.e. *Erwinia amylovora*, *Neonectria galligena*, *Dasineura mali* or pest risk analysis)" and "within [each one's] appointed field, [to] only answer questions on which [each had] direct expertise".¹⁰⁹⁸ The Panel did not consider that such modified guidance was appropriate. Instead, when posing written questions to the experts on 16 January 2009, the Panel instructed them to "answer only those questions that [they felt] competent to answer".

7.98 The fact that the Panel has recognized and selected an individual expert for his or her specialized knowledge in a particular area does not mean that this expert's advice cannot also be useful to the Panel in other related areas. The qualifications and expertise of the scientific experts selected by the Panel demonstrate a strong specialization in specific areas for which they were selected, but also show that their respective areas of expertise are not necessarily limited to those specific areas.¹⁰⁹⁹ For example, Dr Jerry Cross is also specialized in "Pest Management and spray application of fruit and other crops" and has thirty years of relevant experience.¹¹⁰⁰ According to their *curricula vitae*, Dr Deckers and Dr Paulin have extensively published on fire blight and both Parties

¹⁰⁹⁷ Australia's reply to Panel question 20 after the second substantive meeting, paras. 78-79.

¹⁰⁹⁸ Australia's communication to the Panel, 19 December 2008, p. 2-4. See also, Australia's comments on the experts' replies to questions, Australia's communication to the Panel, 25 March 2009, para. 17.

¹⁰⁹⁹ Panel's communication to the Parties, 5 December 2008, whereby the Panel sent a set of documents detailing experts' *curricula vitae*.

¹¹⁰⁰ Curriculum of Dr Jerry Cross, page 3, in Panel's communication to the Parties, 5 December 2008.

acknowledged their strong expertise.¹¹⁰¹ At the same time, these three experts could also provide useful advice on a number of questions related to risk assessment and give an opinion on questions involving related issues.

7.99 The Panel is satisfied that it had the benefit of receiving the advice of seven individual scientific experts, with high qualifications and expertise. In the absence of any specific concerns that would suggest otherwise, the Panel felt that it should leave it to each expert to respond to the questions they felt competent to answer. There was no reason to exclude *a priori* the possibility that one expert could provide important information on a question originally devised for another area. In the Panel's view, from a procedural perspective, the most important factor to bear in mind was that Parties be granted the opportunity to comment on the experts' responses and to pose their own questions to the experts. In accordance with the Working Procedures and the timetable, Parties had ample opportunities for this.

7.100 Whether in practice any of the experts provided views that went beyond the expert's field of expertise is something that can only be considered on a case-by-case basis, in the light of the specific response. There is no reason for the Panel to disregard *a priori* the responses of any expert. In any event, regardless of the discretion allowed to the experts, the Panel is not bound by the views of the scientific experts it has selected. Ultimately, it is the responsibility of the Panel – and not of the experts – to conduct an objective assessment of the matter.

7.101 In conclusion, there is no indication that the Panel posed questions to the experts that would have required specialist expertise and experience in areas outside of their respective expertise, nor that the Panel should reject *a priori* the responses provided by any of the experts on the grounds that the expert expressed views outside the area of expertise for which he or she was appointed.

4. General conclusion on Australia's concerns regarding the process of selection and consultation of experts

7.102 In conclusion, and for the reasons stated above, the Panel finds no evidence that the process of selecting and consulting experts was conducted improperly, that due process in the experts consultation phase of these proceedings was compromised, nor that Australia's procedural rights were in any manner negatively affected in this regard.

B. WHETHER THE MEASURES IDENTIFIED BY NEW ZEALAND ARE CHALLENGEABLE UNDER THE SPS AGREEMENT

1. Summary of the Parties' arguments

7.103 In its first written submission New Zealand challenges, "individually and as a whole", each of the measures identified in its panel request.¹¹⁰² It asks the Panel to rule separately on each measure¹¹⁰³ in line with the *Japan – Apples (Article 21.5 – US)* dispute¹¹⁰⁴, and because a failure to do so would not fully resolve the current dispute.¹¹⁰⁵ New Zealand argues that the specific measures identified in its panel request are SPS measures that "affect international trade" within the meaning of Article 1.1 of the SPS Agreement, and serve the purposes enshrined in subparagraphs 1(a) and (d) of Annex A of

¹¹⁰¹ Australia's and New Zealand's 's communications to the Panel, 20 November 2008.

¹¹⁰² New Zealand's first written submission, para. 3.89.

¹¹⁰³ New Zealand's first written submission, para. 3.92.

¹¹⁰⁴ New Zealand's first written submission, paras. 3.90-3.91.

¹¹⁰⁵ New Zealand's first written submission, para. 3.92.

the Agreement.¹¹⁰⁶ Also, New Zealand adds, any apple imports from New Zealand to Australia depend on compliance with "each and every measure ... in the IRA."¹¹⁰⁷

7.104 Australia responds that "New Zealand has not established that all measures are challengeable under the relevant provisions of the SPS Agreement."¹¹⁰⁸ This is an "important threshold issue"¹¹⁰⁹, and "the onus is on New Zealand to establish that each of the measures challenged, *individually and as a whole*, meets the definition of 'SPS measure'."¹¹¹⁰

7.105 Australia argues that potential trade impact is not relevant for defining an SPS measure.¹¹¹¹ Rather, "the definition ... in Annex A(1) is purpose-driven"¹¹¹²: an SPS measure must seek to protect against specific categories of risk.¹¹¹³ Australia submits that a measure that is "applied: to protect" against SPS risks, as required by the definition in Annex A(1), must be a measure that aims to reduce those risks.¹¹¹⁴ In this context, some of the measures are only ancillary, in that they merely "support, verify and operationalise" other, principal measures.¹¹¹⁵ Namely, as regards fire blight, Measures 3, 4 and 8 are ancillary to Measures 1, 2 and 5 taken together, and Measure 7 is ancillary to Measure 6, with the principal measures (Measures 1, 2, 5 and 6) constituting a "systems approach".¹¹¹⁶ For European canker, Measure 11 is ancillary to Measures 9, 10 and 13 taken together. Finally, Measure 14 on ALCM is a principal measure, while the three general measures (Measures 15-17) are all ancillary measures.¹¹¹⁷

7.106 Australia acknowledges that on its face the definition of SPS measures in Annex A(1) of the SPS Agreement does not create a distinction between principal and ancillary measures. Yet, such a distinction is implicit from reading that definition together with the non-appealed panel report in *US - Export Restraints*.¹¹¹⁸ Based on that report, the question is "whether each measure operates in its own right", that is "whether each measure constitute[s] an instrument with a functional life of its own."¹¹¹⁹ According to Annex A(1) of the SPS Agreement, SPS measures are those which are "applied: to protect" against particular categories of SPS risks.¹¹²⁰ Also, Australia considers that various ISPMs implicitly distinguish measures intended to actively reduce risks, from verification measures that are not.¹¹²¹

7.107 Australia concludes that its ancillary measures "cannot be challenged on an individual basis"; but only "when 'taken together' (or 'as a whole') with the [relevant] principal risk management measures."¹¹²² Australia contends that these arguments do not raise systemic concerns since the

¹¹⁰⁶ New Zealand's first written submission, para. 3.87. See also New Zealand's reply to Panel question 13 after the first substantive meeting, paras. 22-26.

¹¹⁰⁷ New Zealand's first written submission, para. 3.89.

¹¹⁰⁸ Australia's first written submission, paras. 130-131.

¹¹⁰⁹ Australia's second written submission, para. 62.

¹¹¹⁰ Australia's first written submission, para. 131 (original emphasis; footnote omitted).

¹¹¹¹ Australia's second written submission, para. 72.

¹¹¹² Australia's second written submission, para. 67.

¹¹¹³ Australia's closing oral statement at the first substantive meeting of the Panel with the Parties, para. 8.

¹¹¹⁴ Australia's second written submission, para. 68.

¹¹¹⁵ Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 23.

¹¹¹⁶ Australia's first written submission, paras. 139-140.

¹¹¹⁷ Australia's reply to Panel questions after the first substantive meeting, Annex A.

¹¹¹⁸ Australia's reply to Panel question 23 after the first substantive meeting.

¹¹¹⁹ Australia's first written submission, paras. 136-137 quoting *US - Export Restraints*, para. 8.85.

¹¹²⁰ Australia's reply to Panel question 14 after the first substantive meeting.

¹¹²¹ Australia's reply to Panel question 24 after the first substantive meeting, and Annex B.

¹¹²² Australia's first written submission, para. 146. See also *ibid.*, paras. 141 and 144; Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 23.

distinction between principal and ancillary measures does not undermine the ability of all measures to be properly disciplined, and would not permit Australia to avoid compliance.¹¹²³ In fact, Australia "acknowledge[s] that the Panel may make findings under the SPS Agreement in respect of all of the measures at issue (but not all of them *individually*)."¹¹²⁴ Australia does not dispute that all of the measures at issue may be challengeable in WTO dispute settlement, but argues that whether they are SPS measures is a different question. In its view, New Zealand was free to make allegations under other WTO provisions in addition to claims under the SPS Agreement, as previous complainants in SPS disputes have done.¹¹²⁵

7.108 In response, New Zealand argues that Australia's distinction between principal and ancillary measures is "spurious"¹¹²⁶; it serves only "to avoid scrutiny [of the ancillary measures] under Articles 2.2 and 5.1" of the SPS Agreement¹¹²⁷, which would be inconsistent with the object and purpose of the Agreement.¹¹²⁸ The distinction would also allow Members to bypass their obligations under the SPS Agreement by combining broad SPS-compliant measures with non-complying ancillary measures.¹¹²⁹

7.109 New Zealand recognizes the close relationship between some of the measures, and that "some may even be characterised as supporting, verifying or operationalising other measures."¹¹³⁰ But the key point is that "all of the measures are aimed in some way at protecting against alleged SPS risks"¹¹³¹; each of them "operates in a concrete way in its own right."¹¹³² The allegedly ancillary requirements are separate from the relevant principal requirements, they are enforced separately in time, and entail additional burdens.¹¹³³

7.110 According to New Zealand, under Article 1 of the SPS Agreement, all SPS measures that affect international trade are challengeable under the SPS Agreement.¹¹³⁴ The wording of Annex A(1) of the Agreement does not distinguish principal and ancillary measures, or require that SPS measures "actively" reduce risks.¹¹³⁵ Rather, the definition applies to "any" measure applied to protect against risks.¹¹³⁶ Also, Australia's reliance on *US – Export Restraints* is "misplaced" because that case is limited to the SCM Agreement.¹¹³⁷ In any event, "the *US – Export Restraints* case ... cannot ... override the clear definition of SPS measures in the SPS Agreement."¹¹³⁸

7.111 New Zealand adds that the distinction between ancillary and principal measures is "confusing and unworkable."¹¹³⁹ Some of the allegedly ancillary measures actively contribute to risk reduction,

¹¹²³ Australia's second written submission, paras. 75-76.

¹¹²⁴ Australia's second written submission, para. 75 (original emphasis).

¹¹²⁵ Australia's second written submission, para. 76.

¹¹²⁶ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 29.

¹¹²⁷ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 31.

¹¹²⁸ New Zealand's second written submission, para. 2.7.

¹¹²⁹ New Zealand's reply to Panel question 22 after the first substantive meeting, para. 30.

¹¹³⁰ New Zealand's second written submission, para. 2.11.

¹¹³¹ *Ibid.*

¹¹³² New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 30.

¹¹³³ New Zealand's second written submission, para. 2.9.

¹¹³⁴ New Zealand's reply to Panel question 13 after the first substantive meeting, paras. 22-24.

¹¹³⁵ New Zealand's second written submission, para. 2.5.

¹¹³⁶ *Ibid.*

¹¹³⁷ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, paras. 29-30.

¹¹³⁸ New Zealand's second written submission, para. 2.8.

¹¹³⁹ New Zealand's second written submission, 2.4.

and the experts disagree on the categorization of the measures.¹¹⁴⁰ Also, the examples in the definition of SPS measures under Annex A(1) include "testing, inspection, certification and approval proceedings", which are the very kind of measures that Australia identifies as ancillary.¹¹⁴¹

7.112 Finally, New Zealand questions the need for distinguishing principal and ancillary measures, since Australia agrees that the Panel may evaluate the consistency of all allegedly ancillary measures when taken together with the relevant principal measure(s).¹¹⁴² According to New Zealand, even if some of the measures at issue were treated as part of a broader SPS measure, "this does not prevent the Panel from making specific findings on each of the individual elements, as was the approach taken by the [p]anel in *Japan – Apples* (21.5)."¹¹⁴³

2. The Panel's analysis

7.113 At the outset of its analysis, the Panel recalls that New Zealand's panel request claims that "the ... measures [at issue] are inconsistent with Australia's obligations under [nine provisions] of the SPS Agreement."¹¹⁴⁴ Reviewing the consistency of this panel request with Article 6.2 of the DSU, the Panel in its preliminary ruling endorsed the understanding that New Zealand has claimed that every measure at issue is inconsistent with each of the nine provisions mentioned in the panel request.¹¹⁴⁵

7.114 As shown by the summary of the Parties' arguments, neither Party contests that the 16 measures at issue in this dispute (Measures 1-11 and 13-17) constitute measures reviewable in WTO dispute settlement.¹¹⁴⁶ But whether the 16 measures constitute SPS measures is a different matter. As the panel in *EC – Approval and Marketing of Biotech Products* stated, "not every measure that qualifies as a measure within the meaning of the DSU constitutes, *ipso facto*, an SPS measure."¹¹⁴⁷

7.115 The Parties agree that the 16 measures can be reviewed as a whole under the SPS Agreement.¹¹⁴⁸ But New Zealand also claims a violation of the relevant SPS provisions by each of the 16 measures individually, which Australia contests. Therefore, the question before the Panel is whether individually each of the 16 measures is an SPS measure, or rather whether some of them are ancillary measures and can only be reviewed under the SPS Agreement jointly with other, principal measures.

7.116 The Parties agree that this is a legal issue to be reviewed in the light of Annex A(1) of the SPS Agreement¹¹⁴⁹, which contains the "legal definition of the term 'SPS measure'.¹¹⁵⁰ New Zealand

¹¹⁴⁰ New Zealand's second written submission, para. 2.14.

¹¹⁴¹ New Zealand's second written submission, para. 2.6.

¹¹⁴² New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 16.

¹¹⁴³ New Zealand's comments on Australia's reply to Panel questions 17 and 18 after the second substantive meeting, para. 32.

¹¹⁴⁴ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

¹¹⁴⁵ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, p. 3.

¹¹⁴⁶ See, in particular, Australia's second written submission, paras. 75-76. For the identification of the measures, see para. 2.91 above.

¹¹⁴⁷ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1333.

¹¹⁴⁸ New Zealand's first written submission, para. 3.89; and Australia's second written submission, para. 75.

¹¹⁴⁹ New Zealand's second written submission, para. 2.16; and Australia's comments on the experts' replies, para. 295.

argues that each of the 16 measures fulfils the purposes set out in subparagraphs 1(a) and (d) of Annex A of the SPS Agreement.¹¹⁵¹ In relevant part, Annex A(1) defines "[s]anitary or phytosanitary measure" as:

"[a]ny measure applied:

(a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;

... or

(d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.

Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety."

7.117 The *EC – Approval and Marketing of Biotech Products* panel identified three elements in Annex A(1) of the SPS Agreement:

"Annex A(1) indicates that for the purposes of determining whether a particular measure constitutes an 'SPS measure' regard must be had to such elements as the purpose of the measure, its legal form and its nature. The purpose element is addressed in Annex A(1)(a) through (d) ('any measure applied to'). The form element is referred to in the second paragraph of Annex A(1) ('laws, decrees, regulations'). Finally, the nature of measures qualifying as SPS measures is also addressed in the second paragraph of Annex A(1) ('requirements and procedures, including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; [etc.]')."¹¹⁵²

7.118 The Panel agrees that purpose, as set out in subparagraphs (a)-(d), is an essential criterion for assessing whether a measure amounts to an SPS measure under Annex A(1). In the light of New Zealand's arguments and the approach of the *EC – Approval and Marketing of Biotech Products* panel¹¹⁵³, this Panel will identify the purpose of the 16 measures and assess whether they correspond to subparagraphs (a) or (d) of Annex A(1) of the SPS Agreement.

7.119 The Panel also agrees that the form and nature of alleged SPS measures are relevant for assessing whether the measures fall within the definition in Annex A(1). But, for reasons specified below, this Panel has a slightly different reading of how these two elements (form and nature) are

¹¹⁵⁰ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.148.

¹¹⁵¹ New Zealand's first written submission, para. 3.87. See also New Zealand's reply to Panel question 13 after the first substantive meeting, para. 23.

¹¹⁵² Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.149. See also *ibid.*, para. 7.1334; and Panel Report on *Canada – Continued Suspension*, para. 7.420; and Panel Report on *US – Continued Suspension*, para. 7.429.

¹¹⁵³ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.196 *et seq.*

reflected in Annex A(1) than the reading adopted by the *EC – Approval and Marketing of Biotech Products* panel.

7.120 Before analysing the purpose, and the form and nature of the 16 measures, the Panel points out that effect on trade is not relevant for assessing whether a measure qualifies as an SPS measure under Annex A(1). As the *Japan – Apples* panel held, "the definition in Annex A, paragraph 1, does not consider the trade effect of a given measure as a factor to determine whether such a measure is or is not a phytosanitary measure."¹¹⁵⁴ Rather, effect on trade is relevant for assessing whether the SPS Agreement applies to what has already been determined an SPS measure. As the *EC – Hormones* panels stated, "[a]ccording to Article 1.1 of the SPS Agreement, two requirements need to be fulfilled for the SPS Agreement to apply: (i) the measure in dispute is a sanitary or phytosanitary measure¹¹⁵⁵; and (ii) the measure in dispute may, directly or indirectly, affect international trade."^{1156, 1157}

7.121 This concept of effect on trade has been interpreted broadly. According to the *EC – Approval and Marketing of Biotech Products* panel, to be subject to the disciplines of the SPS Agreement, "[i]t is not necessary to demonstrate that an SPS measure has an actual effect on trade. Article 1.1 merely requires that an SPS measure 'may, directly or indirectly, affect international trade'."¹¹⁵⁸

7.122 Clearly, the 16 measures satisfy this criterion of actual or potential effect on international trade, both individually and as a whole. The Parties agree that the 16 measures are spelt out in the IRA.¹¹⁵⁹ As quoted in New Zealand's panel request, Australia's *Biosecurity Australia Policy Memorandum 2007/07* links the importation of New Zealand apples to the application of the measures specified in the IRA.¹¹⁶⁰ New Zealand argues and Australia acknowledges that compliance with all of the 16 measures is a precondition for allowing the importation of apples from New Zealand; lack of compliance with any of the measures may lead to the suspension of apple imports to Australia from New Zealand.¹¹⁶¹

(a) The purpose of the 16 measures

7.123 As indicated earlier, the Panel will assess the purpose of the 16 measures and verify whether they correspond to subparagraphs (a) or (d) of Annex A(1) of the SPS Agreement, which define "[s]anitary or phytosanitary measure".

7.124 The Parties agree that all 16 measures are set out in the IRA. The IRA is an integral component of Australia's biosecurity regime. The IRA explains that the legislative basis for this regime is found in "the *Quarantine Act 1908* and its subordinate legislation, including the *Quarantine*

¹¹⁵⁴ Panel Report on *Japan – Apples*, para. 8.24.

¹¹⁵⁵ (*footnote original*) As defined in Paragraph 1 of Annex A of the SPS Agreement, quoted and discussed in paras. 8.21 and 8.22.

¹¹⁵⁶ (*footnote original*) See para. 8.23.

¹¹⁵⁷ Panel Report on *EC – Hormones (US)*, para. 8.36, and Panel Report on *EC – Hormones (Canada)*, para. 8.39.

¹¹⁵⁸ Panel Report on *Approval and Marketing of EC – Biotech Products*, para. 7.435. See also Panel Report on *Approval and Marketing of EC – Biotech Products*, para. 7.2607; Panel Report on *EC – Hormones (US)*, para. 8.23; and Panel Report on *EC – Hormones (Canada)*, para. 8.26.

¹¹⁵⁹ New Zealand's reply to Panel question 13 after the first substantive meeting, para. 25, and para. 2.97 above.

¹¹⁶⁰ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1. See, *Biosecurity Australia Policy Memorandum 2007/07*, in Exhibit NZ-2.

¹¹⁶¹ New Zealand's reply to Panel question 21 after the first substantive meeting, para. 27; New Zealand's second written submission, 2.9; and Australia's reply to Panel question 16 after the first substantive meeting.

Proclamation 1998, [which] are the legislative basis of human, animal and plant quarantine in Australia."¹¹⁶² The IRA cites "[s]ome key provisions"¹¹⁶³, the first one being:

"Subsection 4 (1) of the *Quarantine Act 1908*[, which] defines the scope of quarantine as follows:

In this Act, quarantine includes, but is not limited to, measures

(a) for, or in relation to:

- (i) the examination, exclusion, detention, observation, segregation, isolation, protection, treatment and regulation of vessels, installations, human beings, animals, plants or other goods or things; or
- (ii) the seizure and destruction of animals, plants, or other goods or things; or
- (iii) the destruction of premises comprising buildings or other structures when treatment of these premises is not practicable; *and*

(b) *having as their object the prevention or control of the introduction, establishment and spread of diseases or pests that will or could cause significant damage to human beings, animals, plants, other aspects of the environment or economic activities.*"¹¹⁶⁴

7.125 The Quarantine Proclamation is the principal legal instrument to control importation to Australia of goods of quarantine (or biosecurity) interest. Under this proclamation, the Director of Animal and Plant Quarantine is empowered to grant an import permit based on, among other things, the information and policy recommendations in an import risk analysis.¹¹⁶⁵ The IRA indicates that its purpose is to deliver a policy recommendation to the Director of Animal and Plant Quarantine.¹¹⁶⁶

7.126 The IRA and *Biosecurity Australia Policy Memorandum 2007/07* explain that the IRA was prepared on the basis of the *Import Risk Analysis Handbook* (2003).¹¹⁶⁷ In turn, the *Import Risk Analysis Handbook* (2003) defines the "objective of Australian biosecurity policies" as "the prevention or control of the entry, establishment or spread of pests and diseases that will or could cause significant damage to human beings, animals, plants, other aspects of the environment, or economic activities."¹¹⁶⁸

¹¹⁶² Australia's IRA, Part B, p. 1. See also, Australia's first written submission, para. 55; Australia's second written submission, para. 210.

¹¹⁶³ Australia's IRA, Part B, p. 1.

¹¹⁶⁴ *Ibid.* (footnote omitted; emphasis added).

¹¹⁶⁵ Australia's IRA, Part B, p. 2. See also, Australia's first written submission, para. 61.

¹¹⁶⁶ Australia's IRA, Part B, p. 2. See also, Australia's first written submission, paras. 62 and 64.

¹¹⁶⁷ "This final report has been prepared as part of the IRA process as set out in the *Import Risk Analysis Handbook* (BA, 2003)." Australia's IRA, Part A, p. 3. "In response to applications from the New Zealand Government, Biosecurity Australia has completed an import risk analysis (IRA) in accordance with the provisions of the *Import Risk Analysis Handbook*." *Biosecurity Australia Policy Memorandum 2007/07*, in Exhibit NZ-2, p. 1. See also, Australia's first written submission, para. 65.

¹¹⁶⁸ *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 5; *Biosecurity Australia Policy Memorandum 2007/07*, in Exhibit NZ-2.

7.127 Likewise, a specific part of the IRA, entitled "Risk management and sanitary and phytosanitary (SPS) measures"¹¹⁶⁹ provides that the purpose of the measures is to protect the health of people, animals and plants: "Australia's plant and animal health status is maintained through the implementation of measures to facilitate the importation of products while protecting the health of people, animals and plants."¹¹⁷⁰

7.128 The same part of the IRA makes specific reference to the "appropriate level of protection from pests and diseases."¹¹⁷¹ Further, the IRA describes import risk analysis as follows: "In animal and plant biosecurity, IRA identifies the pests and diseases relevant to an import proposal, assesses the risks posed by them and, if those risks are unacceptable, specifies what measures should be taken to reduce those risks to an acceptable level."¹¹⁷²

7.129 Since the 16 measures are spelt out in the IRA, each of them pursues the above general objectives. The next question is whether these objectives correspond to either of those spelt out under subparagraphs (a) or (d) of Annex A(1) of the SPS Agreement.

(i) *Subparagraph (a)*

7.130 The purpose set out in subparagraph (a) of Annex A(1) of the SPS Agreement is "to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms." The Panel will consider whether the 16 measures, considering the IRA's general objectives identified above, satisfy the various terms and phrases included in subparagraph (a).¹¹⁷³

7.131 The first element of subparagraph (a) is "to protect animal or plant life or health". The IRA and its basis, the *Import Risk Assessment Handbook* (2003), explicitly refer to the objective of "protecting the health of ... animals and plants."¹¹⁷⁴ Since subparagraph (a) links the words "life" and "health" with the word "or", the purpose of the IRA – and the 16 measures spelt out therein – satisfy the first element of subparagraph (a).¹¹⁷⁵

7.132 The second element of subparagraph (a) is "within the territory of the Member". The IRA – and the 16 measures spelt out therein – satisfy this element, too. As indicated above, the 16 measures apply to apple imports from New Zealand to the entire territory of Australia.¹¹⁷⁶ Also, both the IRA and the *Import Risk Assessment Handbook* (2003) mention "Australia's plant and animal health status" in the context of risk management and SPS measures.¹¹⁷⁷ As noted in the IRA, "[t]he import risk analysis (IRA) process is an important part of Australia's biosecurity policies. It enables the Australian Government to consider formally the risks that could be associated with proposals to import new products into Australia."¹¹⁷⁸

7.133 The third and final element of subparagraph (a) is "risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms". The EC –

¹¹⁶⁹ Australia's IRA, Part B, p. 5.

¹¹⁷⁰ *Ibid.* See also *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 5.

¹¹⁷¹ Australia's IRA, Part B, p. 5.

¹¹⁷² *Ibid.* See also, *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 8.

¹¹⁷³ Panel Report on *EC – Approval and Marketing of Biotech Products*, paras. 7.213 *et seq.*

¹¹⁷⁴ Australia's IRA, Part B, p. 5. See also, *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 5.

¹¹⁷⁵ See also, Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.239.

¹¹⁷⁶ See para. 2.232 above.

¹¹⁷⁷ Australia's IRA, Part B, p. 5; and *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 5 (emphasis added).

¹¹⁷⁸ Australia's IRA, Part A, p. 3.

Approval and Marketing of Biotech Products panel found that the phrase "risks arising from" is "broad and unqualified"¹¹⁷⁹, in that:

"There is nothing in Annex A(1)(a) which indicates that potential risks to animal or plant life or health must necessarily be the direct or immediate result of, e.g., the spread of a pest. ... We therefore do not consider that measures taken to protect animal or plant life or health from risks that arise indirectly or in the longer term from pests, diseases, disease-carrying organisms or disease causing organisms fall outside the scope of Annex A(1)(a)."¹¹⁸⁰

7.134 As a risk assessment, Australia's "*Final Import Risk Analysis Report for Apples from New Zealand*" deals with risks, namely risks arising from pests. Both the IRA and the *Import Risk Assessment Handbook* (2003) provide that "[i]n animal and plant biosecurity, IRA identifies the pests and diseases relevant to an import proposal, assesses the risks posed by them and, if those risks are unacceptable, specifies what measures should be taken to reduce those risks to an acceptable level."¹¹⁸¹ Further, the IRA states that the measures it sets out, including the 16 at issue in this dispute, are necessary to achieve its ALOP, by reducing unrestricted risk to a "very low" or "negligible" level.¹¹⁸² In some cases, as for the pests at issue in this dispute, the IRA indicates that a combination of measures is necessary to achieve the ALOP.¹¹⁸³

7.135 As regards the word "pests", the IRA refers to fire blight, European canker, and ALCM, systematically as "pests".¹¹⁸⁴ Further, the IRA explains that:

"The term 'pest' used throughout this [import risk analysis] is the collective term used for invertebrate pests, plant diseases, viruses, bacteria and fungi that could harm plants. The formal definition used is the one provided in the International Plant Protection Convention (IPPC): 'any species, strain, or biotype of plant, animal or pathogenic agent injurious to plants or plant products'. "¹¹⁸⁵

7.136 The *EC – Approval and Marketing of Biotech Products* panel found that this IPPC definition of "pests", which is used by the IRA, is encompassed in the term "pests" under Annex A(1).¹¹⁸⁶ Further, the *EC – Approval and Marketing of Biotech Products* panel defined "pests" under Annex A(1) as follows: "in the context of the SPS Agreement the term 'pest' should be understood as referring to an animal or plant which is destructive, or causes harm to the health of other animals, plants or humans, or other harm, or a troublesome or annoying animal or plant."¹¹⁸⁷

7.137 As explained above, each of the 16 measures relates to at least one of the three pests at issue in this dispute.¹¹⁸⁸

7.138 Further, the IRA deals with risks arising from the entry, establishment and spread of pests. The IRA identifies the "assessment of the probability of entry, probability of establishment and

¹¹⁷⁹ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.226.

¹¹⁸⁰ *Ibid.*

¹¹⁸¹ Australia's IRA, Part B, p. 5. See also *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 8.

¹¹⁸² Australia's IRA, Part A, pp. 9 and 13.

¹¹⁸³ Australia's IRA, Part B, pp. 105-115; 151-155; 187-192; 313-325.

¹¹⁸⁴ Australia's IRA, Part A, pp. 11-13.

¹¹⁸⁵ Australia's IRA, Part B, p. 1, footnote 1. See also *Ibid.*, p. 344.

¹¹⁸⁶ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.241.

¹¹⁸⁷ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.240.

¹¹⁸⁸ See part II.D.2. above.

probability of spread" as a key element of its "pest risk assessment".¹¹⁸⁹ The IRA then analyzes the "[p]robability of entry, establishment and spread" for each of the three pests¹¹⁹⁰, and identifies the measures necessary to manage the resulting risk, including the 16 measures at issue.¹¹⁹¹

7.139 Accordingly, the IRA and the 16 measures at issue in this case are clearly related to risks arising from the entry, establishment and spread of pests, in the sense of subparagraph (a) of Annex A(1) of the SPS Agreement.

7.140 This applies to the 16 measures considered both collectively and individually. As mentioned above, the Parties agree that all 16 measures are set out in the IRA, while under the IRA each measure would be indispensable for achieving Australia's ALOP, by reducing unrestricted risk to a "very low" or "negligible" level.

7.141 The Panel finds further support for its conclusion in the purpose of the various measures spelt out in the IRA either explicitly or implicitly, and the close linkage of those purposes to managing risks:

- (a) The IRA explains in the context of Measure 1 that "individual apple orchards ... free from fire blight symptoms ... are known to have lower levels of bacteria associated with fruit than orchards where symptoms are evident."¹¹⁹² The IRA adds that, "[w]ith lower bacterial populations in areas free from disease symptoms, the likelihood that clean fruit is contaminated during picking or transport to the packing house (imp3) could be expected to be significantly reduced."¹¹⁹³ Likewise, for imp5.¹¹⁹⁴
- (b) The IRA discusses Measures 2-5 under the sub-heading "[f]ire blight symptoms"¹¹⁹⁵, and explains that "'freedom from visible symptoms' provide[s] a firm basis for risk reduction by substantially reducing the likelihood that picked fruit is infected or infested."¹¹⁹⁶
- (c) The IRA clarifies that Measure 6 would "mitigate the risk of fire blight"¹¹⁹⁷, and as a result "the risk of *E. amylovora* being present in or on apples for export would be reduced."¹¹⁹⁸
- (d) The IRA explains that the purpose of Measure 7 is the "[p]revention of contamination after the disinfection treatment."¹¹⁹⁹
- (e) The IRA clarifies that Measure 8 serves to "maintain the quarantine integrity of the commodity".¹²⁰⁰ This is linked to the IRA's concern, under imp5, with clean fruit being contaminated by *E. amylovora* during processing in the packing house.¹²⁰¹

¹¹⁸⁹ Australia's IRA, Part B, p. 13.

¹¹⁹⁰ See Australia's IRA, Part B, pp. 80-97 (fire blight), pp. 129-145 (European canker), and pp. 158-166 (ALCM).

¹¹⁹¹ Australia's IRA, Part B, p. 313.

¹¹⁹² Australia's IRA, Part B, p. 105.

¹¹⁹³ Australia's IRA, Part B, p. 106.

¹¹⁹⁴ Australia's IRA, Part B, p. 107.

¹¹⁹⁵ Australia's IRA, Part B, p. 316.

¹¹⁹⁶ Australia's IRA, Part B, p. 106.

¹¹⁹⁷ Australia's IRA, Part B, p. 105.

¹¹⁹⁸ Australia's IRA, Part B, p. 108.

¹¹⁹⁹ Australia's IRA, Part B, p. 318.

- (f) The IRA explains that the purpose of Measure 9 is "to mitigate the annual risk" of European canker, and it describes Measure 9 as "an effective risk management measure for *N. galligena*."¹²⁰²
- (g) The IRA introduces Measure 10 by stating that it serves to establish "Orchard freedom from European canker".¹²⁰³ In the context of this measure, the IRA sets out less stringent inspection requirements to assess "orchard freedom from European canker"¹²⁰⁴ "[i]n areas where climatic conditions are less favourable for disease establishment and spread"¹²⁰⁵ and more stringent inspection requirements "[i]n areas where environmental conditions are more conducive to disease establishment and spread."¹²⁰⁶
- (h) The IRA introduces Measure 11 by specifically stating that "[i]nfected nursery stock presents a pathway for the establishment and spread of European canker into places of production."¹²⁰⁷ Further, the IRA states that Measures 10 and 11 for European canker "would prevent opportunities for the disease to enter and establish in Australia ..."¹²⁰⁸
- (i) The IRA spells out Measure 13 as a "requirement" for "[r]isk management for European canker."¹²⁰⁹
- (j) The IRA introduces Measure 14 stating that it "will address the risk associated with apple leafcurling midge."¹²¹⁰
- (k) Under the heading "Risk management and operational framework", the IRA references various risk management measures. This section spells out various measures, including the general measures (Measures 15-17), each of which as a whole relates to all three pests, describing those measures as "further details on the recommended quarantine conditions (risk management measures together with phytosanitary procedures) ... required to manage the quarantine risks."¹²¹¹ Further, the IRA sets out Measure 16 because "the risk analysis [in the IRA] and the recommended risk management measures are based on apples produced under normal commercial production practices".¹²¹²

(ii) *Subparagraph (d)*

7.142 Subparagraphs (a) and (d) of Annex A(1) of the SPS Agreement do not establish cumulative requirements with regard to the purpose of SPS measures. It is sufficient for the purpose of the 16 measures to correspond to either of those subparagraphs. The Panel has found that the purpose of the IRA, and each of the 16 measures contained therein, corresponds to subparagraph (a).

¹²⁰⁰ Australia's IRA, Part B, p. 317.

¹²⁰¹ See Australia's IRA, Part B, pp. 77 *et seq.*

¹²⁰² Australia's IRA, Part B, p. 153.

¹²⁰³ *Ibid.*

¹²⁰⁴ *Ibid.*

¹²⁰⁵ *Ibid.*

¹²⁰⁶ Australia's IRA, Part B, p. 154. See also, Australia's IRA, Part B, p. 316.

¹²⁰⁷ Australia's IRA, Part B, p. 154.

¹²⁰⁸ *Ibid.*

¹²⁰⁹ Australia's IRA, Part B, p. 316.

¹²¹⁰ Australia's IRA, Part B, p. 319.

¹²¹¹ Australia's IRA, Part B, p. 313.

¹²¹² Australia's IRA, Part B, p. 315. See also, Australia's IRA, Part B, p. 105.

Accordingly, it is not necessary to assess whether the purpose of the IRA, and 16 measures contained therein, corresponds to subparagraph (d).

(b) The form and nature of the 16 measures

7.143 In addition to purpose, the *EC – Approval and Marketing of Biotech Products* panel identified two additional and separate elements of an SPS measure under Annex A(1), namely its form and nature:

"The form element is referred to in the second paragraph of Annex A(1) ('laws, decrees, regulations'). Finally, the nature of measures qualifying as SPS measures is also addressed in the second paragraph of Annex A(1) ('requirements and procedures, including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; [etc.]')."¹²¹³

7.144 This Panel considers that the second paragraph of Annex A(1) sets out elements of the definition of SPS measures by providing examples. In fact, the second paragraph starts with the words "Sanitary and phytosanitary measures include". Thus, the items spelt out in the second paragraph do not form a closed list. This is quite different from the closed list of possible purposes of a covered SPS measure under the first paragraph of Annex A(1), in particular its subparagraphs (a)-(d).

7.145 Further, the Panel does not consider that the list of examples in the second paragraph of Annex A(1) provides a clear-cut division between the elements of form and nature, the first three items ("laws, decrees, regulations") corresponding to the form, and the latter two ("requirements and procedures") to the nature of SPS measures. Given the placing of the word "and" between the fourth and fifth items, the ordinary way to read "laws, decrees, regulations, requirements and procedures" is as an enumeration of five items, with the words "all relevant" qualifying each one of them.

7.146 This is underscored by the Spanish and French versions of the SPS Agreement. One basic principle of treaty interpretation is that "[t]he terms of the treaty are presumed to have the same meaning in each authentic text"¹²¹⁴, and that the treaty interpreter should aim at "the meaning which best reconciles the texts [in the different authentic language versions], having regard to the object and purpose of the treaty."¹²¹⁵ The SPS Agreement has three language versions, in English, French and Spanish, each equally authentic.¹²¹⁶

7.147 The Spanish version of the second paragraph of Annex A(1) refers to "*todas las leyes, decretos, reglamentos, prescripciones y procedimientos pertinentes*", placing the "y" before the fifth item of the enumeration, and embracing the five items between the words "*todas*" and "*pertinentes*" ("all relevant" in English). The French version mentions "*toutes lois, tous décrets, toutes réglementations, toutes prescriptions et toutes procédures pertinents*", again with the word "*et*" appearing before the fifth item. Further, the French version makes it evident that both the words in the phrase "all relevant" at the beginning of the enumeration in the English version should be read as relating to all five items of the list. In fact, the French version repeats the word "*tou[te]s*" before each

¹²¹³ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.149. See also, Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1334; Panel Report on *Canada – Continued Suspension*, para. 7.420; and Panel Report on *US – Continued Suspension*, para. 7.429.

¹²¹⁴ The *Vienna Convention on the Law of Treaties* (the "*Vienna Convention*"), done at Vienna, 23 May 1969, 1155 U.N.T.S 331; 8 International Legal Materials 679, Article 33.3.

¹²¹⁵ *Vienna Convention*, Article 33.4.

¹²¹⁶ See the Marrakesh Agreement Establishing the World Trade Organization, Article II:2 and testimony.

of the five items. Further, it uses the adjective "*pertinents*" in the masculine, indicating that it cannot relate only to the immediately preceding noun "*procédures*", nor to the two preceding nouns ("*prescriptions*" and "*réglementations*"). These three nouns ("*procédures*", "*prescriptions*" and "*réglementations*"), as well as the first noun of the list ("*lois*"), are feminine, so "*pertinents*" in the masculine has to refer to all five items of list, including but not limited to the only masculine noun: "*décrets*". It is a basic principle of the French language that the adjective relating to a list of both feminine and masculine nouns takes the masculine form.

7.148 In the light of the above, the three authentic language versions of the last paragraph of Annex A(1) are interpreted most harmoniously if the terms "laws, decrees, regulations, requirements and procedures" are perceived as a list of five items of equal quality and importance, with the words "all" and "relevant" referring to each of these items.

7.149 The *Japan – Agricultural Products II* panel also read together the list in the last paragraph of Annex A(1) by holding that "[p]aragraph 1 of Annex A to the SPS Agreement makes clear that 'phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures'."¹²¹⁷ This lends further support to reading the list as an enumeration of five items that exemplify the type of instruments which may include SPS measures.

7.150 Since this Panel reads "all relevant laws, decrees, regulations, requirements and procedures" as a list of five items, it disagrees with the *EC – Approval and Marketing of Biotech Products* panel that the examples following this list in Annex A(1) would relate only to the last two items of the list ("requirements and procedures"). The Panel is aware that some of the examples repeat the words "requirements" and "procedures". But not all do. Laws, decrees and regulations may typically set out requirements and procedures, so the examples including the words "requirements" and "procedures" can be read as also qualifying "laws, decrees, regulations".

7.151 In fact, the Panel is convinced that the measures exemplified in the second paragraph of Annex A(1) serve to illustrate what can be considered as "*relevant* laws, decrees, regulations, requirements and procedures" containing SPS measures (emphasis added). The second paragraph of Annex A(1) not only mentions "all relevant" instruments broadly; it includes also a non-exhaustive list of measures that can be considered as "relevant" examples for defining SPS measures. The Panel, again, finds support for this in the French and Spanish versions of the definition. The French version starts the examples after the word "*pertinents*". The Spanish version does likewise; in addition, it includes a colon before the examples, thus creating a structure with a list of five items on the one hand (form), and a list of examples (nature), on the other hand.

7.152 While distinct, these two parts of the last paragraph of Annex A(1) are closely related. In fact, the *EC – Approval and Marketing of Biotech Products* panel read "all relevant laws, decrees, regulations" in Annex A(1) as "suggest[ing] that the SPS Agreement does not prescribe a particular legal form and that SPS measures may in principle take many different legal forms."¹²¹⁸ Including "requirements and procedures" into the form element of measures falling under Annex A(1) further broadens that element. As a result, whether the instrument can be considered "relevant" becomes a more important aspect of the form element for the interpreter than the actual legal form of the instrument. The obvious way for the interpreter to assess which "laws, decrees, regulations, requirements and procedures" are "relevant" is by having recourse to the examples in the second part of the same sentence, that is the nature element. Importantly, the nature element is broad. It is introduced with the words "including, *inter alia*", indicating, as the *EC – Approval and Marketing of*

¹²¹⁷ Panel Report on *Japan – Agricultural Products II*, para. 8.111.

¹²¹⁸ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1334.

Biotech Products panel put it, "by way of example, a number of relevant substantive requirements ... and procedures"¹²¹⁹ that define the nature of a covered SPS measure.

7.153 In sum, the form and nature elements in the definition of SPS measures in Annex A(1) are both broad, and they are closely connected to each other. Accordingly, the Panel will now analyse whether the 16 measures fit the elements of form and nature spelt out in the second paragraph of Annex A(1). Given the linkage of form and nature under that paragraph, the Panel will assess these two elements together to analyse whether the 16 measures can qualify as SPS measures.

7.154 There is no disagreement between the parties that the document that spells out the 16 measures at issue in this dispute is the IRA. The IRA is an integral part of what Australia defines in *Biosecurity Australia Policy Memorandum 2007/07*, referenced in New Zealand's panel request¹²²⁰, as Australia's "policy for the importation of apples from New Zealand".¹²²¹

7.155 *Biosecurity Australia Policy Memorandum 2007/07* specifies that this policy "has [been] determined"¹²²² by "Australia's Director of Quarantine"¹²²³, and it defines this policy in the following way: "Importation of apples can be permitted subject to the Quarantine Act 1908, and the application of phytosanitary measures as specified in the Final import risk analysis report for apples from New Zealand, November 2006."¹²²⁴

7.156 As to the application of the policy, *Biosecurity Australia Policy Memorandum 2007/07* states that "[t]he policy will now be taken into account by decision makers when considering import applications for apples from New Zealand in accordance with the *Quarantine Act 1908* and *Quarantine Proclamation 1998* as amended."¹²²⁵ This shows the official intention to systematically enforce this policy for apple imports into Australia from New Zealand.

7.157 The above also demonstrates that Australia's policy for the importation of apples from New Zealand, including the IRA, was adopted in an official manner, within the framework, and on the basis of, established legal instruments. In particular, the IRA was issued by the "Chief Executive of Biosecurity Australia"¹²²⁶, a "part of the Commonwealth Department of Agriculture, Fisheries and Forestry – Australia"¹²²⁷, and under the seal of the Australian Government.¹²²⁸ Also, there was a possibility of lodging an appeal against the IRA with the Import Risk Analysis Appeals Panel within the same Australian Government Department.¹²²⁹

7.158 All these characteristics accord a significant degree of legal formality to the IRA and liken it to a "regulation" under Annex A(1), even if the IRA is not formally termed as such and even though it only "recommends" measures.¹²³⁰ Through *Biosecurity Australia Policy Memorandum 2007/7*, and by virtue of the more general legal framework referenced in the IRA, the measures recommended by the IRA have become part of Australia's applicable and enforceable legal "policy for the

¹²¹⁹ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1334.

¹²²⁰ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 1, footnote 1.

¹²²¹ *Biosecurity Australia Policy Memorandum 2007/07*, in Exhibit NZ-2.

¹²²² *Ibid.*

¹²²³ *Ibid.*

¹²²⁴ *Ibid.*

¹²²⁵ *Ibid.*

¹²²⁶ Australia's IRA, Part B, p. iii.

¹²²⁷ *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 6.

¹²²⁸ Australia's IRA, coverpage.

¹²²⁹ Australia's IRA, Part B, p. iii.

¹²³⁰ Australia's IRA, Part A, p. 1.; and Part B, p. 313; Australia's first written submission, para. 146; and Australia's reply to Panel question 15 after the first substantive meeting.

importation of apples from New Zealand".¹²³¹ Nor is the legal status of these measures any weaker as a result of the need for the Parties to jointly develop standard operating procedures setting out specific aspects of some of the 16 measures.

7.159 In any event, even if the IRA and the 16 measures spelt out therein should not be considered "regulations", they qualify as "requirements and procedures". The IRA itself frequently refers to the measures using one or the other of these terms.¹²³²

7.160 The dictionary definition of the word "requirement" is "something called for or demanded; a condition which must be complied with."¹²³³ Part A of the IRA introduces a summary of the measures set out in the IRA using the word "condition": "This final report recommends that the importation of apples to Australia from New Zealand be permitted, subject to the following risk management conditions ..."¹²³⁴

7.161 Further, as argued by New Zealand, each of the 16 measures requires New Zealand or its apple producers, packing houses and traders to do something as a condition for New Zealand apples to have access to the Australian market.¹²³⁵ As New Zealand explains, even Measure 15, which ostensibly addresses the involvement of AQIS officials, creates a burden for New Zealand and a requirement for it to do something.¹²³⁶ New Zealand needs to comply with each of the measures in order to export apples to Australia.

7.162 In turn "procedure" is defined by the dictionary as "[t]he fact or manner of proceeding; a system of proceeding; conduct, behaviour"¹²³⁷ and as "a particular mode or course of action, a proceeding."¹²³⁸ Further similar definitions of "procedure" include "[a] particular course or mode of action; an established or prescribed way of doing something; (also) an instance of this; a process, a proceeding"¹²³⁹ and "[t]he fact or manner of proceeding with any action, or in any circumstance or

¹²³¹ *Biosecurity Australia Policy Memorandum 2007/07*, in Exhibit NZ-2.

¹²³² Australia's IRA, Part B, p. 106 ("[r]equirements"); p. 114 ("the requirement for inspection", "the requirement for disinfection treatment"); pp. 151-154 ("requirements"); p. 192 ("required", "risk management and operational procedures"); p. 313 ("quarantine conditions (risk management measures together with phytosanitary procedures) and operational procedures required to manage the quarantine risks"); p. 314 ("[r]equirement for pre-clearance", "area freedom and accreditation requirements", "packing house procedures", "registration procedures"); p. 315 ("requirements for freedom from specified disease symptoms and anthropods"); p. 316 ("procedure", "required overall efficacy", "requirements", "[g]eneral requirements"); p. 317 ("Biosecurity Australia requires that ...", "chlorine or approved alternative dip requirements", "the necessary requirements, ... including measures to prevent contamination of fruit and packaging materials with quarantine pests"); p. 318 ("[d]isinfection treatment of apples in the packing house is a mandatory requirement", "required level", "must be monitored and adjusted as required", "operational procedures"), "procedures ... to prevent the contamination of apples after the disinfection treatment", "inspection procedures"), p. 320 ("requirements", "the orchard monitoring requirements for freedom of symptoms of fire blight and European canker", "the chlorine dip requirements"); p. 321 ("requires mandatory treatment", "the orchard monitoring requirements for freedom of symptoms of fire blight and European canker", "the chlorine dip requirements"); pp. 319, 320 and 322 ("procedures"); p. 325 ("operational procedures", "import requirements").

¹²³³ *The New Shorter Oxford English Dictionary*, Ed. Brown, L., Clarendon Press, Oxford, Vol. 2, p. 2557.

¹²³⁴ Australia's IRA, Part A, p. 1. See also Australia's IRA, Part B, p. 313.

¹²³⁵ New Zealand's reply to Panel question 19 after the second substantive meeting, para. 33.

¹²³⁶ New Zealand's first written submission, para. 4.535.

¹²³⁷ *The New Shorter Oxford English Dictionary*, Ed. Brown, L., Clarendon Press, Oxford, Vol. 2, p. 2363.

¹²³⁸ *The New Shorter Oxford English Dictionary*, Ed. Brown, L., Clarendon Press, Oxford, Vol. 2, p. 2363.

¹²³⁹ *The Oxford English Dictionary* online, <<http://www.oed.com>>.

situation; the performance of particular actions, esp. considered in regard to method; practice, conduct. Also: the established or prescribed way of doing something."¹²⁴⁰

7.163 Clearly, each of the 16 measures sets out a specific procedure within the meaning of these definitions: each of them prescribes a particular way of doing something, which needs to be followed if New Zealand apples are to be imported into Australia.

7.164 The Panel now turns to the last part of the second paragraph of Annex A(1), which provides that the term "all relevant laws, decrees, regulations, requirements and procedures":

"[I]nclud[es], *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety."

7.165 Of these examples, "quarantine treatment" would seem particularly relevant in the light of the following part of *Biosecurity Australia Policy Memorandum 2007/07*:

"Biosecurity Australia recommended that *Australia's Director of Animal and Plant Quarantine* make a policy determination that apples from New Zealand should be permitted entry into Australia *under specific quarantine conditions*.

The Director of Animal and Plant Quarantine has now determined the policy to permit the entry of apples from New Zealand to Australia. Importation of apples can be permitted subject to the *Quarantine Act 1908*, and the application of phytosanitary measures as specified in the Final import risk analysis report for apples from New Zealand, November 2006. These measures are designed to *limit quarantine risk* to a level which is acceptably low, *consistent with Australia's conservative approach to quarantine*."¹²⁴¹

7.166 Also, the IRA refers to "quarantine pests"¹²⁴² and to "quarantine protection"¹²⁴³, as well as to the "[m]anagement of quarantine risks"¹²⁴⁴ and specifically to "quarantine measures".¹²⁴⁵ The IRA also uses the word "treatment" to refer to some of the measures set out therein.¹²⁴⁶ Further, it makes reference to "quarantine conditions (risk management measures together with phytosanitary procedures) and operational procedures required to manage the quarantine risks."¹²⁴⁷ In addition, the IRA refers collectively to the risk management measures set out therein as "quarantine conditions"¹²⁴⁸ and specifically as "quarantine treatments".¹²⁴⁹

7.167 The Panel notes in this context the remarks by the *Australia – Salmon* panel on the word "quarantine": "[w]ithout defining the word 'quarantine' as it is used in the SPS Agreement, [the panel considers] that the concept of 'quarantine' more generally is commonly understood to relate to

¹²⁴⁰ *The Oxford English Dictionary* online, <<http://www.oed.com>>.

¹²⁴¹ *Biosecurity Australia Policy Memorandum 2007/07*, p. 1 (emphasis added).

¹²⁴² Australia's IRA, Part A, pp. 1, 3, 13 and 14.

¹²⁴³ Australia's IRA, Part A, p. 7.

¹²⁴⁴ Australia's IRA, Part A, p. 15.

¹²⁴⁵ Australia's IRA, Part A, pp. 7 and 17.

¹²⁴⁶ Australia's IRA, Part A, pp. 1, 5, 9, 15 and 18.

¹²⁴⁷ Australia's IRA, Part B, p. 313.

¹²⁴⁸ *Ibid.*

¹²⁴⁹ Australia's IRA, Part B, p. 41.

avoiding the spread of pests or diseases (in the sense of the definition of a 'sanitary measure' in paragraph 1(a))."¹²⁵⁰ Each of the 16 measures at issue in this dispute has a purpose falling under subparagraph (a) of Annex A(1) because each of them relates to avoiding the spread of pests, which the *Australia – Salmon* panel linked to the word "quarantine".

7.168 In addition, other examples mentioned in the last sentence of paragraph 1 of Annex A, such as "end product criteria", "processes and production methods" "inspection... and approval procedures", would also seem particularly relevant – at least for some of the 16 measures.

7.169 In any event, as indicated above, the list of examples contained in the final part of Annex A(1) is not exhaustive: it is introduced with the words "including, *inter alia*". Further, as emphasized above, the whole second paragraph of the definition of SPS measures under Annex A(1) is introduced with the words "Sanitary or phytosanitary measures include..." Therefore, even if the 16 measures at issue should not correspond precisely to the form and nature element of the second paragraph of Annex A(1), they can constitute SPS measures to the extent that they ostensibly promote at least one of the purposes spelt in subparagraphs (a)-(d) of the first paragraph of Annex A(1).

7.170 In the light of the above, the Panel finds that each of the 16 measures is an SPS measure under Annex A(1) of the SPS Agreement. In this regard, the Panel notes the following arguments by New Zealand:

"The IRA states that the import risk analysis 'conforms with Australia's obligations as a WTO member country' and that 'these rights and obligations derive principally from the WTO's *SPS Agreement*'.¹²⁵¹

...

The draft IRA was notified to the SPS Committee on 16 December 2005 (G/SPS/N/AUS/122/Add.3), as were previous drafts of the IRA.

The letter by AQIS to NZMAF formally notifying New Zealand that it had initiated an import risk assessment on apples refers to a process for 'establishing phytosanitary measures' in respect of New Zealand apples.^{1252,1253}

7.171 In fact, the IRA refers to "sanitary and phytosanitary measures"¹²⁵⁴ and to "phytosanitary measures"¹²⁵⁵ to collectively denote the measures it lays down. In turn, the IRA defines "[p]hytosanitary measure" as "[a]ny legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated nonquarantine pests (ISPM 5)".¹²⁵⁶ Defined in this way, the "phytosanitary measures" set out in the IRA undoubtedly fall under the definition of SPS measures in Annex A(1) of the SPS Agreement.

7.172 In the light of the foregoing, the Panel concludes that the 16 measures at issue, both as a whole and individually, constitute SPS measures within the meaning of Annex A(1). These SPS measures also have an actual or potential trade effect, which means that they fall under the scope of the SPS Agreement.

¹²⁵⁰ Panel Report on *Australia – Salmon*, para. 8.36.

¹²⁵¹ (*footnote original*) IRA, Part B, page 3.

¹²⁵² (*footnote original*) Exhibit NZ-104.

¹²⁵³ New Zealand's reply to Panel question 13 after the first substantive meeting, para. 25.

¹²⁵⁴ Australia's IRA, Part B, pp. 4 and 5.

¹²⁵⁵ Australia's IRA, Part B, pp. 5, 40 and 337.

¹²⁵⁶ Australia's IRA, Part B, p. 344.

(c) Principal v. ancillary measures

7.173 Finally, the Panel looks at the distinction between ancillary and principal measures. Australia advances the notion of a distinction to support its argument that many of the 16 measures cannot be reviewed under the SPS Agreement individually, but only in combination with certain other measures, which are supposedly principal measures.

7.174 The Panel does not see the relevance or validity of this distinction for defining SPS measures under Annex A(1) of the SPS Agreement. Australia acknowledges that Annex A(1) is key for defining whether the 16 measures at issue qualify as SPS measures. Australia accepts also that Annex (A)1 does not mention any distinction between principal and ancillary measures.¹²⁵⁷ The Panel agrees.

7.175 Australia effectively asks the Panel to carve out ancillary measures from the definition of SPS measures, and to limit their review under the SPS Agreement to a joint review with other measures. But Annex A(1) does not refer to ancillary measures or spell out any such carve-out. The criteria advanced by Australia for assessing whether the 16 measures are ancillary have not been identified specifically in previous rulings by panels or the Appellate Body on Annex A(1) of the SPS Agreement.

7.176 Australia argues that the definition of SPS measures in subparagraph (a) of Annex A(1) of the SPS Agreement, in particular the phrase "applied: to protect" against particular categories of SPS risks, should guide the Panel in identifying "principal measures", which may be reviewed individually under the SPS Agreement.¹²⁵⁸ The Panel has already found, however, that each of the 16 measures under review, including the ones that Australia identifies as "ancillary" measures, fulfills on its own subparagraph (a).¹²⁵⁹

7.177 Australia also invokes the *US – Export Restraints* dispute as a basis for distinguishing ancillary measures from principal ones that "constitute an instrument with a functional life of [their] own" because they "do something concrete".¹²⁶⁰ That dispute, however, concerned the SCM Agreement; it did not involve the SPS Agreement or even alleged SPS measures. In particular, that dispute did not interpret the definition of Annex A(1) of the SPS Agreement.

7.178 *US – Export Restraints* took place in a different context from this dispute. The *US – Export Restraints* panel was assessing whether instruments accompanying and interpreting related but formally distinct instruments, as well as the "practice" under such instruments could "give rise independently to a violation of WTO obligations."¹²⁶¹ Conversely, this Panel needs to assess whether each of the 16 measures spelt out in the same instrument, the IRA, is an SPS measure in its own right. Further, this Panel does not look at the practice implementing the IRA. New Zealand has not challenged such practice in this dispute.

7.179 Even applying the criteria laid down by the *US – Export Restraints* panel to the 16 measures at issue in this dispute could not result in finding that some of those individual measures do not constitute an instrument with a functional life of their own. In fact, it is clear that each of the 16 measures "do[es] something concrete". As analysed above, each of the 16 measures establishes a requirement for specific action to be followed by New Zealand if it intends to export apples into Australia. Importantly, whether the various instruments at issue in *US – Export Restraints* amounted

¹²⁵⁷ Australia's reply to Panel question 23 after the first substantive meeting.

¹²⁵⁸ Australia's reply to Panel question 14 after the first substantive meeting.

¹²⁵⁹ See paras. 7.130 to 7.141 above.

¹²⁶⁰ Panel Report on *US – Export Restraints*, para. 8.85 (original emphasis).

¹²⁶¹ *Ibid.* See also, Panel Report on *US – Export Restraints*, paras. 2.1-2.11.

to a "requirement"¹²⁶² or "require[d] any particular treatment"¹²⁶³ was a key criterion for that panel to assess whether the instruments in question "d[id] something concrete".

7.180 The Panel notes, as New Zealand also recognizes, that some of the 16 measures are related to each other. For instance, Measures 1-5 are all concerned with fire blight symptoms in apple orchards. Clearly, these measures support each other. In particular, some are explicitly adopted to make sure that compliance with another measure is not jeopardized, circumvented or otherwise made ineffective.

7.181 Unlike *US – Export Restraints*, however, the relationship between the alleged principal and ancillary measures in the current dispute is not a merely interpretive one. As New Zealand points out, each of the 16 measures, including Measures 1-5, sets out a distinct and specific requirement for New Zealand to do something, with a distinct burden specific to compliance with each measure.¹²⁶⁴ Also, each measure may be enforced separately in time. And, as Australia acknowledges, lack of compliance with any of the 16 measures might lead to the suspension of apple imports from New Zealand.¹²⁶⁵

7.182 Neither Annex A(1) of the SPS Agreement, nor *US – Export Restraints* use the terms "ancillary" and "principal" measures. Australia coined these terms, allegedly based on various ISPMs.¹²⁶⁶ Australia refers in particular to the definitions of "phytosanitary measure", "phytosanitary action" and "phytosanitary procedure" in ISPM No. 5. According to Australia, "[w]hile the phytosanitary measure has the purpose to 'prevent' or 'limit', the phytosanitary action and phytosanitary procedure simply *implement* the phytosanitary measure; inspections, tests and surveillance do not 'prevent' or 'limit' the impact of quarantine pests unless there are consequences attached to their results."¹²⁶⁷ The Panel notes that the SPS Agreement contains no such distinction between phytosanitary measures, actions and procedures. Also, some of the actions and procedures included as examples in the ISPM definitions invoked by Australia, e.g. inspection, testing, quarantine treatments, also appear as examples in the definition of an SPS measure contained in Annex A(1). Further, the Panel notes that the experts have given diverging responses on which of the 16 measures might qualify as ancillary and principal in the light of the SPS Agreement and the ISPM definitions referenced by Australia.¹²⁶⁸

7.183 Australia also argues that its IRA follows a "systems approach". The IRA refers to ISPM No. 14 on the use of integrated measures in a systems approach for pest risk management¹²⁶⁹, and it defines systems approach as follows:

"For some pests, the analysis may indicate that there is no single risk management measure that will reduce the risk to 'very low' or 'negligible'. In these cases, it may be possible to combine individual risk management measures to achieve a sufficient

¹²⁶² Panel Report on *US – Export Restraints*, para. 8. 116.

¹²⁶³ Panel Report on *US – Export Restraints*, para. 8.129.

¹²⁶⁴ New Zealand's reply to Panel question 19 after the second substantive meeting, para. 33.

¹²⁶⁵ See, for example, Australia's reply to Panel question 16 after the first substantive meeting.

¹²⁶⁶ Australia's first written submission, Annex 2.

¹²⁶⁷ Australia's reply to Panel question 24 after the first substantive meeting.

¹²⁶⁸ Dr Deckers's, Dr Paulin's and Dr Schrader's replies to Panel question 48, Dr Deckers's, Dr Latorre's and Dr Swinburne's replies to Panel question 93, Dr Latorre's, Dr Schrader's and Dr Sgrillo's replies to Panel question 139, Dr Latorre's, Dr Schrader's and Dr Sgrillo's replies to Panel question 140, Dr Deckers's, Dr Latorre's, Dr Schrader's and Dr Sgrillo's replies to Panel question 141, in List of Replies from the scientific experts to questions posed by the Panel, paras. 300-303, 528-529 and 814-834.

¹²⁶⁹ Australia's first written submission, para. 118.

level of risk reduction. This is referred to as a 'systems' approach to risk management."¹²⁷⁰

In addition, ISPM No.5 defines systems approach(es) as "[t]he integration of different risk management measures, at least two of which act independently, and which cumulatively achieve the appropriate level of protection against regulated pests."

7.184 The *Japan – Apples (Article 21.5 – US)* panel reviewed the various requirements at issue in that dispute as one single SPS measure taken to comply. One of its main reasons for doing this was that the original *Japan – Apples* panel did the same "essentially because all the requirements were presented as part of a systemic approach."¹²⁷¹

7.185 However, the panels in *Japan – Apples* and *Japan – Apples (Article 21.5 – US)* reviewed one pest, whereas the 16 measures in the current dispute relate to three different pests. Further, only in the context of fire blight does the IRA link some of the 16 measures at issue by referring explicitly to a "systems approach".¹²⁷² When consulted by the Panel, Australia explicitly uses the expression "systems approach" only in regard to the fire blight measures contested by New Zealand.¹²⁷³ In fact, Australia refers to Measures 1-2 and 5-6 arguing that "[it] has adopted a 'systems approach' with respect to managing the risks associated with fire blight".¹²⁷⁴ Referring to Measures 3-4 and 7-8, Australia adds that "[t]he Final IRA Report also recommends a number of ancillary procedures to support, verify and operationalise this systems approach."¹²⁷⁵ Finally, Australia explicitly rejected the relevance of a "systems approach" argument for grouping alleged principal and ancillary measures relating to European canker and to ALCM.¹²⁷⁶ This makes it difficult for the Panel to review all of the 16 measures at issue under the logic of Australia's "systems approach" argument.

7.186 Even if the Panel chose to group some or all of the 16 measures together as one single SPS measure for the purposes of its analysis, it would not be prevented from finding that a specific element of that single measure, including what Australia qualifies as ancillary measures, violates the SPS Agreement. The *Japan – Apples* panel reserved that right even though it reviewed the requirements at issue as one single phytosanitary measure: "We may of course conclude that one aspect of a measure is illegal and not others, even when the complainant argues that the measure as a whole is illegal. Indeed, since the SPS Agreement establishes different rights and obligations, it may be also appropriate, depending on the provision at issue, to consider the specific requirements individually."¹²⁷⁷ The *Japan – Apples (Article 21.5 – US)* panel did the same.¹²⁷⁸

7.187 In the light of the foregoing, this Panel rejects Australia's arguments that New Zealand has not demonstrated that each of the 16 measures, both as a whole and individually, amounts to an SPS measure covered by the SPS Agreement. Accordingly, the Panel will assess whether the 16 measures at issue, as a whole or individually, are inconsistent with the relevant provisions of the SPS Agreement. At the same time, the Panel reserves the right to assess various related measures jointly under specific provisions of the SPS Agreement. In fact, in its "[r]eview of each element of the compliance measure"¹²⁷⁹ as one single SPS measure under Article 2.2 of the SPS Agreement,

¹²⁷⁰ Australia's IRA, Part A, p. 9. See also Australia's first written submission, para. 118.

¹²⁷¹ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.29.

¹²⁷² Australia's IRA, Part B, pp. 73, 106, 110, 111 and 112.

¹²⁷³ Australia's reply to Panel question 15 after the first substantive meeting.

¹²⁷⁴ Australia's first written submission, para. 139. See also, *Ibid.*, paras. 140, 929 and 936.

¹²⁷⁵ Australia's first written submission, para. 140.

¹²⁷⁶ Australia's comments on the experts replies to questions, para. 303.

¹²⁷⁷ Panel Report on *Japan – Apples*, para. 8.19. See also, Panel Report on *Japan – Apples (Article 21.5 – US)*, paras. 8.29-8.30.

¹²⁷⁸ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.30.

¹²⁷⁹ Panel Report on *Japan – Apples (Article 21.5 – US)*, p. 108, DSR 2005:XVI, 7911, at 8051.

the *Japan – Apples (Article 21.5 – US)* panel grouped specific elements of the same measure together because "they relate[d] to different aspects of the same concern"¹²⁸⁰ and because "many elements of the ... measure are interrelated and justified on the basis of the same scientific evidence."¹²⁸¹

C. NEW ZEALAND'S CLAIMS UNDER ARTICLES 2.2, 5.1 AND 5.2 OF THE SPS AGREEMENT

1. Order of analysis

(a) Summary of the Parties' arguments

7.188 New Zealand argues that Australia's measures for the importation of New Zealand apples are inconsistent with Australia's obligations under Article 2.2 of the SPS Agreement.¹²⁸² There is no rational or objective relationship between, on the one hand, the scientific evidence and, on the other hand, the Australian measures relating to fire blight, European canker and apple leafcurling midge, as well as the general measures imposed by Australia for the importation of New Zealand apples.¹²⁸³ Australia imposes these measures in the absence of scientific evidence or in the face of scientific evidence to the contrary.¹²⁸⁴

7.189 New Zealand states that Articles 5.1 and 2.2 of the SPS Agreement are closely related¹²⁸⁵ and notes that, according to the panels and the Appellate Body in the *EC – Hormones* dispute, Article 5.1 of the SPS Agreement may be viewed as a specific application of the basic obligations in Article 2.2.¹²⁸⁶ New Zealand argues that "[w]hile not every violation of Article 2.2 will necessarily entail a violation of Article 5.1"¹²⁸⁷, Australia's breach of Article 2.2 in this case indicates that it is likely not to be in compliance with Article 5.1."¹²⁸⁸

7.190 New Zealand notes that Article 5.1 contains two elements: (a) there must be a risk assessment, within the meaning of Article 5.1 and paragraph 4 of Annex A; and, (b) the SPS measures must be based on that risk assessment.¹²⁸⁹ New Zealand argues that "Australia's IRA is not a risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A".¹²⁹⁰ In New Zealand's view, Australia has not properly evaluated the likelihood of entry, establishment or spread of the three relevant pests, nor has it evaluated that likelihood according to the SPS measures which might be applied.¹²⁹¹ To the extent that a proper risk assessment does not exist to support

¹²⁸⁰ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.76.

¹²⁸¹ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.29.

¹²⁸² New Zealand's first written submission, para. 1.2.

¹²⁸³ New Zealand's first written submission, paras. 1.3-1.6, 4.31, 4.51, 4.54, 4.97, 4.105, 4.139-4.140, 4.144, 4.150. See also, New Zealand's second written submission, paras. 2.99-2.292.

¹²⁸⁴ New Zealand's first written submission, para. 4.6.

¹²⁸⁵ New Zealand's second written submission, paras. 1.5 and 2.93.

¹²⁸⁶ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 36, referring to Appellate Body Report on *EC – Hormones*, para. 180. See also, Panel Report on *EC – Hormones (Canada)*, para. 8.96; Panel Report on *EC – Hormones (US)*, para. 8.93.

¹²⁸⁷ (footnote original) Panel Report, *Australia – Salmon*, para. 8.52.

¹²⁸⁸ New Zealand's first written submission, para. 4.152.

¹²⁸⁹ New Zealand's first written submission, para. 4.153.

¹²⁹⁰ New Zealand's first written submission, para. 4.158. See also, New Zealand's first written submission, para. 4.153.

¹²⁹¹ New Zealand's first written submission, paras. 1.8, 4.158 and 4.403-4.404. See also, New Zealand's first written submission, paras. 4.160, 4.204-4.206, 4.207, 4.265, 4.333, 4.378, 4.383 and 4.402; and, New Zealand's second written submission, paras. 2.293-2.803.

Australia's measures, even if New Zealand has not made separate arguments under the "based on" requirement, those measures cannot be said to be "based on" such a risk assessment.¹²⁹²

7.191 New Zealand argues further that Australia's measures are inconsistent with Article 5.2 of the SPS Agreement. Australia's IRA failed to give genuine consideration to the relevant scientific evidence; to the relevant processes and production methods; to the relevant inspection, sampling and testing methods; to the prevalence of the relevant diseases or pests; and to the relevant environmental conditions.¹²⁹³

7.192 New Zealand submits that, "because [Australia's] measures are not based on a risk assessment, the measures are [consequentially] also in breach of the requirements of Article 2.2 [of the SPS Agreement] that measures be 'based on scientific principles' and not be 'maintained without sufficient scientific evidence'."¹²⁹⁴

7.193 New Zealand rejects the order of analysis proposed by Australia for disputes that have simultaneous claims under Articles 2.2 and 5.1. New Zealand disagrees with Australia's view that "the question of whether Australia has maintained measures 'without scientific evidence' under Article 2.2 *can only be answered* by considering whether Australia's measures are based on a valid risk assessment under Article 5.1".¹²⁹⁵ New Zealand submits that "[t]here is nothing in the text of the SPS Agreement that suggests that an analysis of Article 5.1 should logically precede an analysis of Article 2.2, much less that it *must* do so in every instance".¹²⁹⁶ Instead, as the Appellate Body held in *EC – Hormones*, an approach starting with the "Basic Rights and Obligations" in Article 2 is "logically attractive".¹²⁹⁷ Australia's view is an attempt to limit the scope of Article 2.2 "in favour" of Article 5.1. According to Australia, a risk assessment conducted by a competent authority should be afforded "considerable deference". If that were correct, it would follow that the Panel would have no mandate to assess whether there is a "rational or objective" relationship between the science and the SPS measures.¹²⁹⁸ Hence, in the circumstances of this case, it would be appropriate for the Panel to start its examination with Article 2.2.¹²⁹⁹

7.194 In response to arguments made by Australia, New Zealand disagrees with the view that consistency of an SPS measure with Article 5.1 of the SPS Agreement necessarily establishes

¹²⁹² New Zealand's first written submission, para. 4.153. See also, New Zealand's reply to Panel question 117 after the first substantive meeting, para. 257; and, New Zealand's second written submission, para. 2.794; New Zealand's reply to Panel questions 6, 27, 50 and 117 after the second substantive meeting, paras. 14, 43, 94 and 187-188.

¹²⁹³ New Zealand's first written submission, paras. 1.11, 1.12, 4.411-4.428; New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, paras. 113-114. See also, New Zealand's reply to Panel question 121 after the first substantive meeting, paras. 259-265; New Zealand's second written submission, paras. 2.804 and 2.816; New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 110; New Zealand's reply to Panel question 116 after the second substantive meeting, paras. 182-186; and New Zealand's comments on Australia's reply to Panel question 116 after the second substantive meeting, para. 269.

¹²⁹⁴ New Zealand's first written submission, para. 4.405.

¹²⁹⁵ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 35 (original emphasis). See also, Australia's first written submission, para. 344.

¹²⁹⁶ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 36 (original emphasis). See also, New Zealand's second written submission, para. 2.97, and New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 38.

¹²⁹⁷ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 36, referring to Appellate Body Report on *EC – Hormones*, para. 250.

¹²⁹⁸ New Zealand's opening statement at the first substantive meeting of the Panel with the Parties, paras. 38-40. See also, New Zealand's closing statement at the first substantive meeting of the Panel with the Parties, para. 5, and New Zealand's second written submission, paras. 1.5, 2.85, 2.96 and 2.100.

¹²⁹⁹ New Zealand's second written submission, para. 2.98.

consistency with Article 2.2.¹³⁰⁰ New Zealand argues that "[a] determination that there has been a risk assessment within the meaning of Article 5.1 does not resolve the question whether each of the challenged measures has a rational and objective relationship with scientific evidence – an issue that arises under Article 2.2".¹³⁰¹ It is incorrect to assume that New Zealand has "conceded" this issue, just because it has not made separate arguments in relation to the "based on" element of Article 5.1.¹³⁰² Articles 2.2 and 5.1 "establish separate legal obligations, with which compliance can be separately assessed".¹³⁰³

7.195 In New Zealand's view, the question of whether the measures imposed by Australia are maintained with sufficient scientific evidence can be expressed in terms of both Article 2.2 ("whether there is a 'rational or objective relationship' between the measures and scientific evidence"), and Article 5.1 ("whether there has been a proper assessment of the 'likelihood of entry, establishment and spread' of the three relevant pests").¹³⁰⁴ With respect to whether a measure found to be consistent with Article 5.1 would necessarily also be consistent with Article 2.2, New Zealand makes a distinction between two different situations. A first situation would be when the appropriate standard of review is applied to determine consistency with Article 5.1. In this case, it is likely that an SPS measure that is consistent with Article 5.1 will also be consistent with Article 2.2. This would be because of the rational relationship required by both provisions between the science and the SPS measure. Even in this situation, however, it is possible that consistency with Article 5.1 would not necessarily lead to a finding of consistency with Article 2.2. A second situation would arise when "considerable deference" is accorded to a risk assessment under Article 5.1. Because this standard allows for no meaningful review of whether there is a rational relationship between the science and the SPS measure, it would be impossible to say whether a measure found to be consistent with Article 5.1 would also be consistent with Article 2.2.¹³⁰⁵ As to whether a challenged SPS measure found to be inconsistent with Article 5.1 should also be found to be inconsistent with Article 2.2, New Zealand argues that, if the Panel were to find that the measure is inconsistent with Article 5.1, it should find by implication a breach of Article 2.2, second and third requirements.¹³⁰⁶

7.196 Finally, New Zealand notes that, if the Panel finds that Australia's IRA does not meet the requirements for a valid risk assessment set out in Article 5.1 and Annex A(4) of the SPS Agreement, and concludes that the measures at issue are inconsistent with Article 5.1, the Panel should nevertheless make findings on all of the other claims before it, in order to "secure a positive solution" to this dispute.¹³⁰⁷

7.197 Australia rejects New Zealand's claims. In its view, the measures contained in the IRA are consistent with Articles 5.1, 5.2 and 2.2 of the SPS Agreement.¹³⁰⁸

¹³⁰⁰ Australia's first written submission, para. 919. See also, Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 42.

¹³⁰¹ New Zealand's opening statement at the second substantive meeting of the Panel with the Parties, para. 39.

¹³⁰² New Zealand's opening statement at the second substantive meeting of the Panel with the Parties, para. 39. New Zealand's reply to Panel question 117 after the second substantive meeting, paras. 187-188.

¹³⁰³ New Zealand's second written submission, para. 2.80.

¹³⁰⁴ New Zealand's closing statement at the first substantive meeting of the Panel with the Parties, para. 6. See also, New Zealand's opening statement at the second substantive meeting of the Panel with the Parties, para. 31.

¹³⁰⁵ New Zealand's reply to Panel question 123 after the first substantive meeting, paras. 268-270.

¹³⁰⁶ New Zealand's reply to Panel question 123 after the first substantive meeting, para. 271.

¹³⁰⁷ New Zealand's reply to Panel question 6 after the second substantive meeting, para. 14.

¹³⁰⁸ Australia's first written submission, para. 220. See also, Australia's first written submission, paras. 875-876.

7.198 As regards the order of analysis, Australia notes that Article 5.1 is a specific application of the basic obligation contained in Article 2.2.¹³⁰⁹ There is a relationship of means and ends between the two provisions.¹³¹⁰ Generally speaking, where Members choose to rely on a risk assessment, "Article 2.2 sets out basic benchmarks of *what* is required (ie. sufficient scientific evidence), and Article 5.1 sets out *how* this can be achieved (ie. through a risk assessment)".¹³¹¹ Because of this relationship, the question of whether there is sufficient scientific evidence under Article 2.2 in the present dispute can be answered only by assessing whether the IRA constitutes a valid risk assessment.¹³¹² In Australia's words, "Article 5.1, and its associated provisions, elaborate specific conditions which, if met, will establish the consistency of the relevant measures with Article 2.2".¹³¹³

7.199 Australia submits that the scientific validity of its measures cannot and should not be judged on any other basis but the IRA¹³¹⁴: "its SPS measures stand or fall with the risk assessments in the Final IRA Report".¹³¹⁵ If the Panel finds that the challenged measures are inconsistent with Article 5.1, by implication it must also conclude that the measures are inconsistent with the requirement of Article 2.2 that measures may not be maintained without sufficient scientific evidence. Likewise, if the Panel finds that the challenged measures are consistent with Article 5.1, then by implication it must also conclude that the measures are consistent with the above-mentioned requirement of Article 2.2.¹³¹⁶ Australia submits that these arguments do not imply any legal hierarchy between Article 2.2 and Article 5.1.¹³¹⁷

7.200 Australia submits that, in its claim under Article 5.1 of the SPS Agreement, New Zealand has not argued that Australia's measures are not "based on" the IRA. Accordingly, the analysis under this provision should centre on whether the IRA is a valid risk assessment.¹³¹⁸ Focusing on the IRA, Australia draws support from the approach in *Australia – Salmon (Article 21.5 – Canada)* to contend that the Panel should find a risk assessment would meet the requirements of Annex A(4) and Article 5.1 of the SPS Agreement "if the complainant fails to establish that the panel should not 'have reasonable confidence in the evaluation made, in particular in the levels of risk assigned.'"¹³¹⁹ In Australia's view, "[d]emonstrating the existence of divergent view is not sufficient to actually 'prevent' a panel from having reasonable confidence in the evaluation made".¹³²⁰ Australia argues that,

¹³⁰⁹ Australia's reply to Panel question 125 after the first substantive meeting, recalling the Appellate Body Report on *EC – Hormones*, para. 180.

¹³¹⁰ Australia's second written submission, para. 93.

¹³¹¹ Australia's reply to Panel question 125 after the first substantive meeting (original emphasis).

¹³¹² Australia's first written submission, paras. 344 and 919. See also, Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 42; Australia's reply to Panel question 124 after the first substantive meeting; and Australia's second written submission, paras. 49 and 103.

¹³¹³ Australia's opening statement at the first substantive meeting of the Panel with the Parties, para. 42. See also, Australia's reply to Panel question 125 after the first substantive meeting.

¹³¹⁴ Australia's reply to Panel question 123 after the first substantive meeting. See also, Australia's second written submission, paras. 446, 607, 704 and 734.

¹³¹⁵ Australia's opening statement at the second substantive meeting of the Panel with the Parties, para. 25.

¹³¹⁶ Australia's reply to Panel question 123 after the first substantive meeting. See also, Australia's opening statement at the first substantive meeting of the Panel with the Parties, para. 45; Australia's second written submission, paras. 97 and 607; and Australia's reply to Panel question 1 after the second substantive meeting, para. 3.

¹³¹⁷ Australia's second written submission, para. 99.

¹³¹⁸ Australia's first written submission, para. 876. See also, Australia's reply to Panel questions 19 and 117 after the first substantive meeting; Australia's second written submission, paras. 42, 87, 109, 134, 138, 429, 444, 605, 693, 702, 728 and 731; and Australia's comments to New Zealand's replies to Panel questions after the second substantive meeting, paras. 15, 17.

¹³¹⁹ Australia's first written submission, para. 346. See also, Australia's closing statement at the first substantive meeting of the Panel with the Parties, para. 22.

¹³²⁰ Australia's first written submission, para. 347.

according to the Appellate Body's more recent guidance in *US/Canada – Continued Suspension*, a panel should find a risk assessment to be valid unless the complainant shows that it is not objectively justifiable because it does not reflect legitimate science, or is not objective and coherent. In order to raise a prima facie case that a particular risk assessment is not objectively justifiable, Australia considers that a complainant would have to identify and substantiate serious errors, or flaws, with that assessment.¹³²¹ In Australia's view, any lack of comprehensive or definitive evidence on a particular point does not render a risk assessment invalid from a legal point of view. Under the SPS Agreement, the obligation to take into account scientific evidence is limited to that evidence which is "available". Australia also adds that data constraints and expert judgment are part of the reality of conducting risk assessments in the context of a quarantine regulatory system directed at facilitating international trade.¹³²² What will be "sufficient" scientific evidence for the imposition of measures must be assessed according to the specific facts and circumstances of each pest, taking into account Australia's ALOP. Full scientific certainty does not exist.¹³²³

7.201 Australia argues that the IRA contains an objective and coherent evaluation of the likelihood of entry, establishment and spread of the relevant pests, according to the SPS measures that may be applied. Australia rejects New Zealand's argument that the IRA "only provides 'some' evaluation of the extent to which [the risk reduction factors for the three pests at issue] could reduce risk, particularly in relation to fire blight".¹³²⁴ Australia contends that "the IRA Team clearly evaluated the scientific and technical efficacy of the principal measures recommended to reduce the risks of the relevant pests to achieve Australia's ALOP, along with evaluating a number of other potential risk management alternatives".¹³²⁵

7.202 Australia submits that the analogy drawn by New Zealand between the *Japan – Apples* case and the present dispute is inappropriate. A risk assessment is contextual in that it must be "appropriate to the circumstances".¹³²⁶ New Zealand has not been able to prove that the IRA fails to assess "likelihood" as it should be correctly understood, nor that any of the findings in the IRA lacks credibility.¹³²⁷ New Zealand has failed to identify flaws in the methodology used by the IRA Team¹³²⁸ and it inappropriately purports to present its own risk assessment offering an alternative account of the evidence.¹³²⁹ The IRA's assessments on fire blight, European canker and apple leafcurling midge "are objective and credible and should not be disturbed"¹³³⁰, accordingly, these risk assessments are

¹³²¹ Australia's replies to Panel question 2 after the second substantive meeting, paras. 6, 7, 8 and 17.

¹³²² Australia's second written submission, para. 9.

¹³²³ Australia's opening statement at the second substantive meeting of the Panel with the Parties, paras. 9-10.

¹³²⁴ New Zealand's first written submission, para. 4.383. The expression used by Australia in its first written submission was not "objective and coherent", but "objective and credible". In later submissions, Australia referred to the issue of whether the IRA's reasoning was "objective and coherent". See, for example, Australia's second written submission, para. 34.

¹³²⁵ Australia's first written submission, para. 853. See also, Australia's first written submission, paras. 855-874.

¹³²⁶ Australia's first written submission, paras. 243, 250-262.

¹³²⁷ Australia's first written submission, paras. 263-278.

¹³²⁸ Australia's first written submission, paras. 288-342.

¹³²⁹ Australia's first written submission, paras. 279-287.

¹³³⁰ Australia's first written submission, para. 348. See also, Australia's first written submission, paras. 349-525, for fire blight; 526-719 for European canker; and, 720-851 for apple leafcurling midge.

consistent with Article 5.1 of the SPS Agreement.¹³³¹ The consistency of Australia's measures with Article 5.1 establishes their consistency with Article 2.2.¹³³²

7.203 Australia submits that it has also acted consistently with Article 5.2 of the SPS Agreement, since its IRA appropriately took into account all of the factors listed therein. New Zealand's attempt to convert Article 5.2 into an obligation to give "genuine consideration" to the factors listed therein is not grounded in the text of the provision.¹³³³

7.204 Australia submits that, in any event, New Zealand has failed to establish that Australia's measures are inconsistent with the requirement in Article 2.2 that measures may not be maintained without sufficient scientific evidence.¹³³⁴ In particular, New Zealand has failed to demonstrate that the scientific evidence relied upon by the IRA Team was insufficient for there to be a rational and objective relationship with the measures at issue and that the IRA Team's evaluation of the scientific evidence was not objective and coherent.¹³³⁵

(b) The Panel's analysis

7.205 New Zealand's main contentions in the present case are "that the Australian measures are not supported by scientific evidence and that the IRA does not constitute a risk assessment whose conclusions are objectively justifiable".¹³³⁶ These contentions correspond to New Zealand's claims under Articles 2.2, 5.1 and 5.2 of the SPS Agreement.¹³³⁷ New Zealand has advanced separate and autonomous claims under each of these provisions.¹³³⁸

7.206 Article 2.2 of the SPS Agreement, entitled Basic Rights and Obligations, reads as follows:

"Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5."

7.207 Article 5.1, entitled Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection, provides that:

¹³³¹ Australia's first written submission, paras. 524-525 for fire blight; 719 for European canker; and 851 for apple leafcurling midge.

¹³³² Australia's first written submission, paras. 221-237. See also, Australia's second written submission, paras. 88, 94 and 446.

¹³³³ Australia's first written submission, paras. 12, 877-911. See also, Australia's reply to Panel questions 119 and 120 after the first substantive meeting; Australia's second written submission, paras. 147-153, 445, 606, 703 and 733; and Australia's reply to Panel question 116 after the second substantive meeting, paras. 502-508.

¹³³⁴ Australia's first written submission, para. 919, and Australia's second written submission, para. 103.

¹³³⁵ Australia's first written submission, paras. 925 and 970. See also, Australia's first written submission, paras. 926-940, for fire blight; 941-952 for European canker; 953-957 for apple leafcurling midge; and, 958-969 for general measures. The expression used by Australia in its first written submission was not "objective and coherent", but "objective and credible". In later submissions, Australia referred to the issue of whether the IRA's reasoning was "objective and coherent". See, for example, Australia's second written submission, para. 34.

¹³³⁶ New Zealand's opening statement at the second substantive meeting of the Panel with the Parties, para. 2. See also, New Zealand's closing statement at the first substantive meeting of the Panel with the Parties, para. 6.

¹³³⁷ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

¹³³⁸ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, pp. 3-4.

"Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations."

7.208 In turn, Article 5.2 states that:

"In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment."

7.209 Finally, paragraph 4 of Annex A of the SPS Agreement contains the following definition of a "risk assessment":

"Risk assessment – The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs."

7.210 This is not the first dispute with simultaneous claims under Articles 2.2 and 5.1 of the SPS Agreement. Prior panels and the Appellate Body have generally recognized the close link between the two provisions. As noted by the panels and the Appellate Body in the *EC – Hormones* dispute, "Article 5.1 may be viewed as a specific application of the basic obligations contained in Article 2.2 of the SPS Agreement".¹³³⁹ The Appellate Body added that "Articles 2.2 and 5.1 should constantly be read together" because "Article 2.2 informs Article 5.1: the elements that define the basic obligation set out in Article 2.2 impart meaning to Article 5.1."¹³⁴⁰ In the *Canada/US – Continued Suspension* case, the Appellate Body noted further that the requirements contained in Article 2.2 of the SPS Agreement are made operative in other provisions of the SPS Agreement, "including Article 5.1, which requires SPS measures to be 'based on' a risk assessment".¹³⁴¹

7.211 Similarly, Article 5.2 is inextricably linked to Article 5.1, as the former provision enumerates a list of factors that must be taken into account by Members when conducting their risk assessments.¹³⁴² As noted by the panel in *Japan – Apples*, Articles 5.1 and 5.2 "directly inform each other, in that paragraph 2 sheds light on the elements that are of relevance in the assessment of risks foreseen in paragraph 1".¹³⁴³ Accordingly, the order of analysis issue in the present case is really between Articles 2.2 and 5.1 of the SPS Agreement, as Article 5.2 would be considered when looking at Article 5.1.

7.212 Prior cases do not provide unambiguous guidance regarding the proper order of analysis of simultaneous claims under Articles 2.2 and 5.1 of the SPS Agreement. In several such disputes, the

¹³³⁹ Appellate Body Report on *EC – Hormones*, para. 180. See also, Panel Report on *EC – Hormones (Canada)*, para. 8.96; Panel Report on *EC – Hormones (US)*, para. 8.93; Appellate Body Report on *Canada – Continued Suspension*, para. 526.

¹³⁴⁰ Appellate Body Report on *EC – Hormones*, para. 180. See also, Appellate Body Report on *Canada – Continued Suspension*, para. 526.

¹³⁴¹ Appellate Body Report on *Canada – Continued Suspension*, para. 674.

¹³⁴² Appellate Body Report on *Canada – Continued Suspension*, para. 527.

¹³⁴³ Panel Report on *Japan – Apples*, para. 8.230. See also, Panel Report on *US – Continued Suspension*, para. 7.441.

reports started with the more specific Article 5.1. In *EC – Hormones*, for example, the panel began its analysis by examining whether the challenged measures were based on relevant international standards, guidelines or recommendations or otherwise consistent with Article 3 of the SPS Agreement. Subsequently, the panel examined the risk assessment under Article 5. After having found that the measures in dispute were inconsistent with the requirements of Articles 3 and 5, "and considering that Articles 3 and 5 provide for more specific rights and obligations than the 'basic rights and obligations' set out in Article 2" the panel saw "no need to further examine whether the... measures in dispute also [violated] Article 2".¹³⁴⁴ The Appellate Body found no fault with this approach and agreed with the general consideration that that Article 5.1 can be viewed as a specific application of the basic obligations in Article 2.2.¹³⁴⁵, although it mentioned that an alternative approach that would have started by the more general Article 2 would appear "logically attractive".¹³⁴⁶ In *Australia – Salmon*, the Appellate Body agreed¹³⁴⁷ with a finding made by the panel, whereby a violation of Article 5.1 or 5.2 was considered to imply a violation of the more general provision of Article 2.2.¹³⁴⁸ The Appellate Body also agreed with the panel's view that "given the more general character of Article 2.2 not all violations of Article 2.2 are covered by Articles 5.1 and 5.2".¹³⁴⁹ Likewise, the panel in *EC – Approval and Marketing of Biotech Products* found that, by maintaining measures inconsistently with Article 5.1, a Member had by implication also acted inconsistently with the requirements in Article 2.2.¹³⁵⁰ The compliance panel in *Australia – Salmon (Article 21.5 – Canada)* followed the same order and found first that the challenged measures were not based on a risk assessment, and were therefore inconsistent with Article 5.1.¹³⁵¹ It went on to find that the same measures were by implication also inconsistent with Article 2.2.¹³⁵²

7.213 Some panels, however, have followed a different approach. The compliance panel in *Japan – Apples (Article 21.5 – US)*, for example, found first that the challenged measure was not supported by sufficient scientific evidence, and was therefore inconsistent with Article 2.2.¹³⁵³ The panel then went on to find that the same measure was not based on a risk assessment and was therefore also inconsistent with Article 5.1.¹³⁵⁴ The original panel in *Japan – Apples* had followed a similar approach.¹³⁵⁵

7.214 The close link between Articles 2.2, 5.1 and 5.2 of the SPS Agreement does not mean that these are identical provisions. Otherwise at least one of the provisions would be redundant. The Panel is aware in this respect that, as noted by the Appellate Body in *US – Gasoline*, under the general rule of interpretation contained in the Vienna Convention on the Law of Treaties, "interpretation must give meaning and effect to all the terms of a treaty" and "[a]n interpreter is not free to adopt a reading that would result in reducing whole clauses or paragraphs of a treaty to redundancy or inutility".¹³⁵⁶ With respect to the specific obligation that SPS measures are based on scientific principles, Article 2.2 directly focuses on the necessary link that must exist between the SPS measure and the scientific principles and evidence. Under Articles 5.1 and 5.2 of the SPS Agreement, such link is still

¹³⁴⁴ Panel Report on *EC – Hormones (Canada)*, para. 8.274. See also, Panel Report on *EC – Hormones (Canada)*, para. 8.96; Panel Report on *EC – Hormones (US)*, paras. 8.93 and 8.271.

¹³⁴⁵ Appellate Body Report on *EC – Hormones*, para. 180.

¹³⁴⁶ Appellate Body Report on *EC – Hormones*, para. 250.

¹³⁴⁷ Appellate Body Report on *Australia – Salmon*, para. 138.

¹³⁴⁸ Panel Report on *Australia – Salmon*, para. 8.52.

¹³⁴⁹ Appellate Body Report on *Australia – Salmon*, para. 138. Panel Report on *Australia – Salmon*, para. 8.52.

¹³⁵⁰ Panel Report on *EC – Approval and Marketing of Biotech Products*, paras. 7.3393-7.3396.

¹³⁵¹ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.83.

¹³⁵² Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.85.

¹³⁵³ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.120.

¹³⁵⁴ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.157.

¹³⁵⁵ Panel Report on *Japan – Apples*, paras. 8.199 and 8.290.

¹³⁵⁶ Appellate Body Report on *US – Gasoline*, p. 23.

necessary, but it is indirect as it rests on the requirement for a risk assessment. Any SPS measure must be based on a risk assessment, which, in turn, must be based on scientific evidence.

7.215 In the circumstances of the present case, the Panel will deal with New Zealand's simultaneous claims under Article 2.2 and Article 5.1 of the SPS Agreement, beginning its analysis with the "more specific" claims under Articles 5.1 and 5.2. In the current case, Australia has justified its SPS measures through a risk assessment. The scientific evidence that supports the measures should be (and, according to Australia, is) reflected in the risk assessment. Accordingly, the logical starting point to consider a challenge against the reasoning and scientific basis for the measures is whether the risk assessment is in conformity with the requirements laid down in the SPS Agreement. By focusing on Australia's IRA, the Panel can then determine whether Australia's SPS measures for the importation of New Zealand apples are being imposed and maintained without sufficient scientific evidence. This will entail looking at Australia's IRA in the light of the obligations contained in Article 5.1, while keeping in mind the factors identified in Article 5.2.

2. Standard of review

(a) Summary of the Parties' arguments

7.216 Recalling the words of the Appellate Body, Australia submits that the Panel should apply a standard of review that is specific to the SPS Agreement and the particular obligation in question.¹³⁵⁷ Under this standard, when a Member has acted in good faith to comply with its obligations under the SPS Agreement, a panel should, in its fact-finding role, show a degree of deference (but not total deference) in its review of that Member's regulatory decisions.¹³⁵⁸ Panels would need to show a relatively low level of deference to a decision by a Member directed at meeting specific requirements or managing the trade impact of the means by which a Member has sought to achieve particular ends, and not related to matters of scientific or regulatory judgement.¹³⁵⁹

7.217 Australia argues that, when "a Member has obtained and relied upon a comprehensive and transparent risk assessment" for the adoption of SPS measures, the SPS Agreement imposes a significant limitation on the jurisdiction of a panel. It would not be up to the panel to perform its own assessment, conducting a *de novo* review of the scientific evidence, but the panel should instead accord considerable deference (although not total deference) to the risk assessment.¹³⁶⁰ In considering the scientific basis of that risk assessment, the panel's role is to determine whether a valid risk assessment had been conducted, considering whether the risk assessor's decision was objective and credible.¹³⁶¹ A panel need not conduct an intense scrutiny of the scientific evidence, in order to satisfy its obligation to conduct an "objective assessment of the facts", unless the complainant has established that the panel cannot have reasonable confidence in the risk assessment, by showing that the risk assessment is not objective and credible, that the assessor failed to take into account evidence that would have led to a lower level of assessed risk, and that any flaws identified are "so serious" as to

¹³⁵⁷ Australia's first written submission, paras. 176-179, recalling the Appellate Body Report on *US – Softwood Lumber VI (Article 21.5 – Canada)*, para. 92; the Appellate Body Report on *Argentina – Footwear (EC)*, para. 121; the Appellate Body Report on *US – Lamb*, paras. 102-105; and the Appellate Body Report on *EC – Hormones*, para. 115; Australia's closing oral statement at the first substantive meeting of the Panel with the Parties, paras. 11-14; Australia's reply to Panel questions 55 and 56 after the first substantive meeting.

¹³⁵⁸ Australia's first written submission, paras. 180-183.

¹³⁵⁹ Australia's first written submission, paras. 189-190.

¹³⁶⁰ Australia's first written submission, paras. 191-199; Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 36. See also, Australia's reply to Panel question 57 after the first substantive meeting.

¹³⁶¹ Australia's first written submission, paras. 191-199 and 241.

prevent the Panel from having reasonable confidence in the evaluation made.¹³⁶² An indication of the "seriousness" is "whether it *prevents* a panel from having reasonable confidence in the overall risk assessment. That reasonable confidence may be undermined [if] the flaw in question appears to have made a material difference to the outcome of the assessment".¹³⁶³

7.218 Following the establishment of this Panel, the Appellate Body issued its report in *Canada/US – Continued Suspension*. Subsequently, Australia noted that, "[g]iven that the Appellate Body [had] now provided detailed guidance on a panel's standard of review in respect of risk assessments, Australia no longer [considered] it necessary to use the terms 'deference' or 'considerable deference'".¹³⁶⁴

7.219 Australia adds that New Zealand has failed to identify flaws in the IRA, "let alone any flaws serious enough to prevent the Panel from having 'reasonable confidence' in the evaluation made" with respect to the IRA's use of a semi-quantitative methodology¹³⁶⁵, to the risk assessment for fire blight¹³⁶⁶, to the risk assessment for European canker¹³⁶⁷, to the risk assessment for apple leafcurling midge¹³⁶⁸ and with respect to the evaluation of the likelihood of entry, establishment or spread of the relevant pests according to the SPS measures which might be applied.¹³⁶⁹

7.220 In response, New Zealand submits that the appropriate standard of review for this case is set out in Article 11 of the DSU.¹³⁷⁰ The Panel should focus on reviewing the sufficiency of the scientific evidence underlying Australia's SPS measures, determining whether the IRA is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable.¹³⁷¹ New Zealand notes that the "cumulative result of all the matters raised by New Zealand in respect of the risk assessment conducted by the IRA is that Australia has failed to comply with its obligations under Article 5.1 of the SPS Agreement."¹³⁷²

¹³⁶² Australia's first written submission, paras. 206-207, 346-347 and 875; Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 39; Australia's closing oral statement at the first substantive meeting of the Panel with the Parties, para. 15; Australia's second written submission, paras. 35-40; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 6 and 21; Australia's closing oral statement at the second substantive meeting of the Panel with the Parties, para. 2. See also, Australia's reply to Panel question 58 after the first substantive meeting; Australia's second written submission, paras. 1 and 7.

¹³⁶³ Australia's reply to Panel question 2 after the second substantive meeting, para. 14. Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, paras. 33-34.

¹³⁶⁴ Australia's second written submission, para. 15, footnote 13. See also, Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 20.

¹³⁶⁵ Australia's first written submission, paras. 288-342. See also, Australia's second written submission, paras. 10, and 238-312; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 34-58.

¹³⁶⁶ Australia's first written submission, paras. 349-525. See also, Australia's second written submission, paras. 313-452.

¹³⁶⁷ Australia's first written submission, paras. 526-719. See also, Australia's second written submission, paras. 453-612.

¹³⁶⁸ Australia's first written submission, paras. 720-851. See also, Australia's second written submission, paras. 614-700.

¹³⁶⁹ Australia's first written submission, paras. 852-874. See also, Australia's second written submission, paras. 727-729.

¹³⁷⁰ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 32; New Zealand's second written submission, paras. 2.43-2.44.

¹³⁷¹ New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 31-32.

¹³⁷² New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 112. See also, New Zealand's second written submission, paras. 2.297; New Zealand's opening oral

7.221 New Zealand rejects Australia's argument that the Panel should give "considerable deference" to the IRA. This standard finds no basis in the text of the SPS Agreement or the DSU and no basis in the previous findings of the Appellate Body and WTO panels.¹³⁷³ Australia's contention that, under Article 5.1, the appropriate role for the Panel is to determine whether its measures are based "on an objective and credible risk assessment" is closely related to Australia's proposed standard of "considerable deference", a standard that has been rejected by panels and the Appellate Body.¹³⁷⁴

7.222 New Zealand adds that Australia's argument that New Zealand would have to show "serious flaws" in the IRA is not supported by the jurisprudence, nor is Australia's suggestion that New Zealand must demonstrate "serious flaws" at each step of the risk assessment.¹³⁷⁵

(b) The Panel's analysis

7.223 The Appellate Body has repeatedly noted that "Article 11 of the DSU 'articulates with great succinctness but with sufficient clarity the appropriate standard of review for panels'¹³⁷⁶ reviewing the assessment of facts under the SPS Agreement".¹³⁷⁷ In relevant part, Article 11 of the DSU provides that:

"[A] panel should make an objective assessment of the matter before it, including an objective assessment of the facts of the case and the applicability of and conformity with the relevant covered agreements, and make such other findings as will assist the DSB in making the recommendations or in giving the rulings provided for in the covered agreements."

7.224 The Appellate Body has noted that "so far as fact-finding by panels is concerned, the applicable standard is 'neither *de novo* review as such, nor "total deference", but rather the "objective assessment of facts"'.¹³⁷⁸

7.225 As the Appellate Body noted in its report on *Canada/US – Continued Suspension*, the task of a panel reviewing the consistency of an SPS measure with Article 5.1 of the SPS Agreement is to determine whether that SPS measure is properly based on a risk assessment. While it is for the WTO Member to perform the risk assessment, the panel's task is to review that risk assessment. A panel that goes beyond this mandate and acts as a risk assessor, would be substituting its own scientific judgement for that of the risk assessor and making a *de novo* review. Consequently, the panel would be exceeding its functions under Article 11 of the DSU. "Therefore, the review power of a panel is ...

statement at the second substantive meeting of the Panel with the Parties, para. 33; New Zealand's reply to Panel questions 2 and 3 after the second substantive meeting, paras. 6 and 7-8.

¹³⁷³ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, paras. 11, 33-34; New Zealand's closing oral statement at the first substantive meeting of the Panel with the Parties, para. 4; New Zealand's second written submission, paras. 2.45-2.64. See also, New Zealand's reply to Panel question 56 after the first substantive meeting; New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 18-22, 27 and 33.

¹³⁷⁴ New Zealand's second written submission, paras. 2.299-2.301.

¹³⁷⁵ New Zealand's reply to Panel questions 2, 3 and 4 after the second substantive meeting, paras. 6, 7 and 9. New Zealand's comments to Australia's reply to Panel questions 2 and 3 after the second substantive meeting, paras. 4 and 8.

¹³⁷⁶ (footnote original) [Appellate Body Report on *EC – Hormones*], paras. 115 and 116.

¹³⁷⁷ Appellate Body Report on *Canada – Continued Suspension*, para. 587, quoting Appellate Body Report on *EC – Hormones*, paras. 113-114.

¹³⁷⁸ Appellate Body Report on *Canada – Continued Suspension*, para. 589, quoting Appellate Body Report on *EC – Hormones*, para. 117.

to determine whether that risk assessment is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable."¹³⁷⁹

"Accordingly, a panel reviewing the consistency of an SPS measure with Article 5.1 of the *SPS Agreement* must, first, identify the scientific basis upon which the SPS measure was adopted. ... Having identified the scientific basis underlying the SPS measure, the panel must then verify that the scientific basis comes from a respected and qualified source. ... A panel should also assess whether the reasoning articulated on the basis of the scientific evidence is objective and coherent. In other words, a panel should review whether the particular conclusions drawn by the Member assessing the risk find sufficient support in the scientific evidence relied upon. Finally, the panel must determine whether the results of the risk assessment 'sufficiently warrant' the SPS measure at issue."^{1380,1381}

7.226 In the considerations above, the Panel finds enough guidance on how to review Australia's SPS measures. The Panel finds no reason to articulate a standard of review that departs from such guidance. In any event, the Panel notes that, in its second written submission, Australia indicated that it would no longer insist on its earlier suggestion that, in its analysis of Australia's SPS measures under Article 5.1, the Panel should accord "considerable deference" to Australia's IRA.¹³⁸²

7.227 As quoted by Australia, the compliance panel on *Australia – Salmon (Article 21.5 – Canada)* pointed out that it had found "difficult to read into the summary definition of risk assessment set out in paragraph 4 of Annex A – which only refers to 'the evaluation of the likelihood' – specific requirements such that minor flaws or misconceptions at a detailed level would preclude a study from falling within the SPS definition of risk assessment".¹³⁸³ That panel added that "there may be studies that are flawed or biased to such extent that they cannot be said to meet any standard of objectivity. We do not think that such studies should pass the test of a risk assessment in accordance with the SPS Agreement."¹³⁸⁴

7.228 The reasoning made by the compliance panel on *Australia – Salmon (Article 21.5 – Canada)* does not necessarily clash with the general rules on the appropriate standard of review provided in the DSB and explained by the Appellate Body. The Panel remains bound to make an objective assessment of the matter before it. It is only under the circumstances of each case, that a panel can assess whether any flaws or misconceptions in a risk assessment, alleged and demonstrated by the complainant, are only minor or whether they are serious enough to conclude that the risk assessment is not supported by coherent reasoning and respectable scientific evidence and is, in this sense, not objectively justifiable. At the same time, a number of "minor flaws or misconceptions at a detailed level" may have a cumulative effect so as to call into question the coherence and objectivity of the conclusions drawn by the Member assessing risk.

7.229 The Panel will accordingly turn to reviewing Australia's IRA, considering its scientific basis and reasoning in the light of the alleged flaws that have been identified by New Zealand, in order to determine whether New Zealand has articulated a prima facie case that the IRA is not a proper risk assessment within the meaning of Article 5.1 of the SPS Agreement.

¹³⁷⁹ Appellate Body Report on *Canada – Continued Suspension*, para. 590.

¹³⁸⁰ (*footnote original*) [Appellate Body Report on *EC – Hormones*], para. 193.

¹³⁸¹ Appellate Body Report on *Canada – Continued Suspension*, para. 591.

¹³⁸² Australia's second written submission, para. 15, footnote 13.

¹³⁸³ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.47. See, for example, Australia's first written submission, para. 206.

¹³⁸⁴ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.47.

3. Summary of the Parties' arguments under Articles 5.1 and 5.2 of the SPS Agreement

7.230 As noted above, New Zealand argues that Australia's IRA is not a risk assessment within the meaning of Article 5.1 of the SPS Agreement.¹³⁸⁵ Australia has not properly evaluated the likelihood of entry, establishment or spread of the three relevant pests, nor has it evaluated that likelihood according to the SPS measures which might be applied.¹³⁸⁶ In New Zealand's view, "the conclusions in the IRA do not find sufficient support in the scientific evidence relied upon".¹³⁸⁷ To the extent that a proper risk assessment does not exist to support Australia's measures, those measures cannot be said to be "based on" a risk assessment.¹³⁸⁸

7.231 New Zealand does not challenge *per se* Australia's choice to use a semi-quantitative approach to assess the risk associated with the three pests at issue in this dispute. New Zealand does, however, argue that such an approach may provide a misleading impression of objectivity and precision.¹³⁸⁹ In addition, in New Zealand's view, the particular application of the semi-quantitative method used in the IRA produces a distorted estimate of risk, turning events that "would almost certainly not occur" into events that "will be expected to occur relatively frequently" and converting "pathways that did not exist" into "continuous pathways for the transmission of pests".¹³⁹⁰ New Zealand also argues that:

"[W]ith regard to many of the individual steps in the relevant pathways ... assessments in the IRA significantly overestimate the risk. ... [I]n many instances, these are events which have never been demonstrated to occur, and for which there is no scientific evidence to suggest they would occur. Moreover the numbers actually assigned in the IRA find no support in the science. The distorting effect is compounded where a number of these events occur in the same pathway."¹³⁹¹

7.232 New Zealand identifies three "fundamental methodological flaws" in Australia's IRA that, in combination, would result in a vastly overestimated probability of entry, establishment and spread of the pests at issue. According to New Zealand: "[t]hese flaws magnify the assessment of risk, turning what are often the remotest of possibilities into events that are assessed as occurring with some frequency."¹³⁹² The first methodological flaw identified by New Zealand is the IRA's choice of "an inflated maximum value [of 1×10^{-6}] for the probability of events with a negligible likelihood of occurring".¹³⁹³ The second methodological flaw is the "inappropriate use of [a] uniform distribution to model the likelihood of events, particularly those with a 'negligible' likelihood of occurring".¹³⁹⁴

¹³⁸⁵ New Zealand's first written submission, para. 4.158. See also, New Zealand's first written submission, para. 4.153.

¹³⁸⁶ New Zealand's first written submission, paras. 1.8, 4.158 and 4.403-4.404. See also, New Zealand's first written submission, paras. 4.160, 4.204-4.206, 4.207, 4.265, 4.333, 4.378, 4.383 and 4.402; and, New Zealand's second written submission, paras. 2.293-2.803.

¹³⁸⁷ New Zealand's second written submission, para. 2.296.

¹³⁸⁸ New Zealand's first written submission, para. 4.153. See also, New Zealand's reply to Panel question 117 after the first substantive meeting, para. 257; and, New Zealand's second written submission, para. 2.794.

¹³⁸⁹ New Zealand's first written submission, para. 4.165; New Zealand's second written submission, para. 2.327.

¹³⁹⁰ New Zealand's first written submission, paras. 4.171-4.173.

¹³⁹¹ New Zealand's second written submission, para. 2.297.

¹³⁹² *Ibid.*

¹³⁹³ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, para. 4.174-4.186; New Zealand's second written submission, para. 2.333-2.352.

¹³⁹⁴ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, para. 4.187-4.193; New Zealand's second written submission, para. 2.353-2.358.

The third methodological flaw is "the overestimation of the projected volume of trade" in New Zealand apples.¹³⁹⁵

7.233 New Zealand states that Australia's measures are also inconsistent with Article 5.2 of the SPS Agreement. At various points, Australia's IRA failed to give genuine consideration to the relevant scientific evidence; to the relevant processes and production methods; to the relevant inspection, sampling and testing methods; to the prevalence of the relevant diseases or pests; and to the relevant environmental conditions.¹³⁹⁶

7.234 Australia responds that the IRA is a proper risk assessment under Article 5.1 of the SPS Agreement. New Zealand fails to recognize that risk assessments must confront scientific uncertainty, which may only be resolved or accommodated "through the exercise of expert judgement in accordance with the specific requirements of each case".¹³⁹⁷ The legal question that the Panel must consider is not whether New Zealand's "alternative scientific account" is credible or even represents mainstream opinion, but whether Australia's measures are based on an objective and coherent risk assessment.¹³⁹⁸ In this respect, Australia considers that, in order to make a case that the reasoning articulated in the IRA is not objective and coherent, New Zealand would need to substantiate serious flaws in that assessment; minor flaws would not be sufficient to undermine the IRA's overall objectivity and coherence.¹³⁹⁹

7.235 Australia also argues that New Zealand fails to appreciate that risk assessments must be appropriate to the circumstances and, therefore, that they must take into account country-specific situations. Because Australia's agricultural sector and biological diversity are both dependent on Australia's pest and disease status, the risks of pest and disease incursion in Australia are often serious and irreversible.¹⁴⁰⁰ Australia adds that New Zealand mistakenly attempts to draw a direct analogy between the findings of the panel in *Japan – Apples* and the present dispute. The reports in *Japan – Apples* do not constitute a risk assessment, and their findings are specific to the circumstances of that dispute, which are different from the facts of the current case.¹⁴⁰¹

7.236 Australia rejects New Zealand's contention that the IRA has not properly evaluated the likelihood of entry, establishment or spread of the three relevant pests, and that it has not evaluated that likelihood according to the SPS measures which might be applied.¹⁴⁰² Australia argues in this regard that the IRA has properly assigned a quantitative or qualitative estimation of likelihood to

¹³⁹⁵ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, para. 4.194-4.203; New Zealand's second written submission, para. 2.359-2.367.

¹³⁹⁶ New Zealand's first written submission, paras. 1.11, 1.12, 4.411-4.428; New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, paras. 113-114. See also, New Zealand's reply to Panel question 121 after the first substantive meeting, paras. 259-265; New Zealand's second written submission, paras. 2.804-2.816; New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 110; New Zealand's reply to Panel question 116 after the second substantive meeting, paras. 182-186; and New Zealand's comments on Australia's reply to Panel question 116 after the second substantive meeting, para. 269.

¹³⁹⁷ Australia's first written submission, para. 233. See also, Australia's first written submission, paras. 231-235; Australia's second written submission, paras. 111-116.

¹³⁹⁸ Australia's first written submission, paras. 240-241.

¹³⁹⁹ Australia's second written submission, para. 35.

¹⁴⁰⁰ Australia's first written submission, paras. 243-249. See also, Australia's second written submission, paras. 117-121.

¹⁴⁰¹ Australia's first written submission, paras. 250-261. See also, Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 19.

¹⁴⁰² Australia's first written submission, para. 263.

every step in the risk assessment.¹⁴⁰³ Australia likewise rejects New Zealand's complaint regarding the IRA's consideration of events with a "negligible" likelihood.¹⁴⁰⁴

7.237 In Australia's view, New Zealand cannot make a prima facie case against the IRA under Article 5.1 of the SPS Agreement by conducting its own risk assessment according to its own methodology.¹⁴⁰⁵ Australia argues further that New Zealand fails to identify flaws in the semi-quantitative methodology used in the IRA¹⁴⁰⁶ and that New Zealand's reliance in this regard on a handbook by the OIE is inappropriate.¹⁴⁰⁷ Australia submits also that the IRA's use of a probability interval of $0-10^{-6}$ is appropriate¹⁴⁰⁸, that the IRA's use of uniform distribution did not inflate risk¹⁴⁰⁹ and that New Zealand's assertions on the volume of trade are based on faulty assumptions.¹⁴¹⁰

7.238 Regarding New Zealand's argument that the challenged measures are also inconsistent with Article 5.2 of the SPS Agreement, Australia responds that the IRA Team took into account all of the factors listed in Article 5.2, including those identified by New Zealand, and New Zealand has failed to demonstrate otherwise. Australia argues further that New Zealand's reading of Article 5 as an obligation to give "genuine consideration" to these factors is not grounded in the text of the provision and is instead merely a complaint that the IRA Team took a different view to New Zealand's own view of these factors.¹⁴¹¹

7.239 Australia argues finally that the IRA makes an objective and credible evaluation of the likelihood of entry, establishment and spread of the three relevant pests, as well as the associated potential biological and economic consequences, and New Zealand fails to prove otherwise.¹⁴¹² Australia concludes that its measures are consistent with Article 5.1 of the SPS Agreement and, accordingly, also with Article 2.2.¹⁴¹³

4. Requirements regarding fire blight

7.240 The IRA contains a section describing the biology of the bacterial disease fire blight, a description of the risk scenario, a discussion of the likelihood of entry, establishment and spread of fire blight, an assessment of the consequences, a description of the unrestricted risk and, finally, a discussion of risk management measures.¹⁴¹⁴

¹⁴⁰³ Australia's first written submission, paras. 265-268.

¹⁴⁰⁴ Australia's first written submission, paras. 269-275.

¹⁴⁰⁵ Australia's first written submission, paras. 279-287.

¹⁴⁰⁶ Australia's first written submission, para. 288. See also, Australia's second written submission, paras. 222-237; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 34-35.

¹⁴⁰⁷ Australia's first written submission, paras. 290-294.

¹⁴⁰⁸ Australia's first written submission, paras. 295-311. See also, Australia's second written submission, paras. 242-246; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 36-46.

¹⁴⁰⁹ Australia's first written submission, paras. 312-318. See also, Australia's second written submission, paras. 264-274; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 47-52.

¹⁴¹⁰ Australia's first written submission, paras. 319-341. See also, Australia's second written submission, paras. 275-311; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 53-57.

¹⁴¹¹ Australia's first written submission, paras. 877-880; Australia's second written submission, paras. 147-153.

¹⁴¹² Australia's first written submission, paras. 348-874. See also, Australia's second written submission, paras. 313-444, 453-605, 614-702 and 731-733.

¹⁴¹³ Australia's first written submission, paras. 344, 875-876.

¹⁴¹⁴ Australia's IRA, Part B, pp. 51-116.

7.241 In its panel request, New Zealand challenges the following requirements imposed by Australia with respect to fire blight:

- "The requirement that apples be sourced from areas free from fire blight disease symptoms.
- The requirement that orchards/blocks be inspected for fire blight disease symptoms, including that they be inspected at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees, and that such inspections take place between 4 to 7 weeks after flowering.
- The requirement that an orchard/block inspection methodology be developed and approved that addresses issues such as visibility of symptoms in the tops of trees, the inspection time needed and the number of trees to be inspected to meet the efficacy level, and training and certification of inspectors.
- The requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of fire blight.
- The requirement that an orchard/block be suspended for the season on the basis of detection of any visual symptoms of fire blight.
- The requirement that apples be subject to disinfection treatment in the packing house.
- The requirement that all grading and packing equipment that comes in direct contact with apples be cleaned and disinfected (using an approved disinfectant) immediately before each Australian packing run.
- The requirement that packing houses registered for export of apples process only fruit sourced from registered orchards."¹⁴¹⁵

7.242 New Zealand argues that:

"The Australian contention that mature, symptomless apples provide a pathway for transmitting fire blight is not supported by scientific evidence. Such a pathway has not been shown to exist ... Australia's contention finds no support in science. Speculation about a transmission pathway does not constitute 'sufficient scientific evidence' within the meaning of Article 2.2 [of the SPS Agreement]. The likelihood of the coincidence of circumstances that would be required to establish such a pathway for transmission of the disease via mature, symptomless fruit is negligible."¹⁴¹⁶

¹⁴¹⁵ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, pp. 1-2. See also, Australia's IRA, Part B, pp. 105-116.

¹⁴¹⁶ New Zealand's first written submission, paras. 4.7-4.8. See also, New Zealand's first written submission, paras. 4.10, 4.31-4.32, 4.51 and 4.150; New Zealand's second written submission, paras. 2.104-2.124.

7.243 In New Zealand's view, "[t]he IRA fails to evaluate the 'likelihood' of entry, establishment and spread of fire blight as well as the potential biological and economic consequences within the meaning of paragraph 4 of Annex A. Accordingly Australia has failed to comply with its obligations under Article 5.1 of the SPS Agreement."¹⁴¹⁷

7.244 New Zealand adds that Australia is also in violation of its obligations under Article 5.1 of the SPS Agreement because "[t]he IRA fails to provide an evaluation of the likelihood of entry, establishment or spread of the diseases and pests of concern 'according to the SPS measures which might be applied' and, therefore, fails to meet the third requirement for a risk assessment within the meaning of paragraph 4 of Annex A."¹⁴¹⁸

7.245 The Panel will start by considering Australia's requirements with respect to fire blight under Articles 5.1 and 5.2 of the SPS Agreement, focusing on the specific alleged flaws in the IRA identified by New Zealand in its various submissions. The Panel will consider whether New Zealand has properly made the case that:

- (a) The IRA contains methodological flaws that result in a vast overestimation of the probability of entry, establishment and spread of fire blight, as well as of the other relevant pests in this dispute, into Australia through apples from New Zealand;
- (b) The IRA has overestimated the probability of entry, establishment and spread of fire blight into Australia through apples from New Zealand, including through the estimation of various "importation steps", and the IRA's reasoning in this regard is not properly based on scientific evidence;
- (c) The IRA has overestimated the potential biological and economic consequences associated with the entry, establishment and spread of fire blight in Australia, and the IRA's reasoning in this regard is not properly based on scientific evidence;
- (d) The IRA has overestimated the unrestricted risk of fire blight from apples from New Zealand, and the IRA's reasoning in this regard is not properly based on scientific evidence; and,
- (e) Australia's requirements imposed by Australia with respect to fire blight are consequently not properly based on scientific evidence and, consequently, inconsistent with the SPS Agreement.

Subsequently, and if necessary, the Panel will turn to New Zealand's allegation that the IRA fails to provide an evaluation of the likelihood of entry, establishment or spread of fire blight "according to the SPS measures which might be applied".

7.246 The Panel will conduct this review beginning with the arguments raised by New Zealand specifically in the context of the IRA's analysis regarding fire blight. The Panel will follow the same order as the IRA, which is generally the order in which Parties raised their arguments. Accordingly, the Panel will consider the issues as follows: the eight importation steps described in the IRA; the IRA's analysis of proximity; the IRA's analysis of exposure; the IRA's analysis of establishment; the IRA's analysis of spread; the IRA's analysis of the potential associated biological and economic

¹⁴¹⁷ New Zealand's first written submission, para. 4.265. See also, New Zealand's first written submission, paras. 4.208-4.265 and 4.403-4.404; New Zealand's second written submission, paras. 2.293, 2.368, 2.458

¹⁴¹⁸ New Zealand's first written submission, para. 4.402. See also, New Zealand's first written submission, paras. 4.403-4.404 and 4.384-4.392; New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, paras. 108-111; New Zealand's second written submission, para. 2.785.

consequences; and, the IRA's analysis of the unrestricted risk of fire blight. The Panel will then, if necessary, turn to New Zealand's arguments regarding the alleged methodological flaws in the IRA.

(a) Alleged overestimation for importation step 1

7.247 Importation step 1 represents the likelihood that the relevant pest is present in the source orchards.¹⁴¹⁹

(i) *Summary of the Parties' arguments*

7.248 Regarding importation step 1 for fire blight, New Zealand argues that the IRA's estimation that *Erwinia amylovora* would be present in 100 per cent of source orchards in New Zealand is incorrect and constitutes a "significant overestimation".¹⁴²⁰ In New Zealand's view, this conclusion is "based on a misreading of scientific literature and incorrect assumptions [and is] not supported by the scientific evidence".¹⁴²¹

7.249 New Zealand contends that the evidence cited by the IRA does not demonstrate, as claimed by the IRA that "*E. amylovora* was detected in New Zealand both from orchards with fire blight symptoms ... and those without symptoms."¹⁴²² New Zealand adds that "it is widely accepted in the scientific literature and by the scientific community that fruit from orchards with no symptoms of fire blight do not harbour populations of *E. amylovora*."¹⁴²³ New Zealand also rejects the IRA's statement that "fire blight caused by *E. amylovora* is widespread in New Zealand and supports the conclusion that the bacterium would be present in all orchards at harvest throughout the major production areas".¹⁴²⁴ New Zealand argues instead that "fire blight is not routinely detected in all orchards in New Zealand; the disease is sporadic in nature."¹⁴²⁵

7.250 In response, Australia contends that, because the IRA found that "[t]here is no scientific literature that indicates that any area of New Zealand is free of the fire blight bacteria and MAFNZ has not provided any information in support of freedom for any apple producing areas in New Zealand"¹⁴²⁶, it concluded that the likelihood that *Erwinia amylovora* is present in the source orchards in New Zealand is 1 (100 per cent).¹⁴²⁷

7.251 In Australia's view, New Zealand misunderstands the purpose of importation step 1. This importation step "is not concerned with the presence of *E. amylovora* on fruit, nor is it concerned with

¹⁴¹⁹ Australia's IRA, Part B, pp. 19-21.

¹⁴²⁰ New Zealand's first written submission, para. 4.212. See also New Zealand's second written submission, para. 2.402.

¹⁴²¹ New Zealand's first written submission, para. 4.209.

¹⁴²² New Zealand's first written submission, para. 4.210. Australia's IRA, Part B, p. 53, referring to Hale *et al.*, "Occurrence of *Erwinia amylovora* on apple fruit in New Zealand" (1987), in Exhibit NZ-21; and Clark *et al.*, "A DNA approach to *Erwinia amylovora* detection in large scale apple testing and in epidemiological studies" (1993), in Exhibit NZ-53.

¹⁴²³ New Zealand's first written submission, para. 4.210, referring to Thomson, "Epidemiology of fire blight" (2000), p.17, in Exhibit NZ-05; Roberts *et al.*, "The potential for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (1998), p. 23, in Exhibit NZ-22; and Hale *et al.* "Occurrence of *Erwinia amylovora* on apple fruit in New Zealand" (1987), in Exhibit NZ-21, p. 37.

¹⁴²⁴ Australia's IRA, Part B, p. 53.

¹⁴²⁵ New Zealand's first written submission, para. 4.211, referring to Thomson and Hale, "A comparison of fire blight incidence and environment between New Zealand and Western United States (1987), p. 1, in Exhibit NZ-94.

¹⁴²⁶ Australia's IRA, Part B, p. 54.

¹⁴²⁷ Australia's first written submission, para. 378.

the occurrence (or non occurrence) of disease *symptoms*. It is concerned exclusively with the presence of *E. amylovora* in source *orchards*.¹⁴²⁸

7.252 In Australia's words:

"[T]he presence or absence of fire blight symptoms, on their own, are not a good indicator of the presence or absence of *E. amylovora* in an orchard. The organism can be present in orchards even if disease symptoms are not detected, or the orchard is surrounded by infected alternative hosts. This is precisely the point made in the discussion under Importation step 1 in the Final IRA Report.¹⁴²⁹ Accordingly, New Zealand's claim that 'fire blight is not routinely detected in all orchards in New Zealand' because the 'disease is sporadic in nature'¹⁴³⁰ is also irrelevant because it relates entirely to the detection of disease symptoms."¹⁴³¹

7.253 Australia submits that, under Article 5.2 of the SPS Agreement, risk assessors can only proceed on the scientific evidence available; in that sense, they would not be obliged to make assumptions on issues such as orchard freedom without reliable proof from the exporting Member that those orchards are in fact free of *Erwinia amylovora*. While there was evidence supporting the conclusion that no orchard could be assumed free of *Erwinia amylovora*, there was no evidence demonstrating freedom in any potential export orchard.¹⁴³²

7.254 Australia concludes that the IRA "did not misread the scientific literature, make incorrect assumptions or fail to take account of scientific evidence". Accordingly, Australia submits that "New Zealand has not presented any arguments or evidence that show the conclusions of the IRA Team in relation to Importation step 1 are flawed."¹⁴³³

(ii) *The Panel's analysis*

7.255 The IRA estimates the likelihood that *Erwinia amylovora* is present in the source orchards in New Zealand as 1 (100 per cent).¹⁴³⁴ This is based on a consideration that "[t]here is no scientific literature that indicates that any area of New Zealand is free of the fire blight bacteria and MAFNZ has not provided any information in support of freedom for any apple producing areas in New Zealand."¹⁴³⁵

7.256 An important element of the IRA's analysis in this regard is its consideration that "*Erwinia amylovora* was detected in New Zealand both from orchards with fire blight symptoms ... and those without symptoms."¹⁴³⁶ As noted by Dr Paulin, one of the experts assisting the Panel, the assumption that *Erwinia amylovora* can be present in orchards even if disease symptoms are not detected is well known.¹⁴³⁷ The expert explained that the possibility that *Erwinia amylovora*, after having infected a

¹⁴²⁸ Australia's first written submission, para. 379 (original emphasis; footnote omitted).

¹⁴²⁹ (footnote original) Final IRA Report, Part B, pp. 53-54.

¹⁴³⁰ (footnote original) New Zealand's first written submission, para. 4.211.

¹⁴³¹ Australia's first written submission, para. 382.

¹⁴³² Australia's second written submission, para. 364.

¹⁴³³ Australia's first written submission, para. 383. See also, Australia's second written submission, para. 365.

¹⁴³⁴ Australia's IRA, Part B, pp. 53-55.

¹⁴³⁵ Australia's IRA, Part B, p. 54.

¹⁴³⁶ Australia's IRA, Part B, p. 53.

¹⁴³⁷ Dr Paulin's reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, paras. 147 and 150.

plant, may migrate inside the tree is well documented.¹⁴³⁸ This may result in the presence of undetected bacterial population in the trunks and branches. Dr Paulin explained, however, that this population is unlikely to pollute the fruit surface, being internal to the tree.¹⁴³⁹ Another expert, Dr Deckers and Dr Paulin agreed that another source of bacteria in a healthy orchard could be wind-driven rain or insects or birds carrying bacteria in ooze from near-by (but possibly unseen) "alternative" host plants, which may be difficult to survey, and whose presence is sometimes not even acknowledged.¹⁴⁴⁰ In any event, Dr Paulin noted that these bacteria would soon disappear, because *Erwinia amylovora* is generally not a good epiphyte, although they may cause late infection which may constitute a bacterial population in a symptomless orchard. According to Dr Paulin, this possibility is "probably more likely in the case of New Zealand, where the history of fire blight is very long on the same sites. (The European concept of 'protected zone' is probably not applicable in this case.)"¹⁴⁴¹

7.257 Importation step 1 is a very important starting point for Australia's IRA. The following step, importation step 2, assesses the likelihood that picked fruit is contaminated with *Erwinia amylovora*. The likelihood in step 2 is directly related to the history of fire blight in the year of cropping (whether active symptoms producing inoculum were present) and in the previous years (for the possibility of internal presence of *Erwinia amylovora* in the xylem). Consulted by the Panel, Dr Paulin noted that, if this latter possibility has very little chance to result in internal fruit contamination (especially in mature symptomless apples), these chances are nil if *Erwinia amylovora* has not been present in the orchard for years.¹⁴⁴²

7.258 As noted by Dr Paulin, due to the long history of fire blight in New Zealand, it seems difficult to be sure in advance that any orchard is free from fire blight. In the Panel's view, the scientific basis considered by the IRA in this regard comes from respected and qualified sources. This does not mean, however, that each orchard in New Zealand will present *Erwinia amylovora* or symptoms of the fire blight disease every year.¹⁴⁴³ The probability of one, assigned by the IRA, means that *Erwinia amylovora* is present and would always be present, in all of New Zealand source orchards.¹⁴⁴⁴ The scientific evidence presented in the IRA does not demonstrate that this is true. On the contrary, the evidence indicates that at least some source orchards in New Zealand will at times be free from *Erwinia amylovora*. Accordingly, while the IRA's basis with respect to this importation step comes from respected and qualified scientific sources, the IRA's reasoning in this regard is not coherent and objective and the resulting likelihood assigned to this step is exaggerated. As noted by Dr Paulin, "[i]f the probability of 1 means that all orchards are contaminated by *E amylovora* each year, it is probably a mere exaggeration. ... [E]ach apple orchard symptom-free in New Zealand may be

¹⁴³⁸ Thomson, "Epidemiology of fire blight" (2000), in Exhibit NZ-05. See, Reply of Dr Paulin to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 147.

¹⁴³⁹ Dr Paulin's reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 147.

¹⁴⁴⁰ Dr Paulin's reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 148. See also, Dr Deckers' reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 164.

¹⁴⁴¹ Dr Paulin's reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 148.

¹⁴⁴² Dr Paulin's reply to Panel question 23, in List of Replies from the scientific experts to questions posed by the Panel, para. 166.

¹⁴⁴³ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 315.

¹⁴⁴⁴ Dr Sgrillo's reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 163; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 319.

temporarily contaminated by *E amylovora*, not permanently. Therefore the chance for apples to be sourced from orchards harbouring *E. amylovora* should be significantly less than one."¹⁴⁴⁵

7.259 In conclusion, the Panel finds that the IRA's estimation that *Erwinia amylovora* will always be present in the source orchards in New Zealand is not sufficiently supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.

(b) Alleged overestimation for importation step 2

7.260 Importation step 2 represents the likelihood that fruit coming from an infected or infested orchard is infected or infested.¹⁴⁴⁶

(i) Summary of the Parties' arguments

7.261 Regarding importation step 2 for fire blight, New Zealand argues that the IRA "seriously overestimates the likelihood of mature fruit being infested (let alone infected)" with *Erwinia amylovora*.¹⁴⁴⁷ In New Zealand's view, the IRA's probability value for this step "has been assigned on the basis of a misreading or discounting of the scientific literature".¹⁴⁴⁸ The papers cited by the IRA do not support the IRA's estimates of infestation/infection of apples with *Erwinia amylovora*.¹⁴⁴⁹

"[T]he IRA assigns a probability for infection or infestation of mature fruit that is over 20 times higher than is justified by the scientific evidence. In any event, the numbers of bacteria found on mature fruit are insufficient to be spread to and colonise a new host to initiate an infection (were such spread possible). Indeed, there is no pathway for the transmission of fire blight by mature, symptomless apples."¹⁴⁵⁰

7.262 New Zealand concludes that "[i]n the absence of scientific support for the probability assigned to this step, the IRA should instead have treated such probability as negligible."¹⁴⁵¹

¹⁴⁴⁵ Dr Paulin's reply to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, para. 161 (original emphasis). See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 315; Dr Paulin's and Dr Schrader's replies to Panel question 22, in List of Replies from the scientific experts to questions posed by the Panel, paras. 152, 157 and 159 and 162.

¹⁴⁴⁶ Australia's IRA, Part B, pp. 19-21.

¹⁴⁴⁷ New Zealand's first written submission, para. 4.217.

¹⁴⁴⁸ New Zealand's first written submission, para. 4.213. Australia's IRA, Part B, pp. 55-65. See also, Clark *et al.*, "A DNA approach to *Erwinia amylovora* detection in large scale apple testing and in epidemiological studies" (1993), in Exhibit NZ-53; van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31; Hale *et al.*, "Occurrence of *Erwinia amylovora* on apple fruit in New Zealand" (1987), in Exhibit NZ-21; Hale and Taylor, "Effect of Cool Storage on Survival of *Erwinia amylovora* on Apple Calyxes" (1999), in Exhibit NZ-24; Dueck, "Survival of *Erwinia amylovora* in Association with Mature Apple Fruit" (1974), in Exhibit NZ-96; Roberts *et al.*, "Evaluation of Mature Apple Fruit from Washington State for the presence of *Erwinia amylovora*" (1989), in Exhibit NZ-97; Roberts, "Evaluation of Buffer Zone Size and Inspection Number Reduction on Phytosanitary Risk Associated with Fire Blight and Export of Mature Apple Fruit" (2002), in Exhibit NZ-20; Roberts *et al.*, "The potential for spread of *Erwinia amylovora* and fire blight via commercial apple fruit: A critical review and risk assessment" (1998), in Exhibit NZ-22; and, Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29.

¹⁴⁴⁹ New Zealand's first written submission, para. 4.213-4.220. See also New Zealand's comments on Australia's replies to New Zealand's question 1 after the second substantive meeting, paras. 1-5.

¹⁴⁵⁰ New Zealand's first written submission, para. 4.219. See, Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29.

¹⁴⁵¹ New Zealand's first written submission, para. 4.220.

7.263 In response, Australia contends that New Zealand's assertions regarding importation step 2 "are without merit".¹⁴⁵² Australia argues that, "[i]n contrast to the comprehensive analysis conducted by the IRA Team, New Zealand refers to only a handful of scientific studies in support of its claims, and places particular reliance on the conclusions in Roberts and Sawyer (2008)."¹⁴⁵³ Australia makes a number of arguments in relation to Roberts and Sawyer (2008).¹⁴⁵⁴ Australia argues that none of the studies relied upon by Roberts and Sawyer (2008) were sensitive enough to detect very low numbers of *E. amylovora* on or in apple fruit.¹⁴⁵⁵ It argues that the findings in Roberts and Sawyer (2008) are largely based on studies relevant to the circumstances of the trade in apples from the United States to Japan prior to the *Japan – Apples* dispute, which involved the use of phytosanitary measures. As such, these studies are not relevant to the assessment of unrestricted risk in the IRA.¹⁴⁵⁶ It also argues that Roberts and Sawyer (2008) uses data inconsistently.¹⁴⁵⁷

7.264 Australia adds that importation step 2 is represented by a probability range, and not by a single value.¹⁴⁵⁸ Contrary to New Zealand's assumption, Australia argues that the IRA "drew a very clear distinction between internal infection and external infestation of apples".¹⁴⁵⁹ According to Australia, the IRA found a paucity of evidence on endophytic (internal) infection in mature fruit. Accordingly, the IRA concludes that the importation risk scenario of particular relevance to *Erwinia amylovora* is instead one associated with epiphytic external infestation.¹⁴⁶⁰

7.265 Australia argues further that New Zealand's claim "is based on a selective reading of the evidence which, in places, misrepresents the scientific studies actually relied on by New Zealand."¹⁴⁶¹ It is not enough for New Zealand to show that there is an alternative scientific account of a particular phenomenon. New Zealand has not shown that the account given in the IRA is not credible. Australia submits, however, that "even if the alternative assessments of likelihood are taken at face value ... they are nevertheless unconvincing."¹⁴⁶²

¹⁴⁵² Australia's first written submission, para. 388.

¹⁴⁵³ *Ibid.*

¹⁴⁵⁴ Australia's first written submission, paras. 363-376; Australia's second written submission, paras. 330-337 and Annex 1.

¹⁴⁵⁵ Australia's first written submission, para. 401.

¹⁴⁵⁶ Australia's first written submission, para. 365.

¹⁴⁵⁷ Australia's second written submission, Annex 1, paras. 15-24.

¹⁴⁵⁸ Australia's first written submission, paras. 397 and 410.

¹⁴⁵⁹ Australia's first written submission, para. 389. See also, Australia's first written submission, para. 407.

¹⁴⁶⁰ Australia's first written submission, para. 390. See also, Australia's first written submission, para. 407.

¹⁴⁶¹ Australia's first written submission, para. 391.

¹⁴⁶² Australia's first written submission, para. 396. Hale *et al.*, "Occurrence of *Erwinia amylovora* on apple fruit in New Zealand" (1987), in Exhibit NZ-21; Hale and Taylor, "Effect of Cool Storage on Survival of *Erwinia amylovora* on Apple Calyxes" (1999), in Exhibit NZ-24; van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31; McManus and Jones, "Detection of *Erwinia amylovora* by nested PCR and PCR-Dot-Blot and Reverse-Blot Hybridizations" (1995), in Exhibit AUS-33; and, Sholberg *et al.*, "Occurrence of *Erwinia amylovora* of pome fruit in British Columbia in 1985 and its elimination from the apple surface" (1988), in Exhibit AUS-34; Hale and Clark, "Detection of *Erwinia amylovora* from apple tissue by DNA hybridisation" (1990), in Exhibit AUS-35; Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29; and, Ordax *et al.*, "Survival of *Erwinia amylovora* in mature apple fruit calyxes" (2008), in Exhibit AUS-36.

(ii) *The Panel's analysis*

7.266 The IRA estimates the likelihood that picked fruit is infested or infected with *Erwinia amylovora* as a triangular distribution with a minimum value of 10^{-3} (1 in 1,000), a maximum value of 5×10^{-2} (5 in 100) and a most likely value of 3×10^{-2} (3 in 100).¹⁴⁶³

7.267 The IRA notes that "there is a considerable amount of variation on the infestation rates reported. ... The IRA Team concluded that it was appropriate to choose a value for Imp2 that adequately took into account the range of variation that was reported in this literature ..."¹⁴⁶⁴

7.268 The IRA also notes that the evaluation of this step takes into account that apples could be sourced from anywhere in New Zealand irrespective of the fire blight status of orchards, including from orchards with active fire blight, orchards that show few or no symptoms but are very close to active fire blight in hedgerow plants, or orchards that show no symptoms and are some distance from an active fire blight host. Because of the widespread distribution of fire blight in New Zealand, the IRA concludes that more weight should be given to studies on apples sourced from orchards that were showing symptoms of fire blight disease. The IRA acknowledges that certain studies found no evidence of fire blight bacteria on mature symptomless apples and that some of these studies were carried out on orchards showing symptoms of fire blight. However, the IRA points out that, "given that there are a number of studies that confirm the presence of fire blight bacteria on such fruit, studies that found no evidence of fire blight bacteria on mature symptomless apples were given much less weight [in the IRA]".¹⁴⁶⁵

7.269 Consulted by the Panel, Dr Paulin noted that the IRA's reasoning regarding infestation at this step, seems coherent and based on available evidence, "although it may tend to exaggerate the risks" of *Erwinia amylovora* associated with mature symptomless fruits.¹⁴⁶⁶ The same expert noted, however, that "this step, which deals with epiphytically or surface-infested fruit, seems to me of quite low danger, because this population is low and easy to remove. So that is why I think this step could be considered as low risk."¹⁴⁶⁷

7.270 Most of the scientific sources cited by the IRA seem respected and credible.¹⁴⁶⁸ As noted by Dr Paulin, however, the van der Zwet *et al.* (1990) study should have been considered with extreme caution, in the light of the subsequent qualifications made by its own first author.¹⁴⁶⁹ In a declaration made in July 2002, Dr van der Zwet cautioned that the results of his 1990 study were obtained from fruit harvested in West Virginia, United States, in a situation of severe fire blight. In the view of that author, the results from the study "are not relevant for purposes of setting quarantine measures on exported, mature fruit".¹⁴⁷⁰ Dr Paulin also noted that other data, such as in the paper from Sholberg

¹⁴⁶³ Australia's IRA, Part B, pp. 55-65.

¹⁴⁶⁴ Australia's IRA, Part B, p. 65.

¹⁴⁶⁵ *Ibid.*

¹⁴⁶⁶ Dr Paulin's reply to Panel question 6, in List of Replies from the scientific experts to questions posed by the Panel, in List of Replies from the scientific experts to questions posed by the Panel, para. 50. See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 346.

¹⁴⁶⁷ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 271.

¹⁴⁶⁸ Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, in List of Replies from the scientific experts to questions posed by the Panel, para. 175.

¹⁴⁶⁹ Declaration of Tom van der Zwet, 16 July 2002, in Exhibit AUS-32. Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31. Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 175. But see, Australia's IRA, Part B, pp. 63.

¹⁴⁷⁰ Declaration of Tom van der Zwet, 16 July 2002, p. 4, in Exhibit AUS-32. Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31. Regarding the van der Zwet *et al.* (1990) study, see also, New Zealand's first written submission, para. 4.215;

et al. (1988), which found an infestation/infection rate of at least 33 per cent, should be considered with care as the paper seems to describe a specific case study, which may be different from the normal situation in an orchard devoted to export of apples.¹⁴⁷¹

7.271 The mechanisms described in the IRA for the survival of *Erwinia amylovora*, such as exopolysaccharides (EPS), viable but non-culturable state (VBNC), quorum sensing, and sigma factors, show that *E. amylovora* cells may survive in adverse conditions, including on apples sourced from contaminated orchards.¹⁴⁷² The scientific data referenced by the IRA in this regard, however, does not allow a quantitative evaluation.¹⁴⁷³ In any event, the data indicates that surviving populations are of low level, and that their capacity of resuscitation from VBNC to a culturable state is possible, but has not been demonstrated in natural conditions. As noted by Dr Paulin, these surviving cells can be expected to be fewer if the apples are sourced from orchards without active symptoms, if the apples are symptomless, and if no trashes are mixed with mature symptomless apples.¹⁴⁷⁴ Dr Deckers noted additionally that, while the "most likely value" of 3 in 100 defined by the IRA may reflect a situation where active fire blight history is present, in cases where there is no new infection found in an orchard during one season, this level of bacteria would never be found.¹⁴⁷⁵ In the words of this expert, "[the 'most likely value' defined by the IRA] seems to be a quite high rate of picked fruit being infected with [*Erwinia amylovora*]. I think there will be more a gradual distribution of presence of the fire blight bacteria on the fruits around the [*Erwinia amylovora*] infections present in the orchards."¹⁴⁷⁶

7.272 There is no adequate justification for the IRA's statement that more weight should be given to studies on apples sourced from orchards that were showing symptoms of fire blight disease.¹⁴⁷⁷ As noted by Dr Paulin, this statement does not seem to take adequately into account that there is no indication that fire blight will be present at all times, even in an infected orchard. While it is reasonable to assume that no orchard in New Zealand is or has been permanently free of fire blight, that does not mean that all orchards will permanently show active symptoms.¹⁴⁷⁸ According to the evidence cited in the IRA, one year with *Erwinia amylovora* infection may alternate with years with a much lower fire blight incidence; even in an infected orchard, there may be years without fire blight symptoms.¹⁴⁷⁹ Accordingly, as noted by Dr Paulin:

"[I]t seems that orchards in New Zealand should be considered as a *patchwork* of orchards with symptoms, and orchards showing no symptom. Then I do not see why

New Zealand's second written submission, para. 2.408-2.409; and, Australia's first written submission, paras. 394-395.

¹⁴⁷¹ Australia's IRA, Part B, pp. 56-57. Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 175. Sholberg et al., "Occurrence of *Erwinia amylovora* of pome fruit in British Columbia in 1985 and its elimination from the apple surface" (1988), in Exhibit AUS-34.

¹⁴⁷² Australia's IRA, Part B, pp. 57-61.

¹⁴⁷³ Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 175

¹⁴⁷⁴ Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 175.

¹⁴⁷⁵ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 325.

¹⁴⁷⁶ Dr Deckers's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 173. See also, Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 276.

¹⁴⁷⁷ Australia's IRA, Part B, p. 65.

¹⁴⁷⁸ Dr Paulin's reply to Panel question 25, in List of Replies from the scientific experts to questions posed by the Panel, para. 177.

¹⁴⁷⁹ Dr Deckers's reply to Panel question 25, in List of Replies from the scientific experts to questions posed by the Panel, para. 176. See also, Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 323.

more weight should be given to one category (with symptom) only. All the studies, weighted according to their own *scientific value* should be considered with the same level of interest. The exact fire blight situation of these orchards analysed in these papers and the relevance of the techniques used should be the criteria, if some of them were to be selected as more important than others."¹⁴⁸⁰

7.273 Dr Paulin also noted that, because the "most likely value" proposed by the IRA (3 in 100) is high, this figure would be "amenable to experiment"; in other words, it would not have been beyond reach of experimentation by the IRA Team.¹⁴⁸¹

7.274 In any event, because of the wide variation in the information reported in the various studies cited in the IRA, it is not possible to find justification from these studies for the probability range assigned to importation step 2 by the IRA. The results of the various studies are not comparable, since the papers do not deal with the same type of fruit (some deal with mature fruit, others with immature fruit, and still others do not indicate with precision the type of fruit). Additionally, each paper has its own technique of detection of the bacteria. The range of frequencies of contamination of apples with *Erwinia amylovora* indicated by Australia, from less than 1 per cent to 75 per cent indicate that these papers analysed different things in a different manner.¹⁴⁸² Consulted by the Panel, Dr Paulin noted that no general and reasonable conclusion for the presence of *Erwinia amylovora* on or in mature apple fruit can be based on these disparate results.¹⁴⁸³ Indeed, it is not clear from the IRA how the results of the different studies were aggregated in order to arrive at an estimation of a probability range for this importation step, nor the reasons why, in drawing this estimation, less weight was given to studies that found lower frequencies of contamination with fire blight.¹⁴⁸⁴

7.275 In conclusion, the Panel finds that the IRA's estimation of the likelihood that fruit coming from an infected or infested orchard is infected or infested with *Erwinia amylovora* is not coherent and objective.

(c) Alleged overestimation for importation step 3

7.276 Importation step 3 represents the likelihood that clean fruit from infected or infested orchards is contaminated during picking and transport to the packing house.¹⁴⁸⁵

(i) *Summary of the Parties' arguments*

7.277 Regarding importation step 3 for fire blight, New Zealand argues that the IRA's conclusion "has no basis in science. It turns a negligible likelihood into a relatively high probability."¹⁴⁸⁶ New Zealand submits that it is generally acknowledged that any *Erwinia amylovora* present on

¹⁴⁸⁰ Dr Paulin's reply to Panel question 25, in List of Replies from the scientific experts to questions posed by the Panel, para. 177 (original emphasis). See also, Dr Sgrillo's reply to Panel question 25, in List of Replies from the scientific experts to questions posed by the Panel, para. 178

¹⁴⁸¹ Dr Paulin's reply in Transcript of the Panel's meeting with experts, paras. 327 and 329.

¹⁴⁸² Table 4 in Australia's first written submission, p. 140.

¹⁴⁸³ Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 174. See also, Dr Sgrillo's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, paras. 170-172.

¹⁴⁸⁴ Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 174; Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 321. See also, Dr Sgrillo's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, paras. 170-172.

¹⁴⁸⁵ Australia's IRA, Part B, pp. 19-21.

¹⁴⁸⁶ New Zealand's first written submission, para. 4.221. See also, New Zealand's second written submission, paras. 2.418-2.421.

mature apples at harvest would most likely be on the calyx and thus not available to contaminate other apples. Additionally, populations of *E. amylovora* reported on mature fruit, even from severely infected orchards, have been zero or epidemiologically insignificant. Therefore contamination, if it occurred, would only have the effect of further diluting already small populations.¹⁴⁸⁷

7.278 New Zealand concludes that the likelihood of contamination by *Erwinia amylovora* during picking and transportation to a packing house is negligible and the probability value assigned in the IRA is incorrect. This is an event that would almost certainly not occur.¹⁴⁸⁸

7.279 In response, Australia contends that New Zealand's assertions regarding importation step 3 "are without merit".¹⁴⁸⁹ Australia argues that "New Zealand fails to appreciate the *range* in the scientific data available in respect of the probability of particular events occurring, with the result that it seeks to limit a probability distribution to a single figure."¹⁴⁹⁰

7.280 Regarding New Zealand's argument that any *Erwinia amylovora* would most likely be on the calyx, Australia notes that importation step 3 is not focussed on bacteria from the calyx as a direct source of contamination, but rather "surface infestation and *E. amylovora* on leaves, in the orchard environment, on the hands of pickers and on bins and machinery".¹⁴⁹¹

7.281 Australia adds that, although *Erwinia amylovora* does not multiply on dry surfaces exposed to sunlight, "it clearly has the capacity to survive in the environment quite well, rapidly multiplying and infecting wounds on apples when conditions are favourable".¹⁴⁹²

7.282 Australia notes that, as acknowledged by the IRA, the likelihood of contamination arising from sources such as ooze on trees, hands of pickers, picking bags, bins or machinery is "very small" and the likelihood of transfer is "even lower".¹⁴⁹³ Australia submits, however that "[t]his is why the probability range assigned by the IRA Team is skewed to the lower end of the distribution. New Zealand has provided no argument as to why the IRA Team's use of such a range, designed specifically to reflect the low probability of contamination, should be considered flawed."¹⁴⁹⁴

(ii) *The Panel's analysis*

7.283 The IRA estimates the likelihood that clean fruit is contaminated by *Erwinia amylovora* during picking and transport to the packing house as a triangular distribution with a minimum value of 10^{-3} (1 in 1,000), a maximum value of 3×10^{-2} (3 in 100) and a most likely value of 10^{-2} (1 in 100).¹⁴⁹⁵

7.284 According to the IRA, "[t]his range allows for fruit to be infected at picking through wounds as well as surface contamination that may occur by contact with contaminated bins, pickers' hands, leaves, twigs, etc in the event that rain occurs during harvest."¹⁴⁹⁶

7.285 The values for the distribution were taken by the IRA from two papers: van der Zwet *et al.* (1990) and Hetzroni *et al.* (2004).¹⁴⁹⁷ In the first study, 3 out of 72 (4 per cent) uninoculated and non-

¹⁴⁸⁷ New Zealand's first written submission, para. 4.223.

¹⁴⁸⁸ New Zealand's first written submission, para. 4.224.

¹⁴⁸⁹ Australia's first written submission, para. 388. See also, Australia's second written submission, paras. 375-377.

¹⁴⁹⁰ Australia's first written submission, para. 413 (original emphasis).

¹⁴⁹¹ Australia's first written submission, para. 415.

¹⁴⁹² Australia's first written submission, para. 417.

¹⁴⁹³ Australia's first written submission, para. 418. Australia's IRA, Part B, p. 69.

¹⁴⁹⁴ Australia's first written submission, para. 418.

¹⁴⁹⁵ Australia's IRA, Part B, pp. 65-71.

¹⁴⁹⁶ Australia's IRA, Part B, p. 71.

disinfested fruit developed blight symptoms; all through injury through puncture treatment.¹⁴⁹⁸ The IRA states that this infection presumably took place "through epiphytic bacteria being present on the surface. The 4% infection rate therefore occurs when 100% of the fruit is wounded."¹⁴⁹⁹ From this study, the IRA concludes that 4 per cent of the fruit damaged would be infected with fire blight. As suggested by Dr Sgrillo, however, the reliability of the van der Zwet *et al.* study and the appropriateness of using it as a basis for the IRA's estimations may be limited, because the sample size was very small, the variability was not assessed and the results may be valid only for artificially injured fruits.¹⁵⁰⁰

7.286 Dr Sgrillo also suggests that the second paper should be considered with care, as it is only a four-paragraph abstract with few details about the methodology and analysis of the results of a study. According to the IRA, Hetzroni *et al.* (2004) provides "some information on the percentages of apples wounded or bruised during picking and transport."¹⁵⁰¹ The IRA notes that "[t]he percentage of damage was lowest (8%) for the careful picking treatment compared with 37% in the whole container in the packing house."¹⁵⁰² This abstract, however, contains no specification of how samples were collected, what methodology was used, and no statistical analysis.¹⁵⁰³

7.287 The IRA then used the 4 per cent contamination figure obtained from van der Zwet *et al.* (1990) multiplied by the 37 per cent damage figure obtained from Hetzroni *et al.* (2004), to indicate the magnitude of the most likely value of the triangular distribution, 1 per cent.

7.288 The experts consulted by the Panel expressed doubts regarding the reliability of the one per cent figure and the IRA's underlying assumptions. One of the experts noted that such contamination during picking and transportation would only be possible in extreme cases, "when the harvest takes place in a heavy infected orchard during rainy circumstances". He noted, however, that "the overall chance of 1% seems to be rather high when the fire blight infections are only sporadically present in an orchard."¹⁵⁰⁴ The 1 per cent figure would not be realistic, because when present in an orchard fire blight will not be uniformly distributed.¹⁵⁰⁵ Another expert agreed that "the evaluation of risk for this step seems too high, for mature symptomless fruits".¹⁵⁰⁶ The experts noted that some of the experiments cited by the IRA describe the initiation of infections, when bacteria is introduced artificially at the proper site of the suitable fruit, in optimal conditions for the disease. These experiments, however, would give "very few useful indications for the description of events taking place in natural conditions", especially because *Erwinia amylovora* is not able to multiply on plant

¹⁴⁹⁷ Australia's IRA, Part B, p. 71. See, van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31; and, Hetzroni *et al.*, "Mechanical injuries in apples" (2004).

¹⁴⁹⁸ Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31.

¹⁴⁹⁹ Australia's IRA, Part B, p. 70. See, Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31.

¹⁵⁰⁰ See, Dr Sgrillo's reply to Panel question 26, in List of Replies from the scientific experts to questions posed by the Panel, para. 180.

¹⁵⁰¹ Australia's IRA, Part B, p. 70. See, Hetzroni *et al.*, "Mechanical injuries in apples" (2004).

¹⁵⁰² Australia's IRA, Part B, p. 70.

¹⁵⁰³ Dr Sgrillo's reply to Panel question 26, in List of Replies from the scientific experts to questions posed by the Panel, paras. 181-182; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 280.

¹⁵⁰⁴ Dr Deckers's reply to Panel question 26, in List of Replies from the scientific experts to questions posed by the Panel, para. 186. See also, Dr Deckers's reply to Panel question 27, in List of Replies from the scientific experts to questions posed by the Panel, para. 189.

¹⁵⁰⁵ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 335.

¹⁵⁰⁶ Dr Paulin's reply to Panel question 26, para. 188 in Replies from the scientific experts to questions posed by the Panel. See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 333.

surfaces, making it "difficult to imagine conditions conducive to actively growing cells in natural conditions on the surface of a symptomless apple... [or the] spread of surface population from fruit to infection sites".¹⁵⁰⁷

7.289 The IRA's estimation of this particular importation step is based on some scientific evidence. The two studies on which the calculation of the probability range and the most likely value are based, however, have important limitations, mainly because of the small sample size in the first paper and the lack of information on the methodology and on the details of the results of the second paper. In such conditions, these studies cannot constitute an adequate scientific basis for a coherent and objective analysis.¹⁵⁰⁸

7.290 In conclusion, the Panel finds that the IRA's estimation of the likelihood that clean fruit from infected or infested orchards is contaminated with *Erwinia amylovora* during picking and transport to the packing house does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(d) Alleged overestimation for importation step 4

7.291 Importation step 4 represents the likelihood that infected or infested fruit remains infected or infested after routine processing procedures in the packing house.¹⁵⁰⁹

(i) *Summary of the Parties' arguments*

7.292 Regarding importation step 4 for fire blight, New Zealand argues that the IRA's analysis of this step "is based on an assumption rather than on scientific data" and that "[t]he likelihood of arriving at this step is ... negligible."¹⁵¹⁰ According to New Zealand, there will be insufficient bacteria to initiate an infection at this stage.¹⁵¹¹

7.293 New Zealand also submits that the IRA "ignores the impact that cold storage would have" on epiphytic infestations. In New Zealand's view, the scientific literature strongly indicates that cold storage at this stage would have a negative influence on the survival of *Erwinia amylovora* on apple fruit.¹⁵¹²

7.294 New Zealand concludes that "the proposition that the limited numbers of *E. amylovora* likely to be present on apple fruit at harvest would survive normal processing procedures is a step that should have been treated as an event with a much lower probability."¹⁵¹³

¹⁵⁰⁷ Dr Paulin's reply to Panel question 27, in List of Replies from the scientific experts to questions posed by the Panel, paras. 190-191.

¹⁵⁰⁸ See, for example, Dr Sgrillo's reply to Panel question 26, in List of Replies from the scientific experts to questions posed by the Panel, para. 179-185; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 280.

¹⁵⁰⁹ Australia's IRA, Part B, pp. 19-21.

¹⁵¹⁰ New Zealand's first written submission, para. 4.225.

¹⁵¹¹ New Zealand's first written submission, para. 4.227. See also, New Zealand's second written submission, paras. 2.422-2.423.

¹⁵¹² New Zealand's first written submission, para. 4.226. See, Hale and Taylor, "Effect of Cool Storage on Survival of *Erwinia amylovora* on Apple Calyxes" (1999), in Exhibit NZ-24; Taylor and Hale, "Cold storage affects survival and growth of *Erwinia amylovora* on the calyx of apple" (2003), in Exhibit NZ-25; and, Temple *et al.*, "Evaluation of Likelihood of Co-Occurrence of *Erwinia amylovora* with Mature Fruit of Winter Pear" (2007), in Exhibit NZ-98.

¹⁵¹³ New Zealand's first written submission, para. 4.227.

7.295 In response, Australia contends that the "the probability range assigned to Importation step 4 cannot be reduced to a mere 'assumption'."¹⁵¹⁴ Australia argues in this regard that the scientific literature indicates that, while the number of *Erwinia amylovora* on or in apples declines with cold storage, it also shows that they do not disappear.¹⁵¹⁵ In Australia's words, "[g]iven the risk scenario addressed by the IRA Team, *E. amylovora* will be taken to have survived this step even if only one bacterium survives routine pack house procedures on any given apple."¹⁵¹⁶

7.296 Australia also argues that, in its first written submission, New Zealand only argued that the distribution range for this importation step should be revised purely on the basis that there is some evidence which shows that cold storage has a negative impact on the survival of *Erwinia amylovora*. Accordingly, New Zealand should not be permitted to expand its claims in relation to these issues (for example, concerning the effects of brushing, waxing, sorting and grading and packaging as considered by the IRA) at a later stage of the proceedings.¹⁵¹⁷

7.297 Australia concludes that "New Zealand has failed to show that the probability range assigned to Importation step 4 is flawed".¹⁵¹⁸

(ii) *The Panel's analysis*

7.298 The IRA estimates the likelihood that *Erwinia amylovora* survives routine processing procedures in the packing house as a triangular distribution with a minimum value of 0.3 (30 in 100), a maximum value of 0.7 (70 in 100) and a most likely value of 0.65 (65 in 100).¹⁵¹⁹

7.299 According to the IRA:

"None of the processes undertaken at this stage [routine procedures that occur in New Zealand packing houses, such as pre-cooling, washing, disinfection, brushing, waxing, sorting and grading, packaging and cold storage] would have a large influence on the survival of *E. amylovora* on apple fruit. However, depending on individual packing house procedures some reduction in the number of fruit carrying bacteria would be expected because of factors such as the use of disinfectants and grading out of damaged fruit."¹⁵²⁰

7.300 As noted in the arguments section above, most of the discussion between the Parties regarding New Zealand's argument on the IRA's estimations on importation step 4 for fire blight focus on the issue of whether cold storage would significantly reduce the amount of bacteria on apples to the point where they would be insufficient to initiate an infection.

7.301 Most of the evidence cited in the IRA supports the notion that cold storage would reduce the bacterial population of *Erwinia amylovora* on apples, but would not completely eliminate such population. As noted by Dr Paulin:

¹⁵¹⁴ Australia's first written submission, para. 426.

¹⁵¹⁵ Australia's first written submission, para. 422; Australia's second written submission, para. 379. See, Hale and Taylor, "Effect of Cool Storage on Survival of *Erwinia amylovora* on Apple Calyxes" (1999), in Exhibit NZ-24; Temple *et al.*, "Evaluation of Likelihood of Co-Occurrence of *Erwinia amylovora* with Mature Fruit of Winter Pear" (2007), in Exhibit NZ-98; and, Ordax *et al.*, "Survival of *Erwinia amylovora* in mature apple fruit calyxes" (2008), in Exhibit AUS-36.

¹⁵¹⁶ Australia's first written submission, para. 421.

¹⁵¹⁷ Australia's first written submission, para. 420; Australia's second written submission, paras. 378 and 380.

¹⁵¹⁸ Australia's first written submission, para. 426. Australia's second written submission, para. 384.

¹⁵¹⁹ Australia's IRA, Part B, pp. 71-77.

¹⁵²⁰ Australia's IRA, Part B, pp. 76-77.

"Data on preservation of bacterial population on apple surface during cold storage seems to accurately show that there is a decrease in these conditions. It is not possible to know if this decrease is linked with temperature, or only with time ... [I]n the precise case of risk of transport of bacteria with mature symptomless fruits anyhow, this has little influence: the conditions in the packing house will not allow the population to increase, but will not allow the population to disappear within the considered period of time."¹⁵²¹

7.302 Some of the experts consulted by the Panel referred to the possible impact that disinfection, a routine procedure in the packing house different from cold storage, could have on the survival of epiphytic populations of *Erwinia amylovora* on apples. According to Dr Paulin, "if a disinfectant step is included in the process, the decrease of the level of bacterial population can be expected to be sharp".¹⁵²² Dr Paulin added that "in the case of fruit disinfection, the probability range and pattern distribution ... seems too high for this step. This applies for mature symptomless apples, but would not be different for trashes associated with fruits."¹⁵²³ Dr Deckers concurred and noted that "[t]he disinfection process during packaging should reduce the risk of survival of the epiphytic population strongly and reduce the distribution pattern substantially. But a total removal of the bacterial population will not be an easy task".¹⁵²⁴

7.303 Evidence cited by the IRA confirms that disinfection can have a significant impact in reducing bacterial population:

"Toivonen et al. (2001) showed that sodium hypochlorite ... or peroxyacetic acid ... was fully effective in eliminating micro-organisms from the surface of apples. They showed that peroxyacetic acid eliminated microbes from the calyx while sodium hypochlorite did not, and that it was difficult to remove or kill micro-organisms present in the stem-end of the fruit using both chemicals. ... [Infested n]aturally-contaminated mature apples ... when treated with 100 µg per mL of chlorine were not effectively sanitised, because chlorine did not reach bacteria in the protected calyx cavity (Sholberg et al., 1988) probably because of formation of air pockets. However, a 10 min dip in a solution of [acetic acid and propionic acid] was effective in completely eliminating bacteria from fruit inoculated with ... *E. amylovora* by spraying. Dueck (1974b) also observed that when *E. amylovora* suspended in distilled water ... was artificially inoculated by swabbing on apples, bacterial numbers were reduced but not completely eliminated by chlorine. However, a 10 minute dip in ... acetic acid completely eliminated *E. amylovora* from the fruit surface. Janisiewicz and van der Zwet (1988) reported that ... sodium hypochlorite in vitro totally eradicated *E. amylovora* in 5 minutes, but, with addition of a surfactant ..., the amount of sodium hypochlorite required to totally eliminate bacteria in 5 minutes increased However, Janisiewicz and van der Zwet (1988) showed that when artificially inoculated ... apple fruit was treated with ... sodium hypochlorite plus ... surfactant, *E. amylovora* was reduced but not completely killed.

¹⁵²¹ Dr Paulin's reply to Panel question 29, in List of Replies from the scientific experts to questions posed by the Panel, para. 209. See also, Dr Deckers's and Dr Paulin's replies to Panel questions 14 and 29, in List of Replies from the scientific experts to questions posed by the Panel, paras. 115 and 208.

¹⁵²² Dr Paulin's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, para. 206. See also, Dr Paulin's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, paras. 205-207. But see, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 286.

¹⁵²³ Dr Paulin's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, paras. 206-207.

¹⁵²⁴ Dr Deckers's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, para. 204.

Roberts and Reymond (1989) artificially inoculated mature apple fruit with *E. amylovora* aerosol solutions ... and immersed fruit in different concentrations ... of sodium hypochlorite or ... acetic acid. The reduction in the *E. amylovora* population averaged 6 to 7 log units less than the number applied to the fruit, but significant differences between treatments were not observed. Roberts and Reymond (1989) also reported that ... citrate buffer was effective against *E. amylovora* but because of its incompatibility with sodium hypochlorite, this could not be used in the dump tank. These authors reported that treatment with ... sodium hypochlorite in ... dodecylbenzenesulphonic acid (DBSA) for 10 min significantly reduced *E. amylovora* on apple fruit. These reports indicate that chlorine at different concentrations is effective in reducing but not eliminating the bacterial population. However, it can be an effective component in systems approaches which integrate different management measures."¹⁵²⁵

7.304 Accordingly, with respect to disinfection, the evidence cited by the IRA does not seem to support the general conclusion that "[n]one of the processes undertaken [in New Zealand packing houses] would have a large influence on the survival of *E. amylovora* on apple fruit".¹⁵²⁶ However, the IRA also notes that "depending on individual packing house procedures some reduction in the number of fruit carrying bacteria would be expected because of factors such as the use of disinfectants..."¹⁵²⁷ Dr Deckers noted in this regard that, when considering disinfection of the fruit, "we should be aware that we never take away 100 per cent of the bacteria present. It is very difficult to disinfect for 100 per cent in the calyx area."¹⁵²⁸

7.305 In the light of the above, the IRA contains sufficient scientific evidence to support its conclusion that routine procedures that occur in New Zealand packing houses may reduce the bacterial population on apple fruit, but would not totally eliminate bacteria. The experts consulted by the Panel agreed with this general conclusion, although some considered that the probability range and pattern distribution estimated by the IRA for this importation step seems too high, particularly considering the possible effect of the use of disinfectants.¹⁵²⁹ In any event, New Zealand has not successfully shown that cold storage would significantly limit the amount of bacteria on apples to the point where they would be insufficient to initiate an infection.

7.306 Accordingly, the Panel concludes that New Zealand has not made a case that the IRA's estimation of the likelihood that *Erwinia amylovora* survives routine processing procedures in the packing house is exaggerated and does not rely on adequate scientific evidence.

(e) Alleged overestimation for importation step 5

7.307 Importation step 5 represents the likelihood that clean fruit is contaminated during processing in the packing house.¹⁵³⁰

¹⁵²⁵ Australia's IRA, Part B, pp. 72-73.

¹⁵²⁶ Australia's IRA, Part B, p. 76.

¹⁵²⁷ Australia's IRA, Part B, pp. 76-77. As noted in the discussion of importation step 5, the IRA notes that only about half of New Zealand packing houses use some type of disinfectant in the dump tanks. See para. 7.314 below. Australia's IRA, Part B, pp. 77

¹⁵²⁸ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 288.

¹⁵²⁹ See, for example, Dr Paulin's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, paras. 205-207. See also, Dr Sgrillo's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, paras. 192-196 and 202-203; Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 286.

¹⁵³⁰ Australia's IRA, Part B, pp. 19-21.

(i) *Summary of the Parties' arguments*

7.308 Regarding importation step 5 for fire blight, New Zealand submits that the scientific evidence indicates that the likelihood of mature apples contaminating clean fruit during processing in the packing house is negligible.¹⁵³¹

7.309 In response, Australia contends that New Zealand has misunderstood the intention of importation step 5, and how the importation steps operate together. Consequently, Australia argues that New Zealand fails to establish why the IRA's judgement in relation to importation step 5 should be considered flawed.¹⁵³²

7.310 With respect to this step, Australia argues that the IRA considered that the most significant source of fruit contamination in the packing house is the water in the dump tank and the wash water that apples may be exposed to through the grading and packing process.¹⁵³³ Australia notes that the IRA took into account that only 53 per cent of New Zealand packing houses use some sort of disinfectant in the process water.¹⁵³⁴

(ii) *The Panel's analysis*

7.311 The IRA estimates the likelihood that clean fruit is contaminated by *Erwinia amylovora* during processing in the packing house as a triangular distribution with a minimum value of 10^{-3} (1 in 1,000), a maximum value of 5×10^{-2} (5 in 100) and a most likely value of 2.5×10^{-2} (2.5 in 100).¹⁵³⁵

7.312 According to the IRA:

"This conclusion was based on the potential for the fruit dump tank to become contaminated by bacteria and the fact that disinfection of the dump tank water is not a routine practice in a significant number of New Zealand packing houses. This also takes into account that unrestricted risk is being assessed and therefore fruit from orchards with active symptoms could be carrying bacteria that wash off into the dump tanks."¹⁵³⁶

7.313 The IRA notes that "[a]ny bacteria present on fruit, trash (leaves and twigs), harvesting bins and soil adhering to bottom of bins may get into the dump tank and potentially contaminate clean fruit".¹⁵³⁷ Notwithstanding the above, the evidence cited in the IRA indicates that "there will be a very high dilution factor in the dump tank water. There are also indications that *E. amylovora* has difficulty surviving in water."¹⁵³⁸

7.314 As stated by Australia, the IRA notes that 53 per cent of New Zealand apple packing houses use some sort of disinfectant in the process water: 37 per cent use chlorine in the dump tanks, with an additional 16 per cent using an alternative such as peroxyacetic acid or bromo-chloro-dimethylhydantoin.¹⁵³⁹ The IRA notes further that 73 per cent of New Zealand apple packing houses

¹⁵³¹ New Zealand's first written submission, para. 4.228; New Zealand's second written submission, para. 2.426.

¹⁵³² Australia's first written submission, para. 429.

¹⁵³³ Australia's first written submission, para. 427; Australia's second written submission, para. 386.

¹⁵³⁴ Australia's first written submission, para. 427.

¹⁵³⁵ Australia's IRA, Part B, pp. 77-79.

¹⁵³⁶ Australia's IRA, Part B, pp. 78-79.

¹⁵³⁷ Australia's IRA, Part B, pp. 77.

¹⁵³⁸ Australia's IRA, Part B, pp. 77. Crosse *et al.*, "Leaf damage as a predisposing factor in the infection of apple shoots by *Erwinia amylovora*" (1972).

¹⁵³⁹ Australia's IRA, Part B, pp. 77.

use high-pressure and high-volume washing with jets of clean water to rinse apples after washing in the dump tank, which would likely remove any surface contamination of clean fruit with bacteria or trash.¹⁵⁴⁰

7.315 As stated in the IRA:

"Ceroni et al. (2004) immersed pear fruit for 15 min in a suspension of *E. amylovora* with 108 cfu/mL and could not detect bacteria on the surface after just a few days, with small numbers remaining for longer periods only in the calyx. These authors concluded that bacterial survival on the fruit surface is very short and has a negligible epidemiological role. If *E. amylovora* gets into the core in the dump tank, one would expect some internal infection to develop but this has never been reported. Sapers (1999) carried out some apple washing trials in a commercial cider mill and found that for apples inoculated by dipping in *E. coli* solutions, bacteria were not washed out into the dump tank, the dump tank water did not get contaminated and no cross contamination took place in the dump tank. This behaviour of *E. coli* is different to *E. amylovora*, which has been shown in several studies to be easily washed from contaminated surfaces. This clearly demonstrates the differing behaviours of the two bacteria and the dangers of extrapolating from one to the other. In contrast to observations of Sapers (1999) for *E. coli*, we have concluded that a very small level of cross contamination as infestation in the dump tank may be possible for *E. amylovora*."¹⁵⁴¹

7.316 The IRA notes that, compared to the dump tank, the rest of the packing line is considered to be a less significant contamination source.¹⁵⁴²

7.317 The IRA reaches the conclusion, on the basis of the evidence cited, that there is a possibility that a small level of cross contamination of apples by *Erwinia amylovora* may occur in the fruit dump tank. The evidence cited by the IRA, however, indicates that the liquid medium in which mature apple fruits are immersed during processing in the packing house, even without disinfectant, is a poor culture medium for *Erwinia amylovora*. The evidence also suggests that such liquid medium would have a dilution effect.¹⁵⁴³

7.318 Dr Paulin found the IRA's estimation regarding this importation step to be strongly exaggerated.¹⁵⁴⁴ In the words of Dr Paulin, "[o]nly if decaying apples (supposedly decaying from *E. amylovora* infection – then immature and not "symptomless") or large amount of infected trashes, were present, the dilution effect in a non-disinfectant medium could lead to a significant amount of bacterial cells on fruit surfaces. This seems very unlikely in practical conditions."¹⁵⁴⁵ As noted by Dr Deckers, the scientific evidence indicates that the likelihood that contamination of clean apples

¹⁵⁴⁰ Australia's IRA, Part B, pp. 77.

¹⁵⁴¹ Australia's IRA, Part B, pp. 78. Ceroni *et al.*, "Survival of *Erwinia amylovora* on pears and on fruit containers in cold storage and outdoors" (2004); Sapers, "Research on decontamination of apples by washing with detergents and sanitizing agents" (1999).

¹⁵⁴² Australia's IRA, Part B, pp. 77.

¹⁵⁴³ Dr Paulin's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, para. 216.

¹⁵⁴⁴ Dr Paulin's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, para. 216; Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 341. See also, Dr Sgrillo's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, paras. 211-214.

¹⁵⁴⁵ Dr Paulin's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, paras. 216-217. See also, Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 362; Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 360.

happens during processing is negligible when the water during processing is disinfected.¹⁵⁴⁶ In this regard, the IRA does not properly explain its reasons for seemingly disregarding the conclusions of studies such as Ceroni *et al.* (2004) and the Sapers (1999) study for *E. coli*¹⁵⁴⁷ when deducing its estimates of likelihood for this importation step.

7.319 Dr Paulin noted further that, even in the latter case, the scientific evidence is that, in an artificial medium, *Erwinia amylovora* would not compete successfully against natural antagonistic bacteria (such as *Pantoea agglomerans* or *Pseudomonas fluorescens*). These natural antagonistic bacteria are naturally found in high concentration on plant and on fruit surfaces, and would prevent a multiplication of *Erwinia amylovora*, if present.¹⁵⁴⁸

7.320 The IRA contains sufficient evidence from respected and qualified sources with respect to its consideration of this importation step. There is no indication in the IRA, however, of how the results of these scientific studies were taken into account in arriving at an estimation of a probability range for this importation step. There is, for example, no indication of how the IRA took into account the evidence regarding the potential for the fruit dump tank to become contaminated by *Erwinia amylovora* bacteria and to become a contamination source for clean fruit during processing in the packing house. Accordingly, the Panel finds that the IRA's estimation of the likelihood that clean fruit is contaminated by *Erwinia amylovora* during processing in the packing house is not coherent and objective.

(f) Alleged overestimation for importation step 6

7.321 Importation step 6 represents the likelihood that infected or infested fruit remains infected or infested during palletization, quality inspection, containerization and transportation to Australia.¹⁵⁴⁹

(i) *Summary of the Parties' arguments*

7.322 New Zealand submits that the IRA has attributed an inflated likelihood in its calculations regarding importation step 6 for fire blight.¹⁵⁵⁰ In its view, "[t]he IRA does not take account of the fact that containerisation and transportation involves cold storage which significantly reduces the viability of *E. amylovora*."¹⁵⁵¹

7.323 New Zealand states that the fact that it is possible for bacteria to survive the time and conditions of transit does not imply they will survive in epidemiologically significant numbers.¹⁵⁵² "[I]n rejecting the concept of an epidemiologically significant number of bacteria, Australia also

¹⁵⁴⁶ Dr Deckers's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, para. 215.

¹⁵⁴⁷ Ceroni *et al.*, "Survival of *Erwinia amylovora* on pears and on fruit containers in cold storage and outdoors" (2004); Sapers, "Research on decontamination of apples by washing with detergents and sanitizing agents" (1999). Australia's IRA, Part B, pp. 78.

¹⁵⁴⁸ Dr Paulin's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, paras. 216-217.

¹⁵⁴⁹ Australia's IRA, Part B, pp. 19-21.

¹⁵⁵⁰ New Zealand's first written submission, para. 4.231.

¹⁵⁵¹ New Zealand's first written submission, para. 4.229. Hale and Taylor, "Effect of Cool Storage on Survival of *Erwinia amylovora* on Apple Calyxes" (1999), in Exhibit NZ-24; Taylor and Hale, "Cold storage affects survival and growth of *Erwinia amylovora* on the calyx of apple" (2003), in Exhibit NZ-25; and, Temple *et al.*, "Evaluation of Likelihood of Co-Occurrence of *Erwinia amylovora* with Mature Fruit of Winter Pear" (2007), in Exhibit NZ-98.

¹⁵⁵² New Zealand's first written submission, para. 4.229.

rejects the notion that there is a significant difference between the potential risk associated with the presence of one bacterium on an apple and the presence of 10,000 bacteria."¹⁵⁵³

7.324 In response, Australia contends that New Zealand has failed to establish that the IRA's assessment of importation step 6 is flawed.¹⁵⁵⁴ In its view, "New Zealand ... fails to demonstrate a proper understanding of the importation scenario examined by the IRA Team. Much of the evidence presented [by New Zealand] in fact supports Australia's claim that the IRA Team was correct in its assessment of likelihood for Importation step 6."¹⁵⁵⁵

7.325 Australia argues in this regard that the IRA took into account the fact that bacteria are not visible and the evidence presented for importation step 4 that bacteria will survive cold storage conditions.¹⁵⁵⁶ While scientific evidence demonstrates that bacteria decline in cold storage, the same evidence also demonstrates that some bacteria can survive. Australia submits that the discussion in this regard in the context of importation step 4 applies equally to importation step 6.¹⁵⁵⁷ Australia emphasizes that importation step 6 does not test whether *Erwinia amylovora* will survive in epidemiologically significant numbers. "It is concerned with the likelihood that *any* bacteria will survive quality controls, storage and transport."¹⁵⁵⁸ In the light of this, the IRA Team concluded that none of the processes at importation step 6 are likely to directly impact on the survival of *Erwinia amylovora* on fruit.¹⁵⁵⁹

(ii) *The Panel's analysis*

7.326 The IRA estimates the likelihood that *Erwinia amylovora* survives palletization, quality inspection, containerization and transportation to Australia as a triangular distribution with a minimum value of 0.7 (70 in 100), a maximum value of 1 (100 in 100) and a most likely value of 0.8 (80 in 100).¹⁵⁶⁰

7.327 The IRA notes that "[b]acteria are not visible and will survive quality inspection and palletisation."¹⁵⁶¹ Transportation of apple fruit in containers from New Zealand to Australia would take a minimum of 10 days. The IRA cites evidence that, although some reduction in numbers of bacteria and number of infested fruit would be expected during transportation of apples in containers from New Zealand to Australia, bacteria can survive on fruit for periods longer than 10 days.¹⁵⁶²

7.328 As noted in the arguments section above, the discussion between the Parties regarding the IRA's estimations on importation step 6 for fire blight replicates the earlier discussion on cold storage in the context of importation step 4. Again, a main point of contention between the Parties is the extent to which cold storage would limit the amount of bacteria on apples. An important difference in the discussion of these two importation steps is that disinfection procedures, which can have a significant impact in reducing bacterial population, are not relevant for importation step 6.

¹⁵⁵³ New Zealand's second written submission, para. 2.428.

¹⁵⁵⁴ Australia's first written submission, para. 437; Australia's second written submission, para. 391.

¹⁵⁵⁵ Australia's first written submission, para. 437.

¹⁵⁵⁶ Australia's first written submission, para. 430.

¹⁵⁵⁷ Australia's first written submission, para. 433; Australia's second written submission, para. 390.

¹⁵⁵⁸ Australia's first written submission, para. 433.

¹⁵⁵⁹ Australia's first written submission, para. 430.

¹⁵⁶⁰ Australia's IRA, Part B, p. 79.

¹⁵⁶¹ *Ibid.*

¹⁵⁶² Australia's IRA, Part B, p. 79. Ceroni *et al.*, "Survival of *Erwinia amylovora* on pears and on fruit containers in cold storage and outdoors" (2004); Hale and Taylor, "Effect of Cool Storage on Survival of *Erwinia amylovora* on Apple Calyxes" (1999), in Exhibit NZ-24.

7.329 The Panel has already noted that most of the evidence cited in the IRA supports the notion that cold storage would reduce the bacterial population of *Erwinia amylovora* on apples, but would not completely eliminate such population.¹⁵⁶³

7.330 In the light of the above, the IRA contains sufficient scientific evidence to support its conclusion that, although some reduction in numbers of bacteria and number of infested fruit would be expected during transportation of apples in containers from New Zealand to Australia, bacteria can survive on fruit for periods longer than 10 days. The experts consulted by the Panel agreed with this general conclusion, although Dr Deckers noted that "[t]he survival of the [*Erwinia amylovora*] bacteria during palletization, containerization and transport is considered to be low, surely after the external disinfection of the fruits during the packaging process".¹⁵⁶⁴ In any event, New Zealand has not successfully shown that cold storage occurring during containerization and transportation at this stage would significantly reduce the viability of *Erwinia amylovora*.

7.331 Accordingly, the Panel concludes that New Zealand has not made a case that the IRA's estimation of the likelihood that *Erwinia amylovora* survives palletization, quality inspection, containerization and transportation to Australia is inflated or that it is not based on a coherent and objective reasoning.

(g) Alleged overestimation for importation step 7

7.332 Regarding the pests reviewed in the IRA, importation step 7 represents the likelihood that clean fruit will become contaminated during palletization, quality inspection, containerization and transportation.¹⁵⁶⁵

(i) *Summary of the Parties' arguments*

7.333 New Zealand submits that "[t]his is another event with an exceedingly small probability of occurrence."¹⁵⁶⁶ New Zealand argues that "[t]his step is a further reiteration of steps 3 and 5, the assumption that clean fruit can become contaminated with *E. amylovora* during the process from picking to arrival at its export destination. Just as the assumptions behind steps 3 and 5 are unsupportable, equally step 7 is without support."¹⁵⁶⁷

7.334 New Zealand argues that this is "another example of Australia using a probability range with a maximum value that is not justified by the scientific evidence, with the effect of inflating the overall probability of entry, establishment and spread".¹⁵⁶⁸

7.335 In response, Australia contends that New Zealand has not demonstrated serious flaws in the IRA's analysis with respect to this importation step. Australia submits that New Zealand has not shown why the probability range assigned to this step is inconsistent with the scientific evidence cited by the IRA, or indeed, with its own view that the likelihood is "exceedingly small".¹⁵⁶⁹

¹⁵⁶³ See para. 7.301 above. See also, Dr Deckers's and Dr Paulin's replies to Panel questions 14 and 29, in List of Replies from the scientific experts to questions posed by the Panel, paras. 115, 208 and 209.

¹⁵⁶⁴ Dr Deckers's reply to Panel question 31, in List of Replies from the scientific experts to questions posed by the Panel, para. 218. See also, Dr Paulin's reply to Panel question 31, in List of Replies from the scientific experts to questions posed by the Panel, para. 219.

¹⁵⁶⁵ Australia's IRA, Part B, pp. 19-21.

¹⁵⁶⁶ New Zealand's first written submission, para. 4.232.

¹⁵⁶⁷ *Ibid.*

¹⁵⁶⁸ New Zealand's second written submission, para. 2.431.

¹⁵⁶⁹ Australia's second written submission, para. 394.

7.336 Australia notes New Zealand's contention that the event covered by this importation step would have an exceedingly small probability of occurrence, similar to importation steps 3 and 5. Australia argues in this regard that, according to the IRA's methodology, the qualitative descriptor for "negligible" events corresponds with a probability interval between 0 and 10^{-6} . This is precisely the probability interval assigned to importation step 7. Accordingly, in Australia's view, New Zealand should have no complaint with importation step 7.¹⁵⁷⁰

7.337 Australia notes that the IRA considered that the only contamination risk under this step arose from bacterial ooze from internally infected fruit. "Given that it considered internal infection to be a 'rare event', and that rotten fruit is highly likely to be discarded at harvest, at the packing line or during quality inspection, the IRA Team considered there was little opportunity for fruit to be contaminated at this stage."¹⁵⁷¹

(ii) *The Panel's analysis*

7.338 The IRA estimates the likelihood that clean fruit is contaminated by *Erwinia amylovora* during palletization, quality inspection, containerization and transportation as a triangular distribution with a minimum value of 0, a maximum value of 10^{-6} (1 in 1,000,000) and a most likely value of 5×10^{-7} (5 in 10,000,000).¹⁵⁷²

7.339 The IRA notes that "[a]fter consideration of the technical information the IRA Team concluded that there was little opportunity for fruit to be contaminated at this stage":

"Surface contamination of clean fruit can occur only if bacteria ooze out from internally infected fruit. Such fruit are rarely found ... as rotten fruit is not harvested. If harvested, such fruit is rejected before entering the packing line. If rotten fruit is present after cold storage, it is discarded at quality inspection.

Packed fruit is kept under secure conditions, not exposed to elements and therefore not exposed to bacterial inoculum."¹⁵⁷³

7.340 Dr Deckers and Dr Paulin highlighted that internally infected mature fruits are not able to produce bacterial ooze; these fruits will immediately be invaded by fungal infections. Ooze production would only occur on immature fruits, where the starch of the immature fruits is used by the *Erwinia amylovora* bacteria during the multiplication phase.¹⁵⁷⁴ In any event, as noted by the IRA¹⁵⁷⁵, internally infected fruits producing ooze, if any, would have been discarded well before this step and before entering the packing line.

7.341 In its analysis of this step, the IRA does not provide any scientific evidence that external pollution can happen as described in this importation step, except in the case of oozing fruits.¹⁵⁷⁶ The only reference to any scientific evidence at all in the IRA's analysis concerning this importation step is

¹⁵⁷⁰ Australia's first written submission, para. 439.

¹⁵⁷¹ Australia's first written submission, para. 438 (footnote omitted).

¹⁵⁷² Australia's IRA, Part B, p. 79.

¹⁵⁷³ *Ibid.* See also, Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31.

¹⁵⁷⁴ Dr Deckers's and Dr Paulin's replies to Panel question 33, in List of Replies from the scientific experts to questions posed by the Panel, paras. 229 and 230.

¹⁵⁷⁵ Australia's IRA, Part B, p. 79.

¹⁵⁷⁶ Dr Deckers's, Dr Paulin's and Dr Sgrillo's replies to Panel question 32, in List of Replies from the scientific experts to questions posed by the Panel, paras. 226, 227-228 and 220-225.

to the van der Zwet (1990) study. The Panel has already noted the limitations of this paper, in the light of the comments made by its own first author.¹⁵⁷⁷

7.342 The quantitative range assigned by the IRA for the likelihood of the event represented by this importation step corresponds to the IRA's definition of "negligible" (i.e., "the event would almost certainly not occur"). The IRA's conclusion that the likelihood that clean fruit is contaminated by *Erwinia amylovora* during palletization, quality inspection, containerization and transportation is negligible appears to be coherent and objective. The Panel will turn later, in the context of New Zealand's allegations regarding the IRA's alleged methodological flaws, to the issue of whether the IRA's choice of a probability interval of zero to one in one million for events with a "negligible" likelihood of occurring is in itself supported by adequate scientific evidence and is, accordingly, coherent and objective.

(h) Estimation for importation step 8

7.343 Importation step 8 represents the likelihood that infected or infested fruit remains infected or infested after on-arrival minimum border procedures.¹⁵⁷⁸

(i) *Summary of the Parties' arguments*

7.344 New Zealand submits that "it is difficult to disagree" with the IRA's conclusion that the likelihood that *Erwinia amylovora* survives and remains with the fruit after on-arrival minimum border procedures should be 1.¹⁵⁷⁹ New Zealand argues in this regard that "[i]f *E. amylovora* is present when apples arrive at the border it seems hardly likely that 'on-arrival minimum border procedures' could have any effect on it."¹⁵⁸⁰ It adds, however, that this statement "is hardly meaningful. It, too, depends on the assumption that a pathway exists for the transmission of *E. amylovora*, an assumption for which there is no supporting scientific evidence."¹⁵⁸¹

7.345 In New Zealand's view, "importation step 8 has no purpose, other than to indicate that Australia's border procedures are not designed to eliminate any *E. amylovora* that might be carried on imported apples. Nor, in New Zealand's view, need they be designed to do so."¹⁵⁸²

7.346 In response, Australia contends that New Zealand's argument regarding importation step 8 "is irrelevant ... as New Zealand agrees with the IRA Team that it is certain that any *E. amylovora* present by this step will survive to the next stage."¹⁵⁸³

(ii) *The Panel's analysis*

7.347 The IRA estimates the likelihood that *Erwinia amylovora* survives and remains with the fruit after on-arrival minimum border procedures is 1 (100 per cent).¹⁵⁸⁴

¹⁵⁷⁷ See para. 7.285 above. Declaration of Tom van der Zwet, 16 July 2002, in Exhibit AUS-32. Dr Paulin's reply to Panel question 32, in List of Replies from the scientific experts to questions posed by the Panel, paras. 227-228; Dr Paulin's reply to Panel question 24, in List of Replies from the scientific experts to questions posed by the Panel, para. 175. But see, Australia's IRA, Part B, pp. 63.

¹⁵⁷⁸ Australia's IRA, Part B, pp. 19-21.

¹⁵⁷⁹ New Zealand's first written submission, para. 4.233.

¹⁵⁸⁰ *Ibid.*

¹⁵⁸¹ New Zealand's first written submission, para. 4.234.

¹⁵⁸² New Zealand's second written submission, para. 2.433.

¹⁵⁸³ Australia's first written submission, para. 440. See also, Australia's second written submission, para. 395.

¹⁵⁸⁴ Australia's IRA, Part B, p. 80.

7.348 The IRA notes that "[b]acteria present on the surface, in the calyx or internally will not be detected at on-arrival border procedures. Standard on-arrival inspection procedures would not be able to detect the presence of bacteria. Fruit carrying bacteria would not show any symptoms of fire blight."¹⁵⁸⁵

7.349 New Zealand has not called into question the IRA's estimation of the likelihood of the event represented by this particular importation step. In any event, there is no reason to believe that such estimation is not coherent and objective in the light of the scenario addressed by the IRA.

(i) Alleged overestimation for the overall probability of importation

7.350 The overall probability of importation represents the likelihood that an imported apple is infected or infested; it results from the sum of the proportions associated with the ten individual importation pathways.¹⁵⁸⁶

(i) *Summary of the Parties' arguments*

7.351 New Zealand argues that the overall probability of importation is a greatly inflated figure.¹⁵⁸⁷ In New Zealand's view, this figure "exceeds the maximum reported infestation in New Zealand, which was from a severely infected orchard."¹⁵⁸⁸ New Zealand suggests that, based on scientific evidence, the value assigned to the overall probability of importation should be considerably lower.¹⁵⁸⁹

7.352 In response, Australia argues that the infestation rate of imported apples from New Zealand, corresponding to the overall probability of importing *Erwinia amylovora*, was estimated by inserting the likelihoods for each importation step into the risk simulation model.¹⁵⁹⁰

(ii) *The Panel's analysis*

7.353 Regarding the overall probability of importation of *Erwinia amylovora*, the IRA notes that:

"When the above likelihoods [for each of the importation steps] were inserted into the risk simulation model, the probability of importation of *E. amylovora* was estimated as being 3.9×10^{-2} (mean), 2.2×10^{-2} (5th percentile) and 5.6×10^{-2} (95th percentile). Therefore, the infestation rate for *E. amylovora* was estimated to be 3.9% (mean) of the total proposed number of apples imported from New Zealand annually."¹⁵⁹¹

7.354 The experts have confirmed that, arithmetically, the overall figure of 3.9 per cent is correct, as it results from adding the different individual likelihoods represented by each of the ten potential importation paths.¹⁵⁹² However, Dr Paulin noted that the exercise of trying to reach an overall

¹⁵⁸⁵ Australia's IRA, Part B, p. 80.

¹⁵⁸⁶ Australia's IRA, Part B, pp. 23-24.

¹⁵⁸⁷ New Zealand's first written submission, para. 4.235; New Zealand's second written submission, para. 2.434.

¹⁵⁸⁸ New Zealand's first written submission, para. 4.235.

¹⁵⁸⁹ *Ibid.* See also, New Zealand's second written submission, para. 2.434. Roberts *et al.*, "The potential for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (1998), p. 23, in Exhibit NZ-22; and, Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29.

¹⁵⁹⁰ Australia's second written submission, para. 396.

¹⁵⁹¹ Australia's IRA, Part B, p. 80.

¹⁵⁹² Dr Deckers's and Dr Sgrillo's replies to Panel question 34, in List of Replies from the scientific experts to questions posed by the Panel, paras. 237 and 236.

likelihood of importation by estimating individual probabilities for each importation pathway may be flawed:

"[I]f one can speculate or discuss on the likelihood of any event involved in the possible transport of *E. amylovora* with apples, the quantification of probabilities of each one of these events is just *not feasible*. This quantification relies on an arbitrary estimation, which, even in the best-documented case, is just hidden behind a 'scientific' explanation, which is never completely relevant, if only because the conditions in the laboratory are only partially mimicking natural conditions. This quantification of probability may have a merit in trying to assess the *relative* risks attached to each step, as compared to each other. The overall figure resulting from the combination of these probabilities is just *not credible*: if the 3.9% figure had any consistency, it is a figure that could be quite easily checked experimentally (as is, for example, spread through planting material). Such an experiment would have been more convincing than the present efforts by IRA to demonstrate what cannot be really demonstrated."¹⁵⁹³

7.355 Irrespective of whether this exercise of trying to reach an otherwise unsupported overall likelihood of importation by aggregating probabilities for individual importation paths is flawed, some of the figures estimated by the IRA Team are problematic. Indeed, if the estimations of one or more of the individual likelihoods are questionable, because those estimations are either not supported by adequate scientific evidence or not based on a coherent and objective reasoning, the overall figure necessarily becomes questionable.

7.356 Moreover, the IRA does not attempt to find justification for the estimated overall probability of importation, other than the aggregation of the different individual likelihoods represented by each importation step.¹⁵⁹⁴ Consulted by the Panel, Dr Deckers expressed the view that this overall probability is a relatively high value and is probably overestimated.¹⁵⁹⁵ Dr Paulin emphasized that, because the IRA does not present data to support its estimation regarding the overall likelihood of importation, it is impossible to consider whether this estimation is or is not exaggerated and, if it is, the seriousness of the exaggeration.¹⁵⁹⁶ Indeed, commenting on the risk assessment methodology, Dr Sgrillo notes that "quantitative methods should be applied only when there are sufficient data to support the choice of probability ranges and probability shapes."¹⁵⁹⁷ Dr Sgrillo suggests in this regard that the data in the IRA "is not adequate to generate the kind of numbers that the people need to proceed with the model."¹⁵⁹⁸ Ultimately, any figures estimated would subsequently need to be compared with the reality to verify that the model adequately reflects the real world.¹⁵⁹⁹

7.357 In the light of the conclusions reached earlier by the Panel regarding the IRA's estimations of individual importation steps¹⁶⁰⁰, and of the lack of any separate justification and evidence in the IRA regarding the estimated overall likelihood of importation, the Panel finds that the IRA's estimation of

¹⁵⁹³ Dr Paulin's reply to Panel question 34, in List of Replies from the scientific experts to questions posed by the Panel, paras. 238-239 (original emphasis).

¹⁵⁹⁴ Australia's IRA, Part B, p. 80. See also, Table 4 in Australia's IRA, Part B, p. 24. See, reply of Dr Sgrillo in Transcript of the Panel's meeting with experts, para. 269.

¹⁵⁹⁵ Dr Deckers's reply to Panel question 34, in List of Replies from the scientific experts to questions posed by the Panel, para. 237. See also, Dr Sgrillo's reply to Panel question 34, in List of Replies from the scientific experts to questions posed by the Panel, paras. 231-235. But see, Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 259.

¹⁵⁹⁶ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 258.

¹⁵⁹⁷ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 122.

¹⁵⁹⁸ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 143.

¹⁵⁹⁹ Dr Sgrillo's replies in Transcript of the Panel's meeting with experts, paras. 34 and 136.

¹⁶⁰⁰ See paras. 7.259, 7.275, 7.290, 7.320 and 7.342 above.

the overall probability of importation does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(j) IRA's analysis of the probability of entry, establishment and spread of fire blight

7.358 Factors relevant to the estimation of the probability of entry, establishment and spread include: the probability of importation (in accordance with the different importation steps); the proximity value; the probability of exposure; the probability of establishment; and the probability of spread.¹⁶⁰¹

(i) *Summary of the Parties' arguments*

7.359 New Zealand argues that, just as the IRA does not contain an evaluation of the likelihood of entry of fire blight, it also fails to evaluate the likelihood of the "establishment or spread of the disease" within the meaning of paragraph 4 of Annex A to the SPS Agreement.¹⁶⁰² New Zealand submits that, "[a]s a result, Australia has not complied with its obligations under Article 5.1 of the SPS Agreement."¹⁶⁰³ In New Zealand's view, "Australia's risk assessment fails to meet the requirements of Article 5.1 because it does not assess the actual risk of introduction of fire blight via mature, symptomless apples".¹⁶⁰⁴ It is based on a hypothetical pathway, "one based on a hypothesis, supposed or assumed but not necessarily real or true".¹⁶⁰⁵

7.360 New Zealand submits that there is no scientific evidence of a dispersal mechanism to move the bacteria to a susceptible host, so that once apples infested or infected with *Erwinia amylovora* arrive in Australia, the disease may be transmitted to host plants. In New Zealand's view, the IRA's analysis in this regard "rests on remote possibilities and not on probabilities based on scientific evidence".¹⁶⁰⁶ New Zealand contends that the IRA assigns values "in a seemingly arbitrary manner" to various utility points from which there could be transfer of bacteria from infested apples to host plants¹⁶⁰⁷: "events that have an extremely low likelihood ... are nevertheless assigned probability values which suggest they are likely to occur".¹⁶⁰⁸

7.361 New Zealand alleges some "further, specific problems" with the IRA's analysis of "establishment and spread". First, the IRA ignores that bacterial populations on apples "will greatly decline" during cold storage in Australia before retail sale and distribution.¹⁶⁰⁹ Second, the IRA cites no scientific basis for its assumption that there can be multiplication of *Erwinia amylovora* on a discarded apple, or that such bacteria could be spread to a susceptible host by browsing insects.¹⁶¹⁰ Available scientific evidence rather shows that populations of *Erwinia amylovora* associated with

¹⁶⁰¹ Australia's IRA, Part B, p. 80. See also, Australia's IRA, Part B, p. 17.

¹⁶⁰² New Zealand's first written submission, para. 4.238.

¹⁶⁰³ New Zealand's first written submission, para. 4.252.

¹⁶⁰⁴ New Zealand's second written submission, para. 2.437.

¹⁶⁰⁵ New Zealand's second written submission, para. 2.439.

¹⁶⁰⁶ New Zealand's first written submission, para. 4.239. See also, New Zealand's first written submission, paras. 4.247-4.248.

¹⁶⁰⁷ New Zealand's first written submission, paras. 4.240-4.241.

¹⁶⁰⁸ New Zealand's first written submission, para. 4.241.

¹⁶⁰⁹ New Zealand's first written submission, para. 4.242, referring to Taylor and Hale, "Cold storage affects survival and growth of *Erwinia amylovora* on the calyx of apple" (2003), in Exhibit NZ-25; and, Temple *et al.*, "Evaluation of Likelihood of Co-Occurrence of *Erwinia amylovora* with Mature Fruit of Winter Pear" (2007), p. 1272, in Exhibit NZ-98.

¹⁶¹⁰ New Zealand's first written submission, para. 4.243, referring to Taylor *et al.*, "Survival of the fire blight pathogen, *Erwinia amylovora*, in calyxes of apple fruit discarded in an orchard" (2003), in Exhibit NZ-28; and, Hale *et al.*, "Ecology and Epidemiology of fire blight in New Zealand" (1996), in Exhibit NZ-27. See also, New Zealand's second written submission, paras. 2.442-2.444.

mature fruit would have a negligible probability of infecting a host, even if the host were receptive.¹⁶¹¹ Nor is there any scientific evidence cited to support the theory of mechanical transfer via workers or equipment leading to infection.¹⁶¹² Additionally, in New Zealand's view, the IRA wrongly claims that there is no accepted threshold number of *Erwinia amylovora* required to initiate an infection.¹⁶¹³ Third, the IRA's argument about the dispersal mechanism is based on the wrong assumption that laboratory conditions will be replicated in a natural orchard environment.¹⁶¹⁴ New Zealand argues in this regard that, in real life, "even under conditions conducive for infection, bacterial populations are unlikely to reach such high inoculum levels in such a short period".¹⁶¹⁵ In New Zealand's view:

"The IRA's contention that *E. amylovora* can spread via mature fruit not only requires that each of [a number of] unproven events must occur but that they must all occur in sequence in a short period of time when a host blossom is susceptible and the climate is conducive to infection by *E. amylovora*. ... The probability of each of these never demonstrated events occurring is negligible; the probability of them occurring in the correct sequence at the correct time has to be very close to zero."¹⁶¹⁶

7.362 According to New Zealand, the IRA's estimate of the likelihood of transfer of *Erwinia amylovora* from a single infested or infected apple to a susceptible host (exposure value) is "grossly exaggerated". The only scientific evidence of the probability of such events occurring assigns values of one event per several thousand years.¹⁶¹⁷

7.363 In response, Australia argues that New Zealand's argument that establishment and spread of fire blight through mature apples has never been demonstrated and lacks merit, as does the argument that the IRA's evaluation in this regard is "hypothetical" and "grossly exaggerated".¹⁶¹⁸ In Australia's view, just because a pathway has never been historically proven, is not determinative that it can never happen.¹⁶¹⁹ Australia submits that the proper enquiry is whether the likelihoods assigned by the IRA are credible and objective. In this regard, Australia states that, "at each stage in the pathway relating to establishment and spread, the IRA Team made a credible assessment on the basis of the scientific evidence and accordingly, its evaluation should stand".¹⁶²⁰

7.364 Australia argues that, in accordance with international standards, in circumstances of scientific uncertainty a risk assessment may explore hypothetical pathways, although it is important for transparency to document the areas and the degree of uncertainty in the assessment, and to indicate

¹⁶¹¹ New Zealand's first written submission, para. 4.243, referring to Taylor *et al.*, "Survival of the fire blight pathogen, *Erwinia amylovora*, in calyxes of apple fruit discarded in an orchard" (2003), in Exhibit NZ-28; and, Hale *et al.*, "Ecology and Epidemiology of fire blight in New Zealand" (1996), in Exhibit NZ-27. See also, New Zealand's second written submission, paras. 2.442-2.444.

¹⁶¹² New Zealand's second written submission, paras. 2.445-2.446.

¹⁶¹³ New Zealand's first written submission, para. 4.244, referring to Thomson and Gouk, "Influence of Age of Apple Flowers on growth of *Erwinia amylovora* and Biological Control Agents" (2003), in Exhibit NZ-54; and, Taylor *et al.*, "Effect of inoculum dose on infection of apple (*Malus domestica*) flowers by *Erwinia amylovora*" (2003), in Exhibit NZ-23.

¹⁶¹⁴ New Zealand's first written submission, para. 4.245.

¹⁶¹⁵ *Ibid.*

¹⁶¹⁶ New Zealand's first written submission, paras. 4.246-4.247.

¹⁶¹⁷ New Zealand's first written submission, paras. 4.249-4.250, referring to Roberts *et al.*, "The potential for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (1998), p. 23, in Exhibit NZ-22; Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29.

¹⁶¹⁸ Australia's first written submission, paras. 442-443.

¹⁶¹⁹ Australia's first written submission, para. 443.

¹⁶²⁰ Australia's first written submission, para. 447. See also, Australia's second written submission, para. 403.

where expert judgement has been used.¹⁶²¹ In this regard, Australia argues that "[t]he SPS Agreement does not require a risk assessment to establish a minimum magnitude of risk and permits reliance upon a range of scientific opinions emanating from qualified and respected sources."¹⁶²²

7.365 Australia contends that New Zealand's analysis of the steps necessary for fire blight to establish and spread in Australia, including New Zealand's assumptions that apple fruit must arrive in Australia with significant quantities of *Erwinia amylovora* in the calyx, that browsing insects are the only vector for transmission of *Erwinia amylovora* to a host, and that bacteria must multiply to 10^6 in a short period during conducive weather conditions, has "significant shortcomings".¹⁶²³

7.366 Australia argues further that New Zealand's claims in relation to the IRA Team's proximity analysis are weak and should be dismissed.¹⁶²⁴ In its view, New Zealand makes an unsupported vague statement and does not challenge any particular assignment of likelihood in this regard, except the combination of urban retailers and commercial fruit crops.¹⁶²⁵

7.367 With respect to cold storage, Australia argues that the scientific evidence clearly shows that *Erwinia amylovora* can survive on apples for periods considerably longer than those needed to import, distribute and sell apples in Australia.¹⁶²⁶

7.368 Australia also argues that the studies considered in the IRA are evidence that the minimum number of *Erwinia amylovora* needed to start fire blight is much lower than that claimed by New Zealand. Such minimum number varies greatly and is highly dependent on environmental conditions and host factors.¹⁶²⁷ Australia adds that "[t]o the extent that New Zealand relies on this claim to support its objection to the entire risk scenario, Australia submits that this objection should be found wholly without support."¹⁶²⁸

7.369 Australia argues further that the ability of *Erwinia amylovora* to rapidly multiply in the environment on or in apple fruit, increasing the chance that an effective inoculum dose will be available is substantiated and therefore is a credible part of the risk assessment.¹⁶²⁹

7.370 Regarding transmission of *Erwinia amylovora* from apples to hosts by browsing insects, Australia argues that the evidence available to the IRA Team demonstrated that there was a likelihood, albeit small, that insect-vectored transmission could occur.¹⁶³⁰ The evidence cited by New Zealand, which detected no spread of fire blight when apples contaminated with

¹⁶²¹ Australia's first written submission, paras. 444-446; Australia's second written submission, para. 401. *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome), submitted as Exhibit AUS-6.

¹⁶²² Australia's first written submission, para. 446.

¹⁶²³ Australia's first written submission, para. 449.

¹⁶²⁴ Australia's first written submission, para. 456.

¹⁶²⁵ Australia's first written submission, paras. 454-455.

¹⁶²⁶ Australia's first written submission, para. 457.

¹⁶²⁷ Australia's first written submission, paras. 458-462. Van der Zwet *et al.*, "Evaluation of the MARYBLTY Computer Model for Predicting Blossom Blight on Apple in West Virginia and Maryland" (1994), in Exhibit AUS-28; Hildebrand, "Infectivity of the Fire-Blight Organism" (1937), in Exhibit AUS-29; and, Cabrefiga and Montesinos, "Analysis of Aggressiveness of *Erwinia amylovora* Using Disease-Dose and Time Relationships" (2005), in Exhibit AUS-37.

¹⁶²⁸ Australia's first written submission, para. 462.

¹⁶²⁹ Australia's first written submission, paras. 463-471. Longstroth, "Fire Blight Symptoms" (2007), in Exhibit AUS-42; van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31; and, Sholberg *et al.*, "Occurrence of *Erwinia amylovora* of pome fruit in British Columbia in 1985 and its elimination from the apple surface" (1988), in Exhibit AUS-34.

¹⁶³⁰ Australia's first written submission, paras. 472-475; Australia's second written submission, para. 399.

Erwinia amylovora were placed in orchards, is of limited value, because the sample size in these experiments was insufficient to detect rare events.¹⁶³¹ In this regard, "[s]ince the pathway being examined is hypothetical, the IRA Team was not obliged to disregard a potential vector simply because it has never been shown to 'demonstrate' transmission of *E. amylovora*."¹⁶³²

7.371 Australia adds that the IRA Team also identified mechanical processes, such as tools, hands, machinery, etc., as a means of transmission of the disease.¹⁶³³ Australia notes that New Zealand did not address this mode of transmission in its first submission and therefore failed to establish that the IRA's conclusions on this issue should be doubted.¹⁶³⁴

7.372 Regarding the IRA's conclusion on exposure, Australia submits that "while the chain of events required for a successful exposure only has a small chance of occurring, the scientific evidence demonstrates that such exposure events can happen."¹⁶³⁵ In its view, the probability of exposure has been estimated at a range that is equivalent to the qualitative descriptor for a "negligible" event and, accordingly, New Zealand should have no objection to the IRA's judgement in this regard.¹⁶³⁶

7.373 Australia argues that New Zealand did not make any claims relating to fire blight establishment under Article 5.1 in its first written submission, and should not be permitted to make any such claims at a later stage.¹⁶³⁷ Australia adds that the IRA refers to studies that show that a number of major apple and pear growing areas in Australia would have suitable conditions for the establishment of fire blight and that major Australian cities such as Sydney have many fire blight host plants and highly suitable conditions for fire blight.¹⁶³⁸ Australia also notes that *Erwinia amylovora* survival is highly variable and that the IRA should not be judged against New Zealand's alternative account based on selective scientific evidence.¹⁶³⁹

7.374 Finally, Australia argues that the IRA's spread analysis examined the ability of the pathogen to spread to other susceptible hosts, once the disease has established on a host plant in Australia. Because New Zealand did not make any claims relating to fire blight spread under Article 5.1 in its first written submission, it should not be permitted to make any such claims at a later stage.¹⁶⁴⁰

(ii) *The Panel's analysis*

7.375 In its estimation of the probability of entry, establishment and spread of fire blight, the IRA has taken into account the following factors: the probability of importation, that has already been discussed with respect to the different importation steps; the proportion of utility points near host plants susceptible to the pest in each exposure group, titled "proximity"; the probability of exposure of a susceptible host plant in the exposure group to the pest by an infested/infected apple discarded near it, titled "exposure"; the probability of establishment; and the probability of spread.¹⁶⁴¹

¹⁶³¹ Australia's first written submission, para. 475.

¹⁶³² Australia's first written submission, para. 473.

¹⁶³³ Australia's first written submission, paras. 472 and 476, referring to Thomson, "Epidemiology of fire blight" (2000), p.17, in Exhibit NZ-05.

¹⁶³⁴ Australia's first written submission, para. 476.

¹⁶³⁵ Australia's first written submission, para. 477. Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29. See also, Australia's second written submission, para. 402.

¹⁶³⁶ Australia's first written submission, paras. 477-479.

¹⁶³⁷ Australia's first written submission, para. 481.

¹⁶³⁸ Australia's first written submission, para. 482.

¹⁶³⁹ Australia's first written submission, para. 483.

¹⁶⁴⁰ Australia's first written submission, paras. 484-485.

¹⁶⁴¹ Australia's IRA, Part B, p. 80. See also, Australia's IRA, Part B, p. 17.

7.376 The probability of importation, combined with the proximity and the exposure analyses, result in the overall probability of entry. In turn, the exposure analysis takes into account factors such as: viability of the pest, survival of the pest, transfer mechanism of the pest, inoculum dose, host receptivity and environmental factors.¹⁶⁴² All scenarios subsequent to the probability of importation that has been discussed above are only relevant under the assumption that some viable *Erwinia amylovora* bacteria would still be present on imported apples from New Zealand.

Proximity

7.377 Under its proximity analysis, the IRA assesses "how apples from New Zealand would be distributed, used and subsequently disposed of."¹⁶⁴³ With respect to fire blight, the term "proximity" in the IRA refers to the likelihood that one of the major handlers and users of apples (a utility point) is sufficiently close to a host plant in a particular exposure group, for the likelihood of transfer of bacteria to a host to be greater than zero.¹⁶⁴⁴ The IRA considers the following utility points: orchard wholesalers, urban wholesalers, retailers, food services and consumers. It also considers the following exposure groups: commercial fruit crops, nursery plants, household and garden plants and wild and amenity plants. The IRA describes issues specific to each utility point and estimates proximity ratings for the combination of each utility point with exposure groups (proximity values).¹⁶⁴⁵ The IRA considers two scenarios regarding proximity. Under the first scenario, 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers, while under the second scenario, only 0.1 to 5 per cent of imported apples are distributed to orchard packing houses.¹⁶⁴⁶

7.378 As noted above, New Zealand has submitted few arguments to contest the IRA's analysis on proximity. It has mainly argued that the IRA has assigned proximity values in a seemingly arbitrary manner.¹⁶⁴⁷

7.379 Consulted by the Panel, the experts expressed scepticism regarding some of the scenarios considered under the IRA's proximity analysis. With respect to the likelihood and implications of New Zealand apples being repacked at rural packing houses in close proximity to orchards, Dr Deckers considered that the IRA's analysis "is not convincing and seems not to be based on objective criteria".¹⁶⁴⁸ Dr Paulin noted that, while the IRA's assessment is "apparently coherent", he could not see how the relative levels of probability for each situation were evaluated.¹⁶⁴⁹ More importantly, as noted by Dr Paulin, the issue of proximity is likely to be of "*minor importance* for fire blight risks", if apples from New Zealand are imported as retail-ready, because they would probably not be processed at rural packing houses in proximity to host plants.¹⁶⁵⁰ In the words of Dr Paulin, "the time of import (whether it takes place during a period of receptivity of host plants or not) is more important in the risk assessment than the site of import and (hypothetical) packaging".¹⁶⁵¹

7.380 Although the IRA offers little explanation and supporting evidence for its reasoning regarding the estimation of the different proximity values, the Panel finds that New Zealand has not made a

¹⁶⁴² Australia's IRA, Part B, pp. 80-90. See also, Australia's IRA, Part B, pp. 17 and 27.

¹⁶⁴³ Australia's first written submission, para. 451. See, Australia's IRA, Part B, pp. 24-27.

¹⁶⁴⁴ Australia's IRA, Part B, p. 80; Australia's IRA, Part B, pp. 24-27 and 29.

¹⁶⁴⁵ Australia's IRA, Part B, pp. 80-85; Australia's IRA, Part B, pp. 24-27.

¹⁶⁴⁶ Australia's IRA, Part B, pp. 25-26 and 97. See also, para. 7.432 below.

¹⁶⁴⁷ New Zealand's first written submission, para. 4.241.

¹⁶⁴⁸ Dr Deckers's reply to Panel question 46, in List of Replies from the scientific experts to questions posed by the Panel, para. 294.

¹⁶⁴⁹ Dr Paulin's reply to Panel question 46, in List of Replies from the scientific experts to questions posed by the Panel, para. 295.

¹⁶⁵⁰ *Ibid.* (original emphasis).

¹⁶⁵¹ *Ibid.*.

prima facie case that the IRA's discussion on utility points and estimated proximity ratings for the combination of each utility point with exposure groups (proximity values) is not objectively justifiable.

Exposure

7.381 Under its exposure analysis, the IRA assesses "the likelihood of transfer of the pathogen from infested or infected apples (waste) to a susceptible host plant."¹⁶⁵² According to the IRA, "[a]n analysis of key steps in the sequence of events that would need to occur for successful exposure includes a consideration of factors such as" viability of the pest, survival mechanism of the pest, transfer mechanism of the pest, inoculum dose, host receptivity and environmental factors.¹⁶⁵³ After discussing these factors, the IRA estimates that "the exposure value for an individual apple for all five utility points by four exposure groups combinations should be in the range of Uniform (0, 10⁻⁶). This range is based on the IRA team's views on both mechanical and insect mediated transmission and explicitly acknowledges that in some circumstances the chances of exposure would be zero."¹⁶⁵⁴

7.382 The Panel will consider each of these factors in turn.

Viability

7.383 With respect to viability, the IRA notes that "[b]acteria, especially those present in the calyx, may survive cold storage and transport".¹⁶⁵⁵ The IRA adds that "*E. amylovora* is known to survive in calyces of mature apple fruit at harvest, from severely blighted orchards or when severe fire blight was present in the area."¹⁶⁵⁶

7.384 As noted by Dr Paulin, not all the papers included in the IRA with respect to survival of *Erwinia amylovora* provide perfectly established results and some of them, such as van der Zwet *et al.* (1990) are difficult to understand due to the complexity of the design of the paper. "Nevertheless, the possibility of the presence of a limited surviving population of bacteria on the surface of mature fruits issued from severely infected environment, given by the whole data presented, seems to be acceptable."¹⁶⁵⁷

7.385 Dr Deckers noted that the scientific evidence cited by the IRA is strongest with respect to survival of *Erwinia amylovora* bacteria in the calyx of mature apple fruit.¹⁶⁵⁸ It should be noted again, however, that this viability scenario is only relevant under the assumption that some *Erwinia amylovora* bacteria would still be present on imported apples from New Zealand. The Panel has already discussed in this regard, for example, the reduction of bacterial populations that would occur through routine procedures that occur in New Zealand packing houses, such as disinfection and cold storage. Disinfection, in particular, has been noted to have a significant impact in reducing bacterial populations, even in the calyx.¹⁶⁵⁹

¹⁶⁵² Australia's IRA, Part B, p. 85. See also, Australia's IRA, Part B, p. 27.

¹⁶⁵³ Australia's IRA, Part B, p. 27. See also, Australia's IRA, Part B, pp. 85-90.

¹⁶⁵⁴ Australia's IRA, Part B, p. 90.

¹⁶⁵⁵ Australia's IRA, Part B, p. 86.

¹⁶⁵⁶ *Ibid.* See also, Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31; and, Sholberg *et al.*, "Occurrence of *Erwinia amylovora* of pome fruit in British Columbia in 1985 and its elimination from the apple surface" (1988), in Exhibit AUS-34.

¹⁶⁵⁷ Dr Paulin's reply to Panel question 6, in List of Replies from the scientific experts to questions posed by the Panel, para. 47.

¹⁶⁵⁸ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 227.

¹⁶⁵⁹ Australia's IRA, Part B, p. 72. Toivonen *et al.*, "Factors involved in developing apple slices" (2001).

7.386 With respect to viability of *Erwinia amylovora* on the surface of mature fruits, Dr Paulin explained that this bacterium is not a true epiphyte. The term "epiphyte" would be reserved for those microorganisms that are able to multiply, and therefore to reach a high level of population on leaves or plant surfaces, without producing symptoms.¹⁶⁶⁰ "Such a capacity *does not exist* in the case of *E. amylovora* (Thomson 2000), except on stigma in flowers. Therefore the bacterial cells eventually present on the fruit surface could not multiply on the same site."¹⁶⁶¹

7.387 Because *Erwinia amylovora* can only survive, and not multiply, on plant surfaces and in the calyx, the likelihood that this epiphytic population of bacteria serves as a new source of infestation in the orchard is very small and not supported on scientific evidence.¹⁶⁶² As noted by Dr Deckers, "[t]here will be no multiplication of the epiphytic bacterial population on the fruit surface or in the calyx tissue. The fire blight bacteria are not surviving well as an epiphytic bacterial population. ... The chance for such a successful transfer and multiplication of bacteria will be rather exceptional."¹⁶⁶³

7.388 In other words, mature apple fruits can harbour viable *Erwinia amylovora* bacteria epiphytically on the fruit skin and, especially, in the calyx of the fruit. But, despite the IRA's statement that bacteria "may survive cold storage and transport", the bacteria will not survive well. On the fruit skin, the bacteria will dry out easily and die, while in the calyx end they will be able to survive for a longer period. In any event, there will be no multiplication of bacteria, even in the calyx end of the fruits. The level of epiphytic populations of *Erwinia amylovora* bacteria on apple fruits will remain low.¹⁶⁶⁴

7.389 The Panel has already noted that most of the evidence cited in the IRA supports the notion that cold storage would reduce any bacterial population of *Erwinia amylovora* on apples, but would not completely eliminate such population, although bacteria will not multiply.¹⁶⁶⁵

7.390 In conclusion, the scientific evidence cited in the IRA supports the assumption that viable *Erwinia amylovora* found on apple fruit, if there were any at this stage, could survive cold storage and transport, albeit in reduced numbers.

Survival

7.391 With respect to survival, the IRA notes that:

"Waste material should either have an adequate inoculum dose in a viable state or bacteria must multiply to a concentration that could initiate an infection. When cores are discarded into the environment, nutrients released from damaged cells in apple cores could encourage viable bacteria in the calyx to multiply. The availability of nutrients could also encourage other saprophytic micro-organisms to multiply at the

¹⁶⁶⁰ Dr Paulin's replies to Panel questions 19 and 26, in List of Replies from the scientific experts to questions posed by the Panel, paras. 140 and 187-188; Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 230.

¹⁶⁶¹ Dr Paulin's reply to Panel question 19, in List of Replies from the scientific experts to questions posed by the Panel, para. 140 (original emphasis).

¹⁶⁶² Dr Deckers's replies to Panel questions 7 and 18, in List of Replies from the scientific experts to questions posed by the Panel, paras. 62 and 135-136.

¹⁶⁶³ Dr Deckers's reply to Panel question 19, in List of Replies from the scientific experts to questions posed by the Panel, para. 139.

¹⁶⁶⁴ Dr Deckers's replies to Panel questions 7 and 37, in List of Replies from the scientific experts to questions posed by the Panel, paras. 62 and 252.

¹⁶⁶⁵ See para. 7.301 above.

same time. When cores are discarded into the general soil environment, *E. amylovora* can survive for a limited period".¹⁶⁶⁶

7.392 The available evidence suggests that *Erwinia amylovora* bacteria may survive in diminishing populations. As noted by Dr Paulin, "long-term conservation of bacteria in a steady state" is well documented: "in some cases, say in dried ooze, for example, the bacteria is able to survive for months, in certain conditions".¹⁶⁶⁷

7.393 No evidence is cited in the IRA, however, for the proposition that these surviving bacteria would be able to multiply in the calyx. Instead, as discussed above when considering the issue of viability, the evidence indicates that any *Erwinia amylovora* bacteria found epiphytically on the fruit skin and in the calyx of the fruit will not survive well. On the fruit skin, the bacteria will dry out and die, while in the calyx end they will be able to survive for a longer period. In any event, the evidence suggests that there will be no multiplication of bacteria, even in the calyx.¹⁶⁶⁸

7.394 Dr Paulin noted that there is no scientific evidence to support the proposition that *Erwinia amylovora* bacteria may multiply on decaying fruit discarded in the open and exposed to the elements, but that such proposition cannot be ruled out. "Decaying fruit, as far as [its] chemical composition ... can be a suitable medium for the multiplication of *Erwinia amylovora*, although this remains to be demonstrated".¹⁶⁶⁹

7.395 In any event, as has been noted before, any *Erwinia amylovora* bacteria would have to compete against natural antagonistic bacteria. These antagonistic bacteria are naturally found in high concentrations on plant and on fruit surfaces and, according to Dr Paulin, would prevent a multiplication of *Erwinia amylovora*, if present.¹⁶⁷⁰

7.396 In conclusion, the scientific evidence cited in the IRA supports the assumption that *Erwinia amylovora* found on apple fruit, if there were any at this stage, could presumably survive in the environment. Evidence also suggests that any bacterial population would decrease over time and would likely not be able to multiply.

Transfer mechanisms

7.397 With respect to the transfer mechanism, the IRA considers two possibilities: browsing insects and mechanical transmission, for example, by the exposure of workers and equipment to bacteria.¹⁶⁷¹

7.398 According to the IRA:

"Fire blight bacteria do not have a specific dispersal mechanism. To transfer *E. amylovora* to a susceptible host, a vector must pick up the bacteria in a sufficient

¹⁶⁶⁶ Australia's IRA, Part B, p. 86. Ark, "The behaviour of *Bacillus amylovorus* in soil" (1932); Hildebrand et al., "Survival studies with the fire blight pathogen *Erwinia amylovora* in soil and in a soil-inhabiting insect" (2001); and, Thomson, "The overwintering of fire blight bacteria outside of living tissue in Utah" (1969).

¹⁶⁶⁷ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 389.

¹⁶⁶⁸ See para 7.388 above. Dr Deckers's replies to Panel questions 7 and 37, in List of Replies from the scientific experts to questions posed by the Panel, paras. 62 and 252.

¹⁶⁶⁹ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 395. See also, Dr Paulin's reply to Panel question 21, in List of Replies from the scientific experts to questions posed by the Panel, para. 146; Dr Paulin's replies in Transcript of the Panel's meeting with experts, paras. 364 and 366.

¹⁶⁷⁰ See para 7.319 above. Dr Paulin's replies to Panel questions 21 and 30, in List of Replies from the scientific experts to questions posed by the Panel, paras. 146 and 216-217.

¹⁶⁷¹ Australia's IRA, Part B, pp. 87-88.

concentration to initiate a new infection. ... The most likely mechanism of transfer of bacteria from discarded apples to a receptive site in a susceptible host is by browsing insects (AQIS, 1998a). Discarded apples are attractive to a wide range of insects and this attraction may be increased by rotting. ... Rotting of the apple could involve multiplication of fire blight bacteria resulting in the production of bacterial ooze. ... Mechanical transmission of fire blight bacteria could also be possible. For example, packing of New Zealand fruit in packing houses closely associated with apple orchards could result in the exposure of workers and equipment to fire blight bacteria. Initiation of disease could then occur by transfer of bacteria to wounds caused by normal orchard operations such as pruning."¹⁶⁷²

7.399 The IRA cites no evidence for its proposition of a mechanical transmission of fire blight bacteria, for example, through exposure of workers and equipment to *Erwinia amylovora* bacteria. Dr Deckers and Dr Paulin found this scenario to be "extremely unlikely".¹⁶⁷³ Bacteria on workers and equipment, if any, would have to compete with other micro-organisms and bacteria. Being a poor competitor, there is no indication that *Erwinia amylovora* bacteria would survive or multiply to be transferred, as confirmed by the experts.¹⁶⁷⁴

7.400 Dr Deckers and Dr Paulin considered instead that the only relevant transfer mechanism of *Erwinia amylovora* bacteria from discarded apples to a receptive site in a susceptible host would be that of browsing insects.¹⁶⁷⁵ The transfer mechanism of browsing insects suggested by the IRA seems, however, to be very unlikely, although not completely impossible. As noted by Dr Paulin, this mechanism "is conceivable through an apparently logical succession of events, each of them being questionable, *but never completely impossible*."¹⁶⁷⁶ To begin with, the level of the bacterial population present on the fruits would be in any event low or very low and most likely located in the calyx, and so these cells would not be easily accessible. "In addition, bacterial cells on fruit are probably not embedded in ooze (as they are when actively multiplying from active lesions) and therefore not well protected from adverse conditions, and, which is more, probably have not the adhesive capacity, which is said to be a facilitating factor for transportation by insects."¹⁶⁷⁷

7.401 In other words, the theoretical possibility of an insect taking a few bacterial cells to the hypanthium of a flower of a host plant:

"[R]emains unlikely because trace bacterial populations (not multiplying) will be hardly grasped by insects (it would be easier in the case of a multiplying population, where cells are embedded in exudate). Finally the likelihood of successful multiplication on the hypanthium and infection would be extremely low. In addition, it

¹⁶⁷² Australia's IRA, Part B, pp. 87-88. See also, Australian Quarantine and Inspection Service, "Final Import Risk Analysis of the New Zealand Request for the Access of Apples (*Malus pumila* Miller var. *domestica* Schneider) into Australia (1998).

¹⁶⁷³ Dr Deckers's reply to Panel question 20, in List of Replies from the scientific experts to questions posed by the Panel, para. 142. See also, Dr Paulin's reply to Panel questions 20 and 35, in List of Replies from the scientific experts to questions posed by the Panel, paras. 143-144 and 241-244.

¹⁶⁷⁴ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 237. See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, paras. 234 and 236.

¹⁶⁷⁵ Dr Deckers's and Dr Paulin's replies in Transcript of the Panel's meeting with experts, paras. 293 and 255.

¹⁶⁷⁶ Dr Paulin's reply to Panel question 35, in List of Replies from the scientific experts to questions posed by the Panel, paras. 241-244 (original emphasis).

¹⁶⁷⁷ Dr Paulin's reply to Panel question 18, in List of Replies from the scientific experts to questions posed by the Panel, para. 138 (original emphasis).

would be necessary that such open flower be available when these surface polluted fruits are present. All this cannot be considered to constitute an evidence."¹⁶⁷⁸

7.402 The scientific literature does not consider browsing insects to be a factor in the spread of fire blight from apples on the ground to new host plants. As noted by Dr Deckers, "[a]n insect feeding on a discarded fruit is not considered to be a normal way of spreading the disease between an infected fruit and an other host plant. The chance that the epiphytic bacteria will be transmitted to the susceptible organs of a host plant on the appropriate moment to realise an infection is rather small."¹⁶⁷⁹

7.403 In conclusion, the IRA cites no evidence in support of its proposition of a mechanical transmission of fire blight bacteria. There is also scant scientific evidence in the IRA to support the scenario of browsing insects as a transfer mechanism of *Erwinia amylovora* bacteria from discarded apples to a susceptible host. The browsing insects scenario, however, is based on events that cannot be completely dismissed. In any event, the probability value assigned to such event should be commensurate to the extremely low likelihood of transmission through the browsing insects scenario.

Inoculum dose

7.404 The IRA states that "[t]here is no accepted threshold number of bacteria required to initiate an infection, and this may vary with environmental and host factors."¹⁶⁸⁰ It then reports different studies, including one to the effect that "a single bacterium was sufficient to cause infection in detached flowers when placed directly in the hypanthium and incubated under optimal conditions in the greenhouse, and that this success rate increased with higher doses of inoculum".¹⁶⁸¹ The IRA adds that "[l]ow populations of *E. amylovora* inoculated on to healthy stigmas can multiply rapidly to high populations".¹⁶⁸²

7.405 Notwithstanding the above, the IRA refers to the figure of 38 cells needed to initiate an infection on apple shoots, as obtained by Crosse *et al.* (1972).¹⁶⁸³ As noted by Dr Paulin, this figure proposes a basis for the minimal number of cells able to initiate an infection, "when introduced artificially at the proper site of the suitable plant, in optimal conditions for the disease".¹⁶⁸⁴ The same expert adds that the figure:

"Unfortunately it gives *very few useful indications* for the description of events taking place in natural conditions. ... *E. amylovora* is not able to multiply on plant surface (except for a short time, on the hypanthium of stigmata in flowers). It is difficult to imagine conditions conducive to actively growing cells in natural conditions on the surface of a symptomless apple. The spread of surface population from fruit to infection sites is similarly hard to imagine, especially because these non-multiplying cells are not embedded in exudate, and therefore not attractive to insects or other

¹⁶⁷⁸ Dr Paulin's reply to Panel question 19, in List of Replies from the scientific experts to questions posed by the Panel, paras. 140-141.

¹⁶⁷⁹ Dr Deckers's reply to Panel question 35, in List of Replies from the scientific experts to questions posed by the Panel, para. 240.

¹⁶⁸⁰ Australia's IRA, Part B, p. 88.

¹⁶⁸¹ *Ibid.*. See also, Hildebrand, "Studies on fire blight ooze" (1939).

¹⁶⁸² Australia's IRA, Part B, p. 88. Thomson, "The role of the Stigma in fire blight infections" (1986), in Exhibit AUS-40; Thomson et al., "Rapid epiphytic colonization of apple flowers and the role of insects and rain" (1999), in Exhibit AUS-39.

¹⁶⁸³ Australia's IRA, Part B, pp. 69-70. Crosse *et al.*, "Leaf damage as a predisposing factor in the infection of apple shoots by *Erwinia amylovora*" (1972).

¹⁶⁸⁴ Dr Paulin's reply to Panel question 27, in List of Replies from the scientific experts to questions posed by the Panel, para. 190.

vectors. In artificial inoculations, bacterial populations at low level need to be placed *very precisely* at the right site of infection, to successfully infect its host plant (Crosse et al.). This is probably a difficulty impossible for the bacteria to tackle in natural conditions."¹⁶⁸⁵

7.406 The number of bacteria present on a fruit is not irrelevant when considering the likelihood of initiating an infection. In the words of Dr Sgrillo:

"Usually a number of conditions have to occur simultaneously to allow infection. The probability that an infected fruit, with one bacterium, starts an infection is different from the probability of a fruit that is infested with 10,000 bacteria. It is known that the probability of establishment is a function of the initial population size. The dose-response curve may present a threshold for the inoculum concentration, below which no infection will occur."¹⁶⁸⁶

7.407 Moreover, as emphasized by Dr Paulin, there is no guarantee that multiplication rates obtained in the laboratory will be replicated in the orchard.¹⁶⁸⁷

7.408 In conclusion, the IRA's discussion on inoculum dose is supported by adequate evidence and generally coherent. The IRA, however, fails to recognize the importance of the number of bacteria when considering the likelihood of initiating an infection. The IRA's statement of a study reporting that a single bacterium was sufficient to cause infection, another reference to five bacteria being sufficient to cause fire blight symptoms, as well as the reference to the figure of 38 cells needed to initiate an infection on apple shoot, all fail to note the difference between experiments taking place under ideal conditions in the laboratory, and natural circumstances.

Host receptivity

7.409 With respect to host receptivity, the IRA notes the following:

"[S]ufficient inoculum must be transferred to a receptive site in a susceptible host, mainly confined to the sub-family Maloideae of the family Rosaceae. There are at least 16 host genera susceptible to *E. amylovora*, each containing several species (AQIS, 1998a). There are species not belonging to the sub-family Maloideae (for example, *Prunus* spp.) which are also hosts of *E. amylovora*. ... In host plants, the most susceptible site is the stigma in flowers ... Flowers are abundant in spring in pome and other susceptible fruit trees, and at other times on some susceptible amenity plants. The flowering stage is the only stage when injury to tissue is not required for insects or wind-driven rain to cause infection by *E. amylovora*. ...

For *E. amylovora* to establish initially, factors such as availability, numbers and distribution of susceptible hosts are important considerations. In Australia, abundant susceptible apple plants are grown as monocultures in orchards. A large number of

¹⁶⁸⁵ Dr Paulin's reply to Panel question 27, in List of Replies from the scientific experts to questions posed by the Panel, paras. 190-191 (original emphasis).

¹⁶⁸⁶ Dr Sgrillo's reply to Panel question 28, in List of Replies from the scientific experts to questions posed by the Panel, paras. 197-200. See also, New Zealand's reply to Panel question 63 after the first substantive meeting, paras. 101-107; Australia's reply to Panel question 63 after the first substantive meeting; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 287.

¹⁶⁸⁷ Dr Paulin's reply to Panel question 40, in List of Replies from the scientific experts to questions posed by the Panel, paras. 262-263. Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 337.

alternative hosts are also present in apple growing areas in hedgerows and along roadsides."¹⁶⁸⁸

7.410 The issue of host receptivity constitutes an important part of the exposure analysis. To a large degree, the likelihood of establishment and spread of the disease will depend on the availability of a host plant in a susceptible stage. Even if transfer is possible, no infection will occur unless host plants are in a susceptible stage.¹⁶⁸⁹

7.411 Dr Paulin found the IRA's analysis on host receptivity in principle to be coherent.¹⁶⁹⁰ With respect to the maximum period of susceptibility to an introduction of *Erwinia amylovora*, however, he noted that, although it is difficult to tell when an introduction of the bacteria would be most prone to turn into a natural infection, "it can be assumed that most of the time during the year most host plants should not be at a receptive stage when the import of apple would take place".¹⁶⁹¹ Dr Paulin added that, realistically, the risk of introduction would only be high:

"[I]n spring and early summer, with a possible additional dangerous period in summer and late summer if some hosts such as certain cultivars of apple and mainly of pears produce secondary blossoms (blossoms opening after the normal blossom period, usually associated with some physiological disorder). In addition, the probability of infection will be associated with the number of hosts at the suitable stage at the moment of introduction. In this respect, the maximum period of susceptibility to an introduction of *E. amylovora* will be the full bloom period of pears, and then of apples."¹⁶⁹²

7.412 Dr Paulin considered, therefore, that the IRA maximizes the real risks of exposure by considering too many host plants and not taking adequately into account the discontinuity in the receptivity of susceptible host plants during the year.¹⁶⁹³ He added that:

"This is quite common in countries without fire blight. They consider that any apple or any pear varieties are equally susceptible to the disease and will be host of the disease, which is scientifically sound and reasonable, but when you are in a country with fire blight you know well that actually this is not true and only a quite weak, fortunately, weak percentage of the cultivars are actually common hosts of the disease and do show a real damage. So that is why the term of host has a different scientific and practical meaning: any cultivar of pear, for example, is a host for fire blight, but economically only few cultivars are to be considered as such, in such a case."¹⁶⁹⁴

7.413 In conclusion, the IRA reasoning with respect to host receptivity seems generally coherent, although it tends to exaggerate the number of potential host plants and does not take into account the discontinuity in the receptivity of susceptible host plants during the year.

¹⁶⁸⁸ Australia's IRA, Part B, pp. 88-89.

¹⁶⁸⁹ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 295.

¹⁶⁹⁰ Dr Paulin's reply to Panel question 10, in List of Replies from the scientific experts to questions posed by the Panel, para. 79.

¹⁶⁹¹ Dr Paulin's reply to Panel question 10, in List of Replies from the scientific experts to questions posed by the Panel, para. 78.

¹⁶⁹² Dr Paulin's reply to Panel question 10, in List of Replies from the scientific experts to questions posed by the Panel, para. 77.

¹⁶⁹³ Dr Paulin's reply to Panel question 10, in List of Replies from the scientific experts to questions posed by the Panel, para. 79.

¹⁶⁹⁴ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 391.

Environmental factors

7.414 The IRA describes the environmental conditions required for successful disease establishment, in addition to the host and the pathogen:

"*E. amylovora* is capable of growing between 3°C to 37°C, with optimum temperature conditions spanning 25°C to 27°C (Billing et al., 1961). Immediately after a wetting event caused by rain or heavy dew, colonised flowers would be infected when the average daily temperature is equal to or greater than 16 °C and petals are intact (Steiner et al., 2000). Rain or dew facilitates the movement of *E. amylovora* from the stigmas to the hypanthium where infection may occur (Thomson, 1986; Thomson and Gouk, 1992). Steiner (1990) and Lightner and Steiner (1993) demonstrated that rain, hail, wind and dew could act as initiators of epidemics of fire blight.

Successful infection could take place if viable bacteria were present to infect susceptible host tissues under favourable environmental conditions, provided that each step listed above is completed. If there is a low likelihood of the entire chain of events being completed, then there is a low risk of establishment of fire blight. However, a break in any step of this chain of events would prevent the establishment of the disease."¹⁶⁹⁵

7.415 The IRA's review of evidence on the environmental conditions needed for successful transfer and establishment of the disease seems generally adequate. Dr Deckers noted that the question of whether the climatological conditions (temperature and relative humidity) are present at the time that the fruits from New Zealand arrive in Australia is an essential part of the analysis. Emphasizing that the *Erwinia amylovora* bacteria cannot multiply on the epiphytic surfaces of the fruits, the expert cautioned that "multiplication can only occur on susceptible organs like immature fruitlets or on the stigma of the flowers and only when the climatological conditions (temperature and relative humidity) are optimal for bacterial growth. The question here is if these circumstances will be present at the time that the fruits from New Zealand arrive in Australia."¹⁶⁹⁶

7.416 In any event, the IRA reasoning with respect to the environmental conditions required for successful disease establishment seems generally coherent.

Conclusion on exposure

7.417 As noted above, the scientific evidence cited in the IRA supports the viability and the survival conclusions. Both conclusions, however, rest on the assumption that there will be some bacterial populations on mature apples from New Zealand. Additionally, both conclusions must be qualified by the caveat that any bacterial populations would decrease over time and unlikely to be able to multiply. The IRA's conclusions on the transfer mechanisms are not supported by scientific evidence, most especially for the proposed mechanical transmission mechanism. The browsing insect mechanism, while not totally unreasonable, seems to correspond to a highly unlikely scenario. The IRA's conclusions on inoculum dose and host receptivity are supported by evidence and seem generally coherent; although the first fails to recognize the importance of the number of bacteria for

¹⁶⁹⁵ Australia's IRA, Part B, p. 89. Billing et al., "Characteristics of English isolates of *Erwinia amylovora*" (1961); Steiner et al., "Fire blight, *Erwinia amylovora*" (2000); Thomson, "The role of the Stigma in fire blight infections" (1986), in Exhibit AUS-40; Thomson and Gouk, "The effect of rain on the development of *Erwinia amylovora* and *E. herbicola* populations on apple flowers" (1992); Steiner, "Predicting apple blossom infections by *Erwinia amylovora* using the MARYBLYT model" (1990); and, Lightner and Steiner, "An update on version 4.1 of the MARYBLYT™ computer program for predicting fire blight" (1993).

¹⁶⁹⁶ Dr Deckers's reply to Panel question 40, in List of Replies from the scientific experts to questions posed by the Panel, para. 261.

the likelihood of initiating an infection and the second tends to exaggerate the number of potential host plants and does not take into account the discontinuity in the receptivity of host plants. Finally, the IRA's conclusions on environmental conditions seem generally coherent. In the light of the shortcomings and qualifications that affect a number of sections of the IRA's conclusions on exposure, the Panel finds that overall these conclusions do not rely on adequate scientific evidence and, accordingly, are not coherent and objective.

Establishment

7.418 The IRA derives its conclusions regarding the probability of establishment from "a comparative assessment of those factors in the source country and the 'PRA area' that are considered pertinent to the ability of a pest to survive and propagate".¹⁶⁹⁷ These factors would include: the availability of suitable hosts, alternate hosts and vectors in the PRA area; the suitability of the environment; the cultural practices and control measures; and other characteristics of the pest affecting the probability of establishment.¹⁶⁹⁸ In the case of analysis of the probability of establishment for fire blight, the other factors include: the potential for adaptation of the pest; the reproductive strategy of the pest; the minimum population needed for establishment; and the method of pest survival.¹⁶⁹⁹

7.419 A significant part of the IRA's discussion of the different factors regarding the probability of establishment has not been contested by New Zealand. This includes, for example, the general description of the availability of suitable hosts, alternate hosts and vectors in the PRA area¹⁷⁰⁰, the description of the suitability of the environment¹⁷⁰¹, the potential for adaptation of the pest¹⁷⁰² and the cultural practices and control measures.¹⁷⁰³ One factor noted in the discussion on the suitability of the environment is the occurrence of hailstorms in some fruit growing areas in Australia. The IRA notes that these hailstorms "cause injuries on plant tissues, predisposing them to infection".¹⁷⁰⁴ The experts consulted by the Panel have also noted the importance that hailstorm injuries on plants would have for the likelihood of the initiation and establishment of fire blight disease under natural conditions.¹⁷⁰⁵

7.420 The IRA's discussion on the minimum population needed for establishment¹⁷⁰⁶ reflects an assumption that has already been addressed by the Panel, regarding the alleged capacity of such low bacterial populations to initiate an infection. This assumption is an important factor in any conclusion regarding the probability of establishment of fire blight. It has been found by the Panel not to be supported by scientific evidence nor based on a coherent and objective reasoning.

Spread

7.421 The IRA derives its conclusions regarding the probability of spread from "a comparative assessment of those factors in the source country and 'PRA area' considered pertinent to the expansion

¹⁶⁹⁷ Australia's IRA, Part B, p. 30.

¹⁶⁹⁸ *Ibid.*

¹⁶⁹⁹ Australia's IRA, Part B, pp. 90-93.

¹⁷⁰⁰ Australia's IRA, Part B, pp. 90-91.

¹⁷⁰¹ Australia's IRA, Part B, p. 91.

¹⁷⁰² Australia's IRA, Part B, pp. 91-92.

¹⁷⁰³ Australia's IRA, Part B, p. 93.

¹⁷⁰⁴ Australia's IRA, Part B, p. 91. Brooks, "Studies of the epidemiology and control of fireblight of apple" (1926); Keil et al., "Role of injury and longevity of *Erwinia amylovora* in the epidemiology of fire blight of pear" (1966).

¹⁷⁰⁵ See, for example, Dr Deckers's replies to Panel questions 15 and 18, in List of Replies from the scientific experts to questions posed by the Panel, paras. 117 and 135-136; Dr Deckers's and Dr Paulin's replies in Transcript of the Panel's meeting with experts, paras. 229, 307 and 351.

¹⁷⁰⁶ Australia's IRA, Part B, p. 92.

of the geographical distribution of a pest".¹⁷⁰⁷ These factors would include: the suitability of the natural and/or managed environment for natural spread of the pest; the presence of natural barriers; the potential for movement with commodities or conveyances; the intended use of the commodity; the potential vectors of the pest in the PRA area; and the potential natural enemies of the pest in the PRA area.¹⁷⁰⁸

7.422 Part of the IRA's discussion on the different factors regarding the probability of spread has not been contested by New Zealand. This includes, for example, the general description of the suitability of the natural and/or managed environment¹⁷⁰⁹, part of the discussion on natural barriers¹⁷¹⁰, the intended use of the commodity¹⁷¹¹ and the potential natural enemies of the pest.¹⁷¹² Dr Deckers and Dr Paulin concur with the IRA's assertion, in its section on the suitability of the environment, that hailstorm injuries on plants would have a significant effect on the likelihood for spread of fire blight disease under natural conditions.¹⁷¹³

7.423 Accordingly, the IRA's conclusions regarding the probability of spread seem generally coherent. In any event, the value assigned to such probability should be commensurate to the extremely low likelihood of transmission through the browsing insects scenario.

Partial probability of establishment and spread

7.424 Having discussed factors such as the viability of the pest, survival mechanism of the pest, transfer mechanism of the pest, inoculum dose, host receptivity and environmental factors, the IRA presents its conclusions regarding exposure:

"The IRA team concluded that the exposure value for an individual apple for all five utility points by four exposure group combinations should be in the range of Uniform (0, 10⁻⁶). This range is based on the IRA team's views on both mechanical and insect mediated transmission and explicitly acknowledges that in some circumstances the chances of exposure would be zero."¹⁷¹⁴

7.425 As noted by Dr Deckers, "[t]he step of the transfer from these infected fruits to the possible host plant stays the most critical step and will be difficult to prove."¹⁷¹⁵ The exposure value estimated by the IRA is supported on the preceding analysis regarding the different relevant factors.

7.426 Based on the discussion of the factors described earlier, the IRA also estimates the partial probabilities of establishment and spread for specific exposure groups: commercial fruit crops, establishment – uniform (0.7, 1), spread – uniform (0.7, 1); nursery plants, establishment – uniform (0.7, 1), spread – uniform (0.7, 1); household and garden plants, establishment –

¹⁷⁰⁷ Australia's IRA, Part B, p. 31.

¹⁷⁰⁸ Australia's IRA, Part B, pp. 31 and 93-95.

¹⁷⁰⁹ Australia's IRA, Part B, pp. 93-94.

¹⁷¹⁰ Australia's IRA, Part B, p. 94.

¹⁷¹¹ Australia's IRA, Part B, p. 95.

¹⁷¹² *Ibid.*

¹⁷¹³ Australia's IRA, Part B, p. 94. See, for example, Dr Deckers's replies to Panel questions 15 and 18, in List of Replies from the scientific experts to questions posed by the Panel, paras. 117 and 135-136; Dr Deckers's and Dr Paulin's replies in Transcript of the Panel's meeting with experts, paras. 229, 307 and 351.

¹⁷¹⁴ Australia's IRA, Part B, p. 90.

¹⁷¹⁵ Dr Deckers's reply to Panel question 37, in List of Replies from the scientific experts to questions posed by the Panel, para. 252.

uniform (0.3, 0.7), spread – uniform (0.3, 0.7); wild and amenity plants, establishment – uniform (0.3, 0.7), spread – uniform (5×10^{-2} , 0.3).¹⁷¹⁶

Conclusions regarding entry, establishment and spread

7.427 The IRA combines in an @RISK model the partial probability estimate for importation, the estimated volume of apples and the partial probability estimates for establishment and spread, to obtain an overall value for the annual probability of entry, establishment and spread (PEES). The median simulated value for this probability of entry, establishment and spread is estimated under the first scenario (if 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers) as (4.5×10^{-2}) and under the second scenario (if 0.1 to 5 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers) as (4.4×10^{-2}), both corresponding to the qualitative description of "very low".¹⁷¹⁷

7.428 The Panel has already noted that, with respect to several aspects of its discussion on exposure, establishment and spread, the IRA's reasoning seems at first glance generally coherent. This is the case, for example, of the discussion on exposure regarding whether viable *Erwinia amylovora* found on apple fruit could survive cold storage and transport (viability), whether *Erwinia amylovora* found on apple fruit could survive in the environment (survival), and with respect to the environmental conditions required for successful disease establishment. Similarly, with respect to a significant part of the IRA's discussion on establishment regarding the availability of suitable hosts, alternate hosts and vectors, the description of the suitability of the environment, the potential for adaptation of the pest and the cultural practices and control measures. Likewise, with respect more generally to the IRA's discussion on spread. All of these sections, however, rest on the assumption that at least some imported apples will be infested with *Erwinia amylovora* bacteria.

7.429 Throughout the discussion of the different factors, the IRA tends to exaggerate the risk, by not taking into account that any bacterial populations would likely be small, diminishing and not able to multiply and that no infection can occur unless host plants are in a susceptible stage meaning that they can be infected. The IRA instead emphasizes a number of factors that would tend to increase the likelihood of entry, establishment and spread, despite the lack of adequate scientific evidence to support these factors or even in the face of available evidence to the contrary.

7.430 Parties have extensively discussed the conclusions that should be derived in this regard from studies by Hale *et al.* (1996) and Taylor *et al.* (2003).¹⁷¹⁸ New Zealand argues that these studies show that populations of *Erwinia amylovora* associated with mature fruit would have a negligible probability of infecting a host, even if the host were receptive.¹⁷¹⁹ Australia responds that these studies are of limited value, because the sample size was insufficient to detect rare events.¹⁷²⁰ Dr Deckers and Dr Paulin noted that it is normal that the size of the samples for such detailed studies would be limited.¹⁷²¹ While the experts cautioned that the size of the sample was probably not enough to detect "very rare events" and extrapolation of data to the spread of the disease under different natural conditions on a larger scale should be considered with prudence, they considered nevertheless that the studies allowed interesting conclusions concerning the survival rate under different

¹⁷¹⁶ Australia's IRA, Part B, pp. 95-97.

¹⁷¹⁷ Australia's IRA, Part B, p. 97.

¹⁷¹⁸ Taylor *et al.*, "Survival of the fire blight pathogen, *Erwinia amylovora*, in calyxes of apple fruit discarded in an orchard" (2003), in Exhibit NZ-28; and, Hale *et al.*, "Ecology and Epidemiology of fire blight in New Zealand" (1996), in Exhibit NZ-27.

¹⁷¹⁹ New Zealand's first written submission, para. 4.243.

¹⁷²⁰ Australia's first written submission, paras. 472-476; Australia's second written submission, para. 400.

¹⁷²¹ Dr Deckers's and Dr Paulin's replies to Panel question 43, in List of Replies from the scientific experts to questions posed by the Panel, paras. 274 and 275-276.

circumstances.¹⁷²² At least, the studies demonstrate "that the fruits picked from a tree showing symptoms are *usually* not surface contaminated with the bacteria, in these experimental conditions."¹⁷²³ Moreover, if anything, the studies *maximized* the theoretical risk of introduction of *Erwinia amylovora* with potentially infested apples fruits, because each of the apples, placed in a blooming orchard, were inoculated with a significant level of bacterial population. It is possible to conclude from these studies "that the 'leak' of bacteria from fruit to blossoms *does not normally take place*".¹⁷²⁴

7.431 The Parties have also discussed extensively the conclusions that should be derived from a study by Roberts and Sawyer (2008).¹⁷²⁵ New Zealand argues that this study shows that the risk of importing *Erwinia amylovora* on commercial apple fruit and the concomitant risk of establishing an outbreak of fire blight is so small as to be insignificant. Australia responds that this study is not relevant to the circumstances of the dispute, because it does not consider an unrestricted risk scenario, relies on flawed experimental data, and it applies inappropriate confidence limits. Dr Paulin expressed his opinion that the Roberts and Sawyer (2008) paper is "an interesting piece of serious reasoning about the quantification of the probability of transport of fire blight with fruits."¹⁷²⁶ In his view, from the data collected, "the authors did their best to construct a sound reasoning with appropriate calculation".¹⁷²⁷ Notwithstanding this, Dr Paulin considered that, because of the many assumptions adopted, this paper would not "help objectively in the dispute" and found it impossible to tell if the paper over or under-estimates the fire blight risk associated with fruits.¹⁷²⁸ Dr Deckers agreed that the paper would not be helpful for this Panel's analysis, because the samples considered are not representative of the New Zealand orchard situation of fire blight, because some fire blight control measures were taken but are not clearly described in the paper, and because some bacteria could be present as viable but not culturable (VBNC) or could be present at low levels difficult to detect.¹⁷²⁹

7.432 Little information is provided in the IRA on how the extensive discussion and review of different factors associated with the entry, establishment and spread, is then translated into quantitative estimates. The Panel cannot attempt to recalculate these estimates, as this would constitute a *de novo* review exercise. It cannot fail to note, however, that many of these estimations do not find support in the available scientific evidence and are not based on a coherent and objective reasoning. In this respect, the Panel finds puzzling that, under two, widely different scenarios regarding proximity, the IRA reaches relatively similar conclusions on the probability of entry, establishment and spread. As noted above, the IRA considers a first scenario, under which 70 to 100

¹⁷²² Dr Deckers's replies to Panel question 43, in List of Replies from the scientific experts to questions posed by the Panel, para. 274.

¹⁷²³ Dr Paulin's reply to Panel question 43, in List of Replies from the scientific experts to questions posed by the Panel, paras. 275-276 (original emphasis).

¹⁷²⁴ Dr Paulin's reply to Panel question 43, in List of Replies from the scientific experts to questions posed by the Panel, paras. 275-276 (original emphasis). See also, Dr Paulin's and Dr Deckers's replies in Transcript of the Panel's meeting with experts, paras. 382 and 383.

¹⁷²⁵ Roberts and Sawyer, "An updated pest risk assessment for spread of *Erwinia amylovora* and fire blight via commercial apple fruit" (2008), in Exhibit NZ-29. See, for example, New Zealand's first written submission, paras. 4.26 and 4.251; New Zealand's second written submission, paras. 2.387-2.398; New Zealand's reply to Panel's question 64 after the first substantive meeting, paras. 108-113; Australia's first written submission, paras. 363-376 and 401; Australia's second written submission, paras. 330-337 and Annex I.

¹⁷²⁶ Dr Paulin's reply to Panel question 41, in List of Replies from the scientific experts to questions posed by the Panel, paras. 268-270.

¹⁷²⁷ *Ibid.*

¹⁷²⁸ *Ibid.*

¹⁷²⁹ Dr Deckers's reply to Panel question 41, in List of Replies from the scientific experts to questions posed by the Panel, paras. 264-267.

per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers, and a second scenario, under which only 0.1 to 5 per cent of imported apples are distributed to orchard packing houses. The fact that imported infested apples are brought to rural packing houses in proximity to orchards could be critical, as compared to apples being handled at urban wholesalers. The IRA, however, reaches broadly similar conclusions, corresponding to the qualitative description of "very low", and estimates almost identical probability values under both scenarios.¹⁷³⁰

7.433 The Panel recognizes that, in conducting risk assessments, Members frequently confront limitations in the availability of the data necessary for their models.¹⁷³¹ This is a real and a serious problem. Members may try to estimate the answers if there is no data available, through the use of expert judgement. Indeed, Australia argues that this is how probabilities were estimated for several steps.¹⁷³²

7.434 In this respect, as cited by both Parties, the use of expert judgement in pest risk analysis is mentioned in ISPM No. 2 and ISPM No. 11.¹⁷³³ ISPM No. 2 acknowledges that: "Uncertainty is a component of risk and therefore important to recognize and document when performing PRAs. Sources of uncertainty with a particular PRA may include: missing, incomplete, inconsistent or conflicting data; natural variability of biological systems; subjectiveness of analysis; and sampling randomness."¹⁷³⁴

7.435 ISPM No. 2 recognizes that "[w]here information is insufficient or inconclusive, expert judgement may be used if appropriate."¹⁷³⁵ ISPM No. 2 also adds, however, that "[t]he nature and degree of uncertainty in the analysis should be documented and communicated, and the use of expert judgement indicated."¹⁷³⁶

7.436 In accordance with ISPM No. 11, expert judgement may be used to assess the probability of establishment or to assess the probability of spread.¹⁷³⁷ In both cases, however, the estimation of those probabilities is to be based on "reliable biological information ... obtained from the area where the pest currently occurs".¹⁷³⁸ With respect to the assessment of economic consequences, ISPM No. 11 indicates that "useful analyses can be based on non-monetary valuations ... or [on] expert judgement, if the analyses follow documented, consistent and transparent procedures".¹⁷³⁹ Again, the

¹⁷³⁰ Dr Sgrillo's reply to Panel question 46, in List of Replies from the scientific experts to questions posed by the Panel, paras. 296-297; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 40. See also, Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 42.

¹⁷³¹ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 191.

¹⁷³² See, for example, Australia's first written submission, paras. 477 and 525; Australia's second written submission, para. 401. See also, Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 12.

¹⁷³³ Australia's reply to Panel questions 29 and 31 after the second substantive meeting, paras. 152-153 and 166-168.

¹⁷³⁴ *Framework for pest risk analysis*, 2007 (ISPM No. 2, FAO, Rome), p. 13, para. 3.1.

¹⁷³⁵ *Framework for pest risk analysis*, 2007 (ISPM No. 2, FAO, Rome), p. 13, para. 3.2.

¹⁷³⁶ *Framework for pest risk analysis*, 2007 (ISPM No. 2, FAO, Rome), p. 13, para. 3.1.

¹⁷³⁷ *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome), in Exhibit AUS-6, pp. 124 and 126, paras. 2.2.2 and 2.2.3.

¹⁷³⁸ *Ibid.*

¹⁷³⁹ *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome), in Exhibit AUS-6, p. 129, para. 2.3.2.4.

standard notes that "[i]t is important to document the areas of uncertainty and the degree of uncertainty in the assessment, and to indicate where expert judgement has been used."¹⁷⁴⁰

7.437 The IRA contains a brief general section, in an appendix titled "Overview of Bureau of Rural Sciences involvement in New Zealand Apple Import Risk Assessment Process, on the "Elicitation of expert opinion", which states the following:

"There were multiple discussions with the panel and Biosecurity Australia staff about the eliciting of expert opinion. Three considerations were stressed by BRS [Australia's Bureau of Rural Sciences]. They were:

That Biosecurity Australia should be completely satisfied that the bounds of distribution chosen to represent their views would contain the true value.

That the chosen distribution shape should represent expert views. The interpretation of prior distributions in terms of gambling odds was discussed, and the uniform, triangular and Pert distributions presented as starting points.

It was made clear that qualitative likelihood ranges should not constrain their options and that BRS was available to assist in expressing the experts' views if necessary.

The issue of expressing divergent opinions was also discussed and different approaches to handling divergence of opinion were canvassed."¹⁷⁴¹

7.438 In response to a question from the Panel, Australia argued that:

"[Because] expert judgment is used when there is limited evidence or where the underlying biological process is naturally highly variable, Australia does not believe it is correct to refer to 'errors' in expert judgment. The use of the term 'error' assumes that there is a conclusive body of evidence against which the expert judgment can be assessed and the degree of 'error' determined. However, the existence of such a body of evidence would mean that the use of expert judgment would not have been required to begin with."¹⁷⁴²

7.439 The Panel disagrees with this interpretation. Australia's argument seems to assume that risk assessments can occur in two distinct scenarios. There is either a conclusive body of evidence and expert judgement is not required or, on the contrary, such body of evidence does not exist and the use of expert judgement is not subject to scrutiny. Reality is likely to be more complex. On particular issues, a risk assessor may have the benefit of more or less abundant scientific evidence and yet still confront a degree of uncertainty on specific points, and the need to resort to expert judgement. It may be relevant to note that, compared to other pome fruit diseases, there seem to be significantly more scientific studies on fire blight, as evidenced in the reference list of the IRA itself.¹⁷⁴³

¹⁷⁴⁰ *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome), in Exhibit AUS-6, pp. 129-130, para. 2.4.

¹⁷⁴¹ Australia's IRA, Part B, p. 332. See also, comment by Australia in Transcript of the Panel's meeting with experts, para. 146.

¹⁷⁴² Australia's reply to Panel question 30 after the second substantive meeting, para. 162.

¹⁷⁴³ Australia's IRA, Part B, pp. 347-376. In the *Japan – Apples* dispute, for example, which related to fire blight, the Panel noted that on specific scientific questions (such as the absence of endophytic bacteria in mature apple fruit and the risk of transmission of fire blight by apple fruit), "there is a large volume of relevant scientific evidence". Panel Report on *Japan – Apples*, para. 8.220. See also, Appellate Body Report on *Japan – Apples*, para. 181.

7.440 In any event, while expert judgement may be an important tool for the risk assessor, it is not a substitute for scientific data, especially for the purpose of estimating the likelihood of entry, establishment and spread of a pest. In accordance with the relevant ISPMs, recourse to expert judgement does not substitute for the use of the available information. The use of expert judgement must be documented and transparent; it must be based on the relevant reliable scientific information, even when that information is limited. As noted by one of the experts, if there is no data available, Members can refer to other available information, for example to other pests, where there may be some data.¹⁷⁴⁴ Non-compliance with these requirements, may produce errors in the exercise of expert judgement. It is not enough to claim, as Australia has done, that "[t]he IRA Team applied its expert judgment and elaborated its reasoning at every step in the Final IRA Report".¹⁷⁴⁵ Rather, Australia would have had to demonstrate that the exercise of expert judgement was documented, transparent and based on the relevant reliable scientific information.

7.441 The statements above should not be interpreted as an *a priori* criticism of Australia's decision to resort to a semi-quantitative methodology for assessing the likelihood of entry, establishment and spread of the pests at issue. Under the SPS Agreement, Members are free to choose either a qualitative or a quantitative methodology, in accordance with the appropriate applicable standards. However, as noted by the experts consulted by the Panel, a quantitative methodology should only be used "when reliable specific numeric data are available" to support the choice of probability ranges and probability shapes.¹⁷⁴⁶ In the absence of sufficient data, and particularly if numbers are chosen in an arbitrary manner, a quantitative method would only give a misleading impression of objectivity and precision.¹⁷⁴⁷

7.442 Because of the lack of scientific evidence for many issues in the IRA, the experts consulted by the Panel were sceptical of the estimations for the exposure likelihood. Dr Deckers, for example, noted that, for this aspect "there is no sufficient scientific data available that describes the likelihood of this transfer possibility".¹⁷⁴⁸ Dr Paulin added that "only some fragments of events are supported by scientific evidence. Very often suppositions or speculations are proposed rather than certitudes".¹⁷⁴⁹ In the words of Dr Deckers, "you have no proof available that this transfer can occur. So, it is indeed speculation with, for me, a low level of likelihood to be a reality."¹⁷⁵⁰ Dr Paulin concluded that, because these problems have never been addressed scientifically or at least experimentally, it is not possible "to rely objectively on any figure for the likelihood of this 'exposure' step."¹⁷⁵¹

¹⁷⁴⁴ Dr Schrader's reply in Transcript of the Panel's meeting with experts, para. 195.

¹⁷⁴⁵ Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 16. See also, Australia's first written submission, paras. 74, 218 and 239.

¹⁷⁴⁶ Dr Sgrillo's reply to Panel question 128, in List of Replies from the scientific experts to questions posed by the Panel, para. 728. See also, Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 122; Dr Schrader's reply to Panel question 124, in List of Replies from the scientific experts to questions posed by the Panel, para. 700.

¹⁷⁴⁷ Dr Sgrillo's reply to Panel question 128, in List of Replies from the scientific experts to questions posed by the Panel, para. 730. See, OIE, "Handbook on Import Risk Analysis for Animals and Animal Products. Volume 1: Introduction and qualitative risk assessment" (2004), pp. 27-28, in Exhibit NZ-47.

¹⁷⁴⁸ Dr Deckers's reply to Panel question 36, in List of Replies from the scientific experts to questions posed by the Panel, para. 245. See also, Dr Sgrillo's reply to Panel question 36, in List of Replies from the scientific experts to questions posed by the Panel, paras. 247-251.

¹⁷⁴⁹ Dr Paulin's reply to Panel question 36, in List of Replies from the scientific experts to questions posed by the Panel, para. 246.

¹⁷⁵⁰ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 242.

¹⁷⁵¹ Dr Paulin's reply to Panel question 36, in List of Replies from the scientific experts to questions posed by the Panel, para. 246. See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 240.

7.443 Generally speaking, the experts were sceptical of the likelihood of introduction of fire blight through mature apple fruit. None of the experts consulted found any adequate scientific evidence in the IRA to support the proposition that this has occurred or could occur.¹⁷⁵² There is even less evidence for the further step of transfer from this imported bacterial population to a new plant in Australia.¹⁷⁵³ Dr Paulin acknowledged that, as a scientist, he could not exclude that such scenario may happen¹⁷⁵⁴:

"Australia has shown that you can imagine a system in which mature apple fruits can carry the bacteria from New Zealand to Australia. The point is that it is difficult to estimate the value of 'can'. Is it a rare possibility, a frequent event or something exceptional? This is far more difficult to tell. ... [A]nything which goes from New Zealand or from a contaminated country to another country 'can' carry something including bacteria, including pathogenic bacteria, that is the minimum level. Then you may have specific transport of specific bacteria, e.g., with rootstock material which would be the maximum danger for the installation of the disease in a new country. So, the apple fruit, which is in-between these two limits, cannot be excluded. That that can be considered as a real risk, is the matter in question."¹⁷⁵⁵

7.444 Dr Deckers agreed that, in other countries trying to limit the risk of introduction of fire blight, "they are not talking in the first place about fruits, they are talking more about plant material and potential infections on plant material, root stock or variety materials".¹⁷⁵⁶

7.445 In other words, the experts did not consider that the IRA contains adequate scientific evidence to support the proposition that the introduction of fire blight via mature apple fruit has occurred or could occur. At the same time, they agreed that there is a theoretical possibility of the importation of bacteria with apple fruit. They found even less likely the further step of transfer from this imported bacterial population to a new plant in Australia. The likelihood of introduction via mature apple fruit would, in any event, be less than that of introduction via plant material or root stock. In the words of Dr Paulin:

"[T]he risk represented by the total process, is probably of the same order of magnitude as the transport of contaminated insects by natural way from New Zealand to Australia by air jet or things like that. ... [T]here is a possibility [of introducing *Erwinia amylovora* through mature apple fruit] which level of risk is not far higher than the natural spreading possibility of the bacteria to go from place to another with something else ... which has no connection with trade of apples."¹⁷⁵⁷

7.446 In the light of the above, the Panel finds that New Zealand has not successfully made a prima facie case that the IRA's estimation of the likelihood that *Erwinia amylovora* survives routine processing procedures in the packing house (importation step 4); and that *Erwinia amylovora* survives palletization, quality inspection, containerization and transportation to Australia (importation

¹⁷⁵² Dr Paulin's reply to Panel question 37, in List of Replies from the scientific experts to questions posed by the Panel, para. 253.

¹⁷⁵³ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380.

¹⁷⁵⁴ Dr Paulin's reply to Panel question 37, in List of Replies from the scientific experts to questions posed by the Panel, para. 253. See also, reply of Dr Paulin in Transcript of the Panel's meeting with experts, para. 380.

¹⁷⁵⁵ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 226. See also, reply of Dr Paulin in Transcript of the Panel's meeting with experts, para. 254.

¹⁷⁵⁶ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 379. See also, Dr Deckers's reply to Panel question 16, in List of Replies from the scientific experts to questions posed by the Panel, para. 123.

¹⁷⁵⁷ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380.

step 6), are exaggerated, and that these estimations do not rely on adequate scientific evidence or are not coherent and objective. The Panel finds also that the IRA's conclusion that the likelihood that clean fruit is contaminated by *Erwinia amylovora* during palletization, quality inspection, containerization and transportation (importation step 7) is negligible appears to be coherent and objective. The Panel finds additionally that New Zealand has not made a prima facie case that the IRA's discussion on utility points and estimates of proximity ratings for the combination of each utility point with exposure groups (proximity values), or that the IRA's conclusions regarding the probability of spread, do not rely on adequate scientific evidence or are not coherent and objective.

7.447 The Panel finds, however, that the IRA's estimation that *Erwinia amylovora* will be always present in the source orchards in new Zealand (importation step 1); that fruit coming from an infected or infested orchard is infected or infested with *Erwinia amylovora* (importation step 2); that clean fruit from infected or infested orchards is contaminated with *Erwinia amylovora* during picking and transport to the packing house (importation step 3); and that clean fruit is contaminated by *Erwinia amylovora* during processing in the packing house (importation step 5); do not find sufficient support in the scientific evidence relied upon and, accordingly, are not coherent and objective. In the light of these findings and the absence of any separate justification and evidence in the IRA regarding the estimated overall likelihood of importation, the Panel finds additionally that the IRA's estimation of the overall probability of importation is not supported by adequate scientific evidence and, accordingly, is not coherent and objective.

7.448 The Panel also notes that a significant part of the IRA's discussions on exposure, establishment and spread of fire blight, rests on a number of assumptions and qualifications. As noted above, some of these assumptions and qualifications are not convincing, which leads to reasonable doubts about the evaluation made by the risk assessor. The IRA has not properly considered a number of factors that could have a major impact on the assessment of this particular risk. Accordingly, the Panel finds that the reasoning articulated in Australia's IRA, with respect to the likelihood of entry, establishment and spread of fire blight, including the IRA's estimation of the value for the respective probabilities, does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(k) Potential biological and economic consequences associated with fire blight

(i) *Summary of the Parties' arguments*

7.449 New Zealand argues that the IRA's conclusion that the overall consequence of the introduction and establishment of fire blight would be "high" is "reached on the basis of selectively chosen evidence and on assumptions that have no basis in scientific evidence or fact".¹⁷⁵⁸

7.450 New Zealand considers that the IRA's estimates of monetary losses from a fire blight incursion across Australia are based on unsubstantiated assumptions on the rate and scope of the disease that lead to exaggerated estimates of the nationwide impact and losses.¹⁷⁵⁹ New Zealand also disputes the IRA's proposition that the impact of fire blight will be severe every year.¹⁷⁶⁰ It notes the existence of commercially available products for reducing the incidence of fire blight, as well as the presence of other bacteria that would aggressively compete with *Erwinia amylovora* for nutrients and space on a susceptible host.¹⁷⁶¹ New Zealand also submits that the impact of fire blight on pipfruit

¹⁷⁵⁸ New Zealand's first written submission, para. 4.254.

¹⁷⁵⁹ New Zealand's first written submission, para. 4.255.

¹⁷⁶⁰ New Zealand's first written submission, para. 4.256.

¹⁷⁶¹ New Zealand's first written submission, para. 4.257.

production in New Zealand in non-outbreak years is inconsequential.¹⁷⁶² In New Zealand's view, the evidence shows that pipfruit production losses from a fire blight outbreak are not discernible at the national and regional level, and are likely to be minor at a district and local level in most years. Such production losses may occasionally be significant at a local level only.¹⁷⁶³ New Zealand also rejects Australia's contentions on the indirect impact on control or eradication, surveillance/monitoring and compensation strategies.¹⁷⁶⁴ Finally, New Zealand argues that the IRA's estimates of the indirect impact on international trade, and on communities in Australia, amount to no more than conjecture.¹⁷⁶⁵

7.451 In New Zealand's view, the result is that the IRA overestimates the consequences of the establishment and spread of fire blight. "A more realistic assessment, relying on the actual experience of countries where fire blight is present, would have resulted in the overall consequences being 'very low'."¹⁷⁶⁶

7.452 Finally, New Zealand argues that it "accepts that fire blight certainly can have serious consequences". In its view, however, "the important thing to bear in mind is that the disease is not spread by exports of mature fruit."¹⁷⁶⁷

7.453 In response, Australia argues that the IRA's analysis of the potential consequences of the introduction and establishment of fire blight is objective and credible. Australia submits in this regard that "fire blight is one of the most serious diseases of pome fruit trees in the world".¹⁷⁶⁸ Australia adds that: "[c]ontrol action in orchards against fire blight would be costly, requiring expenditure on chemical inputs, pruning and other aspects of plant hygiene. Indirect costs include ongoing surveillance and, if an outbreak were to occur, the costs of attempting eradication, as well as flow-on losses to other industries."¹⁷⁶⁹

7.454 Australia argues further that the IRA comprehensively addressed relevant factors and evidence in evaluating the consequences from fire blight.¹⁷⁷⁰ The IRA evaluated reported losses from fire blight outbreaks in New Zealand and other countries, in particular, the United States.¹⁷⁷¹ New Zealand ignores the range of reports considered by the IRA¹⁷⁷²; instead, it relies on a few selective examples that, taken in isolation, misrepresent the potential impact of the disease, in order to attempt to downplay the potential production losses.¹⁷⁷³ In Australia's view, significant numbers of trees can be lost in a fire blight outbreak.¹⁷⁷⁴ Australia adds that New Zealand assumes that its own

¹⁷⁶² New Zealand's first written submission, paras. 4.256-4.258. New Zealand's reply to Panel question 67 after the first substantive meeting, paras. 144 and 148.

¹⁷⁶³ New Zealand's first written submission, paras. 4.259-4.261.

¹⁷⁶⁴ New Zealand's first written submission, paras. 4.262-4.263.

¹⁷⁶⁵ New Zealand's first written submission, para. 4.264; New Zealand's reply to Panel question 67 after the first substantive meeting, para. 151.

¹⁷⁶⁶ New Zealand's first written submission, para. 4.264.

¹⁷⁶⁷ New Zealand's reply to Panel question 67 after the first substantive meeting, para. 141. See also, New Zealand's second written submission, paras. 2.455-2.456.

¹⁷⁶⁸ Australia's first written submission, para. 493.

¹⁷⁶⁹ Australia's first written submission, para. 494.

¹⁷⁷⁰ Australia's first written submission, para. 496.

¹⁷⁷¹ Australia's first written submission, para. 498.

¹⁷⁷² Australia's first written submission, paras. 500-505.

¹⁷⁷³ Australia's first written submission, para. 497.

¹⁷⁷⁴ Australia's first written submission, para. 499.

experience with fire blight will be replicated in Australia.¹⁷⁷⁵ At the same time, however, New Zealand discounts the impact of the fire blight outbreak in Hawke's Bay in 1998.¹⁷⁷⁶

7.455 Australia submits that New Zealand downplays the costs of control, eradication and tree replacement.¹⁷⁷⁷ It also overplays its own international trade experience; despite its claim that other countries do not constrain access for its apples, Australia argues that there are examples to the contrary.¹⁷⁷⁸

7.456 On the basis of these arguments, Australia rejects New Zealand's claim that the IRA Team failed to evaluate the potential biological and economic consequences of fire blight in Australia. In its view, New Zealand has failed to engage with the literature and evidence considered by the Team; it has instead sought to build an alternate case that rests on an assumption that New Zealand's experience of fire blight will be replicated in Australia.¹⁷⁷⁹ Australia also argues that New Zealand made no substantive argument on the issue of the consequences of fire blight, either in its second written submission or at the second substantive meeting with the Panel; therefore, Australia considers that the point is undisputed.¹⁷⁸⁰

7.457 Australia concludes that New Zealand failed to identify any flaws in the IRA Team's conclusions on consequences, let alone any flaws serious enough to prevent the Panel from having "reasonable confidence" in the risk assessment.¹⁷⁸¹

(ii) *The Panel's analysis*

7.458 The assessment in the IRA of the potential biological and economic consequences associated with fire blight is based on the consideration of a number of direct and indirect criteria. The direct criteria include plant life or health, human life or health and any other aspects of the environment. The indirect criteria include control or eradication, domestic trade or industry, international trade, environment and communities. The IRA allocates impact scores for each direct and indirect criterion. The impact scores are from the least significant "A" to the most significant "G".

7.459 *Regarding the direct criteria.* On plant life or health, the IRA allocates an impact score of "F". The IRA considers the consequences of fire blight affecting plant life or health to be significant at a national level, and highly significant at a regional level.¹⁷⁸² On human life or health, the IRA allocates an impact score of "A". The IRA notes that there are no known direct impacts of *Erwinia amylovora* on human life or health.¹⁷⁸³ On any other aspects of the environment, the IRA allocates an impact score of "A". The IRA notes that there are no known other direct impacts of *Erwinia amylovora* on the environment.¹⁷⁸⁴

¹⁷⁷⁵ Australia's first written submission, paras. 506-507; Australia's second written submission, paras. 411-412 and 420-424.

¹⁷⁷⁶ Australia's first written submission, paras. 508-512. See also, Australia's second written submission, paras. 417-418.

¹⁷⁷⁷ Australia's first written submission, paras. 513-518; Australia's second written submission, para. 419.

¹⁷⁷⁸ Australia's first written submission, paras. 519-521.

¹⁷⁷⁹ Australia's first written submission, paras. 522-523.

¹⁷⁸⁰ Australia's closing oral statement at the second substantive meeting of the Panel with the Parties, para. 12.

¹⁷⁸¹ Australia's first written submission, para. 523; Australia's second written submission, para. 425.

¹⁷⁸² Australia's IRA, Part B, pp. 98-100.

¹⁷⁸³ Australia's IRA, Part B, p. 100.

¹⁷⁸⁴ *Ibid.*

7.460 *Regarding the indirect criteria.* On control and eradication, the IRA allocates an impact score of "E". The IRA considers that the indirect impact of fire blight on new or modified eradication, control, surveillance/monitoring and compensation strategies would be minor at a national level, significant at a regional level and highly significant at the district level.¹⁷⁸⁵ On domestic industry, the IRA allocates an impact score of "E". The IRA considers that the indirect impact of fire blight on domestic trade or industry would be minor at a national level, significant at a regional level and highly significant at the district level.¹⁷⁸⁶ On international trade, the IRA allocates an impact score of "D". The IRA considers that the indirect impacts of fire blight on international trade would be unlikely to be discernible at a national level, would be of minor significance at a regional level, significant at the district level and highly significant at the local level when the economy of the respective levels is considered.¹⁷⁸⁷ On the environment, the IRA allocates an impact score of "A". The IRA notes that any indirect impacts of fire blight on the environment are unlikely to be discernible.¹⁷⁸⁸ On communities, the IRA allocates an impact score of "D". The IRA considers that the indirect impact of fire blight on communities would be unlikely to be discernible at a national level, would be of minor significance at a regional level, significant at the district level and highly significant at the local level.¹⁷⁸⁹

7.461 Considering these impact scores, the IRA concludes that the overall potential biological and economic consequences should be rated as "high".¹⁷⁹⁰

7.462 Furthermore, by combining the value for the annual probability of entry, establishment and spread and the outcome of overall consequences, the IRA estimates that the unrestricted annual risk for imported apples from New Zealand is "low". The rating of "low" unrestricted annual risk is the same under the two different scenarios considered by the IRA. As noted above, the IRA considers a first scenario, under which 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers, and a second scenario, under which only 0.1 to 5 per cent of imported apples are distributed to orchard packing houses. This rating of "low" is above Australia's ALOP of "very low". Accordingly, the IRA concludes that "risk management would be required for this pest".¹⁷⁹¹

7.463 The experts consulted by the Panel are sceptical about the impact scores assigned by the IRA to some criteria. Dr Paulin noted that it may be easier to know in advance what the susceptibility is of a plant to a particular pest: whether the plant is receptive to the disease or not. It is also possible to know if bacteria are present or not, but:

"It is far more difficult to predict what will be the severity of the disease, in terms of damage which is expected. For example, in Europe we have been quite surprised to see that fire blight is a very serious disease of apple in Germany, where it was expected to be a serious disease of pear in the South of France, if you just look at the climatic conditions and the susceptibility of the cultivars. That means that there are some elements which are just missing and you can predict for sure that the disease will be able to develop, but it is far more difficult to quantify this development in terms of economic loss."¹⁷⁹²

¹⁷⁸⁵ Australia's IRA, Part B, pp. 100-101.

¹⁷⁸⁶ Australia's IRA, Part B, p. 102.

¹⁷⁸⁷ Australia's IRA, Part B, pp. 102-103.

¹⁷⁸⁸ Australia's IRA, Part B, p. 103.

¹⁷⁸⁹ Australia's IRA, Part B, pp. 103-104.

¹⁷⁹⁰ Australia's IRA, Part B, p. 104.

¹⁷⁹¹ Australia's IRA, Part B, pp. 104-105.

¹⁷⁹² Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 300.

7.464 Dr Paulin was particularly critical of the most severe impact scores assigned by the IRA to some of the criteria. Regarding the consequences of fire blight affecting plant life or health, which the IRA rated "F", one of the most severe scores, Dr Paulin expressed doubts about fire blight being considered the most serious disease of apple: "Apple scab would be probably considered as more costly in many areas. But fire blight is undoubtedly the most serious *bacterial* disease of apple and pear."¹⁷⁹³ The expert also noted that it is "impossible to predict the economical consequences of the introduction of fire blight in a new area".¹⁷⁹⁴ "The severity of the disease (the importance of damages) is the result of the combination of three factors (at least) at the local level: climate, cultivar susceptibility (genetic), cultivar receptivity. If each can be evaluated (at least for trends) the combination of the three to give a reasonable prediction is non realistic."¹⁷⁹⁵

7.465 In any event, Dr Paulin noted that it is just not possible, and it has never been seen, that fire blight would be devastating to the same degree in every place and on every plant as soon as introduced in a new area. Moreover, the spread of the disease, even if not eradicated, would be relatively slow, and the invasion, if any, should be progressive. The damage to crops would be difficult to estimate. Dr Paulin noted further that in France, there have not been a large number of bearing trees of apple killed by fire blight, in spite of the high susceptibility of some French varieties. The situation is different for pear varieties, but the disappearance of entire trees due to fire blight remains limited to only a few varieties. The overall production of fruits in a whole country has never been seriously decreased, even by a severe fire blight epidemic, even if the damage can be very costly at the local level, in certain years for certain varieties. The expert concluded that "the impact score of 'F' could be exaggerated."¹⁷⁹⁶

7.466 Regarding the consequences of fire blight affecting domestic trade, which the IRA rated with a severe score "E", Dr Paulin noted that: "[g]iven the likely low impact at the national level of the disease on overall production, the losses for domestic trade or industry look exaggerated and unrealistic."¹⁷⁹⁷

7.467 Regarding the consequences of fire blight affecting international trade, which the IRA rated with a severe score "D", Dr Paulin noted that the impact could be significant on the export of nurseries, due to quarantine restrictions. This, however, is not considered in the IRA. "The impact on fruit trade will be limited, especially if the eradication methods are effective (it will not be possible to consider any apple orchard of Australia as infected by fire blight). Again the rating of 'D' seems too high."¹⁷⁹⁸

7.468 It is not the Panel's role to reassess the impact scores assigned by the IRA to specific criteria and propose different scores. In any event, most of New Zealand's arguments with respect to the IRA's estimation of consequences assume that fire blight would behave in the same way if introduced in Australia as has been observed in other regions. As noted by Dr Paulin, however, it is "impossible to predict the economical consequences of the introduction of fire blight in a new area".¹⁷⁹⁹

¹⁷⁹³ Dr Paulin's reply to Panel question 11, in List of Replies from the scientific experts to questions posed by the Panel, para. 87.

¹⁷⁹⁴ *Ibid.*

¹⁷⁹⁵ *Ibid.*

¹⁷⁹⁶ *Ibid.* But see, Dr Deckers's reply to Panel question 11, in List of Replies from the scientific experts to questions posed by the Panel, para. 85.

¹⁷⁹⁷ Dr Paulin's reply to Panel question 11, in List of Replies from the scientific experts to questions posed by the Panel, para. 91.

¹⁷⁹⁸ Dr Paulin's reply to Panel question 11, in List of Replies from the scientific experts to questions posed by the Panel, para. 92.

¹⁷⁹⁹ Dr Paulin's reply to Panel question 11, in List of Replies from the scientific experts to questions posed by the Panel, para. 87.

7.469 It must be noted that, according to the experts consulted by the Panel, the IRA has a tendency to overestimate the severity of the consequences of fire blight in certain aspects. This overestimation affects in particular two of the criteria, which in the IRA are assigned the most severe scores of "F" and "E" (plant life or health and domestic trade or industry, respectively).

7.470 In the light of the above, the Panel concludes that the IRA's evaluation of the potential consequences associated with the entry, establishment or spread of fire blight into Australia does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(l) Overall conclusions with respect to the requirements regarding fire blight

7.471 For the reasons stated above, the Panel finds that, with respect to its analysis of the likelihood of entry, establishment and spread of fire blight, and of the potential consequences associated with the entry, establishment or spread of fire blight into Australia, Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A of the SPS Agreement. The flaws described above also constitute a failure by the IRA to take sufficiently into account factors such as the available scientific evidence, the relevant processes and production methods in New Zealand and Australia, and the actual prevalence of fire blight, as required by Article 5.2 of the SPS Agreement.

7.472 Accordingly, Australia's requirements regarding fire blight on New Zealand apples are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement. Since the requirements are not based on a risk assessment as provided in Article 5.1 of the SPS Agreement, these measures can be presumed, more generally, not to be based on scientific principles within the meaning of Article 2.2.¹⁸⁰⁰ Accordingly, the Panel finds that Australia's requirements regarding fire blight on New Zealand apples are, by implication, also inconsistent with Article 2.2 of the SPS Agreement".

(m) Alleged methodological flaws identified by New Zealand

7.473 The Panel has found that, with respect to its analysis of the likelihood of entry, establishment and spread of fire blight, Australia's IRA is not a proper risk assessment and, consequently, Australia's requirements regarding fire blight on New Zealand apples are inconsistent with Articles 2.2, 5.1 and 5.2 of the SPS Agreement. Normally, there would be no need to proceed further with an examination of New Zealand's additional argument that the IRA contains methodological flaws that result in a vast overestimation of the probability of entry, establishment and spread of fire blight into Australia through apples from New Zealand. However, New Zealand's arguments regarding methodological flaws in the IRA would concern, not only Australia's requirements regarding fire blight, but also the requirements regarding European canker and the "general" requirements. Accordingly, the Panel will examine New Zealand's arguments regarding the methodological flaws in the IRA.

(i) *Choice of maximum value for negligible events*

Summary of the Parties' arguments

7.474 New Zealand has identified the IRA's choice of the maximum value for the probability of events with a negligible likelihood of occurring, as a methodological flaw that, in combination with other flaws, would result in an overestimation of the probability of entry, establishment and spread of the pests at issue.¹⁸⁰¹

¹⁸⁰⁰ Appellate Body Report on *Australia – Salmon*, paras. 137-138.

¹⁸⁰¹ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, para. 4.174-4.186; New Zealand's second written submission, para. 2.333-2.352.

7.475 New Zealand contends that the numerical ranges adopted under the IRA as probability intervals for the qualitative descriptions of various events were assigned arbitrarily. Little insight was provided as to how those ranges were determined.¹⁸⁰² In the case of events with a "negligible" likelihood of occurring ("the event would almost certainly not occur"), the maximum value was set at one in a million (1×10^{-6}).

7.476 New Zealand argues that the maximum value of 1×10^{-6} is "substantially greater" and "at least three orders of magnitude (i.e. 1,000 times) greater" than can be concluded on the basis of known data".¹⁸⁰³ In New Zealand's view: "the effect of Australia's choice of 1×10^{-6} , combined with [the] choice of the uniform distribution to model key events with a negligible likelihood of occurring, is that events that 'almost certainly will not occur' are turned into events that will be expected to occur ['relatively frequently', i.e.,] approximately once in every two million apples imported."¹⁸⁰⁴

7.477 In response, Australia argues that "any choice of intervals is arbitrary".¹⁸⁰⁵ In Australia's view, because the term "negligible" is defined in the IRA through numbers represented by a probability interval, the focus should be on those numbers and not on the word "negligible".¹⁸⁰⁶ Australia adds that the IRA focused on the interval between 0 and 10^{-6} as a uniform distribution, and not on the maximum value of 10^{-6} .¹⁸⁰⁷ In Australia's view, "[t]his means that the probability of a particular event occurring is equally likely to be any probability value within the interval bounded by the minimum and maximum values of the distribution. In other words, the probability of an event happening is equally likely to be zero as one in a million or any value in between."¹⁸⁰⁸

7.478 Australia finally argues that there are a number of flaws in New Zealand's reliance on trade data to support its position regarding the use of 1×10^{-6} as the maximum value for "negligible". To begin with, the IRA had to assess the potential volume of trade that would occur between New Zealand and Australia, and not the existing trade between New Zealand and Chinese Taipei. Further, it is unclear whether in its argument New Zealand has gone beyond the trade data to address factors within Chinese Taipei, such as the occurrence of fire blight host plants, environmental factors, distribution systems, consumption patterns, disposal routes and location of packing houses.¹⁸⁰⁹

The Panel's analysis

7.479 The IRA uses a semi-quantitative approach to assess the risk associated with the three pests at issue in this dispute, including fire blight. The semi-quantitative approach combines a quantitative estimation of the probability of entry, establishment and spread of the pest with a qualitative evaluation of the associated potential consequences.¹⁸¹⁰ Table 12 of Part B of the IRA sets out the "[n]omenclature for qualitative likelihoods, corresponding semi-quantitative probability intervals".¹⁸¹¹ This table shows for example that a "negligible" likelihood corresponds to the qualitative descriptor "[t]he event would almost certainly not occur", a probability interval of 0 to 10^{-6} (zero to one in one million), and a midpoint (if uniform distribution is used) of 5×10^{-7} (0.5 in one million, or one in two million).¹⁸¹²

¹⁸⁰² New Zealand's first written submission, para. 4.175.

¹⁸⁰³ New Zealand's first written submission, paras. 4.182-4.186.

¹⁸⁰⁴ New Zealand's first written submission, para. 4.178.

¹⁸⁰⁵ Australia's second written submission, para. 246.

¹⁸⁰⁶ Australia's first written submission, para. 298.

¹⁸⁰⁷ Australia's first written submission, paras. 299-300 and 307.

¹⁸⁰⁸ Australia's first written submission, para. 300.

¹⁸⁰⁹ Australia's first written submission, paras. 308-311.

¹⁸¹⁰ See para. 2.61 above.

¹⁸¹¹ Australia's IRA, Part B, p. 43. See para. 2.65 above.

¹⁸¹² Australia's IRA, Part B, p. 43. Australia's first written submission, para. 115. See para. 2.65 above.

7.480 Both Parties agree that the IRA's choice of a probability interval of zero to one in one million for events with a "negligible" likelihood of occurring was arbitrary. Just because the choice was ultimately arbitrary, however, does not mean that the values chosen should not have been based on relevant information, including available scientific evidence. Moreover, the Panel is not convinced by Australia's argument that words are irrelevant and that the focus should only be on the numbers representing probability intervals in the IRA. If a category of events is defined as "negligible" and the IRA describes that category as representing events that "would almost certainly not occur", any numbers that are assigned to the corresponding quantitative probability intervals should be consistent with that definition. Otherwise, *ad absurdum*, Australia's argument could lead to negligible events being assigned a quantitative representation of one, meaning that in practice the event would always happen.

7.481 Unfortunately, the IRA provides little insight on how the probability values were assigned to each of the six qualitative descriptors, including the "negligible" category.¹⁸¹³ In particular, there is no explanation of why events that would almost certainly not occur were assigned a numerical maximum value of one in a million. As noted by Dr Sgrillo, "[t]here is no scientific base to support the exclusive choice of 1E-6 because other ranges, as 0 to 1E-9 or to 2E-6, could also [have been] used ... without violating any scientific principle".¹⁸¹⁴ The same expert noted that "[t]he probability interval seems to have been arbitrarily chosen to represent the qualitative descriptors. There are no perceived criteria for assigning probabilities intervals to the qualitative scale. No mathematical relationship between the categories was found ... This approach seems to be based in an arbitrary choice and not in scientific principles".¹⁸¹⁵ Dr Sgrillo added:

"[I]n the case of assigning numbers to probabilities, the numbers you are assigning represent a hypothesis about the real process in the world. And when you assign these numbers you should be based on numbers from sampling of the reality. Otherwise you are elaborating on the subject. ... [I]f you don't have numbers that were sampled in the real world, you have no guarantee that the numbers that you are assigning are representative. It's a hypothesis, after all. A common sense hypothesis, an elaborated hypothesis, but it follows that it's a hypothesis, no guarantee."¹⁸¹⁶

7.482 Accordingly, the first failing in the IRA's definitions of quantitative probability intervals for qualitative likelihoods is the lack of information on how those numbers were assigned. Additionally, the Panel must determine whether New Zealand has properly made the case that the interval corresponding to "negligible" events is greater than can be justified and that this would result in an overestimation of the probability of entry, establishment and spread of the pests at issue.

7.483 In this respect, Dr Latorre identified "the range used to numerically explain the negligible descriptor" as "[o]ne of the main weaknesses" in the IRA.¹⁸¹⁷ The term "negligible" is not defined in the WTO agreements with respect to the likelihood of biological events under the SPS Agreement, nor are there any relevant international standards, guidelines or recommendations to define this term, nor on the number or width of probability intervals that may be used.¹⁸¹⁸ In any event, the ordinary

¹⁸¹³ Dr Latorre's reply to Panel question 133, in List of Replies from the scientific experts to questions posed by the Panel, para. 766.

¹⁸¹⁴ Dr Sgrillo's reply to Panel question 134, in List of Replies from the scientific experts to questions posed by the Panel, para. 767.

¹⁸¹⁵ Dr Sgrillo's reply to Panel question 133, in List of Replies from the scientific experts to questions posed by the Panel, paras. 755 and 765.

¹⁸¹⁶ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 34.

¹⁸¹⁷ Dr Latorre's reply to Panel question 133, in List of Replies from the scientific experts to questions posed by the Panel, para. 766.

¹⁸¹⁸ Dr Schrader's and Dr Sgrillo's replies in Transcript of the Panel's meeting with experts, paras. 46 and 204. See also, Dr Sgrillo's reply to Panel question 133, in List of Replies from the scientific experts to

meaning of the term "negligible" is something that is "[a]ble to be neglected or disregarded; unworthy of notice or regard; so small or insignificant as to be ignorable".¹⁸¹⁹ In other words, "negligible" is something so small that it can be ignored.¹⁸²⁰ The IRA itself defines "negligible" events as events that "would almost certainly not occur". In other words, the probability of a negligible event would be close to zero, but different from zero.¹⁸²¹ As noted by Dr Latorre:

"[B]y no means can a negligible event range from 0 to a maximum of 1×10^{-6} with a midpoint of 5×10^{-7} . In doing so, the likelihood of a particular biological event is overestimated. As stated before, 5×10^{-7} is a relatively high probability value, even considering the lowest possible total volume of apples (50,000,000, AUS-2 p.19) that can ultimately be imported from New Zealand."¹⁸²²

7.484 Considering that the likelihood of negligible events is defined in the IRA as events that "would almost certainly not occur" and not as events that "would not occur", the numerical equivalent should be different from zero. Accordingly, such category can be included in the model. It should, however, "be included with values coherent with the definition of negligible".¹⁸²³ Because there is little indication in the IRA on how the numerical probability values were assigned to the "negligible" category, such values are not properly justified in the IRA and would tend to overestimate the probability of entry, establishment and spread of the pests at issue. As noted by Dr Latorre:

"[T]he probability values given in Table 12 [should be reviewed] accepting that the maximum probability to be assigned to a negligible event should be such that one can be almost certain that this event will not occur in a given population, and that the minimum value should be different from zero. Then probability values for other descriptors can be assigned, considering that if an event has a probability of one, there is certainty that the event will occur."¹⁸²⁴

(ii) *Use of uniform distribution to model the likelihood of events*

Summary of the Parties' arguments

7.485 As noted above, New Zealand has identified the IRA's "inappropriate use of [a] uniform distribution to model the likelihood of events, particularly those with a 'negligible' likelihood of occurring" as a methodological flaw that, in combination with other flaws, would result in an overestimation of the probability of entry, establishment and spread of the pests at issue.¹⁸²⁵

7.486 New Zealand argues that "[a] uniform distribution ... is the crudest possible distribution for modelling a range of estimates. In this distribution every value between the maximum and minimum value is equally likely to occur. There is no 'most likely' value."¹⁸²⁶ Under the IRA, "negligible" events were given a uniform distribution with zero as the minimum and one in a million as the

questions posed by the Panel, para. 753; and Dr Sgrillo's replies in Transcript of the Panel's meeting with experts, paras. 50 and 206.

¹⁸¹⁹ *The New Shorter Oxford English Dictionary* (Clarendon Press, 1993), Vol. II, p. 1900.

¹⁸²⁰ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 50.

¹⁸²¹ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 48.

¹⁸²² Dr Latorre's reply to Panel question 133, in List of Replies from the scientific experts to questions posed by the Panel, para. 766.

¹⁸²³ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 138.

¹⁸²⁴ Dr Latorre's reply to Panel question 133, in List of Replies from the scientific experts to questions posed by the Panel, para. 766.

¹⁸²⁵ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, para. 4.187-4.193; New Zealand's second written submission, para. 2.353-2.358.

¹⁸²⁶ New Zealand's first written submission, para. 4.189.

maximum; the mid-point of this distribution is set at one event in every two million samples. New Zealand notes that, under this approach, "an event that 'would almost certainly not occur' will in fact be expected to occur on average approximately once in every two million samples. ... Negligible is no longer negligible under this approach."¹⁸²⁷

7.487 New Zealand concludes that "[t]he result of applying a uniform distribution to model events with a negligible likelihood of occurring is that Australia predetermined that the value chosen was weighted towards the event occurring. As a result, Australia has artificially inflated the risks of such events occurring in most if not all cases."¹⁸²⁸

7.488 In New Zealand's view, the IRA could have avoided this by either choosing a lower maximum value for negligible events, with a correspondingly lower mid-point, with a resulting smaller probability range. In this case, the probability values used as inputs by the model would have reflected this smaller range and lower mid-point. Alternatively, the IRA Team could have applied a triangular or Pert distribution with a most likely value at or below the mid-point, which would have resulted in fewer values at the upper end of the distribution carried through in the analysis.¹⁸²⁹

7.489 Australia responds that New Zealand fails to understand that it is the values in the interval between 0 and 10^{-6} , and not any one value in that interval that were considered by the IRA and are applied on the basis of the uniform distribution. "This means that the probability of a particular event occurring is equally likely to be any probability value within the interval bounded by the minimum and maximum values of the distribution. In other words, the probability of an event happening is equally likely to be zero as one in a million or any value in between."¹⁸³⁰

7.490 Australia adds that:

"Where the IRA Team believed it had sufficient information to identify a most likely value in an interval, it used a triangular distribution, represented by a minimum value, a maximum value and a most likely value. Where the IRA Team considered it had insufficient information to identify the most likely value in an interval, it adopted a uniform distribution, using a minimum value and a maximum value."¹⁸³¹

7.491 Australia further argues that New Zealand has not acknowledged that uniform distributions may be appropriately used, as stated by Dr Schrader.¹⁸³²

The Panel's analysis

7.492 The IRA Team used uniform, triangular and Pert probability distributions.¹⁸³³ By definition, a uniform distribution has a minimum and a maximum value. No most likely value is identified. In principle, any value contained in the continuous range between the minimum and maximum values occurs with equal probability. The IRA states that a uniform distribution was used where insufficient information was available to determine the most likely value. As compared to other models of

¹⁸²⁷ New Zealand's first written submission, para. 4.191. See also, New Zealand's second written submission, paras. 2.353 and 2.356.

¹⁸²⁸ New Zealand's first written submission, para. 4.193.

¹⁸²⁹ *Ibid.* See also, New Zealand's reply to Panel question 107 after the first substantive meeting, para. 236; New Zealand's second written submission, para. 2.357.

¹⁸³⁰ Australia's first written submission, para. 300.

¹⁸³¹ Australia's first written submission, para. 304.

¹⁸³² Australia's second written submission, para. 271, referring to Dr Schrader's reply to Panel question 135, in List of Replies from the scientific experts to questions posed by the Panel, para. 781.

¹⁸³³ Australia's first written submission, paras. 93-94 and 99. See also para. 2.66 above.

distribution, a uniform distribution is the simplest, but in the circumstances of this case, as noted by Dr Schrader and Dr Sgrillo, it tends to generate less realistic samples.¹⁸³⁴

7.493 In contrast, a triangular distribution has a minimum, maximum and a most likely value. It is not necessarily symmetrical, but can be skewed in favour of the most likely value. According to the IRA, this distribution was used when information (such as literature and expert opinion) on the most likely value was available.¹⁸³⁵ Finally, the Pert distribution also has three parameters: a minimum value, a maximum value, and a most likely value, but it has a different, more rounded shape than a triangular distribution. The Pert distribution generates a smooth distribution curve that resembles more closely a realistic probability distribution and places progressively more emphasis on values close to the most likely value. Dr Schrader and Dr Sgrillo suggested that, from the three options, the Pert distribution is expected to be the more realistic. The Pert distribution was used in the IRA to estimate the volume of apples likely to be imported.¹⁸³⁶

7.494 As noted above, New Zealand argues that the use of a uniform distribution to model the likelihood of certain events, particularly those with a "negligible" likelihood of occurring would result in an overestimation of the probability of entry, establishment and spread of the pests at issue.

7.495 In principle, under a uniform distribution, any value contained in the range between the minimum and maximum values occurs with equal probability. This means that the model will tend to over represent the numbers in the higher end of the chosen range, instead of clustering closer to zero, which the experts have explained would be more appropriate in the case of events with a "negligible" likelihood in the biological world. The use of a uniform distribution with a maximum of one in a million results in the likelihood of so-called "negligible" events estimated to occur more frequently than, according to the IRA's qualitative descriptors, they should be expected to occur (i.e., the events would "almost certainly not occur"). As noted by Dr Sgrillo, there is merit in New Zealand's argument that a triangular distribution would have been preferable to avoid overestimating the likelihood of "negligible" events. In the words of the expert, the IRA "could have considered a triangular distribution with the most probable value zero and the maximum value one times ten in the power of minus six. This will correct the kind of distortion (of bias) in generating random samples in this range."¹⁸³⁷

7.496 In other words, the use of a uniform distribution to model the likelihood of "negligible" events, in combination with the assignment of a high maximum level for the respective probability interval that is not adequately justified, would tend to overestimate the likelihood of such "negligible" events.

(iii) *Overestimation of the projected volume of trade in New Zealand apples*

Summary of the Parties' arguments

7.497 As noted above, New Zealand has identified the alleged exaggeration of the projected volume of trade in New Zealand apples as the third methodological flaw that, in combination with other flaws,

¹⁸³⁴ Australia's IRA, Part B, p. 42. See para. 2.66 above; Dr Schrader's and Dr Sgrillo's replies to Panel question 135, paras. 776 and 781.

¹⁸³⁵ Australia's IRA, Part B, p. 42. See para. 2.66 above; Dr Schrader's and Dr Sgrillo's replies to Panel question 135, paras. 772, 777 and 782.

¹⁸³⁶ Australia's IRA, Part B, p. 42. See para. 2.66 above; Dr Schrader's and Dr Sgrillo's replies to Panel question 135, in List of Replies from the scientific experts to questions posed by the Panel, paras. 774, 778 and 783.

¹⁸³⁷ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 136. See also, Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 199.

would result in an overestimation of the probability of entry, establishment and spread of the pests at issue.¹⁸³⁸

7.498 New Zealand notes that, under the semi-quantitative method used in the IRA, the assigned per apple probability of a pest being imported is then multiplied by Australia's estimate of the annual volume of trade in New Zealand apples, to give an estimated number of infested or infected apples imported. From this value, an overall assessed level of risk is calculated. Accordingly, "the higher the estimated volume of trade, the higher the overall assessed risk".¹⁸³⁹

7.499 New Zealand adds in this regard that the IRA misconceives actual demand for apples from New Zealand. In New Zealand's view, the IRA has not taken into account that currently all Australian domestic demand for apples is supplied from local sources and that local supermarkets tend to provide support for Australian-grown produce, as well as that most of the apple varieties favoured by Australian consumers are produced only in limited quantities in New Zealand.¹⁸⁴⁰ New Zealand also notes that any attempt by New Zealand to capture a large market share in Australia would lead to a large fall in prices that would quickly make exports uneconomic.¹⁸⁴¹ Finally, New Zealand argues that supply-side constraints in New Zealand would also limit the number of fresh apples that could be exported to Australia, because its exporters are committed in long-term contracts to Northern Hemisphere customers.¹⁸⁴²

7.500 New Zealand concludes that the IRA's estimation of a "most likely" value of 150 million apples per year to be imported from New Zealand, or 15 per cent of the market, "is out of all proportion with the trade that would be likely to occur in fact".¹⁸⁴³ In New Zealand's view, "such a value bears no relationship to the reality of likely Australian demand for New Zealand apples or New Zealand's capacity to supply that demand".¹⁸⁴⁴ New Zealand considers instead that the lower value in Australia's range, 50 million apples per year, should in fact be the "most likely" value.¹⁸⁴⁵

7.501 Australia responds that New Zealand's assertions on volume of trade lack economic and commercial substance and should be disregarded by the Panel.¹⁸⁴⁶ Australia argues that New Zealand has misunderstood the process followed by the IRA. Australia notes that the IRA acknowledges the difficulty of estimating the volume of trade in the absence of existing trade. It suggests, however, that the most likely value was calculated on the basis of a range of economic and commercial factors. Australia adds that the volume of trade is expressed as a Pert distribution. Because "the most likely value of 150 million apples is closer to the minimum value of 50 million apples than the maximum value of 400 million apples, the shape of the curve gives greater weight to values toward the lower end of the scale".¹⁸⁴⁷

¹⁸³⁸ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, paras. 4.194-4.203; New Zealand's second written submission, paras. 2.359-2.367.

¹⁸³⁹ New Zealand's first written submission, para. 4.195.

¹⁸⁴⁰ New Zealand's first written submission, paras. 4.197-4.199. Apple & Pear Australia Limited, "Public Submission to ACCC Grocery Inquiry by Apple & Pear Australia Limited on 11 March 2008", p. 8, in Exhibit NZ-51. See also, New Zealand's second written submission, paras. 2.361-2.363.

¹⁸⁴¹ New Zealand's first written submission, paras. 4.200-4.201. See also, New Zealand's second written submission, para. 2.364.

¹⁸⁴² New Zealand's first written submission, paras. 4.200-4.202. See also, New Zealand's second written submission, paras. 2.365-2.366.

¹⁸⁴³ New Zealand's first written submission, para. 4.196.

¹⁸⁴⁴ *Ibid.*

¹⁸⁴⁵ New Zealand's second written submission, paras. 2.360. See also, New Zealand's first written submission, para. 4.203.

¹⁸⁴⁶ Australia's first written submission, paras. 319 and 341.

¹⁸⁴⁷ Australia's first written submission, paras. 320-324.

7.502 Australia also rejects New Zealand's argument that Australian consumers would not buy the main types of apples produced in New Zealand.¹⁸⁴⁸ Australia argues in this regard that "there is no reason to believe that the current composition of Australian production provides a template for what New Zealand fruit Australian consumers would choose to import."¹⁸⁴⁹ With respect to its supermarkets, Australia argues that a preference for Australian products is only one of several key considerations in deciding on the source of any product; New Zealand apples would compete on quality, quantity and price, just as in any other market.¹⁸⁵⁰ Regarding the alleged effect of imports of apples on domestic prices, Australia notes that the ABARE report cited by New Zealand concludes that, because Australian producers always have the option of exporting, imports would not significantly drive down the Australian price.¹⁸⁵¹ Australia also submits that New Zealand's supposition that its exporters are tied up in long term contracts to Northern Hemisphere customers to such a point that they would not export significant quantities of apples to Australia "does not appear to accord with available evidence and expected future market developments".¹⁸⁵²

The Panel's analysis

7.503 As noted by both Parties, the IRA's assessment is based on a projected volume of trade in New Zealand apples for one year, taking into account that apples might be imported in packed cartons for table consumption, but also in bulk bins for repacking or for processing into fruit juices or other products. Australia assumed that the volume of apple imports from New Zealand would be between 50 million and 400 million apples per year, with a most likely value of 150 million. These values represent approximately 5 per cent, 40 per cent and 15 per cent of domestic fresh fruit, or 2.5 per cent, 20 per cent and 7.5 per cent of Australia's total average apple production, respectively.¹⁸⁵³

7.504 The projected volume of trade of New Zealand apples into Australia is a crucial element in the IRA. As noted by Dr Latorre:

"[T]he risk of entrance would be related to the size of the population. In this case, it will depend on the total volume of mature apples annually imported by Australia. In general, as the volume increases, so does the probability that a given biological event may occur, increasing the chances that [the relevant pest] will gain entrance into Australia. Therefore, it is very important for an accurate IRA to define objectively the eventual volume of mature apple that Australia would be importing from New Zealand annually."¹⁸⁵⁴

7.505 The IRA acknowledges that, "[b]ecause there is no existing trade in apple fruit from New Zealand, the volume of apples that might be imported during 12 months was difficult to estimate."¹⁸⁵⁵ For such a counterfactual exercise to have some validity, the IRA would need to formulate a hypothesis on the basis of the best available information and then validate the hypothesis with factual data, as trade begins to develop or better information becomes available. Indeed, the

¹⁸⁴⁸ Australia's first written submission, paras. 326-330.

¹⁸⁴⁹ Australia's first written submission, para. 327. See also, Australia's second written submission, paras. 276-283.

¹⁸⁵⁰ Australia's first written submission, paras. 331-333. Communication from Coles Myer Ltd to the Agriculture and Food Policy Reference Group, Department of Agriculture, Fisheries and Forestry of Australia (25 August 2005), p. 3, in Exhibit AUS-22. See also, Australia's second written submission, paras. 284-289.

¹⁸⁵¹ Australia's first written submission, paras. 334-336. See also, Australia's second written submission, paras. 290-310.

¹⁸⁵² Australia's first written submission, paras. 337-340.

¹⁸⁵³ Australia's IRA, Part B, pp. 17-19. See also Australia's first written submission, paras. 98-99.

¹⁸⁵⁴ Dr Latorre's reply to Panel question 137, in List of Replies from the scientific experts to questions posed by the Panel, para. 796.

¹⁸⁵⁵ Australia's IRA, Part B, p. 18.

values proposed by the IRA as higher and lower scenarios, as well as most likely value, should be seen as hypotheses that need to be tested with actual trade data, as soon as imports of New Zealand apples start entering into Australia.

7.506 The Panel is not convinced by New Zealand's objections to the IRA's estimation of the projected volume of trade of New Zealand apples into Australia. New Zealand contends that Australian supermarkets support local produce, that Australian consumers favour apple varieties that are produced in limited quantities in New Zealand, that New Zealand varieties would be unlikely to attract significant market share, and that New Zealand apple exporters would be unlikely to divert sales from current customers to Australia. All of these contentions rest on the assumption that current tendencies that may have developed in the absence of bilateral trade in apples will persist if trade is allowed. It is just as reasonable to expect the opposite: that once the Australian market is open for imported apples from a geographically close partner with otherwise intense patterns of trade, the behaviour of consumers and supermarkets in Australia and exporters in New Zealand would change so as to benefit from the new opportunities. Irrespective of the apple varieties that are grown in Australia or even the current local consumer preferences, if Australian consumers are attracted by the quality, the price or the taste of New Zealand varieties, they may change their current consumption patterns. Similarly, and irrespective of any statements made in support of local production, there is no reason to assume that supermarkets in Australia would not rationally decide to purchase apples on the basis of factors such as price, quality and consumer demand. Nor is there any reason to suppose that New Zealand exporters will not rationally shift sales over time to the market that offers them better returns to their investment.

7.507 Assuming that the IRA's projected volume of trade is a hypothesis that will have to be tested with actual trade data when imports of New Zealand apples start entering into Australia, the Panel is not convinced by New Zealand's objections regarding an alleged overestimation of such projected volume of trade.¹⁸⁵⁶

(iv) *Conclusion regarding the methodological flaws identified by New Zealand*

7.508 For the reasons explained above, the Panel concludes that the choice of a probability interval of 0 to 10^{-6} (zero to one in one million), and a midpoint (if uniform distribution is used) of 5×10^{-7} (0.5 in one million) for events with a "negligible" likelihood of occurring (corresponding to the qualitative descriptor "the event would almost certainly not occur") is not properly justified in the IRA and leads to an overestimation of the probability of entry, establishment and spread of the pests at issue. Likewise, the Panel concludes that the combination of this probability interval for events with a "negligible" likelihood of occurring, with the IRA's use of a uniform distribution to model the likelihood of these events, would tend to result in an additional overestimation of the likelihood of such "negligible" events. The Panel agrees with New Zealand that these two flaws "magnify the assessment of risk, turning what are often the remotest of possibilities into events that are assessed as occurring with some frequency."¹⁸⁵⁷

7.509 The Panel concludes additionally that New Zealand has not successfully made a prima facie case that the IRA's projected volume of trade is necessarily exaggerated and that such exaggeration would result in an overestimated probability of entry, establishment and spread of the pests at issue.

7.510 The Panel finds that, because of the methodological flaws that magnify the assessment of risk, described above, Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A of the SPS Agreement. These flaws also constitute a failure by the IRA to

¹⁸⁵⁶ New Zealand's first written submission, para. 4.172. See also, New Zealand's first written submission, paras. 4.194-4.203; New Zealand's second written submission, paras. 2.359-2.367.

¹⁸⁵⁷ New Zealand's second written submission, para. 2.297.

adequately take into account the available scientific evidence, as required by Article 5.2 of the SPS Agreement. Accordingly, because of these flaws, Australia's requirements regarding fire blight on New Zealand apples are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement. Since the requirements are not based on a risk assessment as provided in Article 5.1 of the SPS Agreement, these measures can also be presumed, more generally, not to be based on scientific principles within the meaning of Article 2.2.¹⁸⁵⁸ Accordingly, the Panel finds that Australia's requirements regarding fire blight on New Zealand apples are, by implication, also inconsistent with Article 2.2 of the SPS Agreement".

5. Requirements regarding European canker

7.511 The IRA contains a section describing the biology of the disease European canker caused by the fungus *Neonectria galligena*, a description of the risk scenario, a discussion of the likelihood of entry, establishment and spread of European canker, an assessment of the consequences, a description of the unrestricted risk and, finally, a discussion of risk management measures.¹⁸⁵⁹

7.512 In its panel request, New Zealand challenges the following requirements imposed by Australia with respect to European canker:

- "The requirement that apples be sourced from export orchards/blocks free of European canker (pest free places of production).
- The requirement that all trees in export orchards/blocks be inspected for symptoms of European canker, including that orchards/blocks in areas less conducive for disease are inspected for symptoms by walking down every row and visually examining all trees on both sides of each row, and that areas more conducive to the disease are inspected using the same procedure combined with inspection of the upper limbs of each tree using ladders (if needed), and that such inspections take place after leaf fall and before winter pruning.
- The requirement that all new planting stock be intensively examined and treated for European canker.
- The requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker.
- The requirement that exports from an orchard/block be suspended for the coming season on the basis of detection of European canker and that reinstatement would require eradication of the disease, confirmed by inspection."¹⁸⁶⁰

¹⁸⁵⁸ Appellate Body Report on *Australia – Salmon*, paras. 137-138.

¹⁸⁵⁹ Australia's IRA, Part B, pp. 117-155.

¹⁸⁶⁰ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2. See also, Australia's IRA, Part B, pp. 150-155. As noted above, New Zealand and Australia reached an agreement with respect to one of the measures that had been identified by New Zealand in its panel request (namely, the requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker). See, para. 2.96 above.

7.513 New Zealand argues that the IRA's measures regarding European canker are maintained without sufficient scientific evidence, in breach of Article 2.2 of the SPS Agreement:

"The pathway proposed by Australia for the transmission of *N. galligena* has never been reported or observed in any of the scientific literature, nor has it been demonstrated to have occurred anywhere in the world. In particular, the Australian contention is not based on scientific evidence about the incidence of fruit infection in New Zealand caused by *N. galligena*. It also fails to take into account the relevant climatic conditions in New Zealand and Australia. Further, the Australian contention is not based on scientific evidence relating to the production and spread of spores from mature apple fruit. In short, there is no scientific evidence to support Australia's contention and accordingly there can be no rational or objective relationship between the scientific evidence and the measures imposed by Australia in respect of European canker for New Zealand apples. The measures are therefore maintained without sufficient scientific evidence, in breach of Article 2.2 of the SPS Agreement."¹⁸⁶¹

7.514 In New Zealand's view, "[t]he IRA has failed to evaluate the 'likelihood' of entry, establishment and spread of European canker as well as the potential biological and economic consequences within the meaning of paragraph 4 of Annex A. Accordingly Australia has failed to comply with its obligations under Article 5.1 of the SPS Agreement."¹⁸⁶²

7.515 New Zealand adds that Australia is in violation of its obligations under Article 5.1 of the SPS Agreement also because "[t]he IRA fails to provide an evaluation of the likelihood of entry, establishment or spread of the diseases and pests of concern 'according to the SPS measures which might be applied' and, therefore, fails to meet the third requirement for a risk assessment within the meaning of paragraph 4 of Annex A."¹⁸⁶³

7.516 The Panel will start by considering Australia's requirements with respect to European canker under Articles 5.1 and 5.2 of the SPS Agreement, focusing on the specific alleged flaws in the IRA identified by New Zealand in its various submissions. The Panel will consider whether New Zealand has properly made the case that:

- (a) The IRA contains methodological flaws that result in a vast overestimation of the probability of entry, establishment and spread of European canker into Australia through apples from New Zealand;
- (b) The IRA has overestimated the probability of entry, establishment and spread of European canker into Australia through apples from New Zealand, including through the estimation of various "importation steps", and the IRA's reasoning in this regard is not properly based on scientific evidence;
- (c) The IRA has overestimated the potential biological and economic consequences associated with the entry, establishment and spread of European canker in Australia, and the IRA's reasoning in this regard is not properly based on scientific evidence;
- (d) The IRA has overestimated the unrestricted risk of European canker from apples from New Zealand, and the IRA's reasoning in this regard is not properly based on scientific evidence; and,

¹⁸⁶¹ New Zealand's first written submission, paras. 4.53-4.54.

¹⁸⁶² New Zealand's first written submission, para. 4.333. See also, New Zealand's second written submission, para. 2.459.

¹⁸⁶³ New Zealand's first written submission, para. 4.402.

- (e) Australia's requirements imposed by Australia with respect to European canker are consequently not properly based on scientific evidence and, therefore, inconsistent with the SPS Agreement.

Subsequently, and if necessary, the Panel will turn to New Zealand's allegation that the IRA fails to provide an evaluation of the likelihood of entry, establishment or spread of European canker "according to the SPS measures which might be applied".

7.517 The Panel will conduct this review beginning with the arguments raised by New Zealand specifically in the context of the IRA's analysis on European canker. The Panel will follow the same order as the IRA, which is generally the order in which Parties raised their arguments. Accordingly, the Panel will consider the issues as follows: the eight importation steps described in the IRA; the IRA's analysis on proximity; the IRA's analysis on exposure; the IRA's analysis on establishment; the IRA's analysis on spread; the IRA's analysis on the potential associated biological and economic consequences; and, the IRA's analysis on the unrestricted risk of European canker. The Panel will then, if necessary, turn to New Zealand's arguments regarding the alleged methodological flaws in the IRA.

- (a) Estimation for importation step 1

7.518 Importation step 1 represents the likelihood that the relevant pest is present in the source orchards.¹⁸⁶⁴

- (i) *Summary of the Parties' arguments*

7.519 Regarding importation step 1 for European canker, New Zealand "does not take issue" with the IRA's estimation that *Neonectria galligena* would be present in source orchards in New Zealand. New Zealand points out, however, "the importance of climatic factors to the distribution of European canker in New Zealand".¹⁸⁶⁵

- (ii) *The Panel's analysis*

7.520 The IRA estimates the likelihood that *Neonectria galligena* is present in the source orchards in New Zealand as a triangular distribution with a minimum value of 10^{-2} (1 in 100), a maximum value of 5×10^{-2} (5 in 100) and a most likely value of 3×10^{-2} (3 in 100).¹⁸⁶⁶ The IRA notes that "[t]his range takes into account the variations in climatic conditions across New Zealand, and the information indicating that about 95% of the apple export production in New Zealand comes from orchards in areas where the disease has either never been recorded or the disease occurs only sporadically in very wet seasons."¹⁸⁶⁷

7.521 As noted above, New Zealand has not called into question the IRA's estimation of the likelihood of the event represented by this particular importation step.

¹⁸⁶⁴ Australia's IRA, Part B, pp. 19-21.

¹⁸⁶⁵ New Zealand's first written submission, para. 4.269. See also, Australia's first written submission, para. 528.

¹⁸⁶⁶ Australia's IRA, Part B, pp. 118-121.

¹⁸⁶⁷ Australia's IRA, Part B, p. 121.

(b) Alleged overestimation for importation step 2

7.522 Importation step 2 represents the likelihood that fruit coming from an infected or infested orchard is infected or infested.¹⁸⁶⁸

(i) *Summary of the Parties' arguments*

7.523 Regarding importation step 2 for European canker, New Zealand argues that there is no scientific support in the IRA for the estimation of the likelihood of mature apples being infested or infected with *Neonectria galligena*.¹⁸⁶⁹ New Zealand submits that the IRA contains no scientific evidence of the occurrence of latent European canker infections in picked fruit in New Zealand; instead, the IRA relies primarily on research in the United Kingdom and Northern Europe, where climatic conditions are more conducive to infection.¹⁸⁷⁰ The lack of appropriate weather conditions during summer in New Zealand would result in an "extremely low incidence of fruit infection caused by *N. galligena*".¹⁸⁷¹ Pre harvest fruit rots caused by *Neonectria galligena* are extremely rare in New Zealand.¹⁸⁷² New Zealand concludes that "the IRA should ... have treated the probability of this step as negligible and should not have assigned the probability values it did."¹⁸⁷³

7.524 In response, Australia contends that "New Zealand failed to identify any flaws in the [IRA's] conclusions on Importation step 2."¹⁸⁷⁴ Australia argues that New Zealand's assertion in this regard "is wrong as it ignores the [IRA's] extensive discussion on Importation step 2 with numerous references to relevant scientific literature".¹⁸⁷⁵

7.525 Australia submits that New Zealand relies on a narrow climate analysis, focused only on environmental criteria, that can lead to incorrect predictions.¹⁸⁷⁶ Australia also argues that, contrary to New Zealand's assertion, the IRA "identifies four relevant studies in relation to fruit rot caused by *N. galligena* in New Zealand".¹⁸⁷⁷ Australia rejects New Zealand's contention that there is no scientific evidence of latent *Neonectria galligena* infections occurring in New Zealand.¹⁸⁷⁸ Australia

¹⁸⁶⁸ Australia's IRA, Part B, pp. 19-21.

¹⁸⁶⁹ New Zealand's first written submission, paras. 4.270 and 4.275. See also, New Zealand's second written submission, paras. 2.466 and 2.490.

¹⁸⁷⁰ New Zealand's first written submission, paras. 4.272-4.274. See also, New Zealand's second written submission, paras. 2.479-2.485.

¹⁸⁷¹ New Zealand's first written submission, para. 4.271. See also, New Zealand's second written submission, paras. 2.467-2.477.

¹⁸⁷² New Zealand's first written submission, para. 4.271. See also, New Zealand's second written submission, paras. 2.467-2.477.

¹⁸⁷³ New Zealand's first written submission, para. 4.275.

¹⁸⁷⁴ Australia's first written submission, para. 547. See also, Australia's second written submission, para. 494.

¹⁸⁷⁵ Australia's first written submission, para. 530. See also, Australia's second written submission, paras. 486-487.

¹⁸⁷⁶ Australia's first written submission, paras. 531-534 and 542.

¹⁸⁷⁷ Australia's first written submission, para. 536. See, Atkinson, "Bacterial diseases of pip fruit" (1971) in *Diseases of tree fruits in New Zealand*, in Exhibit AUS-52; Brook and Bailey, "Control of European canker" (1965), in Exhibit AUS-53; Braithwaite, "The occurrence of fruit rots caused by *Nectria galligena* (European canker) in New Zealand and a comparison of brown rot strains between New Zealand and Australia" (1996), in Exhibit NZ-34; and, communication from Biosecurity New Zealand, Ministry of Agriculture and Forestry (16 May 2005), in Exhibit AUS-51.

¹⁸⁷⁸ Australia's first written submission, paras. 539-541. See also, Australia's second written submission, paras. 474-475 and 494.

finally notes that New Zealand's own research supports the IRA's conclusions on the possibility of latent infections.¹⁸⁷⁹

(ii) *The Panel's analysis*

7.526 The IRA estimates the likelihood that picked fruit is infested or infected with *Neonectria galligena* as a uniform distribution with a minimum value of 10^{-6} (1 in 1,000,000) and a maximum value of 10^{-3} (1 in 1,000).¹⁸⁸⁰

7.527 According to the IRA, "under New Zealand conditions fruit is only occasionally attacked and this generally results in rotting of the fruit. Rotted fruit would not be picked. There is some likelihood of fruit getting infected late in the season and remaining latent, but this likelihood would be extremely low."¹⁸⁸¹

7.528 The IRA notes that:

"The widespread adoption of integrated fruit production (IFP) by 85–90% of New Zealand export orchards ... largely controls the establishment and spread of European canker ...

The New Zealand IFP Manual recommends a combination of systemic fungicides ... for control of European canker ... Cooke (1999) reported the above fungicides reduce cankers by 65–90%, but suggested spray treatments alone cannot eradicate existing infections and must be supplemented by cutting out cankers and treating wounds with a fungicide paint. ...

In New Zealand, European canker is primarily a disease of trees, with fruit only occasionally being attacked ... [L]eaf scar tissue is the main infection site in New Zealand orchards, particularly during the establishment phase of infection. Similarly ... fruit spurs and leaf scars in autumn present the main infection sites for the disease in New Zealand apple orchards.

Foliage is not affected ... and leaf trash is unlikely to present a significant threat, unless twigs with active cankers are picked with the fruit. Fruit infection will only occur when the disease is present on the tree or within the orchard ... and conditions of temperature and free moisture are suitable ... Fruit rot caused by *N. galligena* has been reported in New Zealand ... but limited data is available on the incidence of fruit infection in New Zealand. ...

Various disease management measures to control summer fruit rots in New Zealand orchards, including cultural practices (removal of diseased wood and rotting fruit from trees and orchard floors) and the use of fungicides from late November/early December until withholding periods ... would greatly reduce the likelihood of *N. galligena* infections being present. European canker is reported to be a problem only in high rainfall areas of Auckland and the Waikato as well as periodically in Nelson during wet years ...

¹⁸⁷⁹ Australia's first written submission, paras. 543-546. See also, Australia's second written submission, paras. 480-485.

¹⁸⁸⁰ Australia's IRA, Part B, pp. 121-123.

¹⁸⁸¹ Australia's IRA, Part B, p. 123.

Fruit infection will only occur if cankers are present in the orchard ... Almost 90% of export orchards in New Zealand use disease management programs and fungicide programs to control apple scab and other apple diseases, and this would minimise the possibility of European canker ... being present during fruit development and the harvest period. Given that climatic conditions typically reported for Hawke's Bay and Nelson during the harvest periods are normally dry and not conducive to spore release and winters are not too wet ... fruit infection is very unlikely to occur. In the higher rainfall areas of Auckland and the Waikato region, where European canker is present and climatic conditions are more conducive to spore production mainly due to wetter winters ... fruit could become infected during the harvest period. Fruit infected late in the season, and showing no obvious rot symptoms, could be picked from these orchards. Braithwaite (1996), in a report to MAFNZ, acknowledged the possibility that European canker could go unnoticed at harvest or during the early part of storage, and therefore could be transmitted in fruit as latent infections. ...

In cooking varieties and immature fruit, fruit infections can remain latent and express themselves after 3–7 months of storage ... especially if contamination occurs towards the end of the season ... An infection occurring in young, immature fruit will not grow ... However, as acidity decreases and sugar levels increase with ripening, the toxicity of benzoic acid decreases and the fungus resumes growth. The likelihood of latent infections occurring in mature fruit is reduced, except when infection occurs just before harvesting. New Zealand does not export significant volumes of immature or cooking varieties.

Fungicidal dips before storage of fruit are not used in New Zealand ... indicating that storage rots may not be a significant issue in New Zealand. However ... fruit rot is recorded in the New Zealand Plant Protection Centre (NZPPC) records and the fungus has been associated with storage rot of apples, suggesting that latent infections also occur in New Zealand. ...

[The likelihood of fruit being contaminated through infections on hosts other than *Malus* and *Pyrus*] is negligible because there is no evidence that the disease is well established in other hosts in New Zealand. Further, as stated before, infection or infestation of fruit is likely only when the disease is present on the trees or within the orchard. ...

[In more than 450 fresh apples intercepted at the barrier by AQIS staff between 1988 to 2003, including 53 apples from New Zealand c]ommon fruit rotting fungi were isolated and identified on about 30% of the fruit but there were no records of *N. galligena* being isolated."¹⁸⁸²

7.529 As noted above, New Zealand's major arguments against the IRA's reasoning with respect to importation step 2 are: that the IRA contains no scientific evidence of the occurrence of latent European canker infections in picked fruit in New Zealand and that the research in this respect from the United Kingdom and Northern Europe is not relevant because of the weather conditions in New Zealand; that weather conditions during summer in New Zealand would result in an "extremely low incidence of fruit infection caused by *N. galligena*"; and that pre-harvest fruit rots caused by *Neonectria galligena* are extremely rare in New Zealand.

7.530 In its discussion relating to the likelihood of this particular importation step, the IRA cites several studies. However, as noted by Dr Latorre, "none of [these studies] report information

¹⁸⁸² Australia's IRA, Part B, pp. 121-123.

regarding the frequency of apple infection and latency in New Zealand or elsewhere".¹⁸⁸³ No experimental data were presented in the IRA that would support the probability values chosen.¹⁸⁸⁴ Dr Swinburne, noted that:

"The implication of there being one infected fruit per thousand (max), coupled with the fact that 95% of exported fruit comes from orchards with little or no tree cankers (IRAb p121), is that fruit from infected orchards has in the order of 2% apples that will rot with *N. galligena* each year. That this would escape the attention of research centres in NZ seems extraordinary, if true. Alternatively, the arbitrary probability maximum set in the IRA is too high."¹⁸⁸⁵

7.531 On the basis of scientific evidence cited in the IRA, it is possible to conclude that *Neonectria galligena* may cause fruit rots in areas or years with frequent summer rainfalls at harvest. As noted by Dr Latorre, the prevalence and severity of inoculum production and fruit infection could vary considerably, according to weather conditions.¹⁸⁸⁶ It is not only the amount of rain that is important, but mostly the hours of "leaf wetness" and whether rainfall occurs during critical periods. As mentioned by Dr Swinburne:

"Rainfall impacts at every stage of the infection cycle of *N. galligena*, beginning with the production of spores from existing lesions. This is particularly evident in regions that have distinct 'rainy seasons'. ... However, it is not the absolute volume of rain that correlates with the numbers of spores released (both ascospores and conidia) but the duration of 'leaf wetness', (i.e. the presence of free water on the plant surface) (Swinburne, 1971). Thus a short storm in which several centimetres of rain falls in an hour would be much less conducive to spore release than when the same volume falls over a period measured in days. Likewise, even after the arrival of viable spores in the infection court (e.g. leaf scars) a continuing period of leaf wetness is required for successful infection. Dubin & English (1974) working in California found that no infections developed unless leaf-wetness was maintained for at least 6 hours. More recently Latorre *et al* (2002) in Chile found that this could be as little as 2 hours at the optimum temperature, and demonstrated the interaction between temperature and wetness. The number of days with rain will give a much more accurate indicator of the likelihood of infection, especially when examined in terms of the seasonal frequency of rain days."¹⁸⁸⁷

7.532 Dr Swinburne notes that the IRA focuses on total annual rainfall. "Total annual rainfall is an unsatisfactory measure of infection risk, but is relied upon heavily in the IRA and in the arguments presented in Annex 2 of Australia's FWS (see Q56)."¹⁸⁸⁸

¹⁸⁸³ Dr Latorre's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 437.

¹⁸⁸⁴ *Ibid.* See also, Dr Sgrillo's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 434.

¹⁸⁸⁵ Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 439. See also, Dr Deckers's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 436.

¹⁸⁸⁶ Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 357.

¹⁸⁸⁷ Dr Swinburne's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 353.

¹⁸⁸⁸ Dr Swinburne's reply to Panel question 72, in List of Replies from the scientific experts to questions posed by the Panel, para. 419. See also, Dr Swinburne's reply to Panel questions 56 and 66, in List of Replies from the scientific experts to questions posed by the Panel, paras. 353, 355 and 399.

7.533 With respect to whether rain occurs during "critical periods", Dr Latorre notes that:

"Annual rainfall provides a general indication of areas with climates conducive to European canker. It has been postulated that annual rainfalls higher than 1000 mm are indicative of climate conditions highly conducive to the development of European canker. However, European canker occurs in areas with less annual rainfall. Rainfall is important for infection during two critical periods: (i) during leaf fall, because infection may occur through leaf scars, resulting in twig and stem cankers that appear during the next growing season, and (ii) during harvest, because rainfall favours fruit infection and eventually latent infection in mature fruits. Knowledge of the rainfall distribution, during the growing season, is important for understanding the epidemiology [of] European canker on apples."¹⁸⁸⁹

7.534 Dr Latorre adds that "[f]requent summer rainfalls are necessary for inoculum production, dissemination and infection. If summer rainfalls are frequent, it would be reasonable to assume that some of the infected fruits may develop symptoms on the tree, and other fruits may be latently infected, developing symptoms after several weeks or even months in cold storage."¹⁸⁹⁰

7.535 There is no indication that these climatological conditions are present in New Zealand. In Dr Latorre's view, "it appears that summer conditions in New Zealand are very unfavourable for the development of European canker, and that fruit infection would be an extremely rare event. Therefore, the likelihood of latent infection on mature apple fruits would be extremely low or negligible."¹⁸⁹¹

7.536 With respect to latent infections, Dr Latorre notes that "latent infections would be extremely unlikely in apples from orchards free of European canker in the absence of summer rains. Under these circumstances, the risk of latent infection is close to zero (in practice zero)."¹⁸⁹²

7.537 Referring to the Braithwaite (1996) study cited by the IRA, Dr Latorre suggests that "[n]o new objective data is reported in this paper... [I]t is not a reliable and relevant reference to support the hypothesis that latent infections may also occur in mature apple in New Zealand."¹⁸⁹³ With respect to this study, Dr Swinburne suggests that the proposition that rotted fruit can transmit infection can be disregarded:

"Braithwaite (1996) contains an unconfirmed report that fruit rotting with [*Neonectria galligena*] has been detected in NZ, and it seems to be accepted by both parties that this does occur occasionally, although it is by no means clear if these reports refer to pre- or postharvest. Braithwaite then goes on to speculate that rotted fruit can transmit infection, basing his argument on European observations on the formation of ascospores on mummified fruit. This is a very rare occurrence, and

¹⁸⁸⁹ Dr Latorre's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 352. See also, Dr Deckers's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 350.

¹⁸⁹⁰ Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 357. See also, Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

¹⁸⁹¹ Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 358. See also, Dr Latorre's reply to Panel question 67, in List of Replies from the scientific experts to questions posed by the Panel, para. 401.

¹⁸⁹² Dr Latorre's reply to Panel guideline (g), in List of Replies from the scientific experts to questions posed by the Panel, para. 2.

¹⁸⁹³ Dr Latorre's reply to Panel question 54, in List of Replies from the scientific experts to questions posed by the Panel, para. 344.

most unlikely to be found in the climates of NZ or Australia ... For these reasons this aspect of the paper can be disregarded."¹⁸⁹⁴

7.538 Dr Latorre cautions that care should be exercised when attempting to draw conclusions for New Zealand from the research conducted in Europe and cited by the IRA:

"Australia's IRA based their risk assessment on the information already published from studies in Northern Ireland (Swinburne, 1964, 1975, Exhibits NZ-11 and NZ-9, respectively). These results were obtained on apple varieties quite different from those produced today in New Zealand and under environmental conditions that appear to be far more conducive to fruit infection (in Northern Ireland) than those in New Zealand. Although this does not invalidate the risk assessment analysis, and it does not reject the hypothesis that latent infections may occur in mature fruits in New Zealand, it is a factor that should be taken into consideration by Australia's IRA. Latent infection on mature fruits should not be under discussion, but the probability of latent infection in many apple cultivars produced under different environmental conditions in New Zealand is of utmost interest."¹⁸⁹⁵

7.539 Dr Swinburne concurs. In his opinion, it is important to consider, not only annual rainfall, but rainfall patterns, in order to determine whether there are sufficiently long periods of leaf wetness:

"The essential weakness of the approach in the IRA is that it assumes that inoculum (spores) for infection is always available, and all that is required is a suitable period (hours of leaf wetness within given temperature limits) for infection to occur. The major flaw in this argument is the assumption that regions can be compared on the basis of annual rainfall, without regard to rainfall patterns. Even in regions such as N. Ireland (Loughgall) with rain in all seasons, more than 5hrs of leaf wetness was required following a few dry days before ascospore discharge resumed (Swinburne, 1971b). The situation in regions with a pronounced dry season, such as California and the Pacific Northwest in the USA, spore formation does not even begin until some time (as yet undetermined) into the rainy period (Zeller, 1926, Wilson, 1966/8). For such an area data relating only to simple 'infection periods' would greatly overestimate the risk of disease establishment."¹⁸⁹⁶

7.540 Dr Swinburne notes that, in New Zealand, rots in fruit attributable to *N. galligena* should not be common:

"The limited information available in both FWS documents suggests that rots attributable to *N. galligena* in fruit grown in New Zealand are by no means as common as they are in Europe, and (of course) are seemingly confined to regions of NZ where tree cankers are present. The weather data presented in Annex 2 of the NZ FWS would accord with a low incidence of fruit infection, and, based on Wilson's (1966) observations in California, even conidial production from stem cankers may be sparse during summer. It is perhaps significant that in what was described as an epidemic of canker in Auckland that Brooke & Bailey (1965) only found occasional

¹⁸⁹⁴ Dr Swinburne's reply to Panel questions 54 and 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 349.

¹⁸⁹⁵ Dr Latorre's reply to Panel question 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 346.

¹⁸⁹⁶ Dr Swinburne's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 399. See, Swinburne, "The seasonal release of spores of *Nectria galligena* from apple cankers in Northern Ireland" (1971), in Exhibit AUS-76; Wilson, "Development of European canker in a California apple district" (1966), in Exhibit NZ-64.

fruit rots. Unfortunately that paper does not record whether the rots were found before or after harvest."¹⁸⁹⁷

7.541 Dr Latorre agrees with New Zealand that, under the climatic conditions of New Zealand, the IRA may have overestimated the likelihood of this importation step:

"Considering the epidemiological characteristics of European canker, the probability intervals given in Table 12 [for an event with an 'extremely low' likelihood of occurrence] are too conservative for areas with dry summer conditions, although they may be acceptable for areas with frequent summer rains. Therefore, the figures may overestimate the likelihood of each event to occur under dry summer conditions, particularly if fruit infection is extremely close to zero."¹⁸⁹⁸

7.542 The importance of adequate climatological conditions is highlighted by Dr Swinburne. "Both parties seem to agree that the frequency of fruit rotting is low, given the paucity of positive identifications. That this is so, even from regions with tree cankers (e.g. Auckland) this must be attributable to unfavourable weather conditions, especially the absence of rain, during the summer months."¹⁸⁹⁹ Dr Swinburne recalls the situation of locations, "such as Northern Ireland, which represents an extreme environment in which apples are produced, there are no dry periods at all. Rain falls fairly evenly throughout the year and in some locations on every day of the year." He then contrasts this situation with that of other locations, "California in particular... and to a more limited extent ... Kent, [and] perhaps more extremely ... New Zealand [where] you have very pronounced dry periods and very few, relative to Northern Ireland, days of leaf wetness." In Dr Swinburne's view, "[i]t is that difference which makes a difference in the pulse of the disease. The availability of the inoculum in relation to those leaf-wetness periods is crucial. ... In a location such as California, and I am assuming also New Zealand, that pulse is interrupted by pronounced dry periods, particularly during the summer months."¹⁹⁰⁰ Dr Latorre concurs and notes that:

"Weather conditions are also very, very important during summer time for inoculum production and then for inoculum dissemination, infestation ... and finally infection. In some places of the world where apples are produced, like Chile, California and New Zealand, summers are very dry, no rain at all. If it ever happens, there are very short rainy periods and not enough to fulfil perhaps inoculum production."¹⁹⁰¹

7.543 As cited above, Dr Swinburne finally notes that it would seem "extraordinary, if true" that a high proportion of apples rotted with *Neonectria galligena* would go unnoticed by research centres in New Zealand and that "[a]lternatively, the arbitrary probability maximum set in the IRA is too high."¹⁹⁰²

¹⁸⁹⁷ Dr Swinburne's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 361. See, Wilson, "Development of European canker in a California apple district" (1966), in Exhibit NZ-64.

¹⁸⁹⁸ Dr Latorre's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 437. Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 439. See also, Dr Deckers's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 356.

¹⁸⁹⁹ Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 438.

¹⁹⁰⁰ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 525.

¹⁹⁰¹ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 526.

¹⁹⁰² Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 439. See also, Dr Deckers's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 436.

7.544 In conclusion, the IRA contains respected and qualified scientific evidence regarding the possibility of *Neonectria galligena* causing fruit rots in areas or years with frequent summer rainfalls at harvest. It does not, however, contain adequate scientific evidence that would allow an estimation of the frequency of apple infection and latency in New Zealand or elsewhere. Moreover, the studies on fruit infection cited in the IRA are based on research conducted in areas or periods with frequent summer rainfalls at harvest. The IRA fails to properly take into account the existence of climatological conditions in New Zealand that would be necessary for inoculum production, dissemination and infection.

7.545 Accordingly, the Panel finds that the IRA's estimation of the likelihood that fruit coming from an infected or infested orchard is infected or infested with *Neonectria galligena* is not sufficiently supported by the scientific evidence that the IRA relied upon and, therefore, is not coherent and objective.

(c) Alleged overestimation for importation step 3

7.546 Importation step 3 represents the likelihood that clean fruit from infected or infested orchards is contaminated during picking and transport to the packing house.¹⁹⁰³

(i) *Summary of the Parties' arguments*

7.547 Regarding importation step 3 for European canker, New Zealand argues that the IRA's analysis "is based on the assumption that *N. galligena* spores could be transferred to clean fruit. This is an event that has never been recorded and that would almost certainly not occur."¹⁹⁰⁴ New Zealand submits that there would be no way for fruit contamination to occur, because the likelihood of mature fruit being latently infected with *Neonectria galligena* is negligible and, in any event, "latently infected but symptomless fruit would not have any rot and therefore could not generate spores".¹⁹⁰⁵

7.548 New Zealand adds that weather conditions in most areas of New Zealand during the harvesting season would not be favourable for spore production and dispersion and, even if conidia were to be dispersed by rain onto the surface of a mature apple, they would be unlikely to survive without continued moisture.¹⁹⁰⁶ New Zealand rejects the assumption that mummified fruit could be a source of contamination, "as formation of perithecia takes place during winter and they are not therefore even present at harvest".¹⁹⁰⁷

7.549 New Zealand finally submits that the IRA's suggestion "that contamination from alternative hosts is possible during harvest in the 'wetter districts of Auckland and the Waikato' ... is nothing more than unsubstantiated speculation, since the event has never been observed to occur."¹⁹⁰⁸

7.550 New Zealand concludes that "the likelihood of contamination of clean fruit during picking and transport is negligible, an event that would almost certainly not occur, and not an event with the most likely probability value of 1 in 100,000 apples assigned to it by the IRA."¹⁹⁰⁹

¹⁹⁰³ Australia's IRA, Part B, pp. 19-21.

¹⁹⁰⁴ New Zealand's first written submission, para. 4.277. See also, New Zealand's second written submission, paras. 2.492 and 2.494-2.496.

¹⁹⁰⁵ New Zealand's first written submission, para. 4.277.

¹⁹⁰⁶ New Zealand's first written submission, para. 4.278. See also, New Zealand's second written submission, paras. 2.492 and 2.506-2.513.

¹⁹⁰⁷ New Zealand's first written submission, para. 4.279. See also, New Zealand's second written submission, paras. 2.499-2.505.

¹⁹⁰⁸ New Zealand's first written submission, para. 4.280.

¹⁹⁰⁹ New Zealand's first written submission, para. 4.281.

7.551 In response, Australia contends that "New Zealand failed to identify any flaws in the [IRA's] conclusions on Importation step 3."¹⁹¹⁰ Australia argues in this regard that there is scientific support for the IRA's expert judgement on the estimation of the likelihood for this importation step.¹⁹¹¹ In its view, New Zealand "[ignores] the fact that there can be more than one credible interpretation of the [scientific] evidence."¹⁹¹²

7.552 In this regard, Australia acknowledges that "latently infected fruit would not generate spores for contamination of clean fruit during picking and transport to the packing house as such infections develop after a period in storage."¹⁹¹³

7.553 Australia argues, however, that the IRA identified various other means for fruit contamination to occur during picking and transport to the packing house, such as: contaminated hands or equipment of workers; spores carried by rain splash or wind; and trash.¹⁹¹⁴

7.554 Australia rejects New Zealand's contention about the lack of suitable weather conditions in New Zealand for the production and dispersion of spores.¹⁹¹⁵ Australia notes that the IRA refers to "evidence of occasional European canker fruit rot in New Zealand due to wet conditions during harvest in the summer ... This rotting fruit can produce spore pustules bearing numerous conidia."¹⁹¹⁶ Australia also disputes New Zealand's arguments regarding the alleged impossibility of mummified fruit to serve as a source of contamination.¹⁹¹⁷

(ii) *The Panel's analysis*

7.555 The IRA estimates the likelihood that clean fruit is contaminated by *Neonectria galligena* during picking and transport to the packing house as a triangular distribution with a minimum value of 10^{-6} (1 in 1,000,000), a maximum value of 10^{-4} (1 in 10,000) and a most likely value of 10^{-5} (1 in 100,000).¹⁹¹⁸

7.556 According to the IRA, "[t]his range allows for a small number of fruit to be contaminated but recognises that conditions in most areas of New Zealand during the harvesting season are not favourable for spore production."¹⁹¹⁹

7.557 The IRA notes that:

"Clean fruit could be surface-contaminated by: pickers' hands or gloves contaminated with spores... spores carried in rain splash or wind currents during harvesting and transport ... trash with actively sporulating fungus and spores making contact with fruit in bins. Clean fruit displaying no obvious rot symptoms and recently infected but symptomless fruit would be extremely unlikely to contaminate other fruit during the picking or transport process because the fungus does not actively sporulate until fruit becomes badly rotted or mummified ... Infected fruit that drops before harvest, or that remains on trees and becomes mummified during winter

¹⁹¹⁰ Australia's first written submission, para. 563.

¹⁹¹¹ *Ibid.*

¹⁹¹² Australia's first written submission, para. 562. See also, Australia's second written submission, para. 466.

¹⁹¹³ Australia's first written submission, para. 549 (footnote omitted).

¹⁹¹⁴ *Ibid.*

¹⁹¹⁵ Australia's first written submission, paras. 551-557.

¹⁹¹⁶ Australia's first written submission, para. 553.

¹⁹¹⁷ Australia's first written submission, paras. 558-559 (footnote omitted).

¹⁹¹⁸ Australia's IRA, Part B, pp. 124-125.

¹⁹¹⁹ Australia's IRA, Part B, p. 125.

can develop perithecia in spring, producing ascospores that could contaminate other fruit. ... Foliage is not affected and trash presents an extremely small likelihood of contamination unless twigs with active cankers are picked along with fruit ... Infected twigs or branches that have been cut and left on the orchard floor can sustain cankers for long periods and produce abundant spores ...

Spores contaminating bins are unlikely to present a significant likelihood for infection as conidia and ascospores are sensitive to desiccation even at high relative humidity. ...

Because *N. galligena* has a large host range, contamination could come from canker infections on susceptible hosts planted near export orchards. ... Although fungicides are widely used in orchards, alternative hosts planted as hedgerows and infected with *N. galligena* could produce conidia during the harvest period and, under the right climatic conditions, could contaminate clean fruit during picking and transport. Conidia can be dispersed up to 125 m in wet and windy storm conditions ... and if cankers were present on alternative hosts, fruit could become contaminated. In New Zealand, there are 54 records of *N. galligena* occurring primarily on *Malus* and *Pyrus* and isolated from stem cankers. The fungus has also been recorded on loquats (*Eriobotrya japonica*), coprosma (*Coprosma areolate*) and kowhai (*Sophora microphylla*) however there are no details of whether these detections originated from cankers from these species or if any disease symptoms were present. There is also no information in the literature indicating these species are hosts of *N. galligena* and there is no evidence the disease has become established on these species. ... Climatic conditions typically experienced during harvest periods in most New Zealand orchards are not conducive to spore release and infection, but in the wetter districts of Auckland and the Waikato region, conditions favour these processes."¹⁹²⁰

7.558 As noted above, New Zealand's major arguments against the IRA's reasoning with respect to importation step 3 are: that the transfer of *Neonectria galligena* spores to clean fruit has never been recorded and "would almost certainly not occur", especially since latently infected but symptomless fruit would not have any rot and therefore could not generate spores; that weather conditions in most areas of New Zealand during the harvesting season would not be favourable for spore production and dispersion and, in any event, conidia would be unlikely to survive without continued moisture; and that mummified fruit would not be a source of contamination, because formation of perithecia takes place during winter and they are not therefore even present at harvest.

7.559 The IRA's analysis regarding importation step 3 is based on an assumption that *Neonectria galligena* spores can be transferred to clean fruit. Dr Latorre expressed his doubts:

"The assumption that *N. galligena* spores could be transferred to clean fruit should be considered as a hypothesis that needs to be probed. To my knowledge, there is no scientific literature addressing this point. Based on general disease knowledge, it is an extremely unlikely event. It is difficult to accept and may be impossible to support the probability values assigned to this step, 1×10^{-6} and 1×10^{-4} ."¹⁹²¹

¹⁹²⁰ Australia's IRA, Part B, pp. 124-125.

¹⁹²¹ Dr Latorre's reply to Panel question 78, in List of Replies from the scientific experts to questions posed by the Panel, para. 452. See also, Dr Deckers's and Dr Sgrillo's replies to Panel question 78, in List of Replies from the scientific experts to questions posed by the Panel, paras. 451 and 446.

7.560 In particular, Dr Latorre considers "highly unlikely" the proposition that latently infected but symptomless fruit could develop rot and generate spores.¹⁹²² He notes that "[l]atently infected fruits [would] develop symptoms before producing conidia."¹⁹²³ In Dr Latorre's view, "[t]here are not qualified scientific sources to support the view that mature apple fruit can be infested (surface-contaminated) with spores at harvest, including via wind currents. If this event would happen it would be extremely rare and would not necessarily result in infected fruits, unless enough spores land on damaged mature fruits."¹⁹²⁴

7.561 Dr Latorre notes further the lack of evidence that European canker can develop from rotten fruit. "In my experience, rotten fruit is very rare, almost never occurs in our conditions and sometimes we do see it after several months or weeks of cold storage in a very low proportion and never sporulated on the surface of the fruit. If this fruit are not sporulating it is impossible to admit that it can spread at least easily to the clean fruit."¹⁹²⁵

7.562 Dr Latorre additionally notes that "[t]he reasoning in Australia's IRA with respect to the view that latently infected but asymptomatic mature apple fruits may develop rot and thus generate spores of *N. galligena* during picking and transport to the packing house (although objective) is highly unlikely."¹⁹²⁶ In his opinion, the IRA's analysis in this regard "overestimates the risk of inoculum dispersal".¹⁹²⁷ Dr Latorre adds that the IRA's analysis overestimates the risk of inoculum dispersal:

"Australia does not provide objective data regarding spore (conidia, ascospore) production and release under the environmental conditions of New Zealand. There are not qualified scientific sources to support the view that mature apple fruit can be infested (surface-contaminated) with spores at harvest, including via wind currents. If this event would happen it would be extremely rare and would not necessarily result in infected fruits, unless enough spores land on damaged mature fruits. Conidia are not wind dispersed; they are dispersed by rains and rain-splash. Ascospores can be dispersed by wind currents to rather short distances (metres from the inoculum source). However, it would be possible that rain-splashes containing spores may be carried several metres by winds. In my opinion this analysis overestimates the risk of inoculum dispersal."¹⁹²⁸

7.563 Dr Swinburne concurs and notes that "[t]here are no reports which imply that rotted apples are in any way involved in the transfer of infection with *N. galligena* to 'clean' orchards".¹⁹²⁹

7.564 Notwithstanding the above, if spores were to be produced and disseminated onto susceptible fruits, Dr Swinburne explains that, in accordance with the general experience in many fruit growing

¹⁹²² Dr Latorre's reply to Panel question 77, in List of Replies from the scientific experts to questions posed by the Panel, para. 444. See also, Dr Deckers's reply to Panel question 77, in List of Replies from the scientific experts to questions posed by the Panel, para. 443.

¹⁹²³ Dr Latorre's reply to Panel question 77, in List of Replies from the scientific experts to questions posed by the Panel, para. 445.

¹⁹²⁴ Dr Latorre's reply to Panel question 67, in List of Replies from the scientific experts to questions posed by the Panel, para. 401.

¹⁹²⁵ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 413.

¹⁹²⁶ Dr Latorre's reply to Panel question 77, in List of Replies from the scientific experts to questions posed by the Panel, para. 444. See also, Dr Deckers's reply to Panel question 77, in List of Replies from the scientific experts to questions posed by the Panel, para. 443.

¹⁹²⁷ Dr Latorre's reply to Panel question 67, in List of Replies from the scientific experts to questions posed by the Panel, para. 401.

¹⁹²⁸ *Ibid.*

¹⁹²⁹ Dr Swinburne's reply to Panel questions 54 and 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 347.

regions in Europe, a "sufficient period of leaf-wetness" would be necessary "to allow the deposited spore to germinate and colonise limited areas within the calyx or lenticels".¹⁹³⁰ Indeed, the Panel has already noted the opinion expressed by the experts that "[f]requent summer rainfalls are necessary for inoculum production, dissemination and infection."¹⁹³¹ There is no indication that these climatological conditions are present in New Zealand. Dr Latorre expressed his view that the proposition that spores could survive without continued moisture, if they were produced and dispersed by rain onto the surface of susceptible fruits, "has no credibility".¹⁹³²

7.565 As noted above, New Zealand has also disputed the IRA's assertion that "[i]nfected fruit that drops before harvest, or that remains on trees and becomes mummified during winter can develop perithecia in spring, producing ascospores that could contaminate other fruit."¹⁹³³ In this respect, Dr Latorre submits that, while "[i]t is possible that perithecia play a minor role in the establishment and dissemination of *N. galligena* from rotted fruit, if this ever happens", in his opinion, "there is not enough scientific evidences supporting the role of perithecia (ascospores), eventually developed on rotted fruits, [in] the overall epidemiology of European canker."¹⁹³⁴

7.566 As noted by Dr Latorre, the most important inoculum for European canker would be conidia, "and conidia are only formed under very wet conditions in the orchard, mainly in the cankers and almost never, or never at least in my experience, on the fruit".¹⁹³⁵ "[P]erithecia only occur under certain conditions and most often they are not important from the epidemiologic point of view. The development of the [European canker] disease is associated to the production of the asexual spores, namely conidia, but not to the production of the sexual part of the fungi, which is the so-called production of perithecia and ascospores".¹⁹³⁶

7.567 Both Dr Latorre and Dr Swinburne explain that there is no evidence of perithecia forming on rotten fruit. As explained by Dr Latorre:

"I have no information indicating that European canker can develop from rotten fruit. In my experience, rotten fruit is very rare, almost never occurs in our conditions and sometimes we do see it after several months or weeks of cold storage in a very low proportion and never sporulated on the surface of the fruit. If this fruit are not sporulating it is impossible to admit that it can spread at least easily to the clean fruit. Well, I think the observation about perithecia on the fruit is something that has to be reviewed. We have never seen perithecia form on the fruit. I don't have any good

¹⁹³⁰ Dr Swinburne's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 360.

¹⁹³¹ Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 357. See para. 7.534 above.

¹⁹³² Dr Latorre's reply to Panel question 68, in List of Replies from the scientific experts to questions posed by the Panel, para. 403. See, Puia *et al.*, "Effect of Ozone Exposure on Phytopathogenic Microorganisms on Stored Apples" (2004), in Exhibit AUS-56. See also, Dr Swinburne's reply to Panel questions 67 and 68, in List of Replies from the scientific experts to questions posed by the Panel, para. 404; Dr Deckers's replies to Panel questions 68 and 78, in List of Replies from the scientific experts to questions posed by the Panel, paras. 402 and 451; and New Zealand's second written submission, paras. 2.514-2.516.

¹⁹³³ Australia's IRA, Part B, p. 124.

¹⁹³⁴ Dr Latorre's reply to Panel question 70, in List of Replies from the scientific experts to questions posed by the Panel, para. 410.

¹⁹³⁵ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 413.

¹⁹³⁶ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 459. See also, reply of Dr Swinburne in Transcript of the Panel's meeting with experts, para. 461.

paper that can really demonstrate that in the recent years they have seen perithecia in very susceptible varieties, but not in today's apple varieties."¹⁹³⁷

7.568 Dr Swinburne concurs and notes that:

"[T]here is in fact no evidence in the literature that infected apples which rot with this fungus are responsible subsequently for the dissemination of the disease to other hosts, to further hosts. Much of the evidence that has been presented concerns observations made in the 1920s by Dillon-Western concerning a variety known as Worcester, which is an extremely early variety, which does rot on the tree and produces mummified fruits. In the 40-odd years that I have worked on this, I never have had the privilege of seeing such a thing and I have attempted in the past to produce perithecia and ascospores from rotted apples for experimental purposes and failed. Fruit which rot with *Nectria* as I will call it, does produce conidia if it is incubated under moist humid conditions to a limited extent in the centre of the lesion. It is not a prolific source of spores for subsequent release and I fear that nobody has actually done the experiment of determining whether a rotted apple can release spores into a new orchard situation and bring about disease. It is amenable to experimentation, along the lines of an experiment which we made in East Malling not too long ago with discarded canker wood which we pulverized and placed under potted trees of the most susceptible variety that I know, namely Spartan, and we failed to induce a single canker as a result of pulverizing several, maybe 50 kilos, of cankers underneath them."¹⁹³⁸

7.569 Dr Latorre concludes that there is no scientific evidence to support the hypothesis of fruit contamination with spores of *Neonectria galligena* during picking and transport to the packing house:

"The likelihood that ... spores may contaminate fruits superficially is extremely rare, and the probability that spores contaminating the surfaces of mature fruits will cause infection is negligible. In conclusion, fruit contamination with spores of *N. galligena* during picking and transport to the packing house should be disregarded. There is no scientific evidence on this subject to strongly support this hypothesis."¹⁹³⁹

7.570 Regarding the IRA's assertion that "[i]n the higher rainfall areas of Auckland and the Waikato region, where European canker is present and climatic conditions are more conducive to spore production mainly due to wetter winters ... fruit could become infected during the harvest period", Dr Swinburne notes that:

"The majority of fruit infections in the European context are to be found either at the stem end or the calyx end, and generally speaking it means that the core has been infected. The time at which that infection occurs [would be] surprisingly early on in the fruits development. It isn't at the time of harvest, it isn't in the dump tank. That core rot is taking place at some stage when either the calyx or the stem end is enabling an entry point for conidia which are washing down over the surface of the tree and either accumulating it in the stem well or going around and entering the calyx. I don't have any information which would ever suggest that infestation of

¹⁹³⁷ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 413. See also, reply of Dr Swinburne in Transcript of the Panel's meeting with experts, para. 461.

¹⁹³⁸ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 411.

¹⁹³⁹ Dr Latorre's reply to Panel question 77, in List of Replies from the scientific experts to questions posed by the Panel, para. 445. See also, Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 486.

apples at harvest, and I stress that point, or even after harvest leads to any significant level of rotting in commercial conditions."¹⁹⁴⁰

7.571 Dr Swinburne adds that "it is most unlikely that conidia which simply contaminate the surface of fruit would play any part in an infection pathway".¹⁹⁴¹ As noted by both Dr Latorre and Dr Swinburne, conidia are poor epiphytes; they will not survive as a surface contaminant.¹⁹⁴²

7.572 In conclusion, the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred to clean fruit. There is also no indication in the IRA of the existence of climatological conditions in New Zealand that are necessary for inoculum production, dissemination and infection of clean fruit during picking and transport to the packing house. The IRA's discussion fails to take into account that conidia are poor epiphytes. There is no scientific evidence in the IRA to support the proposition that perithecia would play a role in the contamination of clean fruit.

7.573 Accordingly, the Panel finds that the IRA's estimation of the likelihood that clean fruit is contaminated by *Neonectria galligena* during picking and transport to the packing house is not sufficiently supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.

(d) Alleged overestimation for importation step 4

7.574 Importation step 4 represents the likelihood that infected or infested fruit remains infected or infested after routine processing procedures in the packing house.¹⁹⁴³

(i) *Summary of the arguments of the Parties*

7.575 Regarding importation step 4 for European canker, New Zealand argues that, "[g]iven that routine packing house processes would almost certainly reduce any external contamination, and in the absence of any relevant scientific evidence relating to latent survival for mature, symptomless New Zealand apple fruit, there is simply no scientific basis for the IRA's claim that there is an 85% likelihood that *N. galligena* would survive processing."¹⁹⁴⁴

7.576 According to New Zealand, there is no relevant scientific evidence on which to determine the IRA's estimation for this likelihood. In New Zealand's view, "[t]he scientific data relied on by Australia in the IRA to support its theories are simply not applicable."¹⁹⁴⁵ New Zealand adds that the IRA does not provide any scientific evidence of latent survival or storage rots in relation to mature, symptomless New Zealand apples.¹⁹⁴⁶

7.577 New Zealand argues that the IRA's analysis of importation step 4 "is based on an assumption that fruit entering the packing house will be infected or infested – an event which itself has a

¹⁹⁴⁰ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 441.

¹⁹⁴¹ Dr Swinburne's reply to Panel questions 67 and 68, in List of Replies from the scientific experts to questions posed by the Panel, para. 405.

¹⁹⁴² Dr Latorre's and Dr Swinburne's replies in Transcript of the Panel's meeting with experts, paras. 434-435.

¹⁹⁴³ Australia's IRA, Part B, pp. 19-21.

¹⁹⁴⁴ New Zealand's first written submission, para. 4.287. See also, New Zealand's second written submission, paras. 2.536-2.539.

¹⁹⁴⁵ New Zealand's first written submission, para. 4.283. See also, New Zealand's second written submission, para. 2.524.

¹⁹⁴⁶ New Zealand's first written submission, para. 4.284.

negligible likelihood of occurring".¹⁹⁴⁷ Moreover, because the majority of consignments of New Zealand apples would be "retail-ready", "if latently infected fruit were to develop visible rot symptoms in storage, this would be detected and removed at the time of packaging while the fruit was still in New Zealand and accordingly would not enter Australia."¹⁹⁴⁸

7.578 Concerning infestation, New Zealand submits that the IRA fails to take into account that New Zealand export packing houses use water dump tanks at the start of their packing line, generally followed by high-volume, high-pressure water washing, in order to remove debris and sessile and motile insects. These processes would be "highly effective in removing other external contaminants".¹⁹⁴⁹

7.579 In response, Australia contends that "New Zealand failed to identify any flaws in the [IRA's] conclusions on Importation step 4."¹⁹⁵⁰ Australia argues in this regard that New Zealand makes an "unsustainable" attempt to "summarily dismiss the IRA Team's exercise of expert scientific judgment" in relation to this importation step.¹⁹⁵¹ Contrary to New Zealand's allegation, "there is scientific support for the IRA Team's expert judgment" regarding the estimation of the likelihood of importation step 4.¹⁹⁵²

7.580 Australia rejects the proposition that latent infection and storage rot do not occur in mature, dessert varieties of apples.¹⁹⁵³ Regarding New Zealand's arguments, Australia submits that the product at issue in the dispute is mature apples from New Zealand free of trash and not "mature, symptomless" apples from New Zealand. Australia adds that the IRA contains numerous references to scientific literature on "latent survival or storage rots".¹⁹⁵⁴ Australia also reiterates the view, expressed in the context of importation step 2, that scientific research about latent infection in the United Kingdom and Northern Europe is relevant to the importation of apples from New Zealand.¹⁹⁵⁵

7.581 Notwithstanding New Zealand's arguments, Australia considers it unlikely that New Zealand would ship apples to Australia as "retail-ready" and "just-in-time".¹⁹⁵⁶ In its view, New Zealand has been "ambivalent" regarding the mode of trade it would use in its exports of apples. Australia considers it unlikely that New Zealand exporters would ship apples in "retail ready" form with returnable plastic crates; instead it suggests that they are likely to opt for shipping fruit in bulk bins.¹⁹⁵⁷ Australia adds that, in any event, importing apples from New Zealand "retail-ready" and "just-in-time" would actually reduce the likelihood of detecting latent infections caused by *Neonectria galligena* and increase the likelihood of the pathogen reaching Australia.¹⁹⁵⁸ Australia finally submits

¹⁹⁴⁷ New Zealand's first written submission, para. 4.282.

¹⁹⁴⁸ New Zealand's first written submission, para. 4.285. See also, New Zealand's reply to Panel question 8 after the first substantive meeting, paras. 13-15; New Zealand's second written submission, paras. 2.525-2.535.

¹⁹⁴⁹ New Zealand's first written submission, para. 4.286. See also, New Zealand's second written submission, paras. 2.536-2.539.

¹⁹⁵⁰ Australia's first written submission, para. 580.

¹⁹⁵¹ Australia's first written submission, para. 568.

¹⁹⁵² Australia's first written submission, para. 580. See also, Australia's first written submission, para. 568.

¹⁹⁵³ Australia's first written submission, para. 572.

¹⁹⁵⁴ Australia's first written submission, para. 574.

¹⁹⁵⁵ Australia's first written submission, para. 571. See also, Australia's first written submission, paras. 540-541.

¹⁹⁵⁶ Australia's first written submission, para. 576.

¹⁹⁵⁷ Australia's first written submission, para. 576. See also, Australia's reply to Panel question 9 after the first substantive meeting.

¹⁹⁵⁸ Australia's first written submission, para. 577.

that washing would not remove surface fungal spores and that it would have no effect on internal infections.¹⁹⁵⁹

(ii) *Analysis of the Panel*

7.582 The IRA estimates the likelihood that *Neonectria galligena* survives routine processing procedures in the packing house as a triangular distribution with a minimum value of 0.7 (70 in 100), a maximum value of 1 (100 in 100) and a most likely value of 0.85 (85 in 100).¹⁹⁶⁰

7.583 According to the IRA, "[t]his range largely reflects the fact that internal and latent infections are unlikely to be visible and none of the processes in the packing house are likely to substantially reduce infections."¹⁹⁶¹

7.584 The IRA notes that:

"Most apple exporters in New Zealand routinely use a pre-cooling step in the packing house process ... Rapid cooling after harvest reduces the incidence of decay in storage ... However, the short period of pre-cooling would not significantly affect the survival of latent infections, and the number of infected fruit would not be significantly reduced.

Initial washing of fruit in a dump tank and subsequent high-volume, high-pressure water washing (if available) may remove surface spores but will have no effect on internal infections, and the fungus will survive these procedures. Several export packing houses in New Zealand use chlorine or other disinfectants ... in the dump tanks to reduce microbial populations ... Although there is no specific data to indicate their effectiveness against *N. galligena*, it is likely these chemicals used at the correct dosage rates (concentration and time) would have varying degrees of effectiveness. However, internal infections will not be affected by such treatments ... and the fungus will survive these procedures.

Brushing would not remove fungi present in internal tissues or at the stem and calyx-ends of fruit, as these areas are inaccessible.

Conidia will survive low temperature waxing and waxing could help hold conidia or hyphae onto the fruit.

Sorting and grading will remove fruit with visible rots and blemishes, but latent infections or surface contamination will not be detected by visual examination.

Post-harvest fungicide treatments are not used in New Zealand before cold storage ... *Neonectria galligena* can survive at temperatures between 2°C and 30°C ... and would readily tolerate cool storage temperatures. ... Any temporary cold storage soon after harvest and before processing begins is likely to be very short, a few days at the most, and this period of storage will be too short for significant expression of latent infections. ... Fruit becomes more susceptible to rotting from latent infections as

¹⁹⁵⁹ Australia's first written submission, para. 579.

¹⁹⁶⁰ Australia's IRA, Part B, pp. 125-126.

¹⁹⁶¹ Australia's IRA, Part B, p. 126.

storage times increase ... Any infection or infestation that remains at the end of packing house procedures will survive cold storage."¹⁹⁶²

7.585 As noted above, New Zealand's major arguments against the IRA's reasoning with respect to importation step 4 are: that the IRA does not provide scientific evidence of latent survival or storage rots in relation to mature, symptomless New Zealand apples; that, because the majority of consignments of New Zealand apples would be "retail-ready", if latently infected fruit were to develop visible rot symptoms in storage, this would be detected and removed at the time of packaging; and, concerning infestation, that the use of water dump tanks, generally followed by high-volume, high-pressure water washing, would be highly effective in removing external contaminants.

7.586 Dr Swinburne notes initially that "any conidia deposited on the surface of an apple during harvesting operations would not survive for any length of time ... and may be discounted from all subsequent calculations."¹⁹⁶³ In his opinion, "[s]imilar considerations would apply to conidia redistributed from trash. There is, for example, no evidence to support assertions ... such as [that] 'spores would survive waxing' or 'brushing', because these processes are irrelevant to the inherent inability of conidia to survive for long periods."¹⁹⁶⁴

7.587 The experts agree in principle with the proposition that:

"Although there is no relevant scientific evidence, it is acceptable to consider that no aspect of the process in the packing house reduces the number of latently infected fruits. Once the fungus has penetrated mature fruits, the normal post-harvest management including brushing, waxing, sorting and grading, cold storage and even fungicide treatments, will be unable to arrest the fungus inside the fruits. Cold temperature would only be able to retard symptom development by lowering the rate of fungal growth."¹⁹⁶⁵

7.588 Dr Latorre agrees with New Zealand that the use of water dump tanks, followed by high-volume, high-pressure water washing, would be effective in removing external contaminants.¹⁹⁶⁶ This is noted in the IRA.¹⁹⁶⁷ In the words of the expert, "[t]he likelihood that inocula contaminating the surface of the fruits can survive this process, attached to the fruit surface, is negligible or zero and it should be disregarded from the risk analysis."¹⁹⁶⁸

7.589 Dr Latorre and Dr Swinburne caution that the IRA fails to take into account the effect of store conditions and the duration of storage. Dr Swinburne has explained that:

"It is usual for dessert apples to be harvested into bulk bins that are transported to on-site CA (controlled atmosphere) stores, where they are cooled, and sealed in

¹⁹⁶² Australia's IRA, Part B, pp. 125-126.

¹⁹⁶³ Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 458.

¹⁹⁶⁴ *Ibid.*

¹⁹⁶⁵ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 454. See also, Dr Deckers's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 453.

¹⁹⁶⁶ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 456. See also, Dr Sgrillo's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 463.

¹⁹⁶⁷ Australia's IRA, Part B, p. 125.

¹⁹⁶⁸ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 456. See also, Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 458.

chambers with adjusted CO₂ and O₂ concentrations. At intervals dictated by marketing strategies they are removed from these stores and dispatched to specialist pack houses, where the operations of washing, grading and packed for retail. The process may extend over many months, which has not been factored into the IRA model. Any infections present may develop into rots during this time, and this will be strongly influenced by both the store temperature and environment (Berrie et al 2007, appendix 1). At grading these would be removed, so the numbers of infected fruit will diminish with time, consequently the statement that 'none of the pack house measures would reduce infection' is incorrect, as it must also embrace the CA store period."¹⁹⁶⁹

7.590 Dr Swinburne concludes that "the store conditions and the duration of the holding period will be a factor in any subsequent development of any quiescent infections that may be present (Berrie, Xu & Johnson 2007 in appendix)."¹⁹⁷⁰

7.591 Dr Latorre concurs and notes that "symptoms may appear after several weeks of cold storage. If lots of mature asymptomatic fruits are kept for several weeks in cold storage in New Zealand, it would be possible to remove infected fruits before export to Australia, lowering the risk of entrance."¹⁹⁷¹

7.592 Dr Latorre and Dr Swinburne find no justification in the IRA for the likelihood values assigned to this importation step. In the words of Dr Swinburne, "[t]he probabilities assigned in the IRA to these steps are all difficult to reconcile with the observations above, especially as they all omit the factor of time."¹⁹⁷² Dr Latorre concurs, stating that, in his view, "[t]here is no scientific literature to support" the likelihood values estimated by the IRA for importation step 4.¹⁹⁷³ This likelihood "falls within a range that is difficult to legitimize, if this assumption implies that the inoculum must remain on the fruit surface. Rather, it would be possible for the inoculum to be present internally in the fruit."¹⁹⁷⁴

7.593 In conclusion, notwithstanding New Zealand's arguments, the IRA notes that processing procedures in the packing house would be effective in removing external contaminants. With respect to the small effect that processes in the packing house would have on the number of latently infected fruits, the IRA's discussion seems generally coherent and supported by the scientific evidence cited. The IRA, however, fails to take into account the effect that store conditions and the duration of storage would have on the likelihood that *Neonectria galligena* survives routine processing procedures in the packing house. Regarding Australia's argument that the estimation of the likelihood of this importation step was reached through the exercise of expert judgement by the IRA Team, the

¹⁹⁶⁹ Dr Swinburne's reply to Panel questions 78, 80, 81, 82 and 83, in List of Replies from the scientific experts to questions posed by the Panel, para. 482. See also, Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 459.

¹⁹⁷⁰ Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 459. See also, Dr Deckers's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 461.

¹⁹⁷¹ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 455. See also, Dr Deckers's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 453.

¹⁹⁷² Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 460.

¹⁹⁷³ Dr Latorre's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 462. See also, Dr Sgrillo's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 467.

¹⁹⁷⁴ Dr Latorre's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 462.

Panel has already noted that the use of expert judgement must be documented and transparent and it must be based on the relevant reliable scientific information.¹⁹⁷⁵ In this regard, the IRA does not provide any explanation for its estimation that there would be a minimum 70 per cent likelihood that *Neonectria galligena* survives routine processing procedures in the packing house, and a most likely value of 85 per cent.

7.594 Accordingly, the Panel finds that the IRA's estimation of the likelihood that *Neonectria galligena* survives routine processing procedures in the packing house is not objectively justifiable.

(e) Alleged overestimation for importation step 5

7.595 Importation step 5 represents the likelihood that clean fruit is contaminated during processing in the packing house.¹⁹⁷⁶

(i) *Summary of the Parties' arguments*

7.596 Regarding importation step 5 for European canker, New Zealand submits that the IRA's estimation, like that for step 3, rests on the assumption that infested or infected mature apples, assuming they exist, would contaminate clean fruit. New Zealand argues, however, that the scientific evidence suggests that the likelihood of this happening during processing in the packing house is negligible.¹⁹⁷⁷

7.597 New Zealand notes that the IRA acknowledges that latent fruit infections have a "minimal likelihood" of contamination in the processing pathway, because spores do not develop on infected fruit until they become severely rotted or mummified.¹⁹⁷⁸ In New Zealand's view, the IRA's assertion that there is a probability, albeit "extremely low", of clean fruit becoming contaminated by twigs or by washing in the dump tank, is "unsubstantiated speculation", not supported by scientific evidence.¹⁹⁷⁹

7.598 In response, Australia contends that "New Zealand failed to identify any flaws in the [IRA's] conclusions on Importation step 5."¹⁹⁸⁰ Australia argues in this regard that, just as in the case of New Zealand's arguments in relation to importation step 3, it also rejects New Zealand's assertion that the IRA should have treated the probability of importation step 5 as "negligible".¹⁹⁸¹ Australia adds that New Zealand mistakenly focuses on the qualitative descriptors and not on the IRA's quantitative estimates.¹⁹⁸²

7.599 Australia submits that, in its arguments New Zealand ignores the evidence that latent fruit rot caused by *Neonectria galligena* occurs in New Zealand and its likelihood has increased.¹⁹⁸³ Australia also argues that conidia from external infections can be washed off in the dump tank water, potentially contaminating clean fruit. In addition, post harvest washing would not alter the incidence of storage

¹⁹⁷⁵ See para. 7.440 above.

¹⁹⁷⁶ Australia's IRA, Part B, pp. 19-21.

¹⁹⁷⁷ New Zealand's first written submission, paras. 4.288 and 4.292. See also, New Zealand's second written submission, para. 2.541.

¹⁹⁷⁸ New Zealand's first written submission, para. 4.289. See also, New Zealand's second written submission, para. 2.542.

¹⁹⁷⁹ New Zealand's first written submission, para. 4.291. See also, New Zealand's second written submission, paras. 2.545-2.548.

¹⁹⁸⁰ Australia's first written submission, para. 594.

¹⁹⁸¹ Australia's first written submission, para. 582.

¹⁹⁸² Australia's first written submission, para. 588.

¹⁹⁸³ Australia's first written submission, para. 586.

rots in uninjured fruit, although apples with wounds would be prone to storage rots in the presence of high fungal concentration.¹⁹⁸⁴

7.600 Finally, Australia argues that the IRA considered evidence of the possibility that fruit can be contaminated by twigs in the dump tank. In any event, the likelihood of clean fruit getting infected in this manner was found to be "extremely low" and the IRA took this into account when estimating the probability range for importation step 5.¹⁹⁸⁵

(ii) *The Panel's analysis*

7.601 The IRA estimates the likelihood that clean fruit is contaminated by *Neonectria galligena* during processing in the packing house as a triangular distribution with a minimum value of 10^{-5} (1 in 100,000), a maximum value of 10^{-4} (1 in 10,000) and a most likely value of 5×10^{-5} (5 in 100,000).¹⁹⁸⁶ According to the IRA, "[t]his allows for the presence of a small number of spores in the packing processes that could contaminate fruit".¹⁹⁸⁷

7.602 The IRA notes that:

"Given the extremely small likelihood of fruit being infested/infected with *N. galligena*, the probability of surface spores being present on fruit and contaminating the dump water is similarly extremely small. Foliage is not affected and leaf trash presents an insignificant contamination pathway unless fruit is picked along with twigs that have small cankers ...

N. galligena spores are not able to penetrate intact apple fruit cuticle, although conidial contamination could take place through the calyx, lenticels, scab lesions or wounds caused by bruising. Polishing could create minute damage on the surfaces of fruit, and this could assist the spread of infection. However, the use of chlorine and other disinfectants in dump tanks and high-pressure apple washers when applied would remove epiphytic microbes to varying degrees. Severely rotted fruit and twigs are largely eliminated during harvesting. ...

[T]here would be a very large dilution of spores in the tank and surface contamination could be washed off in any subsequent high pressure wash. Where disinfectants such as chlorine are used in dump tanks, spores in the dump tanks will be quickly killed ...

Cankers on the stalk of the apple have never been reported. Further, to become established the organism must penetrate the cambium ... and it is not likely that a significant number of fruit stalks on the trees would be damaged to expose the cambium.

Latent fruit infections present a minimal likelihood of contamination in the processing pathway because spores do not develop on infected fruit until they become severely rotted or mummified ...

The remainder of the processing in the packing house presents an insignificant likelihood of fruit contamination."¹⁹⁸⁸

¹⁹⁸⁴ Australia's first written submission, paras. 587-589.

¹⁹⁸⁵ Australia's first written submission, paras. 590-593.

¹⁹⁸⁶ Australia's IRA, Part B, pp. 126-127.

¹⁹⁸⁷ Australia's IRA, Part B, p. 127.

¹⁹⁸⁸ *Ibid.*

7.603 As noted above, New Zealand's major arguments against the IRA's reasoning with respect to importation step 5 are: that the scientific evidence suggests that the likelihood of infested or infected mature apples, assuming they exist, contaminating clean fruit during processing in the packing house is negligible; and that the IRA's assertion that there is a probability, albeit "extremely low", of clean fruit becoming contaminated by twigs or by washing in the dump tank, is only unsubstantiated speculation, not supported by scientific evidence.

7.604 The whole discussion in the IRA regarding importation step 5 supports the conclusion that the probability that clean fruit is contaminated by *Neonectria galligena* during processing in the packing house is extremely small. As noted above, the IRA concludes that "[g]iven the extremely small likelihood of fruit being infested/infected with *N. galligena*, the probability of surface spores being present on fruit and contaminating the dump water is similarly extremely small".¹⁹⁸⁹ Regarding Australia's statement that the IRA considered evidence of the possibility that fruit can be contaminated in the dump tank, Dr Swinburne notes that "[it] is not necessarily *Nectria* that we are talking about ... [This is something that is known to happen] for a number of other pathogens that cause rot, notably *Penicillium expansum*, the blue mould rot."¹⁹⁹⁰ The IRA concludes that "[t]he likelihood of clean fruit getting infected due to twigs at this stage would be extremely low."¹⁹⁹¹

7.605 Considering these statements, Dr Latorre opined that the IRA's estimation of the likelihood values for this importation step is not supported on scientific evidence. "There is no scientific literature to support the assumption that the rate of clean fruit contamination with *N. galligena* would vary between 10^{-4} and 10^{-5} (most likely value of 5×10^{-5}) (importation step 5) in the packing house."¹⁹⁹² In his view, "[b]ased on disease knowledge, [this contamination] is extremely unlikely to occur under normal fruit management. This should be disregarded from the risk analysis."¹⁹⁹³

7.606 In conclusion, there is no support in the IRA for the estimation made for the likelihood of this importation step either in the scientific evidence cited in the IRA, nor on the IRA's discussion in this regard. Accordingly, the Panel finds that the IRA's estimation of the likelihood that clean fruit is contaminated by *Neonectria galligena* during processing in the packing house is not sufficiently supported by the scientific evidence that the IRA relied upon and is accordingly not coherent and objective.

(f) Alleged overestimation for importation step 6

7.607 Importation step 6 represents the likelihood that infected or infested fruit remains infected or infested during palletization, quality inspection, containerization and transportation to Australia.¹⁹⁹⁴

(i) *Summary of the Parties' arguments*

7.608 Regarding importation step 6 for European canker, New Zealand submits that, "[i]n the absence of any supporting scientific data that could resolve this question for *N. galligena*, the

¹⁹⁸⁹ Australia's IRA, Part B, p. 127. See also, reply of Dr Sgrillo to Panel question 81, in List of Replies from the scientific experts to questions posed by the Panel, para. 468.

¹⁹⁹⁰ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 456.

¹⁹⁹¹ Australia's IRA, Part B, p. 127. See also, Dr Sgrillo's reply to Panel question 81, in List of Replies from the scientific experts to questions posed by the Panel, para. 468.

¹⁹⁹² Dr Latorre's reply to Panel question 81, in List of Replies from the scientific experts to questions posed by the Panel, para. 473. See also, Dr Sgrillo's reply to Panel question 81, in List of Replies from the scientific experts to questions posed by the Panel, paras. 469-470.

¹⁹⁹³ Dr Latorre's reply to Panel question 81, in List of Replies from the scientific experts to questions posed by the Panel, para. 473. See also, Dr Deckers's reply to Panel question 81, in List of Replies from the scientific experts to questions posed by the Panel, para. 472.

¹⁹⁹⁴ Australia's IRA, Part B, pp. 19-21.

estimation of likelihood [for this step] can only be speculative but it must certainly be lower than '1'.¹⁹⁹⁵

7.609 New Zealand argues that the likelihood value estimated by the IRA for this step is an overestimation. "[B]ecause, even assuming that some fruit could be latently infected at the point of palletisation, a proportion of fruit with latent infection would never develop symptoms ... The actual proportion of fruit with latent infection that might eventually develop symptoms would be much less than 100%."¹⁹⁹⁶

7.610 In response, Australia contends that "New Zealand failed to identify any flaws in the [IRA's] conclusions on Importation step 6."¹⁹⁹⁷ In this regard, Australia rejects that the likelihood value assigned to importation step 6 is an overestimation or is "speculative".¹⁹⁹⁸ Australia argues that the study cited by New Zealand in support of its assertion that some fruit with latent infection would never develop symptoms, is not entirely relevant as it does not deal with *Neonectria galligena*. Australia adds that infections in latently infected fruit will often not manifest until after three to seven months in storage.¹⁹⁹⁹

7.611 Australia also rejects New Zealand's assertion that the probability assigned to importation step 6 must certainly be lower than 1. In its view, there is scientific support for the IRA's judgement of the likelihood value for this step.²⁰⁰⁰

(ii) *The Panel's analysis*

7.612 The IRA estimates the likelihood that *Neonectria galligena* survives palletization, quality inspection, containerization and transportation to Australia as 1 (100 per cent).²⁰⁰¹

7.613 According to the IRA:

"Some infected fruit not detected during sorting may be identified at quality inspection. However, quality inspection will not detect latent infections or any surface infestation, and these will survive palletisation, containerisation and transport because there are no mechanisms in these procedures to remove them.

The time between Imp4 and Imp6 will not be long enough for latent infection to express itself to a significant level. Because spores are microscopic, any remaining surface infestation will also remain undetected and survive."

7.614 As noted above, New Zealand's major arguments against the IRA's reasoning with respect to importation step 6 are: that, in the absence of supporting scientific data, the estimation of the likelihood for this step is only speculative but "must certainly be lower than 1"; and that, even assuming that some fruit could be latently infected at the point of palletisation, a proportion of fruit with latent infection would never develop symptoms and therefore the actual proportion of fruit with latent infection that might eventually develop symptoms would be much less than 100 per cent.

¹⁹⁹⁵ New Zealand's first written submission, para. 4.295. See also, New Zealand's second written submission, paras. 2.556-2.558.

¹⁹⁹⁶ New Zealand's first written submission, para. 4.294. See, Biggs, "Detection of Latent Infections in Apple Fruit with Paraquat" (1995), in Exhibit NZ-62.

¹⁹⁹⁷ Australia's first written submission, para. 598.

¹⁹⁹⁸ Australia's first written submission, paras. 596 and 598.

¹⁹⁹⁹ Australia's first written submission, para. 596.

²⁰⁰⁰ Australia's first written submission, para. 598.

²⁰⁰¹ Australia's IRA, Part B, pp. 127-128.

7.615 The IRA cites no scientific evidence in support of its proposition that all *Neonectria galligena* would survive palletisation, quality inspection, containerisation and transportation to Australia.²⁰⁰² The IRA states that "[t]he time between Imp4 and Imp6 will not be long enough for latent infection to express itself to a significant level".²⁰⁰³

7.616 Dr Latorre notes that it would be reasonable to assume that post-harvest processing does not affect survival of latently infected fruits. Therefore, a value of 1 could be acceptable for the survival likelihood of the internal inocula.²⁰⁰⁴ With respect to the study cited by New Zealand in support of its assertion that "a proportion of fruit with latent infection would never develop symptoms", the expert notes that Biggs (1995) is not relevant as it does not deal with *Neonectria galligena*.²⁰⁰⁵

7.617 Notwithstanding the IRA's statement on the short time between importation steps 4 and 6, the conditions and the duration of storage could have an effect on the subsequent development of any quiescent infections that may be present.²⁰⁰⁶ This effect was discussed earlier with respect to importation step 4.²⁰⁰⁷ The IRA dismisses this effect, noting that it would not "express itself to a significant level". As Australia has repeatedly argued, however, that the likelihood of an event is extremely low or even negligible does not necessarily make it equal to zero. Indeed, the IRA acknowledges that "[s]ome infected fruit not detected during sorting may be identified at quality inspection."²⁰⁰⁸

7.618 Notwithstanding his comment on the survival of latently infected fruits, Dr Latorre explains that the situation would be different for external inoculum. "[T]hese post-harvest processes can affect survival of the external inoculum, epiphytically contaminating the fruit surface, which may be negligible. Then a value of 1 would be unacceptable."²⁰⁰⁹

7.619 In conclusion, New Zealand has not properly substantiated its argument for this importation step that a proportion of fruit with latent infection at the point of palletisation would never develop symptoms. At the same time, however, the IRA acknowledges that some infected fruit not detected during sorting may be identified at quality inspection. Additionally, the IRA fails to take into account the effects that the processes occurring during this step could have on external infestation. The scientific evidence cited in the IRA does not support the estimation made for the likelihood of this importation step. The IRA's estimation that there would be a 100 per cent likelihood that *Neonectria galligena* survives palletisation, quality inspection, containerization and transportation to Australia does not seem a coherent and objective conclusion from the IRA's discussion. The likelihood of the removal of some surface contamination in fruits and the detection of some latently infected apples during this step may be very small, but it would be different from zero.

²⁰⁰² Dr Latorre's reply to Panel question 82, in List of Replies from the scientific experts to questions posed by the Panel, para. 475.

²⁰⁰³ Australia's IRA, Part B, p. 127.

²⁰⁰⁴ Dr Latorre's reply to Panel question 82, in List of Replies from the scientific experts to questions posed by the Panel, para. 475.

²⁰⁰⁵ *Ibid.*

²⁰⁰⁶ See, for example, Dr Swinburne's reply to Panel question 91, in List of Replies from the scientific experts to questions posed by the Panel, para. 523.

²⁰⁰⁷ See para. 7.593 above. See also, Dr Swinburne's replies to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 460; Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 455; and Dr Deckers's reply to Panel questions 79, 80 and 82, in List of Replies from the scientific experts to questions posed by the Panel, paras. 453, 461 and 474.

²⁰⁰⁸ Australia's IRA, Part B, p. 127. See also, Dr Sgrillo's reply to Panel question 82, in List of Replies from the scientific experts to questions posed by the Panel, paras. 476 and 477.

²⁰⁰⁹ Dr Latorre's reply to Panel question 82, in List of Replies from the scientific experts to questions posed by the Panel, para. 475.

7.620 In conclusion, the Panel finds that the IRA's estimation of the likelihood that *Neonectria galligena* survives palletization, quality inspection, containerization and transportation to Australia is not sufficiently supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.

(g) Alleged overestimation for importation step 7

7.621 Regarding the pests reviewed in the IRA, importation step 7 represents the likelihood that clean fruit is contaminated during palletization, quality inspection, containerization and transportation.²⁰¹⁰

(i) *Summary of the Parties' arguments*

7.622 Regarding importation step 7 for European canker, New Zealand submits that the IRA's estimation "has no basis in science".²⁰¹¹ New Zealand argues that, although the IRA estimates the likelihood of the event as "negligible" and "states clear reasons why" it would be so, once the likelihoods assigned to this step are used in the model, this results "in a negligible event being mischaracterised as an event that is likely to occur – approximately one in every two million apples imported from New Zealand".²⁰¹²

7.623 In response, Australia contends that "New Zealand failed to identify any flaws in the [IRA's] conclusions on Importation step 7."²⁰¹³ In this regard, Australia argues that New Zealand mistakenly focuses on the qualitative descriptors and not on the IRA's quantitative estimates.²⁰¹⁴

7.624 Australia rejects New Zealand's assertion that the probability range for importation step 7 "has no basis in science". In its view, the IRA Team exercised its expert judgement when determining the likelihood of this importation step.²⁰¹⁵

(ii) *The Panel's analysis*

7.625 The IRA estimates the likelihood that clean fruit is contaminated by *Neonectria galligena* during palletization, quality inspection, containerization and transportation as a uniform distribution with a minimum value of 0 and a maximum value of 10^{-6} (1 in 1,000,000).²⁰¹⁶

7.626 According to the IRA, "[p]acked fruit would be securely stored and would present a 'negligible' likelihood of becoming contaminated during the palletisation, quality inspection and transportation. The short period of storage and temperatures maintained during transportation would not be conducive to spore production."²⁰¹⁷

7.627 As noted above, New Zealand's main argument against the IRA's reasoning with respect to importation step 7 is that the numerical range assigned to this step is inconsistent with the IRA's conclusion that the likelihood of the event represented by this importation step is negligible and that the IRA's estimation has no basis in science.

²⁰¹⁰ Australia's IRA, Part B, pp. 19-21.

²⁰¹¹ New Zealand's first written submission, para. 4.296. See also, New Zealand's second written submission, paras. 2.561-2.564.

²⁰¹² New Zealand's first written submission, para. 4.296. See also, New Zealand's second written submission, paras. 2.560 and 2.565.

²⁰¹³ Australia's first written submission, para. 601.

²⁰¹⁴ Australia's first written submission, para. 600.

²⁰¹⁵ Australia's first written submission, para. 601.

²⁰¹⁶ Australia's IRA, Part B, p. 128.

²⁰¹⁷ *Ibid.*

7.628 As noted above, the IRA concludes that the likelihood of clean fruit becoming contaminated during palletization, quality inspection, containerization and transportation is "negligible".²⁰¹⁸ Dr Latorre notes that there is no scientific evidence in the IRA to suggest that the likelihood of the event represented by this importation step should be greater than zero:

"There is no experimental evidence allowing us to assume that the likelihood that packed clean fruit is contaminated with *N. galligena* would be different from zero, at Step 7. Comments: (i) At this stage it is unlikely that latently infected fruits develop symptoms and less likely that *N. galligena* sporulates on the surface of latently infected fruits. (ii) Even if the inoculum (conidia) is present, post-harvest dissemination by fruit contact would be extremely unlikely because fruit injuries are needed for infection. (iii). This evaluation (Step 7) falls within a range that could not be considered legitimate. I suggest discounting this step from the risk analysis."²⁰¹⁹

7.629 Nevertheless, while New Zealand does argue that the likelihood of this event should be zero; it does not contest the IRA's conclusion that the likelihood would be "negligible". In New Zealand's words, "[t]he key point made in New Zealand's first written submission regarding importation step 7 concerned the incongruity between the description in the IRA of the risk of contamination at this stage as 'negligible', and the application of a probability range with a midpoint of one in two million apples."²⁰²⁰

7.630 After defining the likelihood of the event associated with this importation step as negligible, the IRA does not provide any scientific evidence to support its choice of estimation. In any event, the Panel has already concluded that the IRA's choice of the probability interval "for events with a 'negligible' likelihood of occurring (corresponding to the qualitative descriptor 'the event would almost certainly not occur') is not properly justified in the IRA and would tend to overestimate the probability of entry, establishment and spread of the pests at issue".²⁰²¹

7.631 Accordingly, the Panel finds that the IRA's estimation of the likelihood that clean fruit is contaminated by *Neonectria galligena* during palletization, quality inspection, containerization and transportation is not supported by a coherent and objective reasoning.

(h) Estimation for importation step 8

7.632 Importation step 8 represents the likelihood that infected or infested fruit remains infected or infested after on-arrival minimum border procedures.²⁰²²

(i) *Summary of the Parties' arguments*

7.633 New Zealand submits that "it is difficult to fault the IRA's logic" regarding the estimation for this particular importation step.²⁰²³ New Zealand adds, however, that the IRA's conclusion on this step "is hardly meaningful". "It depends on an assumption about mature, symptomless apple fruit

²⁰¹⁸ Australia's IRA, Part B, p. 128.

²⁰¹⁹ Dr Latorre's reply to Panel question 83, in List of Replies from the scientific experts to questions posed by the Panel, para. 479. See also, Dr Deckers's reply to Panel question 83, in List of Replies from the scientific experts to questions posed by the Panel, para. 478.

²⁰²⁰ New Zealand's second written submission, para. 2.560.

²⁰²¹ See para. 7.508 above.

²⁰²² Australia's IRA, Part B, pp. 19-21.

²⁰²³ New Zealand's first written submission, para. 4.298.

being a pathway for the transmission of European canker for which there is no scientific evidence, and for which the likelihood has been demonstrated to be negligible."²⁰²⁴

7.634 Australia notes that New Zealand "does not contest this importation step".²⁰²⁵ Australia submits, nevertheless, that the product at issue in this dispute is "mature apples free of trash, either packed or sorted and graded bulk fruit from New Zealand", and not "mature, symptomless apples".²⁰²⁶ Australia also argues that New Zealand's allegation on the lack of scientific evidence that "mature, symptomless apple fruit" are a pathway for transmission of European canker is inconsistent with an earlier statement to the contrary by the Chief Plants Officer of New Zealand's Ministry of Agriculture.²⁰²⁷ Australia finally states that New Zealand has not demonstrated that the likelihood of "mature, symptomless, apples" being such a pathway is "negligible" in accordance with New Zealand's definition of that term.²⁰²⁸

(ii) *The Panel's analysis*

7.635 The IRA estimates the likelihood that *Neonectria galligena* survives and remains with the fruit after on-arrival minimum border procedures is 1 (100 per cent).²⁰²⁹

7.636 The IRA notes that "[o]n-arrival inspections of documentation would fail to detect fruit rot symptoms or latent infections, and these would remain when the fruit arrives in Australia. The likelihood rating for this importation step would not be significantly reduced by any normal on-arrival procedure."²⁰³⁰

7.637 New Zealand has not called into question the IRA's estimation of the likelihood of the event represented by this particular importation step.

(i) Alleged overestimation for the overall probability of importation

7.638 The overall probability of importation represents the likelihood that an imported apple is infected or infested; it results from the sum of the proportions associated with the ten individual importation pathways.²⁰³¹

(i) *Summary of the Parties' arguments*

7.639 Regarding the IRA's analysis of the likelihood of importation of European canker, New Zealand argues that "there is no objective and rational relationship between the scientific evidence and the probability value that is chosen at each step".²⁰³² In New Zealand's view, "frequently a value is chosen in the absence of any scientific support at all".²⁰³³

7.640 New Zealand submits that the IRA's analysis of the probability of importation of European canker is inconsistent with Article 5.1 of the SPS Agreement:

²⁰²⁴ New Zealand's first written submission, para. 4.298.

²⁰²⁵ Australia's first written submission, para. 602.

²⁰²⁶ Australia's first written submission, para. 603.

²⁰²⁷ *Ibid.*

²⁰²⁸ *Ibid.*

²⁰²⁹ Australia's IRA, Part B, p. 128.

²⁰³⁰ *Ibid.*

²⁰³¹ Australia's IRA, Part B, pp. 23-24.

²⁰³² New Zealand's first written submission, para. 4.267. See also, New Zealand's first written submission, para. 4.300.

²⁰³³ New Zealand's first written submission, para. 4.267.

"The IRA's analysis of the probability of importation rests on a flawed contention that mature, symptomless apples provide a pathway for the transmission of European canker, a contention which has been demonstrated to be unsupported by scientific evidence. In support of this contention, it treats as probable a series of events that are no more than possible. As a result, the IRA's analysis is not an analysis of likelihood at all. Rather, it is speculation on the possibility of entry, and does not conform to the obligation under Article 5.1 of the SPS Agreement."²⁰³⁴

7.641 In response, Australia contends that, contrary to New Zealand's assertion, "there is an objective or rational relationship between the scientific evidence and the probability value that is chosen at each step of the importation scenario."²⁰³⁵

7.642 Australia notes that the infestation/infection rate of imported apples from New Zealand, corresponding to the overall probability of importing *Neonectria galligena*, was estimated by inserting the likelihoods for each importation step into the risk simulation model.²⁰³⁶

(ii) *Analysis of the Panel*

7.643 Regarding the overall probability of importation of *Neonectria galligena*, the IRA notes that:

"When the above likelihoods [for each of the importation steps] were inserted into the risk simulation model, the probability of importation of *N. galligena* was estimated as being 6.8×10^{-5} (mean), 3.5×10^{-5} (5th percentile) and 10^{-4} (95th percentile). Therefore, the infestation/infection rate for *N. galligena* was estimated to be 0.0068% (mean) of the total proposed number of apples imported from New Zealand annually."²⁰³⁷

Arithmetically, the overall figure of 0.0068 per cent would result from adding the different individual likelihoods represented by each of the ten potential importation paths.

7.644 When considering the manner in which the IRA reached an estimation for the probability of importation of *Erwinia amylovora*, the Panel noted generally the experts' criticism of trying to reach a overall likelihood of importation by estimating individual probabilities for each importation pathway and combining them.²⁰³⁸ Consulted by the Panel, Dr Paulin noted that such exercise was "just *not credible*".²⁰³⁹ Dr Paulin added that, if the overall figure "had any consistency, it is a figure that could be quite easily checked experimentally ... Such an experiment would have been more convincing than the present efforts by IRA to demonstrate what cannot be really demonstrated."²⁰⁴⁰ The same criticism would be applicable to the overall estimation of importation of *Neonectria galligena*.

7.645 Regarding the IRA's estimation for some specific importation steps for European canker, Dr Latorre notes that "[the] IRA assigned a probability value to each [importation] step. However, some of these steps (e.g., Steps 3, 5 and 7) are indeed mere possibilities (hypothesis rather than true

²⁰³⁴ New Zealand's first written submission, para. 4.268. See also, New Zealand's first written submission, paras. 4.299-4.300; New Zealand's second written submission, para. 2.566-2.572.

²⁰³⁵ Australia's first written submission, para. 526.

²⁰³⁶ Australia's second written submission, para. 527.

²⁰³⁷ Australia's IRA, Part B, p. 128.

²⁰³⁸ See para. 7.354 above.

²⁰³⁹ Dr Paulin's reply to Panel question 34, in List of Replies from the scientific experts to questions posed by the Panel, para. 239 (original emphasis).

²⁰⁴⁰ *Ibid.*

facts) that need to be confirmed. In such cases, a probability equal to zero should be assigned or even better, disregard the steps considered almost certain not to occur."²⁰⁴¹

7.646 Irrespective of whether this exercise of trying to reach an otherwise unsupported overall likelihood of importation by aggregating probabilities for individual importation paths is flawed, some of the figures estimated by the IRA Team are problematic. Indeed, if the estimations of one or more of the individual likelihoods are questionable, because those estimations are either not supported by adequate scientific evidence or not based on a coherent and objective reasoning, the overall figure necessarily becomes questionable. Moreover, the IRA does not attempt to find justification for the estimated overall probability of importation, other than the aggregation of the different individual likelihoods represented by each importation step.²⁰⁴² As noted by Dr Sgrillo, "[t]he result of a mathematical model is as good as the value assigned to its variables. Many of the parameters used in the simulation were considered overestimated because they didn't reflect the meaning of the qualitative category in the population. As consequence, the final result could also be overestimated."²⁰⁴³

7.647 Dr Latorre noted that the overall value for the likelihood of importation falls out of the range that could be considered legitimate on the basis of general knowledge regarding European canker:

"Considering that mature apple fruits are from areas where climate conditions are not particularly conducive for fruit infection, a mean infection/infestation rate of 0.0068% falls out off the range that could be considered legitimate on the basis of general knowledge regarding the European canker. This value may not explain the real infection/infestation rate; therefore, it needs to be validated before acceptance."²⁰⁴⁴

7.648 Dr Swinburne agreed and noted that:

"The end point of this analysis, predicting that 0.0068% of apples imported will 'carry' the disease is predicated on a starting point presumption of a probability that each picked fruit is infected between $10 \times E^{-6}$ & $10 \times E^{-3}$, which at best is far too large to be credible. (see Q75). Given all the uncertainty in the calculations for the intermediate steps (see Q78-83) this outcome does not inspire confidence."²⁰⁴⁵

7.649 In the light of the conclusions reached earlier by the Panel regarding the IRA's estimations of individual importation steps²⁰⁴⁶, and of the lack of any separate justification and evidence in the IRA regarding the estimated overall likelihood of importation, the Panel finds that the IRA's estimation of the overall probability of importation is not supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.

²⁰⁴¹ Dr Latorre's reply to Panel question 138, in List of Replies from the scientific experts to questions posed by the Panel, para. 808.

²⁰⁴² Australia's IRA, Part B, p. 128. See also, Table 4 in Australia's IRA, Part B, p. 24; Dr Sgrillo's reply to Panel question 84, paras. 483-486; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 269.

²⁰⁴³ Dr Sgrillo's reply to Panel question 84, in List of Replies from the scientific experts to questions posed by the Panel, para. 489.

²⁰⁴⁴ Dr Latorre's reply to Panel question 84, in List of Replies from the scientific experts to questions posed by the Panel, para. 486.

²⁰⁴⁵ Dr Swinburne's reply to Panel questions 84 and 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 497.

²⁰⁴⁶ See paras. 7.545, 7.573, 7.594, 7.606, 7.620 and 7.631 above.

(j) IRA's analysis of the probability of entry, establishment and spread

(i) *Summary of the Parties' arguments*

7.650 Factors relevant to the estimation of the probability of entry, establishment and spread include: the probability of importation (in accordance with the different importation steps); the proximity value; the probability of exposure; the probability of establishment; and, the probability of spread.²⁰⁴⁷

7.651 New Zealand argues that, just as the IRA fails to evaluate the likelihood of entry of European canker, it also fails to evaluate the likelihood of the "establishment or spread" of the disease within the meaning of paragraph 4 of Annex A to the SPS Agreement.²⁰⁴⁸ New Zealand submits that, as a result, Australia "failed to comply with its obligations under Article 5.1 [of the SPS Agreement]."²⁰⁴⁹ In New Zealand's view, "the evaluation in the IRA of the likelihood of entry, establishment and spread of European canker was not an evaluation of likelihood in terms of the definition of 'risk assessment' in the *SPS Agreement*."²⁰⁵⁰

7.652 Regarding proximity and exposure, New Zealand submits that the IRA's analysis is based on assumptions about production and dispersal of spores, which find no support in science.²⁰⁵¹ The IRA assigns probability values in a seemingly arbitrary manner to various utility points based on their likelihood to be proximate to host plants, describing events that have a very low likelihood of occurring.²⁰⁵² New Zealand adds that, without any scientific evidence that this could occur under Australian conditions, the IRA assumes that a sufficient quantity of spores could be produced from an infected apple and dispersed under suitable climatic conditions to infect a susceptible host.²⁰⁵³ This would fail to take into account that not all latently infected fruit would express symptoms and symptomless fruit do not produce spores; furthermore, even if symptoms were to develop, there is no evidence that conidia spores are produced from storage rots or rots which develop after removal from cold storage from latently infected fruit.²⁰⁵⁴ Moreover, surface spores are short-lived because they are prone to desiccation without continued moisture and would likely be dead well before arrival in Australia.²⁰⁵⁵ New Zealand also argues that, taking into account the scientific evidence cited by the IRA, under Australian conditions the likelihood of perithecia development and thus ascospore production would be negligible.²⁰⁵⁶

7.653 New Zealand submits that, even if latently infected New Zealand fruit could produce spores in Australia, these spores would need to be transferred to a host plant. Dispersal of conidia would primarily be by rain splash and thus only a few metres from a discarded apple. Otherwise, the IRA would rely on airborne transfer of spores, but there is no evidence that airborne spores would develop

²⁰⁴⁷ Australia's IRA, Part B, p. 129. See also, Australia's IRA, Part B, p. 17.

²⁰⁴⁸ New Zealand's first written submission, paras. 4.301 and 4.325; New Zealand's second written submission, paras. 2.658-2.661.

²⁰⁴⁹ New Zealand's first written submission, para. 4.325.

²⁰⁵⁰ New Zealand's second written submission, para. 2.686.

²⁰⁵¹ New Zealand's first written submission, para. 4.325.

²⁰⁵² New Zealand's first written submission, para. 4.302; New Zealand's second written submission, para. 2.574.

²⁰⁵³ New Zealand's first written submission, paras. 4.303-4.304.

²⁰⁵⁴ New Zealand's first written submission, para. 4.305; New Zealand's second written submission, paras. 2.580 and 2.583-2.592.

²⁰⁵⁵ New Zealand's first written submission, para. 4.309.

²⁰⁵⁶ New Zealand's first written submission, paras. 4.306-4.307; New Zealand's second written submission, paras. 2.580 and 2.593-2.608.

from mature, symptomless New Zealand apples.²⁰⁵⁷ New Zealand notes that most infection studies for host plant receptivity were conducted under artificial conditions.²⁰⁵⁸

7.654 New Zealand submits that, notwithstanding the fact that for infection to occur, the number of spores must be at or above a certain threshold, there is no connection in the IRA between the quantitative data from the literature cited and the ultimate assignment of probability values for exposure.²⁰⁵⁹ Moreover, the IRA misconstrues the relevant literature regarding the climate conditions necessary for infection, is inconsistent with information from countries where European canker is present and fails to note that the climatic conditions in Australia are not conducive to European canker.²⁰⁶⁰ In New Zealand's view, the IRA contains no evidence to support the suggested pathway via discarded apples on the ground: "[T]he IRA's analysis of transfer of *N. galligena* from a single discarded apple to a susceptible host is in reality a consideration of a series of remote possibilities."²⁰⁶¹

7.655 Regarding establishment and spread, New Zealand argues that the IRA's analysis is based on assumptions about climatic similarity and alternative hosts that have no support in science.²⁰⁶² The IRA's consideration of alternative hosts for *Neonectria galligena* for its contention for the likelihood of establishment and spread of European canker relates to northern hemisphere hardwood forest trees and uses information from the United Kingdom, Northern Europe and Nova Scotia. It would not necessarily follow that *Neonectria galligena* will cause disease in these hosts in New Zealand and Australia where climatic conditions are less suitable for the disease.²⁰⁶³ New Zealand submits that, in its discussion of the outbreak of European canker in Spreyton, Tasmania, the IRA overestimates the significance of the eradication program. In New Zealand's view, the main reasons why European canker did not spread into other apple growing regions or alternative hosts during the outbreak, despite unrestricted movement of fruit from affected orchards, is that fruit are not a pathway for the disease under New Zealand and Australian conditions, and that the climate of Tasmania, as that of the rest of Australia, is not suitable for the establishment and spread of European canker.²⁰⁶⁴

7.656 Finally, New Zealand submits that the IRA's conclusion that for each of the scenarios there is a moderate or high likelihood of establishment and spread, which assumes these events "would be expected to occur with an even probability or that [they] would be very likely to occur", is not supported by scientific evidence.²⁰⁶⁵ New Zealand concludes that, even if there were a pathway for the transmission of European canker to Australia by mature, symptomless apples, the IRA fails to establish that the disease could subsequently establish or spread.²⁰⁶⁶

²⁰⁵⁷ New Zealand's first written submission, paras. 4.311-4.312; New Zealand's second written submission, paras. 2.580 and 2.609-2.615.

²⁰⁵⁸ New Zealand's first written submission, para. 4.313.

²⁰⁵⁹ New Zealand's first written submission, para. 4.314; New Zealand's second written submission, paras. 2.580 and 2.618-2.626.

²⁰⁶⁰ New Zealand's first written submission, paras. 4.315 and 4.87-4.92; New Zealand's second written submission, paras. 2.580 and 2.616-2.617.

²⁰⁶¹ New Zealand's first written submission, para. 4.317.

²⁰⁶² New Zealand's first written submission, para. 4.325; New Zealand's second written submission, para. 2.636.

²⁰⁶³ New Zealand's first written submission, paras. 4.318-4.321; New Zealand's second written submission, paras. 2.638-2.646 and 2.650-2.655.

²⁰⁶⁴ New Zealand's first written submission, paras. 4.322-4.323; New Zealand's second written submission, paras. 2.647-2.649.

²⁰⁶⁵ New Zealand's first written submission, para. 4.324; New Zealand's second written submission, paras. 2.656-2.657.

²⁰⁶⁶ New Zealand's first written submission, para. 4.325.

7.657 With regard to the IRA's analysis of proximity for *Neonectria galligena*, Australia responds that New Zealand does not address the issues raised in the IRA's discussion, but only asserts that the IRA used arbitrary proximity values. Australia rejects that assertion and submits that the IRA provides a justification for all of the proximity ratings; many of the events in relation to proximity are assigned in the IRA a "very low" or an "extremely low" likelihood of occurring.²⁰⁶⁷

7.658 Australia argues that New Zealand exporters are likely to ship fruit in bulk bins that could be repacked and distributed in Australia for specific markets. Australian retail outlets often display apples on tables or in crates, rather than in smaller "retail ready" boxes. Also, although one of Australia's largest supermarket chains introduced a system of returnable plastic crates, it is unlikely that empty crates would be sent from Australia to New Zealand in order for New Zealand exporters to pack their apples for Australia. Orchard wholesalers who would repack such fruit are in close proximity to commercial fruit crops. In Australia's view, this explanation justifies the IRA Team's proximity rating for commercial fruit crops and orchard wholesalers.²⁰⁶⁸

7.659 Regarding the IRA's exposure analysis, Australia rejects New Zealand's assertion that there is no scientific evidence to show the likelihood that a sufficient quantity of spores could be produced from an infected apple and dispersed under suitable climatic conditions to infect a susceptible host.²⁰⁶⁹ Australia argues that "there is no doubt that some latently infected apples will arrive in Australia".²⁰⁷⁰ The IRA cites studies showing that fruit rot caused by *Neonectria galligena* occasionally occurs in New Zealand and the Chief Plants Officer of the New Zealand Ministry of Agriculture has endorsed the fact that "apple fruit are a potential pathway for the introduction of European canker, as the fruit can develop latent or storage rots".²⁰⁷¹ Australia also reiterates the IRA's views that rotting fruit in Australia would be discarded as waste and could be a source of inoculum and give rise to infections in new areas, if discarded near susceptible hosts.²⁰⁷² Likewise, that infected fruit which become mummified can produce perithecia with mature ascospores and become a source of further infection. Similarly, that rotting fruit, particularly with the New Zealand strain of *Neonectria galligena* can produce both conidia and perithecia with ascospores. Also that there is no reason why perithecia would not form on discarded rotting fruit in Australia in August.²⁰⁷³

7.660 Australia submits that it is well accepted that spores are dispersed by rain splash and wind and such dispersal could similarly apply to rotting fruit discarded as waste nearby a suitable host plant. Birds and insects could also be a potential agent to transfer the spores from infected fruit, carried on their beaks or feet, to branches of hosts where the fungus is known to establish easily.²⁰⁷⁴ Dispersal

²⁰⁶⁷ Australia's first written submission, paras. 606-607. See also, Australia's second written submission, para. 521.

²⁰⁶⁸ Australia's first written submission, paras. 608-611.

²⁰⁶⁹ Australia's first written submission, paras. 612-613. See also, Australia's second written submission, paras. 507-510 and 520.

²⁰⁷⁰ Australia's first written submission, para. 613.

²⁰⁷¹ Australia's first written submission, para. 613. See, Atkinson, "Bacterial diseases of pip fruit" (1971), in Exhibit AUS-52; Brook and Bailey, "Control of European canker" (1965), in Exhibit AUS-53; Braithwaite, "The occurrence of fruit rots caused by *Nectria galligena* (European canker) in New Zealand and a comparison of brown rot strains between New Zealand and Australia" (1996), in Exhibit NZ-34; communication from Biosecurity New Zealand, Ministry of Agriculture and Forestry (16 May 2005), in Exhibit AUS-51; and communication from New Zealand's Ministry of Agriculture (15 July 1996), in Exhibit AUS-54. See also, Australia's first written submission, para. 670, Australia's second written submission, paras. 469 and 480-485.

²⁰⁷² Australia's first written submission, para. 614. See also, Australia's second written submission, paras. 511-519.

²⁰⁷³ Australia's first written submission, para. 614.

²⁰⁷⁴ Australia's first written submission, paras. 615 and 635-636.

by "a few metres" is all that would be needed for a rotting apple in orchard wholesaler waste, or in a backyard compost heap, to transfer to a susceptible host plant.

7.661 Australia argues that New Zealand's climate analysis suggesting a lack of climate conditions necessary for exposure is too narrow.²⁰⁷⁵ *Neonectria galligena* causes infection over a range of temperatures under field conditions.²⁰⁷⁶ Australia's climate modelling would indicate that Australian climatic conditions are conducive to European canker, as the potential distribution of European canker in Australia covers a much larger area than suggested by New Zealand's climate analysis.²⁰⁷⁷ Under Australian conditions, conidia and ascospores would be produced.²⁰⁷⁸ One of the probable reasons for the limited spread of the disease during the Tasmanian outbreak, is that the Tasmanian strain of *Neonectria galligena* was a unique strain that required another mating type for sexual reproduction.²⁰⁷⁹

7.662 Regarding New Zealand's criticism of the IRA's exposure analysis, Australia submits that the product at issue is not mature, symptomless apples²⁰⁸⁰, that fruit rot after removal from cold storage has been shown²⁰⁸¹, and that spores can be dispersed from mummified apples on the ground.²⁰⁸² Australia also rejects what it considers to be New Zealand's attempt to impose its own methodology on other WTO Members, by focusing on qualitative descriptors and not on the numbers contained in the IRA.²⁰⁸³

7.663 Australia argues further that not all conidia superficially present on fruit would be killed by desiccation.²⁰⁸⁴ Australia submits that the laboratory studies of pathogens taken into account by the IRA were relevant for the discussion on host plant receptivity and the IRA Team took into account the fact that they had been conducted under laboratory conditions.²⁰⁸⁵ Australia adds that discarded apples can survive long enough to develop rots and produce spores²⁰⁸⁶ and that New Zealand misrepresents the threshold number of spores required to initiate infection.²⁰⁸⁷

7.664 Australia concludes that the exposure values in the IRA are supported by scientific evidence and New Zealand has failed to establish any flaws. Australia rejects New Zealand's assertion that there is no connection between the literature cited and the IRA's assignment of exposure values. The IRA would provide a justification for all of the exposure values for *Neonectria galligena*; in the IRA most of the exposure events are assigned a "negligible" likelihood of occurring.²⁰⁸⁸

7.665 Regarding the IRA's analysis for the probability of *Neonectria galligena* establishing on a host plant and the probability of it spreading to other hosts, Australia argues that the IRA provides a justification for all the probabilities. With the exception of the likelihood of spread to wild and amenity plants, all the scenarios described in the IRA have a "moderate" or "high" likelihood of

²⁰⁷⁵ Australia's first written submission, para. 616.

²⁰⁷⁶ Australia's first written submission, para. 627.

²⁰⁷⁷ Australia's first written submission, paras. 616 and 627-629.

²⁰⁷⁸ Australia's first written submission, para. 630.

²⁰⁷⁹ Australia's first written submission, paras. 631-632.

²⁰⁸⁰ Australia's first written submission, para. 618.

²⁰⁸¹ Australia's first written submission, paras. 619-621.

²⁰⁸² Australia's first written submission, paras. 622-623.

²⁰⁸³ Australia's first written submission, paras. 624-626.

²⁰⁸⁴ Australia's first written submission, paras. 633-634.

²⁰⁸⁵ Australia's first written submission, paras. 637-638.

²⁰⁸⁶ Australia's first written submission, paras. 639-640.

²⁰⁸⁷ Australia's first written submission, paras. 641-642.

²⁰⁸⁸ Australia's first written submission, paras. 643-644. See also, Australia's second written submission, para. 521.

occurring.²⁰⁸⁹ Australia rejects New Zealand's complaint that the IRA's conclusions on the likelihood of establishment and spread are not supported by scientific evidence.²⁰⁹⁰

7.666 In this respect, Australia argues that *Neonectria galligena* affects alternative hosts in New Zealand and elsewhere, and studies from other countries in this regard are not irrelevant.²⁰⁹¹ New Zealand's allegation that there is no evidence of European canker causing pathogenic symptoms in other host plants would seem inconsistent with evidence showing that *Neonectria galligena* causes considerable damage to trees in private gardens in New Zealand.²⁰⁹²

7.667 As with respect to the exposure analysis, Australia argues that New Zealand's climate analysis suggesting a lack of climate conditions necessary for the establishment and spread of European canker is too narrow. In its view, Australian climatic conditions are suitable for the establishment and spread of European canker.²⁰⁹³ Australia argues that the IRA Team did not overestimate the significance of the eradication program in Tasmania. It reiterates some reasons for the limited scope of the Tasmanian outbreak, including the existence of a unique strain of *Neonectria galligena* and that conidia were the only mechanism for disease spread, in the absence of sexually produced ascospores.²⁰⁹⁴

7.668 Finally, Australia argues that New Zealand's proposition that the export trade over the last 15 years provides no evidence for spread of European canker is "hollow, given that the vast majority of New Zealand's exports have been to countries that already have the disease."²⁰⁹⁵

7.669 Australia concludes that New Zealand has failed to identify any flaws in the IRA's assessment of establishment and spread, "let alone any flaws serious enough to prevent the Panel from having 'reasonable confidence' in the risk assessment".²⁰⁹⁶

(ii) *The Panel's analysis*

7.670 In its estimate of the probability of entry, establishment and spread of European canker, the IRA has taken into account the following factors: the probability of importation, that has already been discussed with respect to the different importation steps; the proportion of utility points near host plants susceptible to the pest in each exposure group, titled "proximity"; the probability of exposure of a susceptible host plant in the exposure group to the pest by an infested/infected apple discarded near it, titled "exposure"; the probability of establishment; and, the probability of spread.²⁰⁹⁷

7.671 The probability of importation, combined with the proximity and the exposure analyses, result in the overall probability of entry. All scenarios subsequent to the probability of importation that has been discussed above are only relevant under the assumption that imported apples from New Zealand would be either internally latently infected or superficially contaminated with *Neonectria galligena*.

²⁰⁸⁹ Australia's first written submission, para. 645.

²⁰⁹⁰ Australia's first written submission, paras. 646-647.

²⁰⁹¹ Australia's first written submission, paras. 648-649. See also, Australia's second written submission, paras. 522-531.

²⁰⁹² Australia's first written submission, paras. 650-653.

²⁰⁹³ Australia's first written submission, paras. 650 and 656-659. See also, Australia's second written submission, paras. 532-550.

²⁰⁹⁴ Australia's first written submission, paras. 655 and 660-669. See also, Australia's second written submission, paras. 551-570.

²⁰⁹⁵ Australia's first written submission, para. 671.

²⁰⁹⁶ Australia's first written submission, para. 672.

²⁰⁹⁷ Australia's IRA, Part B, p. 129. See also, Australia's IRA, Part B, p. 17.

Proximity

7.672 Under its proximity analysis for European canker, the IRA assesses "the likelihood that a utility point is sufficiently close to a host plant in a particular exposure group, to allow for a non-zero likelihood of transfer of [*Neonectria galligena*] to a host to occur."²⁰⁹⁸ More specifically, "[t]he IRA Team assessed the *proximity* of major handlers and users of apples to host plants for *N. galligena*."²⁰⁹⁹ The IRA considers the following utility points: orchard wholesalers, urban wholesalers, retailers, food services and consumers. It also considers the following exposure groups: commercial fruit crops, nursery plants, household and garden plants and wild and amenity plants. The IRA describes issues specific to each utility point and estimates proximity ratings for the combination of each utility point with exposure groups (proximity values).²¹⁰⁰

7.673 New Zealand has submitted few arguments to contest the IRA's analysis on proximity. It has mainly argued that the IRA has assigned proximity values in a seemingly arbitrary manner.

7.674 As noted above with respect to the proximity analysis for fire blight, when consulted by the Panel the experts expressed scepticism regarding some of the scenarios considered under the IRA's proximity analysis.²¹⁰¹ Most of these concerns are also relevant for the IRA's proximity values for European canker, since those values are the same as the ones estimated for fire blight. Most importantly, as noted by Dr Paulin, while the IRA's assessment is "apparently coherent", it is not clear how the relative levels of probability for each situation were evaluated.²¹⁰² In the case of European canker, Dr Latorre coincides with Dr Paulin in that the IRA would overemphasize the importance of the scenario where apples are repacked at rural packing houses if apples from New Zealand are imported as retail-ready, because in this case they would probably not be processed in proximity to host plants.²¹⁰³ In the words of Dr Latorre, "[t]he assessment and implication of the repacked apples at rural packing houses in close proximity to the orchards is a possibility that cannot be denied. However, the impact of repacked fruits can be minimized if fruit is exported in retail-ready packs, as New Zealand has suggested."²¹⁰⁴

7.675 Although the IRA offers little explanation and supporting evidence for its reasoning regarding the estimation of the different proximity values, the Panel finds that New Zealand has not made a prima facie case that the IRA's discussion on utility points and estimated proximity ratings for the combination of each utility point with exposure groups (proximity values) is not objectively justifiable.

Exposure

7.676 Under its exposure analysis, the IRA assesses "the likelihood of transfer of the pathogen from infested or infected apples to a susceptible host plant."²¹⁰⁵ According to the IRA, the following factors were taken into account in its exposure analysis for European canker: waste disposal, location of fungi, survival and viability of the fungus in or on the fruit, transfer mechanism, availability of

²⁰⁹⁸ Australia's IRA, Part B, pp. 129-134, 24-27 and 29.

²⁰⁹⁹ Australia's first written submission, para. 606.

²¹⁰⁰ Australia's IRA, Part B, pp. 129-134; Australia's IRA, Part B, pp. 24-27.

²¹⁰¹ See para. 7.379 above.

²¹⁰² Dr Paulin's reply to Panel question 46, in List of Replies from the scientific experts to questions posed by the Panel, para. 295.

²¹⁰³ Dr Paulin's reply to Panel question 52, in List of Replies from the scientific experts to questions posed by the Panel, para. 335.

²¹⁰⁴ Dr Latorre's reply to Panel question 91, in List of Replies from the scientific experts to questions posed by the Panel, para. 521. See also, Dr Paulin's reply to Panel question 46, in List of Replies from the scientific experts to questions posed by the Panel, para. 295.

²¹⁰⁵ Australia's IRA, Part B, p. 134. See also, Australia's IRA, Part B, p. 27.

entry points, inoculum dose, host plant receptivity, environmental factors and features specific to each exposure group (commercial fruit crops, nursery plants, household and garden plants and wild and amenity plants).²¹⁰⁶ After discussing these factors, the IRA estimates the probabilities of exposure for all utility point-exposure group combinations for *Neonectria galligena*, as summarized in Table 33 of the IRA. The IRA states that "[a] significant exposure factor for *N. galligena* is the fact that the fungus has a specific mechanism for spore dispersal."²¹⁰⁷

Waste disposal

7.677 With respect to waste disposal, the IRA notes that "[m]ost consumer waste is disposed into landfills, presenting a very small risk for subsequent exposure of *N. galligena*; however, an increasing amount is being disposed of in backyard compost heaps. Some waste is also disposed directly into the environment along roadsides and recreational areas, presenting potential inoculum sources for transfer to susceptible host plants."²¹⁰⁸

7.678 New Zealand has not disputed the IRA's assertion that an increasing amount of consumer waste could be disposed of in backyard compost heaps and that some consumer waste may also be disposed directly into the environment along roadsides and recreational areas. In any event, the IRA does not cite any particular evidence to support its analysis of waste disposal for the purpose of European canker exposure. Nor is any evidence cited for the IRA's proposition that such waste would present "potential inoculum sources for transfer to susceptible host plants".

Location of fungi

7.679 With respect to the location of fungi, the IRA notes that:

"Fruit infection typically takes place at the blossom end of the fruit through the open calyx or stem end, as well as through lenticels and scab lesions (Swinburne, 1975; Bondoux and Bulit, 1959). This infection leads to the development of a rot and has been reported to spread to the seed cavity (Bondoux and Bulit, 1959), although this was not observed in California (McCartney, 1967). As the rot progresses, the fruit may become mummified followed by the development of perithecia in autumn, releasing ascospores in winter and spring (Munson, 1939; Grove, 1990a)."²¹⁰⁹

7.680 New Zealand has not disputed the IRA's assertions regarding the location of fungi in infected apple fruit. Nevertheless, the Panel has already noted the flaws in the IRA's assertions on the mummification of fruits, the development of perithecia and the release of ascospores. With regard to the IRA's discussion of importation step 2, the Panel has noted Dr Swinburne's statement that the paper by Braithwaite (1996) "[speculates] that rotted fruit can transmit infection, basing his argument on European observations on the formation of ascospores on mummified fruit."²¹¹⁰ Dr Swinburne

²¹⁰⁶ Australia's IRA, Part B, pp. 134-139. See also, Australia's IRA, Part B, pp. 17 and 27.

²¹⁰⁷ Australia's IRA, Part B, p. 138.

²¹⁰⁸ Australia's IRA, Part B, p. 134.

²¹⁰⁹ Australia's IRA, Part B, p. 134. See, Swinburne, "European Canker of Apple (*Nectria galligena*)" (1975), in Exhibit NZ-9; Bondoux and Bulit, "Sur la pourriture des pommes due au *Cylindrocarpon mali* (all.) Wr." (1959), in Exhibit AUS-61; McCartney, "An unusual occurrence of eye rot of apple in California due to *Nectria galligena*" (1967), in Exhibit NZ-10; Munson, "Observations on apple canker. I. The discharge and germination of spores of *Nectria galligena* Bres." (1939), in Exhibit NZ-37; Grove, "Nectria canker" (1990), in Exhibit NZ-7.

²¹¹⁰ See para. 7.537 above. Dr Swinburne's reply to Panel questions 54 and 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 349. See, Braithwaite, "The occurrence of fruit rots caused by *Nectria galligena* (European canker) in New Zealand and a comparison of brown rot strains between New Zealand and Australia" (1996), in Exhibit NZ-34.

suggests that "[t]his is a very rare occurrence, and most unlikely to be found in the climates of NZ or Australia ... For these reasons this aspect of the paper can be disregarded."²¹¹¹ In response to a different question, Dr Swinburne confirmed his view: "[i]t is most unlikely that rotted fruit would produce ascospores so [ascospores] need not be considered further here."²¹¹² Regarding the IRA's discussion of importation step 3, the Panel also noted the views of Dr Latorre and Dr Swinburne that there is no evidence of the development of perithecia and the release of ascospores from rotted fruit.²¹¹³ The Panel concluded with regard to those importation steps that the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred to clean fruit; nor is there scientific evidence in the IRA to support the proposition that perithecia would play a role in the contamination of clean fruit.²¹¹⁴

Survival and viability of the fungus in or on the fruit

7.681 With respect to the survival and viability of the fungus in or on the fruit, the IRA notes that:

"*N. galligena* can readily survive at temperatures between 2 to 30°C (Munson, 1939; Butler, 1949) although Latorre et al. (2002) demonstrated under controlled environmental conditions using high fungal inoculum levels (106 conidia/mL), that no infection occurred at 5°C regardless of wetness duration. The cool storage and transport process would not adversely affect the viability of the fungus. Latent infections could remain, with fungal growth and fruit rot resuming when fruit is removed from the cool chain, sold to consumers and stored at room temperature. ... The fungus has been associated with storage rots of apples suggesting that latent infections also occur in New Zealand fruit and such fruit if discarded near susceptible hosts could be a source of inoculum for infections in new areas. Fruit discarded into the environment could further rot, become mummified and develop viable fungal inoculum, conidia or perithecia that could initiate new infection although perithecia rarely develop on infected fruit in waste dumps ...

Apple waste disposed of in landfills and compost may be subjected to high temperatures (60°C), which may kill the fungus – many fungi are killed within a few days during composting ... Apple waste disposed of in landfills or compost heaps would be rapidly contaminated and colonised by saprophytic microorganisms, hastening the decay process and minimising the likelihood of perithecia development. Similarly insects, mammals or birds could consume apple waste.

N. galligena does not produce resting cells and spores are killed by prolonged desiccation from high temperature and low relative humidity (Dubin and English, 1975a). Liquid phase water is required for germination of conidia and their viability

²¹¹¹ Dr Swinburne's reply to Panel questions 54 and 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 349.

²¹¹² Dr Swinburne's reply to Panel question 73, in List of Replies from the scientific experts to questions posed by the Panel, para. 426.

²¹¹³ See paras. 7.567-7.568 above. Dr Latorre's replies to Panel questions 70 and 77, in List of Replies from the scientific experts to questions posed by the Panel, paras. 410 and 444-445; Dr Swinburne's reply to Panel questions 67 and 68, in List of Replies from the scientific experts to questions posed by the Panel, para. 404; Dr Latorre's replies in Transcript of the Panel's meeting with experts, paras. 413, 459 and 486; Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 461.

²¹¹⁴ See, for example, para. 7.572 above.

is sharply reduced when exposed to relative humidity between 85 to 100% for 3 to 12 hours at 11°C and 19°C (Dubin and English, 1975a)."²¹¹⁵

7.682 The Panel has already noted the experts' statements that the fungus would not survive as a surface contaminant.²¹¹⁶ As explained by Dr Latorre, "[t]here is no information demonstrating that conidia or ascospores of *N. galligena* can survive epiphytically (as surface contaminant) on mature apple fruits. It is important to consider that conidia survive desiccation for relatively short periods and it would be very unlikely that conidia and ascospores, contaminating apple surfaces, can survive post-harvest fruit management."²¹¹⁷

7.683 Dr Latorre has added that, "in order for the fruit to be infected ... you have to have some other conditions at the same time. There are some weather requirements that are very important, but more important than that, you have to have a susceptible host and you have to have injuries. Otherwise, the infestation means nothing, that is the end of the inoculum. It will not survive for a very long time."²¹¹⁸

7.684 The evidence cited in the IRA suggests, however, that it is possible that the fungus could survive internally, even after cold storage. In the words of Dr Latorre: "Australia states that cool storage and transport processes would not adversely affect the viability of the fungus. This may be true only for the fungus inside the fruit ... In other words, mycelia can survive in latently infected fruits; growth may resume after cool storage and eventually the fungus may sporulate on the surface of mummified fruits."²¹¹⁹

7.685 In this respect, New Zealand argues that the IRA misconstrues the relevant literature regarding the climate conditions necessary for infection.²¹²⁰ Dr Swinburne notes that "[t]here is no information on the effect of temperature on spore formation or discharge, only for infection."²¹²¹ In his view, in regions of intermittent rainfall it would be incorrect to assume that spores would be produced at all times.²¹²²

7.686 In any event, the survival and viability of the fungus, however, would require specific climatological conditions. The Panel has already noted, with regard to the IRA's discussion of importation steps 2 and 3, that certain climatological conditions are necessary for inoculum production, dissemination and infection.²¹²³ Regarding the survival and viability of the fungus, Dr Latorre adds that "favourable climatic conditions are compulsory for sporulation (inoculum

²¹¹⁵ Australia's IRA, Part B, pp. 134-135. See, Munson, "Observations on apple canker. I. The discharge and germination of spores of *Nectria galligena* Bres." (1939), in Exhibit NZ-37; Butler, "Apple canker, *Nectria galligena* Bres." (1949), in Exhibit AUS-60; Latorre *et al.*, "The effect of temperature and wetness duration on infection and a warning system for European canker (*Nectria galligena*) of apple in Chile" (2002); Dubin and English, "Effects of temperature, relative humidity, and dessication on germination of *Nectria galligena* conidia" (1975), in Exhibit NZ-12.

²¹¹⁶ See, for example, para. 7.588 above.

²¹¹⁷ Dr Latorre's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 308. See also, Dr Swinburne's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 310.

²¹¹⁸ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 452.

²¹¹⁹ Dr Latorre's reply to Panel question 71, in List of Replies from the scientific experts to questions posed by the Panel, para. 413.

²¹²⁰ New Zealand's first written submission, paras. 4.315 and 4.87-4.92; New Zealand's second written submission, paras. 2.580 and 2.616-2.617.

²¹²¹ Dr Swinburne's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 354.

²¹²² Dr Swinburne's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 354.

²¹²³ See paras. 7.544 and 7.572 above.

production, mainly conidia), dissemination and survival of the inoculum."²¹²⁴ These climatic conditions require a combination of adequate temperatures and wetness.

7.687 Dr Swinburne notes that:

"Data from Northern Europe, California and Chile on the basic weather conditions for infection (in the strict sense) have been determined from artificial inoculation experiments (summarised in Swinburne, 1975; CAB 2001, and Latorre et al 2001). This data will be relevant to all apple growing regions, but as they refer to just one aspect of the cycle of events, can not be used alone to predict the suitability of any region for the disease. The essential weakness of the approach in the IRA is that it assumes that inoculum (spores) for infection is always available, and all that is required is a suitable period (hours of leaf wetness within given temperature limits) for infection to occur."²¹²⁵

7.688 Based on the available evidence, Dr Latorre notes that "temperatures and rainfalls are relatively unfavourable for *N. galligena* during summer and early fall in Australia, which may be the most critical period for infection."²¹²⁶ The Panel has also noted, on the basis of the available evidence and the opinions of the experts, that the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred to new hosts. The Panel has also concluded that there is no scientific evidence in the IRA to support the proposition that perithecia would play a role in the contamination of new hosts.²¹²⁷

7.689 Dr Swinburne notes further that, under climatic conditions in Australia, it is unlikely that rotted apples discarded by consumers would become infectious units:

"[Response to question] 99 by Australia [after the first meeting with the Panel] makes it clear that the IRA indicates that fruit discarded by consumers constitutes the greatest threat for the disease to enter the country. Fruit out of store would be held at considerably less than 100%RH. To become infectious units, discarded apples would require a period of 'leaf wetness' to develop spores. It is most unlikely that in the prevailing climate all rotted apples so discarded would become infectious units."²¹²⁸

7.690 In conclusion, the IRA contains respected and qualified scientific evidence regarding the possibility of *Neonectria galligena* surviving internally in fruits under certain conditions of temperature and wetness. The IRA, however, seems to assume that inoculum for infection would be always available, a proposition for which there is no adequate support in the evidence. There is also no evidence to support the IRA's proposition regarding the possibility of contamination of new hosts from rotten fruit.

Transfer mechanism

7.691 With respect to the transfer mechanism, the IRA notes that:

²¹²⁴ Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

²¹²⁵ Dr Swinburne's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 399.

²¹²⁶ Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

²¹²⁷ See paras. 7.568, 7.572 and 7.680 above.

²¹²⁸ Dr Swinburne's reply to Panel question 91, in List of Replies from the scientific experts to questions posed by the Panel, para. 524.

"*N. galligena* produces two types of spores: aerially dispersed ascospores and water-splashed conidia. No studies exist in the literature to demonstrate long-distance disease spread from fruit infections, but as indicated above, severely rotted or mummified fruit are capable of developing perithecia producing aerially disseminated ascospores. ...

Transfer of European canker across borders or districts results from the movement of infected nursery stock (Cooke, 2003). Although wind disperses some conidia in the absence of rain (Swinburne, 1971b) they are mainly splash-dispersed (Munson, 1939). The most probable maximum distance for dispersal by rain splash is 10 m (Marsh, 1940) although one report suggests this might actually be as much as 125 m under stormy conditions (Swinburne, 1975). ... [D]istances are likely to be far less for conidia originating from infected fruit on the ground. ...

Involvement of birds and insects as vectors is suspected, although transfer has not been demonstrated and *N. galligena* does not have any specific insect vectors or mechanisms to allow transmission from apples to a suitable host. ..."²¹²⁹

7.692 The IRA's analysis for the transfer of spores is that "severely rotted or mummified fruit" would develop perithecia and produce aerially disseminated ascospores. The Panel has already noted, on the basis of the available evidence and the opinions of the experts, that the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred to new hosts. In the words of Dr Swinburne:

"[R]otted fruit incubated under conditions of high humidity can produce conidia, but it is extremely unlikely that they would produce perithecia, still less that ascospores would be released. The importance of high humidity to conidia production has to be stressed. The surface of fruit held in cold stores is usually moist, and fully developed rots usually produce conidia. Fruits rotting subsequently in retail packs or in a domestic environment at less than 100% [relative humidity] are not likely to produce conidia."²¹³⁰

The Panel has also concluded that there is no scientific evidence in the IRA to support the proposition that perithecia would play a role in the contamination of new hosts.²¹³¹

7.693 The IRA suggests that "wind disperses some conidia", but it subsequently dismisses this dispersal mechanism. Dr Swinburne concurs that "[w]ind dispersal releases so few viable conidia (Swinburne, 1971) that these can be discounted."²¹³²

7.694 The possibility of dispersal of conidia by rain splash is documented. However, as noted by the IRA, this dispersal would be limited to short distances. In Dr Latorre's view, New Zealand's proposition that "[a]ny dispersal of conidia would primarily be by rain splash and would likely only

²¹²⁹ Australia's IRA, Part B, pp. 135-136.

²¹³⁰ Dr Swinburne's reply to Panel question 69, in List of Replies from the scientific experts to questions posed by the Panel, para. 408.

²¹³¹ See paras. 7.568, 7.572 and 7.680 above.

²¹³² Dr Swinburne's reply to Panel questions 67 and 68, in List of Replies from the scientific experts to questions posed by the Panel, para. 404. See also, Dr Swinburne's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 381; and Dr Deckers's reply to Panel question 67, in List of Replies from the scientific experts to questions posed by the Panel, para. 400.

be a few metres from a discarded apple ... is a credible conclusion supported by experimental evidence, published previously."²¹³³

7.695 Dr Swinburne adds that the dispersal of conidia by rain usually occurs within the same tree. "That some conidia production during summer does occur is indicated by the detection of fruit rots in NZ, albeit rarely. These spores would be deposited in rain-off within the affected tree (Swinburne, 1971), or less likely from a neighbouring tree by splash dispersal (Munson 1939)."²¹³⁴

7.696 As noted by Dr Swinburne, "[t]he dispersal distances for rain splashed conidia quoted in the literature referred to in Australia's IRA are the maximum estimates, and refer to conidia released from tree cankers above ground level."²¹³⁵ In other words, for fruit rotting on the ground, and as the IRA itself acknowledges, "it is reasonable to expect that the distances would be smaller."²¹³⁶ Moreover, "for splash dispersal to operate from a rotted apple on the ground the lesion has to be facing upwards; thus subject to further chance."²¹³⁷

7.697 In other words, as stated by Dr Latorre:

"Although the reasoning in Australia's IRA with respect to the dispersal range for conidia was objective and coherent and based on respected and qualified scientific sources, the information provided demonstrates only that conidia (and possibly ascospores) of *N. galligena* are short-distance disseminated. Conidial dispersal can be expected within the infected tree (rain-splash and runoff), from infected trees to healthy neighbouring trees (splash, wind-splash), and between neighbouring orchards (wind-splash)."²¹³⁸

7.698 In order to achieve transfer, dispersal of conidia would additionally require the existence of certain climatic conditions. As noted by Dr Swinburne, "[c]onidia are dispersed by rain splash, over relatively short distances, especially so from ground level. Thus to successfully transfer infection fruit would have to be very close to a susceptible host and have the appropriate weather conditions."²¹³⁹ Dr Latorre adds that "temperatures and rainfalls are relatively unfavourable for *N. galligena* during summer and early fall in Australia, which may be the most critical period for infection".²¹⁴⁰

7.699 The IRA cites no evidence to support its assertion that the "involvement of birds and insects as vectors [in the transfer of *Neonectria galligena*] is suspected".²¹⁴¹ Consulted by the Panel, Dr Latorre noted that "[t]here is no scientific evidence demonstrating that birds and insects can disperse *N. galligena*. These considerations are not acceptable and would not be legitimate according

²¹³³ Dr Latorre's reply to Panel question 73, in List of Replies from the scientific experts to questions posed by the Panel, para. 425. See, New Zealand's first written submission, para. 4.311.

²¹³⁴ Dr Swinburne's reply to Panel questions 67 and 68, in List of Replies from the scientific experts to questions posed by the Panel, para. 404.

²¹³⁵ Dr Swinburne's reply to Panel question 73, in List of Replies from the scientific experts to questions posed by the Panel, para. 426.

²¹³⁶ *Ibid.*

²¹³⁷ *Ibid.*

²¹³⁸ Dr Latorre's reply to Panel question 73, in List of Replies from the scientific experts to questions posed by the Panel, para. 423.

²¹³⁹ Dr Swinburne's reply to Panel question 58, in List of Replies from the scientific experts to questions posed by the Panel, para. 366.

²¹⁴⁰ Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

²¹⁴¹ Australia's IRA, Part B, p. 136.

to the standards of the scientific community."²¹⁴² Dr Swinburne concurred and stated that "[t]here is no scientific evidence that birds or other vectors are involved in the dissemination of infective agents of *N. galligena*."²¹⁴³

7.700 In conclusion, there is no adequate scientific evidence to support the IRA's discussion regarding the transfer mechanism for *Neonectria galligena*. The Panel has already noted that the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred. The possibility that wind can serve as a dispersal mechanism for conidia in the absence of rain is also not supported by scientific evidence. Dispersion of conidia by rain splash would be very limited and, in order to achieve transfer, would also require certain climatic conditions, which are unlikely to be present in Australia, particularly during the most critical periods for infection. Finally, there is no support in the IRA for the possibility that birds or insects could be involved as vectors in the transfer of *Neonectria galligena*.

Availability of entry points

7.701 With respect to the availability of entry points, the IRA notes that:

"Entry points for infection by *N. galligena* are available throughout most of the year ... with wound sites caused by leaf fall in autumn and leaf cracks from onset of spring bud burst presenting natural infection sites ... Winter pruning cuts ... and lesions caused by other pathogens ... present other entry points for infection ... Infection can also be initiated in the absence of wounds through natural openings for example, the calyx end of fruit or via lenticels ..."²¹⁴⁴

7.702 As noted by Dr Swinburne, conidia are poor epiphytes; they will not survive as a surface contaminant:

"The conidia are relatively short lived in any event, particularly in a dry climate, and they cannot survive on the unbroken surface of an apple. They do require an entry point in order to infect. Conidia merely contaminating the surface of fruit at harvest will not play a part in any future latent infection. Those infections will already have taken place, as is known in the European context, either through the calyx end, stem end or under very rare circumstances through open lenticels, because in very wet climates the lenticels on the fruit are actually open, enabling spores to enter."²¹⁴⁵

Inoculum dose

7.703 With respect to the inoculum dose, the IRA notes that:

²¹⁴² Dr Latorre's reply to Panel question 88, in List of Replies from the scientific experts to questions posed by the Panel, para. 507.

²¹⁴³ Dr Swinburne's reply to Panel question 88, in List of Replies from the scientific experts to questions posed by the Panel, para. 508. See also, Dr Deckers's reply to Panel question 88, in List of Replies from the scientific experts to questions posed by the Panel, para. 506.

²¹⁴⁴ Australia's IRA, Part B, p. 136. With respect to the issue of the availability of entry points in Australia, see, New Zealand's second written submission, paras. 2.627-2.634. See also, Dr Latorre's reply to Panel question 58, in List of Replies from the scientific experts to questions posed by the Panel, para. 364; Dr Swinburne's reply to Panel questions 84 and 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 499.

²¹⁴⁵ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 434.

"The number of conidia required to initiate an infection varies depending on environmental and host factors. CABI (2003) reports that approximately 1000 conidia are required for leaf scar infection; however, in artificial inoculations under optimal laboratory conditions as few as 10 or 12 conidia ... have produced infections and these numbers are considered to resemble natural situations (McCracken et al., 2003b). Dubin and English (1974) found that five conidia were insufficient to initiate infection, while 50 to 500 did so readily. Latorre et al. (2002) suggested that European canker is more aggressive in areas where abundant ascospores are produced during leaf fall."²¹⁴⁶

7.704 Dr Latorre noted that the factors considered by the IRA regarding the inoculum dose necessary for infection "are acceptable".²¹⁴⁷ The expert noted, however, that "it is difficult to judge the likelihood assigned to each parameter. Although it is described in [page 136 of the IRA], it is not clear how Australia's IRA relates the inoculum dose necessary for infection and the probability of exposure to susceptible host plants."²¹⁴⁸

7.705 The IRA also fails to adequately recognize the importance of the number of spores for the likelihood of initiating an infection. In this respect, Dr Swinburne noted that, although in theory one cell can initiate infection, in practice the likelihood of an infection increases with the dose. "In theory one spore can initiate infection; in practice the probability of successful infection with one spore is very small. The literature cited in the IRA (p136) all indicate that the probability of securing infection increases with dose, and that at approximately 1000 spores per fresh leaf scar almost 100% infection will occur."²¹⁴⁹

7.706 The likelihood of infection will also depend on other factors, like the host cultivar. "More recent data (Lolas, 1999, Ph.D. thesis University of London) also demonstrates that the number of conidia needed to achieve 50% infection varies with cultivar; another factor."²¹⁵⁰

Host plant receptivity

7.707 With respect to host plant receptivity, the IRA notes that:

"A large number of suitable hosts for European canker infection are widely distributed throughout Australia, with apples (*Malus* spp.) and pears (*Pyrus* spp.) grown commercially in most states. In addition there are more than 20 other genera susceptible to *N. galligena*, each containing several species ... Entry sites are available throughout most of the year, although the age of leaf scars and wound sites is of importance to infection."²¹⁵¹

²¹⁴⁶ Australia's IRA, Part B, p. 136. See, CABI, "Crop Protection Compendium" (2003), in Exhibit AUS-84; McCracken *et al.*, "Relative significance of nursery infections and orchard inoculum in the development and spread of apple canker (*Nectria galligena*) in young orchards" (2003), in Exhibit AUS-77; Dubin and English, "Factors affecting apple leaf scar infections by *Nectria galligena* Conidia" (1974), in Exhibit AUS-67; and, Latorre *et al.*, "The effect of temperature and wetness duration on infection and a warning system for European canker (*Nectria galligena*) of apple in Chile" (2002).

²¹⁴⁷ Dr Latorre's reply to Panel question 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 492.

²¹⁴⁸ *Ibid.*

²¹⁴⁹ Dr Swinburne's reply to Panel questions 84 and 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 498.

²¹⁵⁰ Dr Swinburne's reply to Panel questions 84 and 85, para. 498. See also, Dr Deckers's reply to Panel question 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 491.

²¹⁵¹ Australia's IRA, Part B, p. 136.

7.708 As noted by Dr Swinburne, "for dispersal to lead to an infection any adjoining host has to have sites receptive to conidia."²¹⁵²

7.709 Regarding leaf scars, the IRA notes the conclusion from Wilson (1966) that "infection could occur up to 4 weeks post leaf fall". The IRA also notes, however, that according to Crowdy (1952) "leaf scars are highly susceptible to infection within the first hour after leaf fall and become much less susceptible over the next hour".²¹⁵³ Dr Swinburne refers to his own review of the different studies and notes that "[a]ll studies made under field conditions conclude that leaf scars are susceptible only for a few hours after leaf fall (reviewed in Swinburne, 1975), leading to the conclusion that the growth cabinets used by Wilson lead to conditions not normally encountered in nature."²¹⁵⁴

Environmental factors

7.710 With respect to environmental factors, the IRA notes that:

"Climatic conditions are critical for disease development, both for inoculum production and infection by *N. galligena* (Dubin and English, 1974). Temperature and duration of wetness are critical factors contributing to transfer and successful infection (Swinburne, 1975; Latorre et al., 2002). *N. galligena* readily survives at temperatures from 2°C to 30°C (Munson, 1939; Butler, 1949) with the optimum temperature for disease development being between 20°C to 25°C. These conditions are quite common in temperate and subtropical parts of Australia. A minimum 2 to 6 h wetness duration is required at the optimum temperature (20°C) with a longer wetting period required at lower temperatures (Latorre et al., 2002; Grove, 1990a). ... Some regions in Australia (including the Adelaide Hills, Manjimup and Perth) experience annual rainfall over 1000 mm and this may be conducive to infection periods. Environmental conditions in nurseries, including use of overhead irrigation, may create favourable microclimates and be conducive to disease infection."²¹⁵⁵

7.711 The Panel has already noted that certain climatic conditions, such as a combination of adequate temperatures and wetness, are necessary for inoculum production, dissemination and infection.²¹⁵⁶ Dr Swinburne notes further that:

"There is no information on the effect of temperature on spore formation or discharge, only for infection. Latorre *et al* (2002) demonstrated an interaction between temperature and the hours of leaf wetness required for the successful infection of leaf scars following artificial inoculation, which forms the basis for predictive model used in Chile. The hours required decreased linearly with increases in temperature between 10 and 20 C, and at 20 C only 2 hours was needed, the shortest time so far recorded. It has to be noted that a predictive model for leaf-scar infection such as that from Chile is based on the presumption (probably valid there) that conidia would be available at all times. In regions of intermittent rainfall this would be incorrect (Wilson 1966), and therefore using for example the number of

²¹⁵² Dr Swinburne's reply to Panel question 73, in List of Replies from the scientific experts to questions posed by the Panel, para. 427.

²¹⁵³ Australia's IRA, Part B, p. 136. Wilson, "Development of European canker in a California apple district" (1966), in Exhibit NZ-64; Crowdy, "Observations on apple canker IV. The infection of leaf scars" (1952).

²¹⁵⁴ Dr Swinburne's reply to Panel question 73, in List of Replies from the scientific experts to questions posed by the Panel, para. 427.

²¹⁵⁵ Australia's IRA, Part B, p. 137 (footnote omitted).

²¹⁵⁶ See paras. 7.544 and 7.572 above.

rain days with suitable temperatures for leaf-scar infection without allowing for spore production could overestimate the likelihood of infection.²¹⁵⁷

The Panel has concluded that those climatic conditions are unlikely to be present in Australia, particularly during summer and early fall, the most critical periods for infection.²¹⁵⁸

Features specific to different exposure groups

7.712 The IRA discusses features specific to different exposure groups, namely: commercial fruit crops; nursery plants; household and garden plants; and, wild and amenity plants.

Conclusion on exposure

7.713 The IRA summarizes the estimated probabilities of exposure for all combinations of utility points and exposure groups in Table 33.²¹⁵⁹ The IRA notes that "[a] significant exposure factor for *N. galligena* is the fact that the fungus has a specific mechanism for spore dispersal".²¹⁶⁰

7.714 The IRA states that the exposure values "are based on the IRA team's view taking into account all the factors discussed above."²¹⁶¹ As noted by Dr Sgrillo, however, it is not clear how the discussion in the IRA of the different factors was translated into quantitative estimates. In the words of the experts, "[t]he minimum and maximum parameters elected for the Exposure are not directly derived from the source data. ... The IRA Team does not explain how the available data were used."²¹⁶²

7.715 The Panel has already found that the IRA's reasoning with respect to several of the factors taken into account in its exposure analysis for European canker is either not based on scientific evidence or not based on a coherent and objective reasoning. With respect to waste disposal, for example, the IRA's assertion that consumer waste would present "potential inoculum sources for transfer to susceptible host plants" is not supported by evidence. The IRA's exposure analysis also rests on assertions regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, the mummification of fruits, and the possibility that perithecia would play a role in the contamination of new hosts that do not find sufficient support in the scientific evidence relied upon. With respect to the survival and viability of the fungus, there is no support in the evidence for the IRA's apparent assumption that inoculum for infection would always be available. With respect to the transfer mechanism for *Neonectria galligena*, the IRA does not contain scientific evidence that wind can serve as a dispersal mechanism for conidia in the absence of rain. The IRA's reasoning is not coherent and objective as it fails to take into account that dispersion of conidia by rain splash would be very limited and, in order to achieve transfer, would also require certain climatic conditions, which are unlikely to be present in Australia, particularly during the most critical periods for infection. There is no evidence in the IRA in support of the possibility that birds or insects could be involved as vectors in the transfer of *Neonectria galligena*. The IRA's discussion on the availability of entry points fails to take into account that conidia are poor epiphytes and will not survive as a surface contaminant. Regarding the discussion on inoculum dose, the IRA fails to

²¹⁵⁷ Dr Swinburne's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 354.

²¹⁵⁸ See, para. 7.688. See, Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 358; Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 438.

²¹⁵⁹ Australia's IRA, Part B, pp. 138-139.

²¹⁶⁰ Australia's IRA, Part B, p. 138.

²¹⁶¹ *Ibid.*

²¹⁶² Dr Sgrillo's reply to Panel question 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 490.

explain how it took into account the inoculum dose necessary for infection when estimating the probability of exposure to susceptible host plants. Moreover, the IRA fails to adequately recognize the importance of the number of spores, and other factors such as the host cultivar, for the likelihood of initiating an infection. The IRA's discussion regarding environmental factors fails to take into account that the necessary climatological conditions for inoculum production, dissemination and infection, in terms of the appropriate combination of cool temperatures and wetness, are unlikely to be present in Australia, particularly during summer and early fall, the most critical periods for infection.

7.716 Regarding the exposure value estimated by the IRA, Dr Swinburne notes additionally that:

"The 'exposure value' quoted, assuming it is credible to deduce such a factor, seems to make assumptions regarding the year-round availability of infection sites, and that all discarded apples discharge spores all year, which are not correct. Moreover by stating '*a significant exposure factor for N. galligena is the fact that the fungus has a specific mechanism for spore dispersal*' in the conclusion on p 138, [the IRA] suggests that the outcome was heavily reliant on the erroneous presumption that rotted fruit would release ascospores..."²¹⁶³

7.717 Accordingly, and in the light of the shortcomings that affect a number of sections of the IRA's conclusions on exposure, the Panel finds that, overall, these conclusions do not rely on adequate scientific evidence and, accordingly, are not coherent and objective.

Establishment

7.718 The IRA derives its conclusions regarding the probability of establishment from "a comparative assessment of those factors in the source country and the 'PRA area' that are considered pertinent to the ability of a pest to survive and propagate".²¹⁶⁴ These factors would include: the availability of suitable hosts, alternate hosts and vectors in the PRA area; the suitability of the environment; the cultural practices and control measures; and other characteristics of the pest affecting the probability of establishment.²¹⁶⁵ In the case of analysis of the probability of establishment for European canker, other factors include: the potential for adaptation of the pest; the reproductive strategy of the pest; the minimum population needed for establishment; and, the method of pest survival.²¹⁶⁶

7.719 Several of the flaws that the Panel has already noted with respect to the IRA's reasoning on exposure are also relevant for the analysis on establishment. In its discussion of the availability of suitable hosts, alternate hosts and vectors in the PRA area, the IRA again contains unsupported assumptions regarding the year-round availability of infection sites and on whether birds or insects could be involved as vectors in the transfer of *Neonectria galligena*. In its reasoning, the IRA fails to take into account the evidence that conidia are poor epiphytes and will not survive as a surface contaminant. In its discussion of the suitability of the environment, the IRA fails to take into account the evidence that the climatic conditions necessary for the establishment of the disease, in terms of the appropriate combination of adequate temperatures and wetness, are unlikely to be present in Australia, particularly during summer and early fall, the most critical periods for infection. The IRA focuses on total annual rainfall, rather than on the hours of "leaf wetness" and on whether rainfall occurs during critical periods. In its discussion of the minimum population needed for establishment, the IRA fails to explain how the inoculum dose necessary for infection is related to the estimations of the

²¹⁶³ Dr Swinburne's reply to Panel questions 84 and 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 499 (original emphasis).

²¹⁶⁴ Australia's IRA, Part B, p. 30.

²¹⁶⁵ *Ibid.*

²¹⁶⁶ Australia's IRA, Part B, pp. 139-141.

probability of initiating an infection in a susceptible host plant. In its discussion of the method of pest survival, the IRA again relies on unsupported assertions regarding the possibility of the mummification of fruits that would then produce perithecia and release ascospores.

Spread

7.720 The IRA derives its conclusions regarding the probability of spread from "a comparative assessment of those factors in the source country and 'PRA area' considered pertinent to the expansion of the geographical distribution of a pest".²¹⁶⁷ These factors would include: the suitability of the natural and/or managed environment for natural spread of the pest; the presence of natural barriers; the potential for movement with commodities or conveyances; the intended use of the commodity; and the potential vectors of the pest in the PRA area.²¹⁶⁸

7.721 Several of the flaws that the Panel has already noted with respect to the IRA's reasoning on exposure and establishment are also relevant for the analysis on spread. In its discussion of the suitability of the natural and/or managed environment, the IRA again fails to take into account that the climatological conditions necessary for spread of the disease, in terms of the appropriate combination of cool temperatures and wetness, are unlikely to be present in Australia, particularly during summer and early fall, the most critical periods for infection. The IRA notes that:

"The fact the disease spread to a few orchards in Spreyton in Tasmania, probably after a single entry point indicates that the managed environment of Australia can be favourable for spread, although the extent of dispersal was quite limited despite being present for many years. This may have been because of the absence of air borne ascospores better suited to long-distance dispersal than conidia (Ransom, 1997), combined with unfavourable climatic conditions (Spreyton receives less than 900 mm annual rainfall) and the use of chemicals to control apple scab may also have limited disease spread. ... [I]n addition to the lack of ascospore detection in Spreyton (Ransom, 1997), the limited spread can also be attributed to the eradication program which began within two years of confirmation of the disease (Ransom, 1997). The program involved the use of chemicals to prevent the development of sporodochia, removal and burning of severely infected trees, prohibition of movement of propagation material out of the quarantined zone, etc."²¹⁶⁹

7.722 In this respect, Dr Swinburne notes that, although "[t]he dispute between the parties regarding the suitability of the climate in the fruit growing regions of Australia for the establishment and spread of European canker in apple is difficult to resolve on the basis of the data available".²¹⁷⁰

"[T]he fact that canker has only been seen in Tasmania and that western Tasmania has a higher number of days of rainfall (> 1mm) than mainland Australia is striking. Moreover, it may also be significant that even in Tasmania perithecia were not observed. Thus it is difficult to escape the conclusion that the climate of fruit growing regions of mainland Australia are not conducive to the development of an epidemic of this disease (see Q72.)."²¹⁷¹

²¹⁶⁷ Australia's IRA, Part B, p. 31.

²¹⁶⁸ Australia's IRA, Part B, pp. 31 and 141-142.

²¹⁶⁹ Australia's IRA, Part B, p. 141.

²¹⁷⁰ Dr Swinburne's reply to Panel question 58, in List of Replies from the scientific experts to questions posed by the Panel, para. 367.

²¹⁷¹ *Ibid.*

7.723 Dr Latorre added that the experience of the European canker outbreak in Spreyton, Tasmania, suggests that the disease would disseminate and subsequently spread in a new area relatively slowly:

"On the basis of the biology of *N. galligena* and considering the epidemiological characteristics of European canker, if *N. galligena* were to enter a new area, I would expect a relatively slow dissemination of the pathogen and subsequent spread of European canker in this new area. The information provided in relation to Spreyton supports the hypothesis of a very slow spread occurred that would make it possible to eradicate *N. galligena*."²¹⁷²

7.724 Dr Swinburne notes that one important factor that the IRA fails to note regarding the Tasmanian European canker outbreak is that the disease most likely originated with the importation of infected trees, and not with contaminated apple fruit:

"[The Tasmanian outbreak] didn't spread to native plants, but [Australia] had an enormous difficulty in getting rid of it, in spite of constant pruning and cutting, and so forth. Even though [there was] no inoculum ... no spore production. ... [T]hat infection was imported with the trees that [were] planted on that occasion. Those trees were almost certainly infected when they put were in the ground. The desperate difficulty that [Australia] had in getting rid of it from those individual trees was because it was semi-systemic infection. In fact, the infection was moving through the tree inside. Although you cut off a canker there, you were astonished to find another one appearing on a branch over there. But it had not spread from there to there directly, it had gone the other way, it had gone, as we now recognise, semi-systemic infection and that clean planting material is crucial to the prevention of canker."²¹⁷³

7.725 Dr Latorre suggests that the fact that, despite this semi-systemic infection, European canker did not spread from Tasmania suggests that the climatological conditions necessary for spread are not present in Australia. "The lack of considerable spread suggests that weather conditions are not favourable for European canker in Tasmania (Spreyton, Tasmania, AUS FWS Annex 2; Beresford and Kim, NZ Annex 3). These relatively unfavourable climatic conditions may imply that prevalence, incidence and severity of European canker remained low and that the disease never spread considerably outside Tasmania."²¹⁷⁴

7.726 Parties have conflicting views regarding the relevance of the experience of the Tasmanian European canker outbreak for the estimation of the probability of spread. The experts found that the IRA's discussion of some of the factors associated with the limited spread of the infection to other regions, such as the combination of strict eradication measures and specific fungicide treatments, are generally reasonable.²¹⁷⁵

7.727 In its discussion of the potential for movement with commodities or conveyances, the IRA notes that:

²¹⁷² Dr Latorre's reply to Panel question 59, in List of Replies from the scientific experts to questions posed by the Panel, para. 369.

²¹⁷³ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 563. See also, Dr Swinburne's reply to Panel question 90, in List of Replies from the scientific experts to questions posed by the Panel, para. 518.

²¹⁷⁴ Dr Latorre's reply to Panel question 74, in List of Replies from the scientific experts to questions posed by the Panel, para. 429. See also, Dr Deckers's and Dr Swinburne's replies to Panel questions 74 and 90, in List of Replies from the scientific experts to questions posed by the Panel, paras. 428, 430 and 518.

²¹⁷⁵ Dr Deckers's, Dr Latorre's and Dr Swinburne's replies to Panel question 90, in List of Replies from the scientific experts to questions posed by the Panel, paras. 513, 514 and 517.

"CABI (2003) lists fruit (including pods), bark and stems (above-ground shoots, trunks and branches) as host plant parts that can carry spores and hyphae of the pathogen both internally and externally. Therefore, in addition to the fruit trade, the nursery, hardwood timber and mulch industries can also be involved in spread of the pest. Foliage is not affected (Butler, 1949) and leaf trash is unlikely to present a pathway unless twigs with active canker are present.

Long-distance movement of European canker is primarily the result of movement of infected nursery stock. ...

There is no evidence in the literature that indicates that long-distance spread of disease is due to movement of fruit. Conidia and perithecia can develop in rotted or mummified fruit and contribute to local spread."²¹⁷⁶

7.728 In the discussion of the potential for movement with commodities or conveyances, the IRA again relies on unsupported assertions regarding the possibility of the mummification of fruits that would then produce perithecia.²¹⁷⁷ Additionally, in its discussion of the potential vectors of the pest, the IRA contains unsupported assumptions regarding the possible involvement of insects and birds as vectors in the spread of *Neonectria galligena*.²¹⁷⁸ There is also no support in the IRA for the statement that "[p]eople (for example, consumers, orchard and nursery workers) handling infected apples could potentially spread inoculum to susceptible host plants."²¹⁷⁹

Partial probability of establishment and spread

7.729 Having discussed factors such as the suitability of the natural and/or managed environment; the presence of natural barriers; the potential for movement with commodities or conveyances; the intended use of the commodity; and the potential vectors of the pest, the IRA estimates the partial probabilities of establishment and spread for specific exposure groups: commercial fruit crops, establishment – uniform (0.7, 1), spread – uniform (0.7, 1); nursery plants, establishment – uniform (0.7, 1), spread – uniform (0.7, 1); household and garden plants, establishment – uniform (0.3, 0.7), spread – uniform (0.3, 0.7); wild and amenity plants, establishment – uniform (0.3, 0.7), spread – uniform (5×10^{-2} , 0.3).²¹⁸⁰

Conclusions regarding exposure, establishment and spread

7.730 The IRA combines in an @RISK model the partial probability estimate for importation, the estimated volume of apples and the partial probability estimates for establishment and spread, to obtain an overall value for the annual probability of entry, establishment and spread (PEES). The median simulated value for this probability of entry, establishment and spread is estimated under the first scenario (if 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers) as (7.0×10^{-2}) and under the second scenario (if 0.1 to 5 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers) as (6.9×10^{-2}), both corresponding to the qualitative description of "low".²¹⁸¹

7.731 The Panel has already noted that the IRA's derivation of the overall probability of importation of *Neonectria galligena* by estimating and adding individual probabilities for each importation

²¹⁷⁶ Australia's IRA, Part B, p. 142.

²¹⁷⁷ *Ibid.*

²¹⁷⁸ *Ibid.*

²¹⁷⁹ *Ibid.*

²¹⁸⁰ Australia's IRA, Part B, pp. 142-144.

²¹⁸¹ Australia's IRA, Part B, p. 145.

pathway is not supported and has not been validated by evidence. Moreover, the Panel has found that the estimations of several of the likelihoods for individual importation pathways are not supported by scientific evidence or not based on a coherent and objective reasoning, and most likely overestimated. Additionally, any biases or overestimation in the calculation of the individual probabilities would be aggregated in the overall probability of importation.

7.732 The Panel has also noted that, with respect to several aspects of its discussion on exposure, establishment and spread, the IRA's reasoning is not coherent and objective or does not find proper support in scientific evidence. This is notably the case for the IRA's assertions regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred to new hosts; likewise with the propositions regarding the mummification of fruits and the possibility that perithecia would play a role in the contamination of new hosts. There is also no evidence to support the IRA's seeming assumption that inoculum for infection and infection sites would be always available. With respect to waste disposal, the IRA's assertion that consumer waste would present "potential inoculum sources for transfer to susceptible host plants" is not supported by evidence. The IRA does not contain scientific evidence that wind can serve as a dispersal mechanism for conidia in the absence of rain. The IRA's reasoning on the transfer mechanism is not objectively justifiable as it fails to take into account that dispersion of conidia by rain splash would be very limited and, in order to achieve transfer, would also require certain climatic conditions, which are unlikely to be present in Australia, particularly during the most critical periods for infection. There is no support in the IRA for the suggested possibility that birds or insects could be involved as vectors in the transfer and spread of *Neonectria galligena*. The IRA's discussion on the availability of entry points fails to take into account that conidia are poor epiphytes and will not survive as a surface contaminant on apple fruit. The IRA also fails to adequately recognize the importance of the number of spores for the likelihood of initiating an infection, or the role of other factors, such as the host cultivar. Regarding host plant receptivity, the IRA exaggerates the susceptibility of leaf scars to serve as entry sites for conidia. The IRA's reasoning regarding environmental factors is not objectively justifiable, as it fails to take into account that the necessary climatic conditions for inoculum production, dissemination and infection, in terms of the appropriate combination of cool temperatures and wetness, are unlikely to be present in Australia, particularly during summer and early fall, the most critical periods for infection. The IRA focuses on total annual rainfall, rather than on the more important factors of hours of "leaf wetness" and whether rainfall occurs during critical periods. There is also no support in the IRA for the statement that people (for example, consumers, orchard and nursery workers) handling infected apples could potentially spread inoculum to susceptible host plants.

7.733 Dr Latorre notes that the reasoning provided in the IRA regarding the establishment and spread of European canker:

"[I]s not entirely convincing because: (i) Analysis of the climate conditions in the potential entrance areas is discussed only briefly. It should not be assumed that any area where the rainfalls are close to, or exceed 1000 mm annually, are necessarily prone to European canker development. Temperatures and rainfalls during the entrance periods (fruit-importing periods) should be provided, considering that they will affect the likelihood of establishment and spread of *N. galligena* after entrance. Weather information for the entrance periods would allow experts to assess the probability that mature fruit carrying latent infections will develop symptoms, sporulate, liberate the inoculum and spread it to nearby hosts. (ii) Injuries, leaf scars, pruning wounds, or other damages are necessary for infection, but leaf scars in the autumn are the most common sites of infection. Fruit importation (and inoculum

availability) could occur when leaf scars are not present, reducing the probability of establishment and spread to zero."²¹⁸²

7.734 Dr Latorre adds that climatic conditions are a key point when assessing the risk of establishment and spread of *Neonectria galligena* associated with asymptomatic apples from New Zealand. "Climatic conditions in Australia's apple-producing regions must be suitable to disease establishment and spread, otherwise the likelihood of establishment and spread would be zero and the risk analysis should end at this point."²¹⁸³

7.735 Regarding climatic conditions, Dr Swinburne notes further that:

"[Data on the basic weather conditions for infection] will be relevant to all apple growing regions, but as they refer to just one aspect of the cycle of events, can not be used alone to predict the suitability of any region for the disease. The essential weakness of the approach in the IRA is that it assumes that inoculum (spores) for infection is always available, and all that is required is a suitable period (hours of leaf wetness within given temperature limits) for infection to occur. The major flaw in this argument is the assumption that regions can be compared on the basis of annual rainfall, without regard to rainfall patterns. Even in regions such as N. Ireland (Loughgall) with rain in all seasons, more than 5hrs of leaf wetness was required following a few dry days before ascospore discharge resumed (Swinburne, 1971b). The situation in regions with a pronounced dry season, such as California and the Pacific Northwest in the USA, spore formation does not even begin until some time (as yet undetermined) into the rainy period (Zeller, 1926, Wilson, 1966/8). For such an area data relating only to simple 'infection periods' would greatly overestimate the risk of disease establishment."²¹⁸⁴

7.736 Dr Swinburne adds that, because the initial establishment of an epidemic incited by *Neonectria galligena* via imported infected fruit has not been demonstrated, "the issue can only be addressed from a theoretical standpoint".²¹⁸⁵

"For such a pathway to exist fruit would not only have to develop visible rot, but also to form viable spores which can be distributed to new hosts. The formation of perithecia on fruit has been observed very rarely (Dillon-Western, 1927), and does not feature in any subsequent epidemiological study (Swinburne, 1975; CAB 2001). It is therefore most unlikely that ascospores would be formed or released from rotted fruit. The formation of conidia on the surface of lesions does occur (Swinburne, 1975) generally in the centre of the rotted area where the cuticle has split. This is most obvious in fruit taken from stores in which the humidity has been maintained at c. 100%. Fruit which develop rots later within the retail chain in conditions with lower [relative humidity] do not usually produce spores (personal observation) which

²¹⁸² Dr Latorre's reply to Panel question 58, in List of Replies from the scientific experts to questions posed by the Panel, para. 364.

²¹⁸³ Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

²¹⁸⁴ Dr Swinburne's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 399. See also, Dr Deckers's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 397.

²¹⁸⁵ Dr Swinburne's reply to Panel question 58, in List of Replies from the scientific experts to questions posed by the Panel, para. 365.

conforms with the observations (e.g. Wilson, 1966) for wood infections, that a period of 'leaf-wetness' is required for conidia formation."²¹⁸⁶

7.737 Dr Swinburne adds further that the IRA fails to note that the number of apples latently infected with *Neonectria galligena* would be likely diminishing along the pathway chain, progressively reducing the likelihood of the estimated events occurring. The expert illustrates this with a hypothesis:

"[I]f one had 100 infected apples that arrived in Australia healthy, but became rotted subsequently, what would happen to those 100 infected apples? Perhaps 70 or 80 of them would never develop spores anyway, so it could be disregarded. Then you have to consider where the others might end up in relation to the dispersal of inoculum. In other words, all the processes are attenuating all the time down the chain and that is what I don't see coming through in the IRA at all. The longer the apples are stored in New Zealand, the less is the likelihood that an apple infected with *Nectria* would be sent to Australia, because it would be culled out before it went into the retail-ready pack and went on the train. So, the attenuation process after harvest would be continuous throughout the transport chain which is not terribly well reflected in the IRA."²¹⁸⁷

7.738 Dr Swinburne concludes that "there is in fact no evidence in the literature that infected apples which rot with this fungus are responsible subsequently for the dissemination of the disease to other hosts, to further hosts".²¹⁸⁸

"Much of the evidence that has been presented concerns observations made in the 1920s by Dillon-Western concerning a variety known as Worcester, which is an extremely early variety, which does rot on the tree and produces mummified fruits. In the 40-odd years that I have worked on this, I never have had the privilege of seeing such a thing and I have attempted in the past to produce perithecia and ascospores from rotted apples for experimental purposes and failed. Fruit which rot with *Nectria* as I will call it, does produce conidia if it is incubated under moist humid conditions to a limited extent in the centre of the lesion. It is not a prolific source of spores for subsequent release and I fear that nobody has actually done the experiment of determining whether a rotted apple can release spores into a new orchard situation and bring about disease. It is amenable to experimentation, along the lines of an experiment which we made in East Malling not too long ago with discarded canker wood which we pulverized and placed under potted trees of the most susceptible variety that I know, namely Spartan, and we failed to induce a single canker as a result of pulverizing several, maybe 50 kilos, of cankers underneath them."²¹⁸⁹

7.739 Dr Swinburne adds that "there is no information concerning the possibility" that an apple rotted with *Neonectria galligena* discarded in an Australian orchard would produce conidia and would have the ability to initiate a new series of infections in an area which had never had it:²¹⁹⁰

²¹⁸⁶ Dr Swinburne's reply to Panel question 58, in List of Replies from the scientific experts to questions posed by the Panel, para. 365.

²¹⁸⁷ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 574.

²¹⁸⁸ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 411.

²¹⁸⁹ *Ibid.*

²¹⁹⁰ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 419.

"[F]ruit has to produce conidia in order to become an infectious unit. It may be infected, but it is not necessarily infectious and even if it does become infectious, being presumably on the ground and not deliberately placed somewhere up in a tree, the dissemination of those conidia which depends on splash dispersal is actually going to be over a very limited area ... I wouldn't want to overemphasize that particular possibility but there is no information which tells us that it cannot happen and as biologists one can never say it would never happen."²¹⁹¹

As explained by Dr Swinburne, although as a biologist he cannot rule out the possibility of infected fruit acting as a pathway for the long distance spread of European canker, "it probably has a vanishingly small probability."²¹⁹²

7.740 Dr Latorre noted that, despite the fact that mature fruit can hold the pathogen and can certainly be moved from one place to the other, he agreed with Dr Swinburne's view:

"The first step would be to have an infected fruit, and this is possible, without symptoms. You can take this fruit and carry it from New Zealand, perhaps to Australia. This is also possible, in my opinion. But another question is that this fruit is going to be rotten in Australian conditions and, secondly, another situation will be that that rotten fruit will produce spores, conidia, on the surface and, thirdly, that those conidia can be spread nearby, primarily by rain splashing, which is the main dissemination way."²¹⁹³

7.741 As noted by Dr Latorre, long-distance movement of European canker is usually associated with the importation of nursery stock and not with trade in apple fruit. "There is no scientific evidence demonstrating that long-distance spread of European canker is due to the movement of fruits. ... [L]ong-distance spread along with mature apple fruits should be regarded as a hypothesis rather than a true fact."²¹⁹⁴

7.742 Dr Latorre stated further that:

"[T]he only way that I can see how Australia can get European canker, really, is by the commercialization, international transportation of nursery plant material. Perhaps this has been the way how this disease has been moved around the world. I have seen no possibility that in reality fruit can really be the cause or be the introduction, establishment and spread of the disease in a new area. You can introduce *Nectria* on apples, but the other question is whether this disease is going to be established in a location from the inoculum arriving on fruits."²¹⁹⁵

7.743 Dr Latorre concludes that the overall value estimated by the IRA for the annual probability of entry, establishment and spread for European canker leads to "non-credible" conclusions and would need to be validated before it can be accepted:

²¹⁹¹ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 419.

²¹⁹² Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 422.

²¹⁹³ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 424.

²¹⁹⁴ Dr Latorre's reply to Panel question 64, in List of Replies from the scientific experts to questions posed by the Panel, para. 392. See also, Dr Swinburne's reply to Panel question 64, in List of Replies from the scientific experts to questions posed by the Panel, para. 393.

²¹⁹⁵ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 565. See also, Dr Deckers's reply to Panel question 64, in List of Replies from the scientific experts to questions posed by the Panel, para. 390.

"[T]he overall probability of entrance, establishment and spread of *N. galligena* was 7.0×10^{-2} , which was rated as low (Table 37, AUS-2 BA p. 150). Indeed, this a very high, rather than low, probability for any biological event associated with *N. galligena*. If this likelihood value is true, and assuming that market penetration in Australia is equal to 50,000,000 apples annually (AUS-2 BA, p. 19), *N. galligena* should be present in 3,500,000 apples (7%) annually, which is non-credible. Therefore, the overall probability (7.0×10^{-2}) should be validated before acceptance. Data validating the probability values given in Table 12 were not presented."²¹⁹⁶

7.744 In conclusion, throughout the discussion of the different factors, the IRA tends to exaggerate the risk, for example, by not taking into account that any epiphytial fungal populations would likely be small and diminishing and that the number of latently infected apples would also diminish over time, by not considering the climatic conditions that are necessary for inoculum production, dissemination and infection, and by assuming that inoculum for infection and infection sites would be always available. The IRA instead emphasizes a number of factors and assumes some hypotheses that would tend to increase the likelihood of entry, establishment and spread, despite the absence of adequate scientific evidence to support these factors or even in the face of available evidence to the contrary.

7.745 Little information is provided in the IRA on how the extensive discussion and review of different factors associated with the entry, establishment and spread, is then translated into quantitative estimates. The Panel cannot attempt to recalculate these estimates, as this would constitute a *de novo* review exercise. It cannot fail to note, however, that these estimations do not find support in the available scientific evidence or in a coherent and objective reasoning. In this respect, the Panel finds puzzling that, under two, widely-different scenarios regarding proximity, the IRA reaches relatively similar conclusions on the probability of entry, establishment and spread. As noted above, the IRA considers a first scenario, under which 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers, and a second scenario, under which only 0.1 to 5 per cent of imported apples are distributed to orchard packing houses. The IRA, however, reaches broadly similar conclusions, corresponding to the qualitative description of "low", and estimates almost identical probability values under both scenarios.²¹⁹⁷

7.746 The Panel has already recognized that, in conducting risk assessments, Members frequently confront limitations in the availability of the data necessary for their models.²¹⁹⁸ The Panel has noted that, when facing this problem, Members may try to estimate the answers if there is no data available, through the use of expert judgement. Indeed, Australia argues that this is how probabilities were estimated for several steps.²¹⁹⁹ In this respect, the Panel has noted that, while expert judgement may be an important tool for the risk assessor, it cannot replace the necessary scientific data, especially for the purpose of estimating the likelihood of entry, establishment and spread of a pest. In accordance with the relevant ISPMs, recourse to expert judgement does not substitute for the use of the available information. The use of expert judgement must be documented and transparent; it must be based on the relevant reliable scientific information, even when that information is limited.²²⁰⁰ As noted by one

²¹⁹⁶ Dr Latorre's reply to Panel guideline (g), in List of Replies from the scientific experts to questions posed by the Panel, para. 5.

²¹⁹⁷ Australia's IRA, Part B, p. 145. Dr Sgrillo's reply to Panel question 46, in List of Replies from the scientific experts to questions posed by the Panel, paras. 296-297; Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 40. See also, Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 42.

²¹⁹⁸ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 191.

²¹⁹⁹ See, for example, Australia's first written submission, paras. 541, 547, 563, 568, 580, 594, 598, 601, 638, 649, 689 and 719; Australia's second written submission, paras. 467 and 520. See also, Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 12.

²²⁰⁰ See paras. 7.433-7.440 above.

of the experts, if there is no data available, Members should try to refer to other available information, for example to other pests, where there may be some data.²²⁰¹ Non-compliance with these requirements, may produce errors in the exercise of expert judgement. It is not enough to claim, as Australia has done, that "[t]he IRA Team applied its expert judgment and elaborated its reasoning at every step in the Final IRA Report".²²⁰²

7.747 In the light of the above, the Panel finds that New Zealand has not made a prima facie case that the IRA's discussion on utility points and estimated proximity ratings for the combination of each utility point with exposure groups (proximity values) for European canker, does not rely on adequate scientific evidence or is not coherent and objective.

7.748 The Panel finds, however, that the IRA's estimation that fruit coming out from an infected or infested orchard is infected or infested with *Neonectria galligena* (importation step 2); that clean fruit from infected or infested orchards is contaminated with *Neonectria galligena* during picking and transport to the packing house (importation step 3); that infected or infested fruit remains infected or infested after routine processing procedures in the packing house (importation step 4); that clean fruit is contaminated by *Neonectria galligena* during processing in the packing house (importation step 5); that infected or infested fruit remains infected or infested during palletization, quality inspection, containerization and transportation to Australia (importation step 6); and that clean fruit is contaminated by *Neonectria galligena* during palletization, quality inspection, containerization and transportation (importation step 7); do not find sufficient support in the scientific evidence relied upon and, accordingly, are not coherent and objective. In the light of the these findings and in the absence of any separate justification and evidence in the IRA regarding the estimated overall likelihood of importation, the Panel finds additionally that the IRA's estimation of the overall probability of importation is not supported by adequate scientific evidence and, accordingly, is not coherent and objective.

7.749 The Panel also notes that a significant part of the IRA's discussions on exposure, establishment and spread of European canker, rests on a number of assumptions and qualifications. This leads to reasonable doubts about the evaluation made by the risk assessor. The IRA has not properly considered a number of factors that could have a major impact on the assessment of this particular risk. Accordingly, the Panel finds that the reasoning articulated in Australia's IRA, with respect to the likelihood of entry, establishment and spread of European canker, including the IRA's estimation of the value for the respective probabilities, does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(k) Potential biological and economic consequences associated with European canker

(i) *Summary of the Parties' arguments*

7.750 New Zealand argues that Australia's analysis of the consequences of European canker does not constitute an evaluation of the "associated potential biological and economic consequences" of the disease within the meaning of the SPS Agreement. In its view, "the IRA's assessment of the overall consequences as moderate is a significant overestimation."²²⁰³

7.751 New Zealand argues that the IRA's rating of "E" for the direct impact of European canker on plant life or health is "a significant overestimate", because the IRA exaggerates the risk of

²²⁰¹ Dr Schrader's reply in Transcript of the Panel's meeting with experts, para. 195.

²²⁰² Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 16. See also, Australia's first written submission, paras. 74, 218 and 239.

²²⁰³ New Zealand's first written submission, para. 4.332. See also, New Zealand's second written submission, paras. 2.662 and 2.685.

establishment or spread of European canker in Australia.²²⁰⁴ In New Zealand's view, because of the Australian climate conditions, "the direct impact of European canker on plant life or health in Australia would be at most minor, even at the local level."²²⁰⁵

7.752 New Zealand also disputes the IRA's analysis of the direct impact of European canker on other aspects of environmental effects. In New Zealand's view, the IRA's analysis of the Tasmanian outbreak in this regard is flawed. New Zealand argues that "there are few areas in Australia where European canker could establish and spread".²²⁰⁶

7.753 New Zealand also argues that the IRA's analysis of the indirect impact of European canker "exaggerates the predicted overall effect that European canker would have on Australia".²²⁰⁷ According to New Zealand, "*N. galligena* is not known worldwide to cause damaging diseases of amenity plants."²²⁰⁸ As regards control or eradication, New Zealand submits that "any outbreak is likely to be highly localised [and c]onsequently, the costs of eradication are not likely to be high".²²⁰⁹ Regarding international trade, New Zealand notes that its experience is that "the presence of *N. galligena* has not constrained its trade in apples, with countries other than Australia".²²¹⁰ Finally, New Zealand submits that European canker's "impact on the environment and communities is negligible".²²¹¹ New Zealand argues, in particular, that "there is no basis for the IRA's suggestion that European canker disease ... could have indirect flow-on effects for tourism".²²¹²

7.754 In response, Australia argues that the IRA's analysis of the potential consequences of European canker is objective and credible. Australia submits that, despite its allegations about "exaggeration" and "significant overestimation", New Zealand did not seriously address the issues raised in the discussion on consequences contained in the IRA and failed to establish any flaws with the assessment of consequences.²²¹³

7.755 Australia rejects New Zealand's allegation on the analysis for the direct impact of European canker on plant life or health. Australia submits "that the rating assigned to this criterion by the IRA Team was credible."²²¹⁴ Australia argues that the IRA's analysis contains "a credible evaluation of the likelihood of the establishment or spread of European canker".²²¹⁵ The IRA notes that climatic conditions in approximately 40 per cent of Australian commercial fruit growing areas are conducive to infection and that certain Australian regions have annual mean rainfalls greater than 1000 mm or close to that amount.²²¹⁶ In Australia's view, New Zealand's climate analysis "is too narrow to accurately predict the establishment of European canker ... [T]he potential distribution of European

²²⁰⁴ New Zealand's first written submission, para. 4.326.

²²⁰⁵ New Zealand's first written submission, para. 4.327. See also, New Zealand's second written submission, paras. 2.665-2.666.

²²⁰⁶ New Zealand's first written submission, paras. 4.328-4.329. See also, New Zealand's second written submission, paras. 2.675-2.676.

²²⁰⁷ New Zealand's first written submission, para. 4.330.

²²⁰⁸ *Ibid.*

²²⁰⁹ New Zealand's first written submission, para. 4.331. See also, New Zealand's second written submission, para. 2.678.

²²¹⁰ New Zealand's first written submission, para. 4.332. See also, New Zealand's second written submission, para. 2.682.

²²¹¹ New Zealand's first written submission, para. 4.332. See also, New Zealand's second written submission, para. 2.684.

²²¹² New Zealand's first written submission, para. 4.332.

²²¹³ Australia's first written submission, paras. 673 and 718. See also, Australia's second written submission, para. 590.

²²¹⁴ Australia's first written submission, para. 686.

²²¹⁵ Australia's first written submission, para. 679.

²²¹⁶ Australia's first written submission, para. 678.

canker in Australia covers a much larger area than suggested by New Zealand's climate analysis, showing that the direct impact of European canker on plant life or health in Australia would be more than 'minor', even at the local level."²²¹⁷ Australia argues further that the IRA's examples, regarding the impact to plant life or health do not relate only to Europe and North America, where some popular varieties are similar to those grown in Australia and New Zealand, but also includes material dealing with both Tasmania and New Zealand "which indicates that the disease, where established, has serious consequences ... In any event, given that Australia is currently free from *N. galligena*, in assessing consequences the IRA Team had no option but to draw on the experiences of other countries with the disease."²²¹⁸ Australia argues that recent reports coming out of New Zealand support the IRA's rating of the direct impact of *Neonectria galligena* on plant life or health.²²¹⁹ Finally, Australia submits that New Zealand ignores the fact that the IRA considered that there were a large number of other host species of *Neonectria galligena*, in addition to apples and pears.²²²⁰

7.756 Australia also rejects New Zealand's allegation on the analysis of the direct impact of European canker on other aspects of the environment. Australia argues that the rating assigned by the IRA to this criterion was credible.²²²¹ In this respect, Australia again argues that the IRA's analysis contains "a credible evaluation of the likelihood of the establishment or spread of European canker" and that, given that Australia is free from *Neonectria galligena*, the IRA team had to consider studies from other countries with the disease, exercising its expert judgement in order to take into account differences in the circumstances between Australia and other countries, including on climate and flora.²²²² Australia rejects New Zealand's allegation that the IRA ignored the actual experience from the Tasmanian European canker outbreak. In Australia's view, "[i]t is disingenuous ... to argue that this rigorous eradication program was somehow irrelevant to restricting the spread of the disease."²²²³ Australia additionally submits that "[t]he limited spread of *N. galligena* in Tasmania was also assisted by the absence of airborne ascospores which are better suited to long-distance dispersal than conidia." Even in the absence of ascospores, limited spread among apple trees within and between orchards in Tasmania occurred through rain splashed conidia. However, because "[t]he New Zealand strain of *N. galligena* produces ascospores ... if it established in Australia the impact would be much more severe than in Tasmania." Australia also suggests that "the Tasmanian outbreak was likely to have involved an unique strain of *N. galligena* that required another mating type for reproduction."²²²⁴ Australia rejects New Zealand's assertion that *N. galligena* does not impact on amenity plants. Australia suggests that the "[e]vidence shows that the disease causes considerable damage to trees in private gardens in New Zealand" and that "it is well accepted that common hosts of the fungus include maple, birch, beech, ash, oak, willow and elm trees", many of which are amenity plants in Australia.²²²⁵

7.757 Regarding the IRA's analysis of the indirect impact on control and eradication, Australia rejects New Zealand's arguments and submits that the IRA's rating is credible.²²²⁶ Australia again suggests that New Zealand's climate analysis is "too narrow" and "the potential distribution of European canker in Australia covers a much larger area than suggested by New Zealand".²²²⁷

²²¹⁷ Australia's first written submission, para. 681. See also, Australia's second written submission, paras. 575-577.

²²¹⁸ Australia's first written submission, paras. 682-683. See also, Australia's second written submission, paras. 578-580.

²²¹⁹ Australia's first written submission, para. 684.

²²²⁰ Australia's first written submission, para. 685.

²²²¹ Australia's first written submission, para. 694.

²²²² Australia's first written submission, para. 689.

²²²³ Australia's first written submission, para. 690. See also, Australia's second written submission, paras. 581-582.

²²²⁴ Australia's first written submission, para. 691 (footnotes omitted).

²²²⁵ Australia's first written submission, para. 693.

²²²⁶ Australia's first written submission, para. 702.

²²²⁷ Australia's first written submission, para. 698.

Australia rejects "New Zealand's attempt to downplay the costs of eradication". In its view, "European canker is both difficult and expensive to eradicate once established." Implementing general control methods for European canker, such as fungicide sprays, paints applied to pruning cuts, cultural control, improving host plant resistance and the prevention of fruit rot, would be costly.²²²⁸ Although the IRA acknowledges that cultural practices and chemical measures used to control apple scab in most Australian apple growing regions would assist in controlling European canker, spray treatments alone cannot eradicate existing infections and must be supplemented by removing cankers and treating wounds with an effective paint.²²²⁹ In Australia's view, the Tasmanian outbreak illustrates the appropriateness of the IRA's rating for the indirect impact of control and eradication.²²³⁰

7.758 Australia rejects New Zealand's arguments regarding the IRA's analysis on the indirect impact on international trade. Australia submits that New Zealand presupposes that Australia's export markets are the same as New Zealand's, which already have European canker.²²³¹ In any event, Australia notes that the IRA considered that European canker would only have "a minor impact on international trade at local level ... [and] the impact at the national level was assessed as unlikely to be discernable."²²³²

7.759 Regarding the IRA's analysis on the indirect impact on the environment and on communities, Australia rejects New Zealand's arguments and submits that the IRA's rating is credible.²²³³ Australia submits that New Zealand's reference to a "negligible" impact on the environment and on communities would be other examples of New Zealand attempting to conduct its own risk assessment according to its own methodology.²²³⁴ Australia argues that the Tasmanian outbreak experience illustrates the IRA's proposition that establishment of *Neonectria galligena* in Australia could necessitate increased chemical usage that may have undesirable effects on the local environment as well as a significant impact on the future placement of plant species.²²³⁵ Regarding communities, the Tasmanian outbreak also illustrates the effects of quarantining of the area, the effects on the livelihood of local people, and the effects on tourism.²²³⁶ Finally, Australia rejects New Zealand's arguments dismissing the IRA's analysis regarding the indirect impact of European Canker establishment on tourism. Australia argues that the the elm tree population in gardens and parks of Melbourne are likely to be important to tourism.²²³⁷

(ii) *The Panel's analysis*

7.760 The assessment in the IRA of the potential biological and economic consequences associated with European canker is based on the consideration of a number of direct and indirect criteria. The direct criteria include: plant life or health, human life or health and any other aspects of the environment. The indirect criteria include: control or eradication, domestic trade or industry, international trade, environment and communities. The IRA allocates impact scores for each direct and indirect criterion. The impact scores are from the least significant "A" to the most significant "G".

²²²⁸ Australia's first written submission, para. 699.

²²²⁹ Australia's first written submission, para. 700.

²²³⁰ Australia's first written submission, para. 701.

²²³¹ Australia's first written submission, para. 705. See also, Australia's second written submission, para. 583.

²²³² Australia's second written submission, paras. 584-585.

²²³³ Australia's first written submission, paras. 710 and 717.

²²³⁴ Australia's first written submission, paras. 708 and 713.

²²³⁵ Australia's first written submission, para. 709.

²²³⁶ Australia's first written submission, para. 715.

²²³⁷ Australia's first written submission, para. 716. See also, Australia's second written submission, paras. 586-588.

7.761 Regarding the direct criteria. On plant life or health, the IRA allocates an impact score of "E". The IRA considers the consequences of European canker affecting plant life or health to be minor at a national level, significant at a regional level and highly significant at a district level.²²³⁸ On human life or health, the IRA allocates an impact score of "A". The IRA considers the consequences of European canker on human life or health to be unlikely to be discernable at local level; it notes that "[t]here are no known direct impacts of *N. galligena* on human life or health".²²³⁹ On any other aspects of the environment, the IRA allocates an impact score of "D". The IRA considers the direct consequences of European canker on the environment to be unlikely to be discernable at a national level, of minor significance at a regional level, but significant at a district level and highly significant locally.²²⁴⁰

7.762 Regarding the indirect criteria. On control and eradication, the IRA allocates an impact score of "D". The IRA considers that the costs of control and eradication of an outbreak of European canker would be unlikely to be discernable at a national level and of minor significance at a regional level, but significant at a district level and highly significant locally.²²⁴¹ On domestic trade or industry, the IRA allocates an impact score of "D". The IRA considers that the indirect impact of European canker on domestic trade would be unlikely to be discernable at a national level and of minor significance at a regional level, but significant at a district level and highly significant locally.²²⁴² On international trade, the IRA allocates an impact score of "B". The IRA considers that the indirect consequences of European canker on international trade would not be discernable at a national level and would be of minor significance at a regional level.²²⁴³ On the environment, the IRA allocates an impact score of "C". The IRA notes that any indirect consequences of European canker on the environment are unlikely to be discernable at the regional level, of minor significance at a district and significant at a local level.²²⁴⁴ On communities, the IRA allocates an impact score of "C". The IRA considers that the indirect consequences of European canker on communities would be unlikely to be discernable at a regional level, of minor significance at a district level and significant at the local level.²²⁴⁵

7.763 Considering these impact scores, the IRA concludes that the overall potential biological and economic consequences should be rated as "moderate".²²⁴⁶

7.764 Furthermore, by combining the value for the annual probability of entry, establishment and spread and the outcome of overall consequences, the IRA estimates that the unrestricted annual risk for imported apples from New Zealand is "low". The rating of "low" unrestricted annual risk is the same under the two different scenarios considered by the IRA. As noted above, the IRA considers a first scenario, under which 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers, and a second scenario, under which only 0.1 to 5 per cent of imported apples are distributed to orchard packing houses. This rating of "low" is above Australia's ALOP of "very low". Accordingly, the IRA concludes that "risk management would be required for this pest".²²⁴⁷

7.765 The experts consulted by the Panel are sceptical about the impact scores assigned by the IRA to some criteria. Dr Latorre, for example, noted that "[o]n the basis of reports in the literature and the

²²³⁸ Australia's IRA, Part B, pp. 146-147.

²²³⁹ Australia's IRA, Part B, p. 147.

²²⁴⁰ Australia's IRA, Part B, pp. 147-148.

²²⁴¹ Australia's IRA, Part B, p. 148.

²²⁴² Australia's IRA, Part B, p. 149.

²²⁴³ *Ibid.*

²²⁴⁴ *Ibid.*

²²⁴⁵ Australia's IRA, Part B, p. 150.

²²⁴⁶ *Ibid.*

²²⁴⁷ *Ibid.*

experience of other apple-producing countries, the conclusion arrived at by the IRA with regard to the overall consequence rating (E, moderate) is overestimated."²²⁴⁸ Dr Latorre added that:

"[B]ased on the general overall information in the world, in my opinion European canker is an important disease, but it is not a limiting factor for apple production, nor is it a limiting factor for commercialization outside Australia. At least this hasn't been the situation that I can speak of, in the Chilean production. We do have this problem in part of the country, that farmers can really address, and so far as I know, it has never been a real problem or been a reason for not to commercialize the fruit properly, adequately, in most of the international or local markets. In this regard, I tend to disagree with the moderate conclusion on consequence that [the IRA has] arrived at."²²⁴⁹

7.766 Dr Swinburne concurred and noted that:

"The overall consequence rating of 'E' (moderate) can only be justified if the assumption that climatic conditions in the fruit producing regions of mainland Australia are conducive to the rapid spread of canker from a point source (discarded rotted apples) across a district. As discussed in Q58 & Q66, and in the light of the limited spread experienced in Tasmania, it seems unlikely that this could occur."²²⁵⁰

7.767 Dr Swinburne concluded further that:

"Based on the observation of where [Australia's] fruit growing regions are, taken from [Australia's] submission, and noting that [they lie] within the band with less than a 100 days rainfall on average per year and perhaps nearer to 50. I think the consequences of an infection event within [Australia's] fruit industry would not have as large a damaging effect as [the IRA] had claimed."²²⁵¹

7.768 Regarding some of the evidence submitted by Australia, regarding the consequences of European canker, Dr Latorre noted that plant pathologists may tend to overemphasize the importance of some plant diseases:

"[P]lant pathologists ... tend to consider their work as the most important and most serious of anything in the world. In doing so, we tend to over emphasise the importance of some diseases. I think I make myself that mistake too, sometimes. In reality, diseases are very important, this is true. The question is, is this a limiting factor by which the farmers or the country cannot produce a certain commodity? Speaking on European canker, this is not the case. It has not been the case in any place in the world where this disease has arrived, as far as I know. ... So, I am not surprised about the comments in Annex 3 [of Australia's rebuttal submission]. If you look in the literature, normally [European canker] is called 'a major disease of apple'."²²⁵²

²²⁴⁸ Dr Latorre's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 372.

²²⁴⁹ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 562.

²²⁵⁰ Dr Swinburne's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 373. See also, Dr Deckers's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 371.

²²⁵¹ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 560.

²²⁵² Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 565.

7.769 Regarding the IRA's analysis on the direct consequences of European canker on plant life or health, Dr Latorre added that "European canker has been considered as a major disease of apples, proving economically important in Chile (Latorre et al., 2002), primarily because 2-3 fungicide applications are necessary each year to prevent infections through leaf scars."²²⁵³ However, he noted that European canker has never limited Chilean commercial production, although yields can be reduced and production cost increased.²²⁵⁴

7.770 Dr Latorre noted the IRA's assertion that "[c]limatic conditions in approximately 40% of Australian commercial fruit growing areas are conducive to infection."²²⁵⁵ Dr Latorre pointed out that this conclusion "was only based on annual rainfalls, without any analysis of the climatic conditions during the critical period (e.g., leaf fall in autumn) with regard to the host trees for infection."²²⁵⁶

7.771 With respect to the IRA's assertion that "[t]he main economic impact of the disease results from destruction and removal of individual trees or whole orchards because of girdling of branches, which can significantly reduce crop production yields"²²⁵⁷, Dr Latorre notes that "[r]emoval of whole orchards of bearing trees is extremely rare, if it ever happens. Removal of some young trees may occur."²²⁵⁸

7.772 Dr Latorre also noted the IRA's assertion that "[f]ruit rot generally develops in the field or before harvest, although storage losses of 10–60% of the stored fruit crop have been reported in various parts of the world".²²⁵⁹ In this respect, he explained that:

"In rainy areas at harvest, storage losses are commonly below approximately 2%. In areas free of summer rains at harvest, storage losses are 0%. Storage losses of 10-60% may occur in highly susceptible apple varieties that are inadequately managed (without fungicide treatments under poor cold-storage conditions), a phenomenon that has been observed only in areas with extremely favourable environments and under high inoculum pressure."²²⁶⁰

7.773 Dr Latorre concluded that, "[b]ased on the knowledge of European canker, and according to the general experience observed in other apple exporting countries where European canker is present, considering the consequences impact as 'E' is not credible".²²⁶¹ In his view, "the 'E' score is unreal because it is unlikely that losses can be severe at the district or local level."²²⁶² The economic effects of European canker, in terms of increased costs of winter pruning, fungicide treatments and the

²²⁵³ Dr Latorre's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 372. See also, Dr Latorre's reply to Panel question 86, in List of Replies from the scientific experts to questions posed by the Panel, para. 502.

²²⁵⁴ Dr Latorre's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 372.

²²⁵⁵ Australia's IRA, Part B, p. 146.

²²⁵⁶ Dr Latorre's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 372. See also, Dr Deckers's reply to Panel question 86, in List of Replies from the scientific experts to questions posed by the Panel, para. 500.

²²⁵⁷ Australia's IRA, Part B, p. 146.

²²⁵⁸ Dr Latorre's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 372.

²²⁵⁹ Australia's IRA, Part B, p. 146.

²²⁶⁰ Dr Latorre's reply to Panel question 60, in List of Replies from the scientific experts to questions posed by the Panel, para. 372. See also, Dr Latorre's reply to Panel question 86, in List of Replies from the scientific experts to questions posed by the Panel, para. 502.

²²⁶¹ Dr Latorre's reply to Panel question 86, in List of Replies from the scientific experts to questions posed by the Panel, para. 502.

²²⁶² Dr Latorre's reply to Panel question 86, in List of Replies from the scientific experts to questions posed by the Panel, para. 503.

removal of stem lesions and infected branches, and fruit yield reduction, can be absorbed by farmers with no major consequences to the farmer or to the local apple industry. Moreover, those economic effects can be reversible at local level, rather than permanent. While disease severity can be high at a tree level, disease prevalence and disease incidence are commonly far less than 100 per cent. Finally, "[e]ven under highly-prone environmental conditions, disease progress rate would be low rather than high."²²⁶³

7.774 Regarding the IRA's analysis on the indirect consequences of European canker on control or eradication, Dr Latorre added that the rating of "D" assigned by the IRA:

"[A]ppears to be too high considering: (i). Control of European canker would be unlikely to be too high, physically and economically (ii). Control strategies for other apple diseases (e.g., apple scab, powdery mildew) would help to control European canker. (iii). The rate of disease progress is commonly low, which implies that eventual outbreaks of European canker must be localized, facilitating control and eradication. (iv) The presence of European canker has no effect on apple trade internationally, except with Australia. Thus, eradication of eventual European canker outbreaks would not affect the international trade."²²⁶⁴

7.775 Referring to Australia's argument on the Tasmanian outbreak illustrating the appropriateness of the IRA's rating for the indirect impact of control and eradication, Dr Swinburne noted that:

"[Australia] had an enormous difficulty in getting rid of [the disease], in spite of constant pruning and cutting, and so forth. Even though [there was] no inoculum, there was no spore production. What I should have said ... is that that infection was imported with the trees that [were] planted on that occasion. Those trees were almost certainly infected when they put were in the ground. The desperate difficulty that [Australia] had in getting rid of it from those individual trees was because it was semi-systemic infection. In fact, the infection was moving through the tree inside. Although you cut off a canker there, you were astonished to find another one appearing on a branch over there. But it had not spread from there to there directly, it had gone the other way, it had gone, as we now recognise, semi-systemic infection and that clean planting material is crucial to the prevention of canker. So long as you keep Australia's quarantine system going for new cultivars or new root stocks and make sure that the nurseries that produce the commercial trees are screened absolutely, I don't think Australia will have a particular problem from canker spreading by the airborne route."²²⁶⁵

7.776 It is not the Panel's role to reassess the impact scores assigned by the IRA to specific criteria and propose different scores. In any event, it must be noted that, according to the experts consulted by the Panel, the IRA has a tendency to overestimate the severity of the consequences of European canker in certain aspects. This overestimation affects in particular two of the scores that in the IRA are assigned the more severe scores of "E" and "D" (plant life or health, control or eradication and domestic trade or industry).

²²⁶³ Dr Latorre's reply to Panel question 86, in List of Replies from the scientific experts to questions posed by the Panel, para. 502.

²²⁶⁴ Dr Latorre's reply to Panel question 87, in List of Replies from the scientific experts to questions posed by the Panel, para. 505.

²²⁶⁵ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 563.

7.777 In the light of the above, the Panel concludes that the IRA's evaluation of the potential consequences associated with the entry, establishment or spread of European canker into Australia does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(l) Overall conclusions with respect to the requirements regarding European canker

7.778 For the reasons stated above, the Panel finds that, with respect to its analysis of the likelihood of entry, establishment and spread of European canker, and of the potential consequences associated with the entry, establishment or spread of European canker into Australia, Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A of the SPS Agreement. The flaws described above also constitute a failure by the IRA to take sufficiently into account factors such as the available scientific evidence, the relevant processes and production methods in New Zealand and Australia, and the actual prevalence of European canker, as required by Article 5.2 of the SPS Agreement.

7.779 Accordingly, Australia's requirements regarding European canker on New Zealand apples are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement. Since the requirements are not based on a risk assessment as provided in Article 5.1 of the SPS Agreement, these measures can be presumed, more generally, not to be based on scientific principles within the meaning of Article 2.2.²²⁶⁶ Accordingly, the Panel finds that Australia's requirements regarding European canker on New Zealand apples are, by implication, also inconsistent with Article 2.2 of the SPS Agreement".

(m) Methodological flaws identified by New Zealand

7.780 The Panel has already found that the IRA's choice of probability interval and midpoint for events with a "negligible" likelihood of occurring, as well as the combination of this probability interval with the use of a uniform distribution to model the likelihood of these events, are not properly justified in the IRA and lead to an overestimation of the probability of entry, establishment and spread of the pests at issue. The Panel found that, because of these methodological flaws, Australia's requirements regarding fire blight on New Zealand apples are inconsistent with Articles 5.1, 5.2 and 2.2 of the SPS Agreement.

7.781 Because the methodological flaws also affect Australia's requirements regarding European canker, there is no need for the Panel to make a separate determination in this regard for these requirements. Accordingly, the Panel finds that, with respect to the methodological flaws described above, Australia's requirements regarding European canker on New Zealand apples are inconsistent with Articles 5.1, 5.2 and 2.2 of the SPS Agreement.

6. Requirements regarding ALCM

7.782 As with other pests, the IRA contains a section describing the biology of ALCM, a description of the risk scenario, a discussion of the likelihood of entry, establishment and spread of ALCM, an assessment of the consequences, a description of the unrestricted risk and, finally, a discussion of risk management measures.²²⁶⁷

7.783 New Zealand has challenged Australia's inspection and treatment requirements regarding apple leafcurling midge on New Zealand apples. As described in New Zealand's panel request, these requirements include the following options:

²²⁶⁶ Appellate Body Report on *Australia – Salmon*, paras. 137-138.

²²⁶⁷ Australia's IRA, Part B, pp. 157-192.

"[T]he option of inspection of each lot on the basis of a 3000 unit sample selected at random across the whole lot for apple leafcurling midge, symptoms of quarantineable diseases, quarantineable pests, arthropods, trash and weed seeds, with detection of any live quarantineable arthropod resulting in appropriate treatment or rejection for export;

[T]he option of inspection of each lot on the basis of a 600 unit sample selected at random across the whole lot for symptoms of quarantineable diseases, trash and weed seeds, plus mandatory appropriate treatment of all lots."²²⁶⁸

7.784 New Zealand argues that Australia has failed to evaluate the likelihood of entry of ALCM. With respect to the IRA's analysis of the probability of importation, New Zealand argues that "there is frequently no objective and rational relationship [in the IRA] between the scientific evidence that is cited for a step and the probability value that is chosen. Indeed, frequently a value is chosen in the absence of sufficient scientific support."²²⁶⁹

7.785 New Zealand also argues that Australia has "failed to evaluate the likelihood of 'establishment or spread' of the disease."²²⁷⁰

7.786 New Zealand also adds that "[the IRA's] purported analysis of the 'associated potential biological and economic consequences' of ALCM constitutes nothing more than a listing of unsubstantiated assumptions. It is not an evaluation of those consequences within the meaning of the *SPS Agreement*."²²⁷¹

7.787 In New Zealand's view, there is "no evidence that the consequences foreseen by the IRA would occur."²²⁷²

7.788 The Panel will analyze this requirement regarding apple leafcurling midge under Articles 5.1 and 5.2 of the SPS Agreement by focusing on the specific alleged flaws in the IRA identified by New Zealand in its various submissions. The Panel will consider whether New Zealand has properly made the case that:

- (a) In assessing the likelihood of ALCM entry and establishment, the IRA did not properly take into account the proportion of cocoons with viable ALCM;
- (b) In assessing the viability of ALCM inside occupied cocoons, the IRA did not properly take into account the possible effect of parasitism caused by the wasp *Platygaster demades*;
- (c) The IRA's evaluation of the establishment and spread of ALCM is based on incorrect assumptions regarding the flight range of ALCM;
- (d) The IRA's evaluation of the establishment and spread of ALCM is based on incorrect assumptions regarding the period that would be needed for ALCM to emerge after the apples have been removed from cold storage;

²²⁶⁸ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2. See also, Australia's IRA, Part B, pp. 188-192.

²²⁶⁹ New Zealand's first written submission, paras. 4.334-4.335.

²²⁷⁰ New Zealand's first written submission, para. 4.350.

²²⁷¹ New Zealand's first written submission, para. 4.377.

²²⁷² New Zealand's first written submission, para. 4.373.

- (e) The IRA did not properly take into account the climatic conditions that are necessary for the establishment and spread of ALCM;
- (f) The IRA is based on wrong assumptions regarding the mode of trade of New Zealand apples imported into Australia; and,
- (g) The IRA fails to properly evaluate the potential biological and economic consequences associated with the pest.

7.789 The Panel will conduct this review by considering the arguments raised by New Zealand in the context of the IRA's analysis on ALCM. Accordingly, the Panel will consider the issues as follows: the available data on viability of ALCM cocoons; the effect of parasitism on viability of ALCM inside occupied cocoons; the flight range for ALCM; the period of emergence; the climate conditions for spread of ALCM in Australia; the mode of trade; and, the potential biological and economic consequences associated with ALCM.

7.790 For each of those issues, the Panel will identify the scientific basis underlying the relevant analysis in the IRA. Having identified that scientific basis, the Panel will then verify whether it comes from a respected and qualified source. Finally, the Panel will assess whether the reasoning articulated in the IRA on the basis of the scientific evidence is coherent and objective. In other words, as noted by the Appellate Body in *Canada/US – Continued Suspension*, "whether the particular conclusions drawn by [Australia's IRA] find sufficient support in the scientific evidence relied upon".²²⁷³

(a) Available data on viability of ALCM cocoons

(i) *Summary of the Parties' arguments*

7.791 New Zealand argues that Australia's IRA did not take into account the proportion of cocoons with viable ALCM in its assessment of the likelihood of ALCM entry and establishment.²²⁷⁴ In New Zealand's view, this fact "is obvious from the text of the IRA".²²⁷⁵

"Australia ignored the scientific evidence available on the viability of cocoons found on New Zealand apples and focussed only on presence of cocoons, regardless of whether they contain live ALCM. However, cocoons themselves are not a risk factor for ALCM. It is only cocoons that contain viable ALCM that pose a potential risk. Thus, Australia's conclusions about the level of infestation of New Zealand apples are not supported by scientific evidence."²²⁷⁶

7.792 New Zealand adds that Australia's measures are "based on the assumption that the overall percentage of viable cocoons was 100%".²²⁷⁷ However, "the scientific evidence indicates that the great majority of cocoons on New Zealand apples are not viable, either because the midge inside has already developed into an adult and left the cocoon (and the cocoon is thus empty), or because it has died inside the cocoon (and thus the cocoon is non-viable)".²²⁷⁸ New Zealand refers to a paper by

²²⁷³ Appellate Body Report on *Canada – Continued Suspension*, para. 590.

²²⁷⁴ New Zealand's second written submission, para. 2.692. See also, New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 101.

²²⁷⁵ New Zealand's second written submission, para. 2.692.

²²⁷⁶ New Zealand's first written submission, para. 4.111.

²²⁷⁷ New Zealand's second written submission, para. 2.223.

²²⁷⁸ *Ibid.*

Rogers *et al.* (2006), and submits that this paper shows that according to which only 15 per cent of ALCM cocoons may contain live pupae.²²⁷⁹

7.793 Australia responds that, although the level of viable ALCM on New Zealand apples "is an important issue"²²⁸⁰, in preparing its IRA, it confronted a "significant lack of data available" on several key issues in dispute, including the viability of ALCM.²²⁸¹ Australia argues that it had to exercise "expert judgement" in this situation. "In this circumstance of scientific uncertainty, the IRA Team had to exercise its expert judgment and estimate values for the probability of importation that would be appropriate for the whole of New Zealand taking into account variations between different areas of New Zealand and potential variations in prevalence levels between seasons."²²⁸²

7.794 Australia adds that, while exercising expert judgement, the IRA Team did take into account the issue of viability in ALCM cocoons, so that it did not consider cocoons themselves to be a risk factor and "used a triangular distribution for Importation step 2, which factored in the relatively low viability rate of cocoons by skewing the distribution towards the lower likelihood end and thereby giving less weight to the maximum value".²²⁸³ The IRA Team used the August 2005 data provided by New Zealand to estimate the probability of importation of ALCM. The IRA Team assumed that this data reflected viability in cocoons. Australia noted New Zealand's acknowledgement during the experts consultation stage that the August 2005 data referred to occupied cocoons; Australia submitted, however, that New Zealand had failed to provide any evidence in support of its assertion.²²⁸⁴

7.795 Australia considers that, in any event, New Zealand has misinterpreted the results of the Rogers *et al.* (2006) paper as to the proportion of cocoons on New Zealand apples containing viable ALCM.²²⁸⁵ In Australia's view, according to the Rogers *et al.* (2006) paper, "around 25% of the total number of cocoons found in the sample of apples contained viable ALCM – not 15% as New Zealand claims".²²⁸⁶ Furthermore, the 25 per cent estimate of viable cocoons in Rogers *et al.* (2006) "was probably an underestimation".²²⁸⁷ Therefore, the results of the Rogers *et al.* (2006) paper "are unreliable, and they do not reflect the potential for seasonal and geographic variability".²²⁸⁸

7.796 Australia concludes that "New Zealand's faulty estimations of the level of viable ALCM infestation of New Zealand apples has irredeemably tainted its estimations of likelihood of entry,

²²⁷⁹ Rogers *et al.*, "Apple Leafcurling Midge Cocoons on Apple: Pupal Occupancy and Mortality" (2006), in Exhibit NZ-17. See New Zealand's first written submission, para. 4.337; New Zealand's second written submission, para. 2.708-2.712.

²²⁸⁰ Australia's reply to Panel question 97 after the second substantive meeting, para. 435.

²²⁸¹ Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 107. See also, Australia's second written submission, para. 633; Australia's closing oral statement at the second substantive meeting of the Panel with the Parties, para. 25; Australia's reply to Panel questions 31 and 97 after the second substantive meeting, paras. 185, 435 and 436; Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 176.

²²⁸² Australia's second written submission, para. 633. See also, Australia's reply to Panel question 88 after the first substantive meeting.

²²⁸³ Australia's first written submission, para. 729. See also, Australia's reply to Panel question 80 after the first substantive meeting; Australia's second written submission, para. 626; Australia's reply to Panel question 97 after the second substantive meeting, para. 439.

²²⁸⁴ Australia's second written submission, paras. 629-632.

²²⁸⁵ Australia's first written submission, para. 731; Australia's second written submission, para. 623.

²²⁸⁶ Australia's first written submission, para. 731.

²²⁸⁷ Australia's first written submission, para. 733.

²²⁸⁸ Australia's second written submission, para. 623.

establishment and spread, and consequently its assertion as to the level of risk and the efficacy of particular measures to reduce the risk to achieve Australia's ALOP".²²⁸⁹

(ii) *The Panel's analysis*

7.797 Importation step 2 for the probability of entry, establishment and spread of ALCM refers to the likelihood that picked apple fruit is infested with ALCM. The IRA estimates this likelihood as a triangular distribution with a minimum of 1.5×10^{-2} , a maximum of 0.115 and a most likely value of 5×10^{-2} .²²⁹⁰ The IRA's estimation in this regard is "based on the evidence that contamination rates for pupae or larvae of apple leafcurling midge range from 1-2% to 11.5% of apples in the Bay of Plenty and the Waikato region respectively ..."²²⁹¹ This evidence is contained in a paper by Tomkins *et al.* (1994), which contains a survey conducted in April and May of 1994 of 30 blocks of Braeburn apples in the Waikato region and one block in the Bay of Plenty (both regions in New Zealand). The study found that 0-11.5 per cent of harvested apples were infested with ALCM cocoons, and that 63 per cent of cocoons were empty (contained no pupae).²²⁹² It contains no data on the viability of ALCM pupae inside occupied cocoons.

7.798 New Zealand takes issue with the relevance and quality of the data in Tomkins *et al.*²²⁹³ More importantly, New Zealand argues that this data is insufficient insofar as the likelihood that picked apple fruit is infested with ALCM cannot be properly estimated without taking into account the viability of ALCM pupae inside occupied cocoons. New Zealand has provided the Panel with a copy of the paper by Rogers *et al.* (2006) mentioned above.²²⁹⁴ This study found rates of 36.5 per cent to 42.2 per cent of empty cocoons in apples from three varieties (Braeburn, Fuji and Royal Gala) surveyed in the Nelson region (in New Zealand) during 2005. The study also found that "nearly 60% of all cocoons contained dead ALCM".²²⁹⁵ Death was determined by prodding larvae and pupae found inside the cocoons; "death characterized as failure to move when prodded".²²⁹⁶ Shrivelled larvae or pupae were considered to be non-viable. In a subsequent letter, prepared during the course of this dispute and submitted by New Zealand, the main author of the Rogers *et al.* (2006) paper explained that the 60 per cent figure for dead pupae "included both occupied and unoccupied cocoons".²²⁹⁷ Expressed as a percentage of occupied cocoons only, the mean mortality was estimated as 75 per cent.²²⁹⁸

7.799 As a matter of fact, the IRA notes the observations contained in the Rogers *et al.* (2006) paper regarding the viability of ALCM cocoons found on New Zealand apples.²²⁹⁹ Notwithstanding this fact, Australia has explained that it questioned the use of the prodding test to establish whether non-

²²⁸⁹ Australia's first written submission, para. 736.

²²⁹⁰ Australia's IRA, Part B, p. 160.

²²⁹¹ *Ibid.* See also, Tomkins *et al.*, "A survey of Apple Leafcurling Midge (*Dasyneura mali*) management in Waikato orchards" (1994), pp. 346-349, in Exhibit NZ-43.

²²⁹² Tomkins *et al.*, "A survey of Apple Leafcurling Midge (*Dasyneura mali*) management in Waikato orchards" (1994), pp. 346-349, in Exhibit NZ-43.

²²⁹³ New Zealand's first written submission, para. 4.336; New Zealand's second written submission, para. 2.692; New Zealand's comments on Australia's replies to Panel question 31 after the second substantive meeting, para. 101.

²²⁹⁴ Rogers *et al.*, "Apple Leafcurling Midge Cocoons on Apple: Pupal Occupancy and Mortality" (2006), in Exhibit NZ-17.

²²⁹⁵ *Ibid.*

²²⁹⁶ Rogers *et al.*, "Apple Leafcurling Midge Cocoons on Apple: Pupal Occupancy and Mortality" (2006), in Exhibit NZ-17.

²²⁹⁷ Letter by Dr David J Rogers to Biosecurity New Zealand (18 August 2008), in Exhibit NZ-102.

²²⁹⁸ *Ibid.*

²²⁹⁹ Australia's IRA, Part B, pp. 160 and 191-192.

shrivelled ALCM larvae or pupae were alive or dead.²³⁰⁰ According to Australia, the prodding test is not very accurate, because individuals that do not move in response to prodding could be viable. Australia argues that the use of the prodding test may have resulted in underestimating the number of viable cocoons.²³⁰¹ In order to establish mortality, it would be better to observe whether occupants emerge as adults.²³⁰² Indeed, Dr Cross notes some of the limitations of the Rogers *et al.* (2006) paper. He submits, for example, that "Australia is ... right to question the use of the prodding test ... as this would not be a very accurate test." At the same time, Dr Cross acknowledges that a more accurate test for establishing mortality, such as rearing to adult, "could well [find] that mortality is considerably higher than established by examination and prodding." Dr Cross notes that, given the crucial importance of viability in calculating risks and determining appropriate sample sizes, Australia's IRA should take viability into account and, accordingly, a more rigorous study should be conducted. Until good data is produced, and given the lack of data and likely variable nature of this parameter, Dr Cross suggests that Australia would be entitled to a conservative estimate of 50 per cent viability.²³⁰³

7.800 The IRA contains some scientific data regarding the likely level of infestation with ALCM of apples from New Zealand and on cocoon occupancy, i.e., the proportion of cocoons containing pupae. However, the IRA devotes little consideration to the issue of viability of ALCM pupae in occupied cocoons: what proportion of those cocoons contain viable ALCM larvae or pupae.²³⁰⁴ Notwithstanding Australia's argument that the IRA Team used the August 2005 data provided by New Zealand unaware that this data did not reflect viability in cocoons, there is no mention of this factor in the IRA. On this point, the evidence cited by the IRA is limited to the Rogers *et al.* (2006) paper.²³⁰⁵ The IRA refers to this paper, but then does not seem to take into account the findings on cocoon occupancy and viability in the estimation for importation step 2.²³⁰⁶ As noted above, Australia says that the IRA does take viability into account by using the triangular distribution that skewed the results towards the lower end of the likelihood range.

7.801 Additional evidence, which became available during these proceedings and was submitted by New Zealand at the time of its second written submission, indicates that a substantial proportion of ALCM cocoons emerging from cold storage did not contain viable insects.²³⁰⁷ Australia has challenged the appropriateness of considering this evidence, arguing that the IRA Team could not have taken into account data that was not available to it at the time.²³⁰⁸ Article 5.2 of the SPS Agreement provides that in their risk assessments Members shall take into account available evidence. In any event, it is not necessary for the Panel to express a view on whether scientific evidence that was not available at the time of the risk assessment should be considered when determining the conformity of a risk assessment with Article 5.1.²³⁰⁹ Disregarding the Sandanayaka

²³⁰⁰ Australia's first written submission, para. 733.

²³⁰¹ *Ibid.*

²³⁰² *Ibid.* See also, reply of Dr Cross to Panel question 97, in List of Replies from the scientific experts to questions posed by the Panel, para. 566.

²³⁰³ Dr Cross's reply to Panel question 97, in List of Replies from the scientific experts to questions posed by the Panel, para. 566-568.

²³⁰⁴ Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 584, 590, 594, 626, 674 and 678. See also, Dr Cross's reply to Panel question 104, in List of Replies from the scientific experts to questions posed by the Panel, para. 614.

²³⁰⁵ Australia's IRA, Part B, p. 160. See also, Australia's IRA, Part B, pp. 191-192.

²³⁰⁶ Dr Cross's reply to Panel question 109, in List of Replies from the scientific experts to questions posed by the Panel, para. 650.

²³⁰⁷ Sandanayaka and Rogers, "Effect of cold storage on emergence and mortality of apple leafcurling midge" (2009), pp. 1-8, in Exhibit NZ-119. See, reply of Dr Cross in Transcript of the Panel's meeting with experts, para. 582.

²³⁰⁸ Australia's reply to question 2 from New Zealand after the second substantive meeting, para. 554.

²³⁰⁹ Appellate Body Report on *Japan – Apples*, para. 215.

and Rogers (2009) study, the fact remains that the IRA did not take into account data on viability of ALCM pupae inside occupied cocoons. Presumably, if only 25 per cent of cocoons contain viable ALCM, as Australia interprets the Rogers *et al.* (2006) paper, or for argument's sake if the percentage of viable ALCM is even higher, the values for importation step 2 should in any event be considerably smaller than estimated in the IRA.²³¹⁰ In this respect, Dr Cross expressed his view that, "[i]f only 25% of cocoons contain viable ALCM then the values should be 4 times smaller."²³¹¹ Indeed, importation step 2 assesses the likelihood that picked apple fruit is infested with ALCM, based on the estimated number of apples infested with cocoons.

7.802 The use of the prodding test, criticized by Australia, does not necessarily mean that the Rogers *et al.* (2006) paper underestimated the number of viable cocoons. Although, in some cases, insects may not have moved when prodded, leading to an overestimation of mortality, in other cases prodding could also have resulted in underestimating the level of mortality of ALCM. Observation continuing to adulthood might result in finding that mortality of ALCM is considerably higher than measured by prodding, because some pupae that moved when prodded and where accordingly scored as live may die subsequently and fail to emerge as adults.²³¹² Dr Cross expressed his view that the data in the IRA regarding the viability of ALCM, is "inadequate for an objective and credible assessment".²³¹³

7.803 The Panel notes Australia's argument that, in the absence of sufficient scientific data, the IRA Team exercised its expert judgement.²³¹⁴ Australia states that "it is true that [in the IRA] certain steps in the pathways assessed were better supported by evidence than others. In those latter cases, expert judgment was employed."²³¹⁵ In Australia's view, however, "this does not affect the overall sufficiency of scientific evidence in the Final IRA Report, and the Final IRA Report did not rely on 100% expert judgment."²³¹⁶ Australia adds that "in exercising its expert judgment ... the IRA Team took into account the available scientific evidence on a range of factors..."²³¹⁷

7.804 The Panel has already considered Australia's arguments regarding the use of expert judgement in the IRA.²³¹⁸ As noted above, while expert judgement may be an important tool for the risk assessor, it is not a substitute for the necessary scientific data, especially for the purpose of estimating the likelihood of entry, establishment and spread of a pest. In accordance with the relevant ISPMs,

²³¹⁰ In its section on Risk Management for ALCM, the IRA notes that "New Zealand provided additional data (Rogers *et al.*, 2006) showing that 36–42% of apple leafcurling midge cocoons on apples were empty, and nearly 60% of all cocoons contained dead apple leafcurling midge. However, the IRA team still considers that this low level of infestation is still a risk, albeit a lower risk and maintains that a 3000 fruit inspection is required." Australia's IRA, Part B, p. 192. There is no explanation of how the IRA team reached this conclusion.

²³¹¹ Dr Cross's reply to Panel question 109, in List of Replies from the scientific experts to questions posed by the Panel, para. 650.

²³¹² Dr Cross's reply to Panel questions 97 and 110, in List of Replies from the scientific experts to questions posed by the Panel, paras. 566 and 652.

²³¹³ Dr Cross's reply to Panel question 97, in List of Replies from the scientific experts to questions posed by the Panel, para. 564; Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 584, 586, 588 and 590.

²³¹⁴ See, for example, Australia's first written submission, para. 21; Australia's reply to Panel questions 88 and 93 after the first substantive meeting; Australia's second written submission, paras. 9, 121, 124, 241, 401, 467, and 633; Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 3 and 7. See also, Australia's IRA, Part B, pp. 167 and 178.

²³¹⁵ Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 12.

²³¹⁶ *Ibid.*

²³¹⁷ See, for example, Australia's second written submission, para. 520. See also, Australia's second written submission, para. 576.

²³¹⁸ See paras. 7.433-7.440 above.

recourse to expert judgement does not substitute for the use of the available information. The use of expert judgement must be documented and transparent; it must be based on the relevant reliable scientific information, even when that information is limited. Non-compliance with these requirements may produce errors in the exercise of expert judgement. It is not enough to claim, as Australia has done, that in "circumstance of scientific uncertainty, the IRA Team had to exercise its expert judgment and estimate values for the probability of importation that would be appropriate for the whole of New Zealand taking into account variations between different areas of New Zealand and potential variations in prevalence levels between seasons".²³¹⁹ Because it is subject to certain rules, the exercise of expert judgement is not immune from examination by a Panel.

7.805 As noted by Dr Cross, the data on viability rates is crucial, in order to estimate the likelihood that picked apple fruit is infested with ALCM.²³²⁰ New Zealand has made a prima facie case, not rebutted by Australia, that the data on occupancy and viability of ALCM in cocoons on New Zealand apples was not adequately taken into account. There is no indication in Australia's IRA of how the exercise of expert judgement could have cured this. Moreover, because the recourse to expert judgement in the IRA was not documented and transparent, the Panel is prevented from considering how the available scientific evidence was taken into account and conclusions were drawn through this exercise.

7.806 As a result, the Panel finds that the IRA's reasoning regarding the viability of ALCM, is not objectively justifiable.

(b) Effect of parasitism on viability of ALCM inside occupied cocoons

(i) *Summary of the Parties' arguments*

7.807 Another factor that may affect the viability of ALCM inside occupied cocoons is the possible incidence of parasitism, caused by the wasp *Platygaster demades*. New Zealand argues that Australia's IRA did not take into account the possible effect of this type of parasitism on the viability of ALCM cocoons. In New Zealand's view:

"[One of the reasons] for the high number of non-viable cocoons is that a high number of occupied cocoons actually contain dead pupae. This is caused primarily by the wasp, *Platygaster demades*, introduced to New Zealand in 1925 to control apple/pear leafcurling midge. This parasite lays eggs inside the ALCM eggs, develops in the mature ALCM larva and emerges from the ALCM cocoon killing the pupa inside (Shaw *et al.* 2005: 306). Indeed, high levels (50 – 60%) of parasitism by the wasp *Platygaster demades* have been reported recently in third and fourth generation ALCM cocoons (Shaw *et al.* 2005: 310). Heavy parasitism of later generations has also been recorded by Todd 1959: 868."²³²¹

7.808 Again, Australia refers to the limited information available on the question of ALCM prevalence on New Zealand apples, including on the level of parasitism by *Platygaster demades*.²³²² In this circumstance of scientific uncertainty, the IRA Team also exercised its expert judgement.²³²³

²³¹⁹ Australia's second written submission, para. 633. See also, Australia's reply to question 31 from the Panel after the second substantive meeting, para. 185.

²³²⁰ Dr Cross's reply to Panel question 97, in List of Replies from the scientific experts to questions posed by the Panel, paras. 564 and 568.

²³²¹ New Zealand's first written submission, para. 4.110.

²³²² Australia's second written submission, para. 633.

²³²³ *Ibid.* See also, Australia's reply to Panel question 31 after the second substantive meeting, para. 185.

(ii) *The Panel's analysis*

7.809 The IRA notes that:

"[ALCM] is partially controlled in New Zealand by a parasitic wasp, *Platygaster demades* (Walker), an introduced biological control agent (Todd, 1959; Tomkins et al., 2000). In responding to the revised draft IRA New Zealand has provided further information indicating that *P. demades* plays a significant role in reducing apple leafcurling midge populations (Shaw et al., 2005) with high levels of parasitism being recorded. However, this parasitoid is not present in Australia (Evenhuis, 1989). Thus there is no information available to determine if this parasitoid would be effective in controlling apple leafcurling midge in Australia."²³²⁴

7.810 Notwithstanding these references to the existence of *Platygaster demades* in New Zealand, the IRA does not consider the impact of parasitism by that arthropod on cocoon occupancy and viability in the estimation for importation step 2. Presumably, if parasitism by *Platygaster demades* reduces the proportion of viable cocoons²³²⁵, the values for importation step 2 should be considerably smaller.²³²⁶ Consulted by the Panel, Dr Cross expressed his view that the data in the IRA regarding the viability of ALCM, is "inadequate for an objective and credible assessment".²³²⁷

7.811 As noted above, the data on viability rates is crucial, in order to estimate the likelihood that picked apple fruit is infested with ALCM.²³²⁸ The sources of data on the possible effects of parasitism by *Platygaster demades* in Australia's IRA are very sparse and do not seem to have been adequately taken into account. With respect to this point, there is no indication in Australia's IRA that the exercise of expert judgement could have cured the fact that the limited data was not adequately taken into account. Moreover, because the recourse to expert judgement in the IRA was not documented and transparent, the Panel is prevented from considering how the available scientific evidence was taken into account and conclusions were drawn through this exercise.

7.812 As a result, the Panel finds that the IRA's reasoning regarding the viability of ALCM in the light of the possible incidence of parasitism by the wasp *Platygaster demades* is not objectively justifiable.

(c) Flight range for ALCM

(i) *Summary of the Parties' arguments*

7.813 New Zealand argues that the evaluation of establishment and spread of ALCM in Australia's IRA is also based on incorrect assumptions regarding the flight range of ALCM.²³²⁹ New Zealand notes that the IRA's estimation "requires that utility points at which apples will be discarded will be in sufficient proximity to apple trees with growing shoots (given that ALCM only lay eggs on freshly

²³²⁴ Australia's IRA, Part B, p. 176. See also, Australia's IRA, Part B, pp. 178 and 180.

²³²⁵ Dr Cross's reply to Panel question 100, in List of Replies from the scientific experts to questions posed by the Panel, para. 584.

²³²⁶ Dr Cross's reply to Panel questions 104 and 109, in List of Replies from the scientific experts to questions posed by the Panel, paras. 615 and 650; Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 590, 594 and 678.

²³²⁷ Dr Cross's reply to Panel question 97, in List of Replies from the scientific experts to questions posed by the Panel, para. 564; Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 584 and 590.

²³²⁸ Dr Cross's reply to Panel question 97, in List of Replies from the scientific experts to questions posed by the Panel, paras. 564 and 568.

²³²⁹ New Zealand's first written submission, para. 4.352.

unfurling apple tree leaves) for mating and egg laying to occur".²³³⁰ "If apple waste was disposed of more than 100 metres from apple trees, even if ALCM emergence and mating could occur, establishment would not take place because there would be nowhere within flight range for mated female ALCMs to lay their eggs."²³³¹ The IRA "appears to base its calculations on a flight range for ALCM of up to 200 metres, a figure which Australia appears to draw from Suckling *et al.* 2007".²³³²

7.814 In New Zealand's view, there is no scientific evidence to support the assumption that female ALCM can fly up to 200 metres.²³³³ "ALCM are not strong fliers, and are not capable of directional flight over long distances. Mated female midges have been found to have a flight range of less than 30m (Suckling *et al.* 2007: 750). Male flight range is thought to be similar (Suckling *et al.* 2007: 750). As a result, spread of ALCM by flight alone is highly localised."²³³⁴

7.815 Again, Australia refers to the limited information available on the question of ALCM on New Zealand apples, including on the flight distance of ALCM.²³³⁵ In this respect, Australia states that the IRA relied upon scientific evidence from Cross (2005), Suckling *et al.* (2007) and HortResearch (1999b).²³³⁶

7.816 The IRA notes that "[ALCM] were detected in a block of newly established apple trees at 200 metres from the source (the furthest distance tested)".²³³⁷ Australia argues, however, that the IRA placed "relatively little weight on the possibility that ALCM could fly up to 200 metres".²³³⁸ The IRA "did not even refer to the 200 metre figure in its main discussion of ALCM flight distance in the context of a transfer to suitable hosts".²³³⁹

7.817 Australia refers to information from Cross (2005) claiming that male ALCM were caught at distances up to 50 metres when testing sex pheromone traps; the distances beyond 50 metres were not investigated, suggesting that 50 metres was not a maximum distance".²³⁴⁰ Australia adds that, "[i]n any event, it is ultimately female flight that matters for establishment once mating has occurred".²³⁴¹ "The research in Suckling *et al.* (2007) does not speak to the situation where a mated female *must* fly further than 30 metres in order to find a suitable host on which to lay her eggs."²³⁴²

²³³⁰ New Zealand's first written submission, para. 4.353.

²³³¹ New Zealand's second written submission, para. 2.261.

²³³² New Zealand's first written submission, para. 4.353. Suckling *et al.*, "Trapping *Dasineura mali* (Diptera: Cecidomyiidae) in Apples" (2007), in Exhibit NZ-15. See also, New Zealand's reply to Panel question 81 after the first substantive meeting, paras. 186-188; New Zealand's second written submission, paras. 2.237 and 2.736-2.737.

²³³³ New Zealand's second written submission, para. 2.237. See also, New Zealand's second written submission, paras. 2.239-2.243.

²³³⁴ New Zealand's first written submission, para. 3.77. See also, New Zealand's first written submission, paras. 4.116, 4.125; New Zealand's second written submission, paras. 2.244-2.245.

²³³⁵ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 176.

²³³⁶ Australia's first written submission, para. 803. See, Australia's IRA, Part B, p. 171.

²³³⁷ See Australia's IRA, Part B, p. 168. See, Australia's first written submission, para. 803.

²³³⁸ Australia's second written submission, para. 669. See also, Australia's first written submission, para. 803.

²³³⁹ Australia's second written submission, footnote 1178 to para. 669. See, Australia's IRA, Part B, p. 171. See also, Australia's first written submission, para. 803.

²³⁴⁰ Australia's first written submission, para. 804. See Cross (2005), Personal communication from Jerry Cross of East Malling Research, Kent, UK on apple leaf curling midge (30 March 2005), in Exhibit AUS-96. Published in Table 5 of Cross & Hall, *Crop Protection* 28 (2009), pp. 139-144; see, Dr Cross's reply to Panel question 94(iii), in List of Replies from the scientific experts to questions posed by the Panel, para. 534.

²³⁴¹ Australia's first written submission, para. 805.

²³⁴² Australia's second written submission, para. 670.

7.818 Australia adds that:

"New Zealand's claim is predicated on the basis that ALCM has to physically fly the distance to locate hosts but the IRA Team considered that it is equally probable that a gust of wind or other mechanical means can give the ALCM a further boost to its flight range. HortResearch (1999) notes that 'some researchers consider them strong fliers able to disperse well in wind, and [ALCM] has a history of rapid spread when introduced to new areas.'²³⁴³

7.819 Australia finally notes that "a flight range of 30-50 metres for a mated female ALCM would be ample in many cases between an orchard packing house co-located within an apple orchard".²³⁴⁴

(ii) *Analysis of the Panel*

7.820 In relevant part, the IRA notes that:

"Both the adult male and female [ALCM] have wings and are able to fly. Maximum flight activity has been observed under warm, calm conditions, although small numbers have been seen on the wing even when the weather is cool, overcast, and windy. Recent research on the response of apple leafcurling midge to apple midge sex pheromone has shown that 'significant numbers of (male) midges were caught at all distances up to 50m and greater distances were not investigated'; however, 'numbers caught at 50m were still significant (several per day)' and 'no experiments on the distances females can fly' have been attempted (Cross, 2005) ... Suckling et al. (2006) report that female apple leafcurling midges did not fly much further than about 30m to colonise adjacent newly established apple orchards from large populations in mature trees. Female wing loadings were found to be 1.8 times greater than they are for male midges which supports the likely shorter distance of female flight and is consistent with estimates of male distance movements to traps baited with female sexpheromone. Nevertheless, some researchers consider apple leafcurling midge are able to disperse well with the wind (HortResearch, 1999b)."²³⁴⁵

7.821 Commenting on information provided by New Zealand on the distance that ALCM are thought to fly, the IRA states that the "IRA team noted that midge were detected in a block of newly established apple trees at 200 metres from the source (the furthest distance tested)."²³⁴⁶ The 200 metres distance seems to be based on the background rate of infestation shown in Figure 4 of Suckling *et al.* (2007).²³⁴⁷ However, as noted by Dr Cross, this data does not show that these infestations were caused by longer range movement of females from the adjacent block. Suckling *et al.* (2007) only suggest that low levels of ALCM infestation were present on the new trees when they were planted.²³⁴⁸ In any event, the IRA team "concluded that this information from a single experiment in one season did not justify altering the proximity values."²³⁴⁹

²³⁴³ Australia's first written submission, para. 806.

²³⁴⁴ Australia's first written submission, para. 808. See also, Reply of Dr Cross to Panel question 94(iii), in List of Replies from the scientific experts to questions posed by the Panel, para. 534.

²³⁴⁵ Australia's IRA, Part B, p. 171.

²³⁴⁶ Australia's IRA, Part B, p. 168.

²³⁴⁷ Suckling *et al.*, "Trapping *Dasineura mali* (Diptera: Cecidomyiidae) in Apples" (2007), in Exhibit NZ-15.

²³⁴⁸ Dr Cross's reply to Panel question 94(iii), in List of Replies from the scientific experts to questions posed by the Panel, para. 534.

²³⁴⁹ Australia's IRA, Part B, p. 168.

7.822 Dr Cross expressed his view that, generally speaking, there is little scientific data regarding the flight range of ALCM.²³⁵⁰ The data cited in the IRA²³⁵¹ confirms that ALCM is a weak flier; it tends to spend most of the time close to the ground and only flies to lay its eggs on growing apple shoots when wind conditions are slight.²³⁵² The small amount of available evidence shows that the ALCM is unlikely to fly long distances.²³⁵³ As noted by the IRA, Cross (2005) found that male ALCM could be attracted over a distance of 50 metres (the greatest distance investigated) away from the host plant by a sex pheromone lure. Dr Cross noted that the flight range of females relative to males has not been investigated. In his opinion, it is possible that the flight range of females is shorter than males, because females are carrying the additional weight of eggs. He cautioned, however, that females tend to have slightly larger, and perhaps stronger, bodies and wings which might compensate.²³⁵⁴ There is also no evidence to support the IRA's argument that gusts of wind may increase the flight range of female ALCM. Although this is something that would seem logical, ALCM avoids flying in windy conditions.²³⁵⁵ Accordingly, there is no indication that the evidence considered by the IRA Team on the flight range for ALCM does not come from respected and qualified sources.

7.823 In conclusion, in the Panel's view, there is insufficient scientific evidence that would have allowed Australia to reach a definitive conclusion on the precise flight range for ALCM.²³⁵⁶ In any event, in the light of the limited information there is, the lack of a precise flight range for ALCM does not necessarily call into question the IRA's reasoning regarding whether orchards surrounding wholesale pack houses may be located at a distance that is within the flying range of ALCM. Australia's assertion that "a flight range of 30-50 metres for a mated female ALCM would be ample in many cases between an orchard packing house co-located within an apple orchard"²³⁵⁷, seems reasonable.²³⁵⁸ Although it is unlikely that a mated female midge would be able to fly hundreds of metres, the 200 metre distance noted by the IRA would not be unreasonable.²³⁵⁹

7.824 As a result, accepting for the moment the IRA's assumptions regarding the way in which New Zealand apples would be distributed in Australia²³⁶⁰, the Panel finds that New Zealand has not made a prima facie case that orchards surrounding wholesale packing houses would not be located at a distance that is within the flying range of ALCM.²³⁶¹

²³⁵⁰ Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 584, 586, 614 and 674.

²³⁵¹ Personal communication from Jerry Cross of East Malling Research, Kent, UK on apple leaf curling midge (30 March 2005), in Exhibit AUS-96; Suckling *et al.*, "Crop colonisation by apple leaf curling midge" (2006); HortResearch, "Insects and mites of pipfruit and stonefruit" (1999).

²³⁵² Australia's IRA, Part B, p. 157. Dr Cross's replies in Transcript of the Panel's meeting with experts, para. 586 and 614.

²³⁵³ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 584.

²³⁵⁴ Dr Cross's reply to Panel question 94(iii), in List of Replies from the scientific experts to questions posed by the Panel, para. 534.

²³⁵⁵ *Ibid.* See also, Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 584, 610, 612 and 674.

²³⁵⁶ Dr Cross's reply to Panel questions 94(iii) and 103, in List of Replies from the scientific experts to questions posed by the Panel, paras. 535 and 597; Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 584.

²³⁵⁷ Australia's first written submission, para. 808.

²³⁵⁸ Dr Cross's reply to Panel question 94(iii), in List of Replies from the scientific experts to questions posed by the Panel, para. 534; Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 584.

²³⁵⁹ Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 586 and 614.

²³⁶⁰ Australia's IRA, Part B, pp. 171-172. The Panel will return to this issue below, see paras. 7.856-7.865 below.

²³⁶¹ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 584.

(d) Period of emergence

(i) *Summary of the Parties' arguments*

7.825 New Zealand argues that the evaluation of establishment and spread of ALCM in Australia's IRA is also based on incorrect assumptions regarding the period that would be needed for ALCM to emerge after being removed from cold storage.²³⁶²

7.826 According to New Zealand, "ALCM will not emerge from fruit as soon as it is removed from cold storage. It first has to break diapause and complete pupation, which takes at least 13-18 days (Barnes 1948: 36). Thus, an ALCM could not emerge from a viable cocoon attached to a discarded apple during the few hours it might remain uncovered as waste."²³⁶³

7.827 In its second written submission, referring to recent research²³⁶⁴, New Zealand reiterates its position that viable ALCM would need at least 13 days to emerge after being removed from cold storage.²³⁶⁵ New Zealand emphasizes, however, that whatever the minimum length of time for adult ALCM emergence, the key fact would be "that emergence of viable individuals would be staggered over a prolonged period of time and not, as Australia assumed, simultaneously after removal from cold storage".²³⁶⁶

7.828 In New Zealand's view:

"Australia's measures are based on the incorrect assumption that all ALCM present on New Zealand apples would simultaneously emerge as soon as the apples were removed from cold storage.²³⁶⁷ In order for this to be true all ALCM present on New Zealand apples would have to be fully developed pupae which, upon being taken out of cold storage, would not require any development time. As confirmed by the experts, this assumption is not supported by the scientific evidence."²³⁶⁸

7.829 New Zealand adds that, "the prolonged period of emergence substantially decreases the chance of male and female emerging during the necessary time frame for mating."²³⁶⁹

7.830 Australia responds that New Zealand should not be permitted to raise the issue of the extended period of time over which adult emergence may take place, because it had not raised that issue in its first written submission. In Australia's view, this is an issue that New Zealand raised only after having heard the replies by one of the experts to questions posed by the Panel.²³⁷⁰

²³⁶² New Zealand's first written submission, para. 4.116-4.124.

²³⁶³ New Zealand's first written submission, para. 4.131.

²³⁶⁴ Sandanayaka and Rogers "Effect of cold storage on emergence and mortality of apple leafcurling midge" (2009), pp. 1-8, in Exhibit NZ-119.

²³⁶⁵ New Zealand's second written submission, para. 2.247.

²³⁶⁶ *Ibid.*

²³⁶⁷ (*footnote original*) IRA, p. 171, which states: "...adults could emerge from the pupal stage after the apples have been taken out of cold storage, or wherever the cold chain is broken, such as at unpacking and repacking facilities or retailers and during the transportation of purchased apples from retailers to households or with fruit that is dumped": This is confirmed by Professor Cross: Cross RPQ, Q 94 (i), p. 2.

²³⁶⁸ New Zealand's second written submission, para. 2.246. See also, New Zealand's comments on Australia's replies to Panel question 24 after the second substantive meeting, para. 77.

²³⁶⁹ New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 104.

²³⁷⁰ Australia's reply to Panel question 24 after the second substantive meeting, para. 140.

7.831 Australia adds that New Zealand has failed to demonstrate any serious flaw with the IRA. Australia argues that the issue of whether sufficient quantities of New Zealand apples will be co-located and remain out of cold storage for a sufficient period of time for a mating pair of ALCM to emerge within close enough proximity to a suitable host at an appropriate time of year has been appropriately taken into account in the IRA.²³⁷¹

7.832 In Australia's view, New Zealand seems to assume that the insects in the cocoons on imported New Zealand apples will all be at exactly the same stage of development; that is, the prepupal stage prior to metamorphosis of the pupal stage. However, the IRA considered it more likely that, when harvest occurs, various ALCM present in cocoons will be at different stages of development. It is probable that some larvae will have progressed beyond the prepupal stage to the pupal stage and will be ready to emerge as adults as soon as the appropriate environmental triggers are encountered by the pupa, rather than wait the 13-18 days as recorded by Barnes (1948).²³⁷²

7.833 Australia submits further that New Zealand's arguments, predicated on its view that the 13-18 day development period referred to in Barnes (1948) commences only once insects are removed from cold storage, are unsupported by evidence. By contrast, as noted by Dr Cross, "Australia is probably correct to assert that (some) adults could emerge as soon as the appropriate triggers are encountered by the pupa." Australia adds that Dr Cross emphasised that the conditions in respect of diapause, temperature and time requirements for development have not been determined for ALCM, and concluded that "Australia's IRA relating to this issue was objective and credible and relied on [the] limited scientific evidence available."²³⁷³

(ii) *Analysis of the Panel*

7.834 The IRA notes that:

"A stakeholder claims that key factors for the termination of pupal diapause in New Zealand include critical day length and subsequent temperatures. First adult emergence in New Zealand is synchronised with unfurling young apple shoots and Tomkins et al. (2006) report emergence of overwintered adult midge from mid-September to mid-November. Pupal development time to adult emergence is claimed to be 30 days at a constant 23°C (MAFNZ, 2006a) based on field collected pre-pupae reared in the laboratory so it is certainly unrealistic to take 30 days as a minimum. Fluctuating temperatures in the field mean that pupal development time could be shorter or longer than 30 days and until further data sets are available it is unwise to rely upon pupal development times at such unrealistic temperatures."²³⁷⁴

7.835 The Panel has already rejected Australia's argument that New Zealand should be prevented from raising issues that it did not raise in its first written submission, including issues that were raised after having heard the replies of the experts consulted by the Panel.²³⁷⁵ In any event, the Panel notes that the specific issue of whether the IRA contains incorrect assumptions regarding the period that would be needed for ALCM emergence is part of New Zealand's claim that Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 of the SPS Agreement and is therefore within the Panel's terms of reference. This issue was initially raised by New Zealand in its first written submission.²³⁷⁶ As noted before²³⁷⁷, the Panel sees no impediment in Parties setting out and

²³⁷¹ Australia's second written submission, para. 639.

²³⁷² Australia's first written submission, para. 797.

²³⁷³ Australia's second written submission, para. 658.

²³⁷⁴ Australia's IRA, Part B, p. 171.

²³⁷⁵ See paras. 7.80-7.82 above.

²³⁷⁶ New Zealand's first written submission, para. 4.116-4.124.

progressively clarifying their arguments in their successive submissions and statements before the Panel, in the light of each other's arguments, of the arguments advanced by Third Parties, of the questions posed by the Panel, and of the explanations provided by the experts consulted by the Panel.

7.836 The IRA notes that "[i]f mature larvae or pupae survive cold storage or controlled atmosphere storage, adults could emerge from the pupal stage after the apples have been taken out of storage, or wherever the cold chain is broken".²³⁷⁸ Dr Cross expressed his opinion that the IRA's reasoning in this regard seems objective and credible.²³⁷⁹

7.837 As noted by Australia, it seems likely that ALCM in cocoons on apple fruits emerging from cold storage will be at a wide range of stages of development, including: larvae that have just cocooned and need to complete diapause and post-diapause development; mature larvae that have just cocooned and do not require diapause, but have to complete pupal development; pupae at various stages of development, including some at late stages of development that were nearly ready to emerge as adults at the moment of entering into cold storage.²³⁸⁰ New Zealand has not provided scientific evidence to prove its apparent assumption that cold storage of apples would kill individuals that were pupating or force them into diapause.²³⁸¹

7.838 Dr Cross has noted that the overall effect of this broad range of ALCM development stages is a prolonged period of emergence of viable individuals. The emergence period of the midges would depend on the conditions in which the fruit has been stored, and the environmental conditions when it is released in Australia (the time of year, temperatures, etc.). The resulting emergence could be a protracted one, of many weeks.²³⁸² This protracted emergence of ALCM adults relative to their short life span would substantially decrease the chances of a male and female ALCM emerging within the time frame of a few days, which is required for successful mating. The likelihood of establishment would thus be substantially reduced.²³⁸³ As noted by Dr Cross, "[i]f the midge is only able to survive for a couple of days in the natural world and the midges are emerging over a period of 3, 4, 5, 6 weeks or maybe up to a year, then the chances of the establishment of the infestation are very significantly reduced."²³⁸⁴

7.839 There is no evidence in the IRA regarding the time necessary for ALCM to emerge after apples have been removed from cold storage. Consulted by the Panel, Dr Cross expressed his view that Australia's assertion that some adults could emerge as soon as the appropriate triggers are encountered by the pupae may be correct, but is not supported by sufficient evidence.²³⁸⁵ Similarly,

²³⁷⁷ See paras. 7.80-7.82 above.

²³⁷⁸ Australia's IRA, Part B, p. 171.

²³⁷⁹ *Ibid.* See also, Dr Cross's reply to Panel questions 94(i) and (viii), in List of Replies from the scientific experts to questions posed by the Panel, paras. 532 and 547.

²³⁸⁰ Dr Cross's reply to Panel questions 94(i) and (viii), in List of Replies from the scientific experts to questions posed by the Panel, paras. 532 and 546; Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 582.

²³⁸¹ Dr Cross's reply to Panel question 94(i), in List of Replies from the scientific experts to questions posed by the Panel, para. 532.

²³⁸² Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 582. See, Sandanayaka and Rogers "Effect of cold storage on emergence and mortality of apple leafcurling midge" (2009), pp. 1-8, in Exhibit NZ-119.

²³⁸³ Dr Cross's replies to Panel questions 102, 109 and 115, in List of Replies from the scientific experts to questions posed by the Panel, paras. 594, 650 and 672; Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 590 and 630.

²³⁸⁴ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 590. See also, Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 630.

²³⁸⁵ Dr Cross's reply to Panel question 94(i), in List of Replies from the scientific experts to questions posed by the Panel, para. 531.

New Zealand's contention that at least 13 to 18 days would be needed is not sufficiently supported by evidence.²³⁸⁶ In response to Dr Cross's responses, Australia has pointed to the IRA and submitted that "[i]t is clear ... that the IRA Team fully appreciated the many uncertainties and small likelihoods associated with the potential of ALCM to establish in Australia."²³⁸⁷ This does not respond to the question, however, of whether the IRA took into account the impact of the protracted emergence of ALCM adults on the likelihood of transfer, nor does it identify any evidence in the IRA regarding the necessary time for ALCM emergence.

7.840 As noted by Dr Cross, the issue of the protracted emergence of ALCM, in relation to its short life-span, is an important factor in considering the likelihood of transfer.²³⁸⁸ There is no evidence in the IRA regarding the necessary time needed for ALCM to emerge after being removed from cold storage. Nor does the IRA's reasoning take into account the fact that a longer period of adult emergence would substantially reduce the likelihood of small numbers of individuals in a consignment emerging within a few days of each other and being able to mate and lay eggs to start a population.²³⁸⁹

7.841 As a result, the Panel finds that the IRA's reasoning regarding the likelihood of transfer of ALCM in the light of the protracted emergence of ALCM is not objectively justifiable.

(e) Climatic conditions for spread of ALCM in Australia

(i) *Summary of the Parties' arguments*

7.842 New Zealand argues that the IRA did not properly take into account the climatic conditions that are necessary for the establishment and spread of ALCM.²³⁹⁰ According to New Zealand, "there is also no scientific basis for the IRA's conclusions in respect of the likelihood of ALCM spread, because the IRA failed to factor in climatic issues ... The IRA did not deal with the important issue of climate, and the conditions necessary for ALCM survival, at all."²³⁹¹

7.843 New Zealand contends that:

"Even if ALCM were to establish in Australia, the likelihood of spread is remote. ALCM distribution and pest status appears to be limited to cooler wetter climatic conditions, such as those found in temperate coastal regions (Rogers 2006: 1). ...

Based on [the experience of other regions of the world], if ALCM were ever to become established in Australia, it is highly unlikely that it would become successfully established in all of the areas where apples are grown commercially and

²³⁸⁶ Dr Cross's reply to Panel question 94(i), in List of Replies from the scientific experts to questions posed by the Panel, para. 530; Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 582.

²³⁸⁷ Australia's comments on the experts replies to questions, para. 257.

²³⁸⁸ Dr Cross's replies to Panel questions 102, 109 and 115, in List of Replies from the scientific experts to questions posed by the Panel, paras. 594, 650 and 672; Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 590 and 630.

²³⁸⁹ Dr Cross's replies to Panel questions 94(i), 102 and 104, in List of Replies from the scientific experts to questions posed by the Panel, paras. 532, 594 and 615. See also, Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 678.

²³⁹⁰ New Zealand's second written submission, para. 2.761-2.762. See also, New Zealand's reply to Panel question 81 after the first substantive meeting, paras. 191-192; New Zealand's second written submission, para. 2.764; and New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 107.

²³⁹¹ New Zealand's second written submission, paras. 2.761-2.762 (footnote omitted). See also, New Zealand's second written submission, paras. 2.268 and 2.766.

where apple trees are grown in domestic gardens. It is highly unlikely that ALCM would either establish or have any pest status in the areas of Australia which do not have suitable climatic conditions (e.g. areas north of Canberra, including Sydney, which are too hot and dry)."²³⁹²

7.844 According to New Zealand, "[t]he IRA's failure to take into account climate issues allowed it to overestimate the likelihood of ALCM spread in Australia. ... Indeed, if the only area conducive to ALCM establishment is Tasmania then this greatly reduces the likelihood of ALCM establishment and spread."²³⁹³

7.845 Australia responds that the IRA "took into account climate-related issues for [ALCM] spread".²³⁹⁴ It notes that the IRA states that, "[a]pple leafcurling midge has spread all over New Zealand since its accidental introduction in about 1950. There are similar environments in Australia that would be suitable for its spread."²³⁹⁵

7.846 In its first written submission, Australia argues that "Australian states such as Victoria, Tasmania and New South Wales have the types of cool climate suited to the establishment and spread of ALCM, and a considerable proportion of Australia's commercial apple producing regions are situated in such regions."²³⁹⁶

7.847 Subsequently, in response to a question from the Panel, Australia goes further and states that:

"To the extent that the pests at issue [including ALCM] are pests of apples, pears and other host plants, the climatic conditions in Australia would be suitable for establishment of the three pests in all areas that apples, pears and other host plants grow. These areas include the major cities of Perth, Adelaide, Melbourne, Hobart and Sydney. It also includes most of south-eastern Australia and south Western Australia."²³⁹⁷

7.848 Australia also argues that, contrary to New Zealand's contention, "[the IRA's] assessment of the probability of spread did not assume that ALCM would necessarily spread to *all* apple growing areas and gardens of Australia, nor should it have done. 'Spread' will have been achieved if the pest spreads beyond its place of establishment to any other part of Australia."²³⁹⁸

(ii) *The Panel's analysis*

7.849 As noted above, there is very little mention in the IRA regarding the existence of climatic conditions necessary for spread of ALCM in Australia. The IRA only notes that "Apple leafcurling midge has spread all over New Zealand since its accidental introduction in about 1950. There are similar environments in Australia that would be suitable for its spread."²³⁹⁹

7.850 Consulted by the Panel, Dr Cross expressed his view that "clearly there are certain climatic requirements for the midge's survival and we do know that it doesn't occur everywhere in the world

²³⁹² New Zealand's first written submission, paras. 4.364-4.365. See also, New Zealand's first written submission, paras. 4.369 and 4.375; New Zealand's second written submission, para. 2.780.

²³⁹³ New Zealand's second written submission, para. 2.766 (footnote omitted). See also, New Zealand's second written submission, para. 2.767.

²³⁹⁴ Australia's first written submission, para. 812.

²³⁹⁵ *Ibid.* See also, Australia's IRA, Part B, p. 177.

²³⁹⁶ Australia's first written submission, para. 813.

²³⁹⁷ Australia's reply to Panel question 54 after the second substantive meeting, para. 301.

²³⁹⁸ Australia's first written submission, para. 813 (original emphasis).

²³⁹⁹ Australia's first written submission, para. 812. Australia's IRA, Part B, p. 177.

and there are parts of the world where apples are grown and the apple-leaf curling midge doesn't exist."²⁴⁰⁰

7.851 Australia agrees that "ALCM is a pest of cool climates".²⁴⁰¹ In this regard, Dr Cross notes that:

"In Europe, where [ALCM] seems to have reached its equilibrium position, it doesn't occur in the Southern European areas of Southern Spain, in Italy South of Naples. Similarly, over in the United States it doesn't occur in the more southerly areas. I think the thing is that [ALCM] needs cool temperatures, a sufficient accumulation of cool temperatures in winter to break diapause. Unless diapause is broken, the emergence in spring is not synchronized properly. In areas that don't have a sufficient period of cool in winter the midge cannot exist. I am questioning whether those limits have been established in Australia. If you look at a world map of where the midge exists, it doesn't seem to occur in latitudes much less than about 38°. I haven't investigated this thoroughly, but clearly in these warmer areas there are not sufficient cool temperatures in winter and that limit has not been established in Australia by a climatological analysis. ... So, I am suggesting that a study needs to be done of these factors and it needs to be established where in Australia the climatological conditions exist for the midge based on its known distribution throughout the world."²⁴⁰²

7.852 The same expert notes additionally that ALCM long-term survival also requires wet summer weather:

"[T]he midge also needs reasonably regular summer rainfall. Although it can clearly survive droughty periods for a year or two, drought conditions in summer do not favour it ... and it needs reasonably regular summer rainfall in order for it to be a successful species and it doesn't occur in areas of the world that are dry. A great example of this is Washington State where West of the Cascade Mountains, where there is quite a lot of rainfall, the apple-leaf curling midge exists. But to the East of that mountain range, there is an arid area where there is little summer rainfall in the central summer months, and the midge doesn't exist. Presumably, because there is insufficient moisture for it to complete its development."²⁴⁰³

7.853 In the opinion of Dr Cross, "[ALCM] will only spread and cause a problem in areas of Australia where the climate is suitable for its existence".²⁴⁰⁴ The expert adds that "overall, the vast bulk of the territory of Australia has an unsuitable climate for apple leaf curling midge. And it's only in these very southerly areas where there's adequate rainfall, that [ALCM] poses a risk."²⁴⁰⁵

7.854 Australia's IRA does not adequately consider the issue of the existence of climatic conditions necessary for establishment and spread of ALCM in Australia and the geographic range of these conditions. The IRA does not contain an analysis in this regard, with reference to a representative

²⁴⁰⁰ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 588.

²⁴⁰¹ Australia's first written submission, para. 821.

²⁴⁰² Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 588. See also, reply of Dr Cross in Transcript of the Panel's meeting with experts, para. 650.

²⁴⁰³ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 588. See also, Dr Cross's replies in Transcript of the Panel's meeting with experts, paras. 632 and 670.

²⁴⁰⁴ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 650.

²⁴⁰⁵ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 634. Dr Cross's reply to Panel questions 94(v) and 117, paras. 536 and 673.

period of time.²⁴⁰⁶ This Panel does not have the authority to conduct such an analysis, as this would amount to a *de novo* exercise. However, if a climatic analysis were to conclude that a suitable climate for establishment and spread of ALCM is limited to particular areas of Australia, this could presumably have a significant effect on the risk assessment.²⁴⁰⁷

7.855 As a result, the Panel finds that the IRA's reasoning regarding the likelihood of establishment and spread of ALCM in Australia, in the light of the existence of necessary climatic conditions and geographic range of these conditions, is not objectively justifiable.

(f) Mode of trade

(i) *Summary of the Parties' arguments*

7.856 New Zealand argues that there is no basis for the assumptions in Australia's IRA "about the normal retail supply chain practices".²⁴⁰⁸ In New Zealand's view:

"Australia failed to take into account that the great majority of New Zealand apples would be exported in retail ready condition and so would not go to orchard wholesalers for re-packing. In addition, Australia failed to take into account that, even if New Zealand apples did go to orchard wholesalers, Australian agricultural waste practices would preclude any opportunity for ALCM establishment."²⁴⁰⁹

7.857 New Zealand adds that the experience of its exporters with respect to apples shipped to other markets, as well as to exports of other horticultural goods to Australia, "clearly indicate that the likely mode of trade for apple exports to Australia would be retail ready packaged fruit".²⁴¹⁰

7.858 According to New Zealand, because the vast majority of apples would be exported to Australia retail-ready, the primary pathway for ALCM establishment, apples at orchard wholesalers, would be "virtually eliminated".²⁴¹¹ "Because New Zealand apples would not require repacking, they would be sent directly to urban centres, which would effectively remove any likelihood of large numbers of apples being near enough to apples trees to be within ALCM female flight range – a key prerequisite to ALCM establishment."²⁴¹²

7.859 Australia responds that, in the absence of any trade having commenced, "[n]either Australia nor New Zealand is in a position to specify with any degree of precision what proportion of apples will be handled by different wholesalers or imported 'retail ready'".²⁴¹³ In this regard, "the frequency that the mode of trade would be via bulk fruit as opposed to 'retail ready' fruit will depend on commercial considerations which will vary according to the market circumstances at any given time."²⁴¹⁴ In its view, it would not be to New Zealand's commercial advantage to limit its exports of

²⁴⁰⁶ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 650. Dr Cross's reply to Panel questions 94(v) and 117, in List of Replies from the scientific experts to questions posed by the Panel, paras. 540, 543 and 677.

²⁴⁰⁷ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 634.

²⁴⁰⁸ New Zealand's second written submission, para. 2.251.

²⁴⁰⁹ New Zealand's second written submission, para. 2.252. See also, New Zealand's first written submission, para. 4.361-4.363.

²⁴¹⁰ New Zealand's reply to Panel question 9 after the second substantive meeting, para. 17. See also, New Zealand's second written submission, para. 2.36-2.40.

²⁴¹¹ New Zealand's second written submission, para. 2.253; New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, paras. 63-64.

²⁴¹² New Zealand's second written submission, para. 2.254.

²⁴¹³ Australia's reply to Panel question 53 after the second substantive meeting, para. 290.

²⁴¹⁴ *Ibid.*

apples to a specific form, such as "retail-ready", without regard for the particular and variable demands of the Australian market.²⁴¹⁵ According to Australia, the required use by Australia's major supermarket chains of their own individual packaging in the form of returnable plastic crates would pose a significant challenge for New Zealand apple exporters to limit their exports to Australia to "retail-ready".²⁴¹⁶

7.860 Australia also argues that even limiting exports to "retail-ready" apples would not ensure that those apples are not handled by orchard packing houses and that repacking and reconditioning of apples are common practices.²⁴¹⁷

(ii) *The Panel's analysis*

7.861 With respect to this issue, the IRA notes the following:

"Stakeholders provided varying views on how imported apples might be distributed. Some stakeholders suggested that a large proportion of apples would come in as bulk produce and be sent to orchard packing houses for regrading and repacking, while other stakeholders suggested that apples would be packed in market ready boxes and sent directly to urban wholesalers for distribution. Two possible scenarios were considered in detail as follows.

One scenario was based on 0.1%–5% of imported apples being distributed to orchard packing houses and the remainder (95%–99.9%) being distributed to urban wholesalers. The other scenario was based on 70%–100% of imported apples being distributed to orchard packing houses and the remainder (0–30%) being distributed to urban wholesalers. Estimates of the number of infested fruit were calculated by running a series of simulations."²⁴¹⁸

7.862 Dr Cross noted that the way in which fruit is handled in Australia would have a significant effect on risk. If large volumes of apples were to be packed and graded in the vicinity of apple orchards, and waste fruit from that process were to be disposed of or held therein, if those apples in turn had infested cocoons on them and a number of midges emerged, they would have a higher chance of making it into the nearby apple orchards.²⁴¹⁹ On the other hand, if fruit was held in refrigerated conditions, or if it was received retail-ready and sold in small quantities to individual consumers, the risk would be greatly reduced. Moreover, apple fruit that is packed and graded ready-for-sale is unlikely to have green leaf material (particularly leaves of the top of the shoots, which are the ones that can be infested with ALCM) attached. It is also unlikely that the packaging itself would be infested with ALCM.²⁴²⁰ This would further reduce the risk.

7.863 The IRA develops two different scenarios, one considering that most imported apples would enter in bulk and be sent to orchard packing houses and the other considering that most apples would be imported in market-ready form and be sent directly to urban wholesalers.²⁴²¹ Because of the

²⁴¹⁵ Australia's second written submission, paras. 652 and 654.

²⁴¹⁶ Australia's second written submission, paras. 651-652. See also, Australia's first written submission, paras. 781-783.

²⁴¹⁷ Australia's second written submission, para. 653.

²⁴¹⁸ Australia's IRA, Part B, pp. 171-172.

²⁴¹⁹ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 596.

²⁴²⁰ Dr Cross's reply to Panel question 98, in List of Replies from the scientific experts to questions posed by the Panel, para. 575. See also, Dr Deckers's reply to Panel question 101, in List of Replies from the scientific experts to questions posed by the Panel, para. 592. See also, New Zealand's comments to experts responses, para. 155; Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 592.

²⁴²¹ Australia's IRA, Part B, pp. 34 and 171-174.

impact that the way in which fruit is handled would have on risk, presumably the two distinct scenarios should have resulted in different estimations of unrestricted risk. However, the overall conclusions of Australia's IRA do not transparently reflect the different level of risk that would occur under each scenario.²⁴²²

7.864 As noted by Dr Cross, "[w]ith respect to ALCM, the proportion of apples shipped retail ready from [New Zealand] to Australia is crucial. If all fruit were shipped as retail ready and held in a cool chain conditions until sold to consumers, the risk of importation, establishment and spread would be greatly reduced, perhaps to negligible levels."²⁴²³

7.865 Little information is provided in the IRA on how the discussion and review of different factors associated with the entry, establishment and spread of ALCM is translated into quantitative estimates. The Panel cannot attempt to recalculate these estimates, as this would constitute a *de novo* review exercise. As noted above, the IRA considers a first scenario, under which only 0.1 to 5 per cent of imported apples are distributed to orchard packing houses, and a second scenario, under which 70 to 100 per cent of imported apples are distributed to orchard packing houses and the remainder to urban wholesalers. As noted by Dr Cross, the fact that imported infested apples are brought in bulk to rural packing houses in proximity to orchards would be quite critical, as compared to retail-ready apples being handled at urban wholesalers.

7.866 In conclusion, Australia's IRA does not adequately reflect how the mode of trade of New Zealand apples imported into Australia was taken into account. If many or most apples were imported from New Zealand "retail-ready", ready-packed in small packages, that were handled at urban wholesalers, as they presumably would be, this mode of trade should have a significant effect on the risk assessment.²⁴²⁴ As noted above, the IRA considers two different scenarios, with widely varying proportions of imported apples being distributed to orchard packing houses as opposed to urban wholesalers. However, consideration of the different possible modes of trade has not had any evident impact on the IRA's conclusions. Again, this issue does not seem to have been adequately considered or transparently reflected in Australia's IRA.

7.867 As a result, the Panel finds that the IRA's reasoning regarding the unrestricted risk for ALCM through the importation of New Zealand apples in Australia, in the light of the mode of trade of those apples, is not objectively justifiable.

(g) Conclusions regarding the IRA's estimation for the likelihood of entry, establishment and spread of ALCM

7.868 In the light of the above, the Panel concludes that the reasoning articulated in Australia's IRA, with respect to the likelihood of entry, establishment and spread of ALCM, contains flaws which are enough to create reasonable doubts about the evaluation made by the risk assessor. The IRA has not properly considered a number of factors that could have a major impact on the assessment of this particular risk.

7.869 The Panel has not found that New Zealand has made a *prima facie* case regarding the existence of flaws in the IRA's reasoning with respect to the issue of whether orchards surrounding wholesale packing houses may be located at a distance that is within the flying range of ALCM.

²⁴²² Australia's IRA, Part B, pp. 187-188.

²⁴²³ Dr Cross's reply to Panel question 98, in List of Replies from the scientific experts to questions posed by the Panel, para. 570. See also, Dr Cross's reply to Panel questions 98, 101 and 121, in List of Replies from the scientific experts to questions posed by the Panel, paras. 574, 591 and 690; Dr Cross's replies in Transcript of the Panel's meeting with experts, para. 662.

²⁴²⁴ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 662.

7.870 The IRA, however, devotes little consideration to the issue of viability of ALCM in occupied cocoons and does not make a rigorous attempt to determine what percentage of those cocoons contain viable ALCM larvae or pupae. Similarly, the IRA does not consider the impact of parasitism by *Platygaster demades* on cocoon occupancy and viability in its estimations. The IRA also fails to take into account the diminished chances of mating of ALCM due to the protracted period of emergence of ALCM adults relative to their short life span. Finally, the IRA does not contain a proper analysis regarding the existence of the geographic range of the necessary climatic conditions for establishment and spread of ALCM in Australia, nor of the likely mode of trade.

7.871 The failure of Australia's IRA to take all of these factors into account is enough to cumulatively create reasonable doubts about the risk assessment with respect to its evaluation of the likelihood of entry, establishment and spread of ALCM. When consulted by the Panel on the IRA's consideration of the issue of cocoon viability in the context of importation step 2, Dr Cross noted that, if more appropriate data was considered, this would impact the whole estimation, and not only the upper or lower values.²⁴²⁵ Similarly, if the IRA had taken the factors described in the preceding paragraph into account, and found that any of them had a significant impact on the analysis, presumably the whole range of estimations, and not just the upper or lower values, could have shifted. Due to these flaws, the IRA's reasoning in this regard cannot be found to be supported by coherent reasoning and sufficient scientific evidence and, in this sense, is not objectively justifiable.

(h) Potential biological and economic consequences associated with ALCM

(i) *Summary of the Parties' arguments*

7.872 New Zealand argues that "the IRA's analysis overstates the likely consequences of ALCM in a number of areas."²⁴²⁶ In New Zealand's view, "Australia's purported analysis of the 'associated potential biological and economic consequences' of ALCM constitutes nothing more than a listing of unsubstantiated assumptions. It is not an evaluation of those consequences within the meaning of the *SPS Agreement*."²⁴²⁷

7.873 New Zealand submits in this respect that the data considered by the IRA to assess the impact of ALCM on plant life and health is outdated; that growers would be very unlikely to assign the same impact rankings to ALCM now²⁴²⁸; that only in the case of young apple trees is ALCM an important pest for which active control methods are recommended²⁴²⁹; that potential ALCM establishment in Australia is limited by geographical and climatic barriers²⁴³⁰; that potential establishment of ALCM would not result in an increase in the use of insecticides or a disruption of existing pest management programmes²⁴³¹; and that actual experience suggests that the IRA is incorrect in anticipating

²⁴²⁵ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 606.

²⁴²⁶ New Zealand's second written submission, para. 2.768. See also, New Zealand's second written submission, para. 2.784.

²⁴²⁷ New Zealand's first written submission, para. 4.377.

²⁴²⁸ New Zealand's first written submission, para. 4.367; New Zealand's reply to Panel question 86 after the first substantive meeting, para. 208. See also, New Zealand's second written submission, paras. 2.769-2.770.

²⁴²⁹ New Zealand's first written submission, para. 4.368; New Zealand's reply to Panel question 86 after the first substantive meeting, para. 211. See also, New Zealand's second written submission, para. 2.774.

²⁴³⁰ New Zealand's first written submission, paras. 4.369 and 4.375. See also, New Zealand's second written submission, para. 2.782-2.783; New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 107.

²⁴³¹ New Zealand's first written submission, paras. 4.371-4.372; New Zealand's reply to Panel question 86 after the first substantive meeting, para. 211. See also, New Zealand's second written submission, para. 2.775-2.777.

consequences from potential establishment of ALCM on domestic and international trade in apples.²⁴³²

7.874 Australia responds that the IRA's analysis of the potential biological and economic consequences of an ALCM incursion is objective and credible.²⁴³³ In Australia's view:

"New Zealand's challenge to the IRA Team's evaluation of the biological and economic consequences of an ALCM incursion in Australia is imprecise and unsubstantiated. Once again, New Zealand has failed to appreciate the methodology used by the IRA Team to make its assessment. New Zealand has failed to identify any evidence that the IRA Team did not take into account or that there were any flaws in its evaluation."²⁴³⁴

7.875 Australia argues that New Zealand incorrectly relies on a paper by Rogers *et al.* (2006) in support of a large number of its assertions in respect of ALCM consequences.²⁴³⁵ Australia adds that New Zealand does not challenge any of the "impact scores" allocated by the IRA to potential consequences.²⁴³⁶

7.876 More specifically, Australia contends that the IRA took into account several sources to assess the impact of ALCM on plant life and health and that New Zealand has failed to provide any evidence that growers would currently assign different impact rankings in respect to ALCM compared to those ascertained earlier²⁴³⁷; that the IRA Team primarily focussed on potential consequences for young trees²⁴³⁸; that New Zealand has failed to provide any evidence or argument to suggest that ALCM would not become a major problem in Australian orchards should it become established²⁴³⁹; that the consequences analysis for ALCM in the IRA considered that potential consequences would only have regional and local, and not national, significance²⁴⁴⁰; that it is inappropriate to draw a direct analogy between New Zealand's current and well-established practices for managing ALCM, and the management practices that may have to be newly implemented in Australia if ALCM was to establish, as invasive species do not necessarily behave in the same way when they are introduced to different parts of the world²⁴⁴¹; that it was not possible for the IRA to assess the degree to which potential predators of ALCM present in Australia would effectively contribute to the biological control of ALCM under Australian conditions²⁴⁴²; that, in considering the consequences from potential establishment of ALCM on international trade in apples, New Zealand has not specified the nature of the "sensitivity" of other markets to ALCM, or how New Zealand addresses those sensitivities.²⁴⁴³

²⁴³² New Zealand's first written submission, paras. 4.374-4.376. See also, New Zealand's second written submission, para. 2.778-2.781.

²⁴³³ Australia's first written submission, paras. 825-850.

²⁴³⁴ Australia's first written submission, para. 850.

²⁴³⁵ Australia's first written submission, para. 827.

²⁴³⁶ Australia's first written submission, para. 828.

²⁴³⁷ Australia's first written submission, paras. 829-832.

²⁴³⁸ Australia's first written submission, para. 833.

²⁴³⁹ Australia's first written submission, para. 834.

²⁴⁴⁰ Australia's first written submission, paras. 835-837.

²⁴⁴¹ Australia's first written submission, paras. 840-842.

²⁴⁴² Australia's first written submission, paras. 843-846.

²⁴⁴³ Australia's first written submission, paras. 847-849.

(ii) *The Panel's analysis*

7.877 Australia's IRA contains a qualitative evaluation of the potential biological and economic consequences associated with the entry, establishment or spread of the relevant pests.²⁴⁴⁴ As described in the IRA:

"The impact of a pest or disease on each direct and indirect consequence criterion is estimated at four levels – local, district, regional and national – and the values derived are translated into a single qualitative score, A–G (Table 10) ...

At each level, the quantum of impact is described as 'unlikely to be discernible', of 'minor significance', 'significant' or 'highly significant'.²⁴⁴⁵

7.878 Based on the impact scores assigned to different criteria (namely, plant life or health, human life or health, other aspects of the environment, control or eradication, domestic trade or industry, international trade, environment, and communities), the IRA estimates the overall consequences of ALCM as being "low". By combining the value for the annual probability of entry, establishment and spread and the outcome of overall consequences, the IRA estimates that the unrestricted annual risk for imported apples from New Zealand is "low". This rating of "low" is above Australia's ALOP of "very low". Accordingly, the IRA concludes that "risk management would be required for this pest".²⁴⁴⁶

7.879 Consulted by the Panel, Dr Cross noted that:

"[S]ome of the terms used [in Australia's methodology for assessing impacts] are relativistic and are not clearly defined. In Table 10 [of the IRA on 'Assessment of local, district, regional and national consequences], much rides on the differences between 'minor', 'significant' and 'highly significant' but the differences between these impacts is not defined in terms of economic loss, the need to apply insecticides or social consequences."²⁴⁴⁷

7.880 Dr Deckers noted that "[in Europe, the] problem of an ALCM infection in an apple orchard is not considered ... as a major problem, but more as a secondary parasite that makes some damage on the leaves without interfering too much with the productivity of the fruit trees."²⁴⁴⁸

7.881 Dr Cross expressed the view that the IRA may have overestimated the assignment of certain impact scores. On the direct impact on plant life or health, the IRA assigned an impact score of "D". While this impact score is "credible", the expert noted that a less-serious impact score of "C" (district level – minor; local level – significant) "would be more appropriate".²⁴⁴⁹ Likewise, the impact score of "D" for the indirect impact on control or eradication is considered "somewhat severe" and a "C" score "would be more objective and credible".²⁴⁵⁰ Dr Cross found that the IRA score for domestic trade or industry, international trade, the environment and communities are "credible and

²⁴⁴⁴ See para. 2.63 above.

²⁴⁴⁵ Australia's IRA, Part B, p. 38.

²⁴⁴⁶ Australia's IRA, Part B, p. 187.

²⁴⁴⁷ Dr Cross's reply to Panel question 96, in List of Replies from the scientific experts to questions posed by the Panel, para. 556.

²⁴⁴⁸ Dr Deckers's reply to Panel question 96, in List of Replies from the scientific experts to questions posed by the Panel, para. 563.

²⁴⁴⁹ Dr Cross's reply to Panel question 96, in List of Replies from the scientific experts to questions posed by the Panel, para. 556.

²⁴⁵⁰ Dr Cross's reply to Panel question 96, in List of Replies from the scientific experts to questions posed by the Panel, para. 559.

objective".²⁴⁵¹ The expert questioned, however, the IRA's discussion on the possible effects of ALCM infestation on skin finish and fruit quality. The expert noted that such effects "are rare". "The type of damage reported from New Zealand has not been reported elsewhere and is extraordinary."²⁴⁵²

7.882 It is not the Panel's role to reassess the impact scores assigned by the IRA to specific criteria and propose different scores. In any event, most of New Zealand's arguments with respect to the IRA's estimation of consequences assume that ALCM would behave in the same way if introduced in Australia as has been observed in other regions. As noted by Australia, "invasive species do not necessarily behave in the same way when they are introduced to different parts of the world".²⁴⁵³

7.883 It must be noted, however, that the IRA has a tendency to overestimate the severity of ALCM consequences in certain aspects. This overestimation affects in particular the four scores that in the IRA are assigned the harshest score of "D" (plant life or health, control or eradication, domestic trade or industry and international trade).

7.884 Moreover, the Panel has already noted that Australia's IRA does not adequately consider the issue of the geographic range and the existence of climatic conditions necessary for establishment and spread of ALCM in Australia. As stated by New Zealand, potential ALCM establishment in Australia can be limited by geographical and climatic barriers. This calls into question the IRA's conclusions regarding the potential biological and economic consequences associated with the entry, establishment or spread of ALCM into Australia.

7.885 In the light of the above, the Panel concludes that the IRA's evaluation of the potential consequences associated with the entry, establishment or spread of ALCM into Australia does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.

(i) Overall conclusions with respect to requirements regarding ALCM

7.886 For the reasons stated above, the Panel finds that, with respect to its analysis of the likelihood of entry, establishment and spread of ALCM, and of the potential consequences associated with the entry, establishment or spread of ALCM into Australia, Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A of the SPS Agreement. The flaws described above also constitute a failure by the IRA to adequately take into account factors such as the available scientific evidence, the relevant processes and production methods in New Zealand and Australia, the actual prevalence of viable ALCM, and relevant environmental conditions, as required by Article 5.2 of the SPS Agreement.

7.887 Accordingly, Australia's inspection and treatment requirements regarding ALCM on New Zealand apples are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement. Since the requirements are not based on a risk assessment as provided in Article 5.1 of the SPS Agreement, these measures can be presumed, more generally, not to be based on scientific principles or not to be maintained with sufficient scientific evidence within the meaning of Article 2.2.²⁴⁵⁴ Accordingly, the Panel finds that Australia's inspection and treatment requirements regarding ALCM on New Zealand apples are, by implication, also inconsistent with Article 2.2 of the SPS Agreement.

²⁴⁵¹ Dr Cross's reply to Panel question 96, in List of Replies from the scientific experts to questions posed by the Panel, para. 560.

²⁴⁵² *Ibid.*

²⁴⁵³ Australia's first written submission, para. 840. See also, Reply of Dr Cross to Panel question 119, para. 676.

²⁴⁵⁴ Appellate Body Report on *Australia – Salmon*, paras. 137-138.

7. General measures

(i) Summary of the Parties' arguments

7.888 In addition to specific requirements regarding fire blight, European canker and apple leafcurling midge, New Zealand challenges three requirements, which it has defined as "general" measures:

- "The requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment.
- The requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices.
- The requirement that packing houses provide details of the layout of premises."²⁴⁵⁵

7.889 New Zealand argues that, with respect to these measures, too, Australia has failed to comply with its obligations under Article 2.2 of the SPS Agreement.²⁴⁵⁶ These measures would also be inconsistent with the requirement in Article 2.2 that they be based on scientific principles and applied only to the extent necessary to protect human, animal or plant life or health.²⁴⁵⁷ In New Zealand's view:

"Since mature, symptomless apple fruit are not a pathway for fire blight or European canker to be transmitted to Australia, and since there is no scientific evidence that entry, establishment and spread of ALCM could occur at the levels of infestation reported on New Zealand apples, there is also insufficient scientific evidence for Australia to maintain its additional measures applicable to all three pests".²⁴⁵⁸

7.890 New Zealand submits that there is no justification in the IRA for the requirement that AQIS officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment. According to New Zealand, because there is no justification for requiring any of these inspections or packing house procedures, and these requirements are in breach of Article 2.2 of the SPS Agreement, there is also no justification for requiring AQIS staff to be involved in orchard inspections, packing house inspections, or in fruit inspection or treatment.²⁴⁵⁹

7.891 New Zealand adds that, although New Zealand apples are processed according to standard commercial practices, there is no justification to require, through a costly program, verification of

²⁴⁵⁵ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3. See also, Australia's IRA, Part B, pp. 150-155.

²⁴⁵⁶ New Zealand's first written submission, paras. 4.141-4.150.

²⁴⁵⁷ New Zealand's first written submission, para. 4.150. See also, New Zealand's second written submission, para. 2.272.

²⁴⁵⁸ New Zealand's first written submission, para. 4.141.

²⁴⁵⁹ New Zealand's first written submission, paras. 4.142-4.144. See also, New Zealand's second written submission, paras. 2.275-2.278.

such compliance by New Zealand. According to New Zealand, Australia does not even attempt to demonstrate any scientific support for this measure.²⁴⁶⁰

7.892 New Zealand also argues that Australia does not attempt to demonstrate any scientific support for the requirement that packing houses provide details of the layout of premises. In New Zealand's view, it is not clear how this measure can be justified, nor what risk is it intended to address.²⁴⁶¹

7.893 New Zealand adds that these three measures also breach Article 5.1 of the SPS Agreement, because the IRA fails to comply with the requirement to evaluate the likelihood of entry, establishment and spread of the relevant pests, according to the SPS measures which might be applied.²⁴⁶²

7.894 In response, Australia argues that the three "general" measures identified by New Zealand are "ancillary measures", which "do not fall within the definition of SPS measure in Annex A(1) of the SPS Agreement".²⁴⁶³ They would constitute "general operational procedures to support the principal risk management measures for the quarantine risks identified in [the IRA]".²⁴⁶⁴ Australia submits that "none of these requirements operate in a concrete way in its own right, and therefore cannot be challenged on an individual basis. Accordingly, the Panel should only assess these requirements when 'taken together' (or, 'as a whole') with the principal risk management measures recommended in the Final IRA Report."²⁴⁶⁵

7.895 Australia adds that a panel need only examine the measures "which actively *reduce the risks of concern* – i.e. the principal risk reduction measures" and not "those measures which do not actually *reduce* the risks themselves, but are required simply to support, verify and operationalise the principal risk reduction measures."²⁴⁶⁶ Australia submits that it "has demonstrated that its principal risk reduction requirements are supported by sufficient scientific evidence". Australia adds that "New Zealand has adduced no evidence to suggest that the ancillary requirements are not valid requirements for ensuring verification and support of the principal measures." Therefore, there would be "no basis for finding the ancillary requirements are not supported by sufficient scientific evidence."²⁴⁶⁷ Australia concludes that the "general" measures are consistent with articles 5.1, 5.2 and 2.2 of the SPS Agreement.²⁴⁶⁸

7.896 The Parties differ as to the exact scope of the three "general" measures identified by New Zealand.²⁴⁶⁹ Most especially, they differ as to the exact scope of the requirement of AQIS

²⁴⁶⁰ New Zealand's first written submission, paras. 4.145-4.148. See also, New Zealand's second written submission, paras. 2.286-2.290.

²⁴⁶¹ New Zealand's first written submission, para. 4.149. See also, New Zealand's second written submission, paras. 2.279-2.285.

²⁴⁶² New Zealand's first written submission, paras. 4.400-4.401.

²⁴⁶³ Australia's second written submission, para. 714. See also, Australia's first written submission, para. 145. See also, Australia's reply to Panel questions 14 and 15 after the first substantive meeting.

²⁴⁶⁴ Australia's first written submission, para. 145.

²⁴⁶⁵ Australia's first written submission, para. 146. See also, Australia's reply to Panel questions 12 and 17 after the first substantive meeting.

²⁴⁶⁶ Australia's first written submission, para. 859 (original emphasis). See also, Australia's first written submission, paras. 868-869.

²⁴⁶⁷ Australia's first written submission, para. 959. See also, Australia's first written submission, paras. 962-969; Australia's second written submission, paras. 715-729.

²⁴⁶⁸ Australia's second written submission, paras. 730-735.

²⁴⁶⁹ See paras. 2.170 to 2.198 above.

involvement. As noted by Australia, "[t]he extent and precise nature of 'AQIS involvement' was not defined in the Final IRA Report."²⁴⁷⁰ Australia adds, however, that this requirement:

"[D]oes *not* require the involvement of AQIS officials in all orchard inspections and packing house operations. Rather, AQIS activities are to be by way of systems audits."²⁴⁷¹ For orchard inspections, the audit would include 100% of survey teams in the field, and the intensity of audits would be adjusted over time based on performance. For packing houses, all relevant packing houses would be audited in their first year of trade."²⁴⁷²

7.897 New Zealand responds that the AQIS involvement for New Zealand apples, which involves the audit of 100 per cent of survey teams and packing houses, "differs in scope and intensity from any form of systems audit familiar to New Zealand, or indeed Australia."²⁴⁷³ According to New Zealand, this requirement is different to the one imposed for stone fruit from New Zealand to Western Australia, imposed only for the first season of trade and involving only a sample of growers and packing houses.²⁴⁷⁴ New Zealand also rejects Australia's link of the AQIS involvement requirement with standard pre-clearance arrangements. Under the IRA's requirement, AQIS officers would undertake audits of survey teams and packing houses while they are in New Zealand. New Zealand submits that audits of survey teams would not take place at the same time as pre-clearance. For example, in the case of fire blight and European canker, orchard inspections would take place long after or well before the export of apples to Australia would have occurred. This would differ to what pre-clearance generally entails, that the usual on-arrival verification requirements would be undertaken outside Australia.²⁴⁷⁵

(ii) *The Panel's analysis*

7.898 The Panel has already concluded that each of the 16 measures at issue constitutes an SPS measure, within the meaning of Annex A(1) of the SPS Agreement.²⁴⁷⁶ The Panel has also concluded that it is not prevented from analyzing the challenged measures either individually or as a whole.²⁴⁷⁷ In the circumstances of the present case, a distinction between principal and ancillary measures would not limit the Panel to considering any of the measures, and in particular the "general" measures, only in conjunction with a "principal" risk management measure.

7.899 Notwithstanding the disagreement between the Parties as to the exact scope of the "general" measures, and most especially of the requirement of AQIS involvement, it is undisputed that these measures are, by their purpose, form and nature, linked to the specific measures regarding the pests at issue in the current dispute.²⁴⁷⁸ There is no discussion in the IRA of scientific evidence that would support these "general" measures; indeed, there is no attempt to provide any separate justification for these measures.

²⁴⁷⁰ Australia's first written submission, para. 151.

²⁴⁷¹ (*footnote original*) This is explained in the Final IRA Report as follows: "AQIS field audits will measure compliance with orchard registration, block identification, pest/disease management/monitoring, records management, and the administration of the area freedom and accreditation requirements." (Final IRA Report, Part B, p. 314.)

²⁴⁷² Australia's first written submission, para. 151.

²⁴⁷³ New Zealand's second written submission, para. 2.276.

²⁴⁷⁴ *Ibid.*

²⁴⁷⁵ New Zealand's second written submission, paras. 2.277. See also, Australia's reply to Panel question 47 after the first substantive meeting.

²⁴⁷⁶ See para. 7.172 above.

²⁴⁷⁷ *Ibid.*

²⁴⁷⁸ See paras. 2.92-2.95 above.

7.900 The IRA introduces the section where these three measures are described explaining that the section provides details "on the recommended quarantine conditions ... and operational procedures required to manage the quarantine risks".²⁴⁷⁹

7.901 In the case of the requirement of AQIS involvement, Australia notes that:

"[T]he AQIS audits of orchard inspections and packing house procedures serve to verify that the principal orchard inspection and disinfection measures for fire blight and European canker are appropriately fulfilled. Verification of fruit inspection processes is aimed at ensuring the appropriate level of efficacy is achieved for the principal fruit inspection requirements for ALCM, as well as the more general fruit inspection requirements."²⁴⁸⁰

7.902 The requirement that packing houses provide details of the layout of premises is linked to the requirement of AQIS involvement in orchard inspections and packing house procedures. Indeed, Australia notes that "[t]his measure is ancillary to the aforementioned requirement, in that it is designed to facilitate AQIS verification of packing house procedures."²⁴⁸¹

7.903 Finally, the requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices is again linked to the measures regarding the pests at issue in the current dispute. In Australia's words, "[t]his measure is an ancillary measure, on the basis that the assumption that orchards will operate under standard commercial practices underpins all the risk management measures recommended in the Final IRA Report, including all the principal measures at issue in this dispute, and hence it is ancillary to them."²⁴⁸²

7.904 The Panel has already found that Australia's requirements regarding fire blight, European canker and ALCM are inconsistent with Articles 5.1, 5.2 and 2.2 of the SPS Agreement. Considering the link in the IRA between the "general" measures identified by New Zealand and the specific requirements regarding fire blight, European canker and ALCM, as well as the lack of any separate justification for these "general" measures in the IRA, the Panel must conclude that with respect to these "general" measures, too, Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A of the SPS Agreement. In imposing these "general" measures the IRA has failed to take into account factors such as the available scientific evidence, the relevant processes and production methods in New Zealand and Australia, and the actual prevalence of fire blight, European canker, and relevant environmental conditions for ALCM, as required by Article 5.2 of the SPS Agreement.

7.905 Accordingly, Australia's "general" measures on New Zealand apples are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement. Because the requirements are not based on a risk assessment as provided in Article 5.1 of the SPS Agreement, these measures can be presumed, more generally, not to be based on scientific principles within the meaning of Article 2.2.²⁴⁸³ The Panel finds that Australia's "general" measures on New Zealand apples are, by implication, also inconsistent with Article 2.2 of the SPS Agreement.

²⁴⁷⁹ Australia's IRA, Part B, p. 313.

²⁴⁸⁰ Australia's reply to Panel question 15 after the first substantive meeting.

²⁴⁸¹ *Ibid.*

²⁴⁸² *Ibid.*

²⁴⁸³ Appellate Body Report on *Australia – Salmon*, paras. 137-138.

8. General conclusion on New Zealand's claims under Articles 5.1, 5.2 and 2.2 of the SPS Agreement

7.906 For the reasons stated above, the Panel has found that Australia's requirements regarding fire blight, European canker and ALCM, as well as the requirements identified by New Zealand as "general" measures that are linked to all three pests at issue in the present dispute, are inconsistent with Articles 5.1, 5.2 and 2.2 of the SPS Agreement.

D. NEW ZEALAND'S CLAIM UNDER ARTICLE 5.5 OF THE SPS AGREEMENT

1. Introduction

7.907 In its panel request, New Zealand claims a violation of the "first sentence" of Article 5.5 of the SPS Agreement²⁴⁸⁴, which reads:

"With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade."

7.908 New Zealand notes that, in the light of the Appellate Body report in *EC – Hormones*, three elements need to be demonstrated to show a breach of this provision:

"First, that the Member imposing the measure complained of has adopted its own appropriate levels of sanitary protection against risks to human life or health in several different situations.

Second, that those levels of protection exhibit arbitrary or unjustifiable differences ('distinctions' in the language of Article 5.5) in their treatment of different situations.

Third, that the arbitrary or unjustifiable differences result in discrimination or a disguised restriction on international trade.^{2485,2486}

7.909 New Zealand argues that all three elements are fulfilled.²⁴⁸⁷ Australia has imposed measures to New Zealand apples that it does not impose in circumstances of comparable risk, as illustrated by the way Australia has treated the importation of nashi pears from Japan.²⁴⁸⁸ In particular, New Zealand compares Australia's appropriate level of protection (ALOP) for New Zealand apples in respect to fire blight (*Erwinia amylovora*) and European canker (*Neonectria galligena*) with Australia's ALOP for Japanese nashi pears in regard to *Japanese Erwinia* and brown rot (*Monilinia fructigena*), respectively. According to New Zealand, these situations are comparable, the levels of

²⁴⁸⁴ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

²⁴⁸⁵ (footnote original) Appellate Body Report, *EC – Hormones*, paras. 214-215. See also Appellate Body Report, *Australia – Salmon*, para.140; and the SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15) adopted at its meeting of 21-22 June 2000, para. 4.2.

²⁴⁸⁶ New Zealand's first written submission, para. 4.432.

²⁴⁸⁷ New Zealand's first written submission, para. 4.433. See also New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 116; and New Zealand's second written submission, para. 2.817.

²⁴⁸⁸ New Zealand's closing oral statement at the second substantive meeting of the Panel with the Parties, para. 13.

protection applied show arbitrary or unjustified distinctions, and these distinctions result in discrimination or a disguised restriction on trade.²⁴⁸⁹

7.910 Australia rejects New Zealand's claim and arguments under Article 5.5 as "flawed"²⁴⁹⁰ and "lack[ing] merit."²⁴⁹¹ Quoting the Appellate Body Report on *EC – Hormones*, Australia argues that the first clause of Article 5.5 of the SPS Agreement sets out the objective of achieving consistency in the application of the concept of ALOP. This objective itself would not impose any legal obligation on Members. The Appellate Body recognized in *EC – Hormones* that this objective does not set a goal of achieving absolute or perfect consistency in ALOP, since governments establish their appropriate levels of protection frequently on an ad hoc basis and over time, as different risks present themselves at different times. It is only arbitrary or unjustifiable inconsistencies that are to be avoided.²⁴⁹²

7.911 Like New Zealand, Australia identifies three elements that need to be demonstrated for a finding of inconsistency with Article 5.5 of the SPS Agreement. At the same time, Australia refers to a part of the Appellate Body report in *Australia – Salmon*, which shows certain differences with the Appellate Body report in *EC – Hormones* as regards the first and second elements:

- the Member concerned adopts different appropriate levels of sanitary protection in several 'different situations';
- those levels of protection exhibit differences which are 'arbitrary or unjustifiable'; and
- the measure embodying those differences results in 'discrimination or a disguised restriction on international trade'.^{2493,2494}

Australia emphasizes that these three elements are cumulative, so New Zealand is required to show that all three elements are present.²⁴⁹⁵

7.912 In addressing New Zealand's Article 5.5 claim, the Panel will follow the approach of the Appellate Body and panels in previous disputes involving Article 5.5 claims.²⁴⁹⁶ As also argued by the Parties, this approach is based on a three-pronged test applied to the second part of the first sentence of Article 5.5. In applying the test, the Panel will also address the apparent differences between the Appellate Body reports in identifying the first and second elements in the test. But before turning to the three limbs of the substantive test under Article 5.5, the Panel will address a threshold issue raised by Australia in regard to New Zealand's claim under this provision.

²⁴⁸⁹ New Zealand's second written submission, para. 2.817. See also New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 116.

²⁴⁹⁰ Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 56.

²⁴⁹¹ Australia's closing oral statement at the first substantive meeting of the Panel with the Parties, paras. 35-36.

²⁴⁹² Australia's first written submission, para. 974.

²⁴⁹³ (*footnote original*) Appellate Body Report, *Australia – Salmon*, para. 140.

²⁴⁹⁴ Australia's first written submission, para. 975.

²⁴⁹⁵ Australia's first written submission, para. 976.

²⁴⁹⁶ See the panel and Appellate Body reports on *EC – Hormones* and *Australia – Salmon*, and the panel report on *Australia – Salmon (Article 21.5 – Canada)*.

2. Threshold issue raised by Australia

7.913 New Zealand's Article 5.5 claim is based on a comparison of the ALOP and measures applied by Australia to fire blight (*Erwinia amylovora*) and European canker (*Neonectria galligena*) in New Zealand apples, and to Japanese *Erwinia* and brown rot (*Monilinia fructigena*) in Japanese nashi pears. Australia raises a threshold issue in regard to this claim. Australia argues that, because New Zealand did not identify Japanese nashi pears as the comparator product until its first written submission, due process was prejudiced and the preparation of Australia's defence was negatively affected.²⁴⁹⁷ Since New Zealand merely listed Article 5.5 in its panel request, Australia had only four weeks to address New Zealand's arguments in its first written submission. Australia is not arguing that New Zealand should have elaborated its arguments on Article 5.5 in its panel request. Rather, New Zealand should have properly outlined its claims under this provision so that Australia could have commenced preparation of its defence before receiving New Zealand's first written submission.²⁴⁹⁸

7.914 New Zealand rejects the threshold issue raised by Australia. In New Zealand's view, the question of the sufficiency of New Zealand's panel request was dealt with by the Panel's preliminary ruling of June 2008. The comparator situation of nashi pears imported from Japan was identified by Australia in the 1998 Final IRA Report for New Zealand apples. It should have come as no surprise to Australia that New Zealand would discuss a comparison that had already been made by the IRA Team. Further, in proving a breach of Article 5.5, the complainant faces particular challenges. It must piece together information on comparator situations drawing on publicly available sources, without having ready access – like the respondent – to all information concerning SPS measures imposed by the respondent on goods from third countries. New Zealand adds that, at the October 2007 consultations in this dispute, Australia did not ask New Zealand to indicate the comparator situations it had in mind in identifying a breach of Article 5.5 in its request for consultations.²⁴⁹⁹

7.915 In response, Australia recognizes that Japanese nashi pears were briefly mentioned in the 1998 Final IRA Report for New Zealand apples. However, as also noted in that Report, there are significant differences between Japanese nashi pears and New Zealand apples. In contrast to New Zealand apples, Japanese nashi pears involve a very low volume of fruit, risk management is based on a robust area freedom arrangement, and a stringent eradication programme is in place in Japan. Accordingly, it is unreasonable to expect Australia to know that nashi pears from Japan would be the comparator situation ten years later in this dispute.²⁵⁰⁰ In any event, it was Australia and not New Zealand that identified the issue of nashi pears in the 1998 IRA; New Zealand has not submitted evidence showing that it raised this issue in 1998 in any claim of discrimination.²⁵⁰¹

7.916 Australia confirms that the consultations of October 2007 did not address the comparison of New Zealand apples with Japanese nashi pears in the context of New Zealand's Article 5.5 claim.²⁵⁰² It is unclear why New Zealand did not raise this at the consultations.²⁵⁰³ As complainant, New Zealand has the onus to ensure through its panel request that Australia, the respondent, fully comprehend the nature of the case it has to answer. It is not the respondent's role to seek further

²⁴⁹⁷ Australia's first written submission, para. 973. See also Australia's second written submission, paras. 163-165.

²⁴⁹⁸ Australia's reply to Panel question 128 after the first substantive meeting. See also Australia's second written submission, para. 170.

²⁴⁹⁹ New Zealand's reply to Panel question 129 after the first substantive meeting.

²⁵⁰⁰ Australia's reply to Panel question 128 after the first substantive meeting.

²⁵⁰¹ Australia's second written submission, para. 170.

²⁵⁰² Australia's reply to Panel question 128 after the first substantive meeting. See also Australia's second written submission, para. 166.

²⁵⁰³ Australia's second written submission, para. 167.

information from a complainant as to the nature of its claims, and there is no mechanism in the DSU to do so.²⁵⁰⁴

7.917 The Panel recalls that Australia advanced similar arguments in the context of its first request for a preliminary ruling by the Panel under Article 6.2 of the DSU. At that time, Australia was complaining that it would be forced to wait until New Zealand's first written submission to learn about the product of comparison:

"There is a further aspect to Australia's claim that the mere listing of the provisions alleged to have been violated is completely inadequate in this case, inhibiting the preparation of Australia's defence. This aspect relates to New Zealand's claims under Article 2.3 and Article 5.5 of the SPS Agreement. Both of these provisions require comparisons to be made between measures adopted by a Member in different situations in order to substantiate claims of discrimination or the imposition of disguised restrictions on international trade. As such, Australia submits that in order to prepare its defence to claims under Article 2.3 and Article 5.5, it requires notice of which measures specified in the Final IRA Report are the subject of these claims and, equally importantly, which of Australia's other SPS measures are being used by New Zealand as points of comparison with the measures in the Final IRA Report.

Australia applies a range of SPS measures in relation to different products from many WTO Members. *New Zealand's failure to identify in its panel request which of those measures it seeks to compare with the measures in the Final IRA Report, in order to substantiate its claims under Article 2.3 and Article 5.5, means that Australia is forced to wait to receive New Zealand's first written submission to identify the basis of its claims under those provisions. Without such information, Australia is not able to commence preparation of its defence in relation to these provisions on the basis of the panel request. Australia submits that such an outcome cannot be consonant with due process. Australia is not arguing that New Zealand should have elaborated its arguments on Article 2.3 and Article 5.5 in its panel request. Australia is arguing that New Zealand should have properly outlined its claims under those provisions so that Australia could commence preparation of its defence before receiving New Zealand's first written submission.*²⁵⁰⁵

7.918 Likewise, in its rebuttal submission on the same preliminary issue, Australia argued that:

"For the statement of a particular legal claim to be sufficient to meet the requirements of Article 6.2 of the DSU, that statement must, at a minimum, provide enough information so that a respondent can 'begin preparing its defence at the beginning of the panel process.'²⁵⁰⁶ Applying this principle to Article 2.3 and Article 5.5, New Zealand should at least have *identified the basis of comparison* that it relies upon in asserting a violation in its panel request. The element of comparison is central to both provisions.

Under the first sentence of Article 2.3, for example, a hypothetical 'claim' might be that certain SPS measures discriminate between Member A and Member B. An 'argument' in support of this claim might be that Australia has given preferential treatment to Member A's market access request over a similar request made by Member B. Where the obligations in a provision turn on a comparison of certain

²⁵⁰⁴ Australia's second written submission, para. 168.

²⁵⁰⁵ Australia's first request for a preliminary ruling, 13 March 2008, paras. 55-56 (emphasis added).

²⁵⁰⁶ (footnote original) Panel Report, *Japan – DRAMs (Korea)*, para. 7.9.

treatment in different situations, for example between Member A and Member B, then a claim under that provision is only partially stated if Member A and not Member B is identified. It is not possible for Australia to commence preparation of its defence under either Article 2.3 or Article 5.5 without knowing the bases for comparison that New Zealand considers relevant."²⁵⁰⁷

7.919 In its preliminary ruling relating to Article 6.2 of the DSU the Panel has already addressed these arguments, including whether due process would be prejudiced by New Zealand identifying the comparator product for its Article 5.5 claim only in its first written submission:

"... [T]he Panel notes that it is not convinced by Australia's arguments that the lack of a more detailed explanation as to how or why the 17 specifically listed measures at issue are considered by New Zealand to be violating the provisions invoked has prejudiced or will prejudice Australia's ability to defend itself in the course of the Panel's proceedings.

Accordingly, the Panel finds that New Zealand's panel request does not fail to provide a brief summary of the legal basis of its complaint, which is sufficient to present the problem clearly, as required by Article 6.2 of the DSU."²⁵⁰⁸

7.920 The Panel concluded in its preliminary ruling that "New Zealand's panel request contains sufficient information regarding the legal basis of the complaint to present the problem clearly with respect to the 17 identified items."²⁵⁰⁹ Further, "the Panel ... allow[ed] this proceeding to continue with respect to the 17 measures specifically identified in New Zealand's panel request and to the alleged inconsistency of such measures with the provisions of the SPS Agreement cited therein", including Article 5.5."²⁵¹⁰

7.921 As New Zealand argues, the Panel's preliminary ruling has already addressed the threshold issue raised by Australia in the context of New Zealand's Article 5.5 claim. There is no need to modify this preliminary ruling. Nevertheless, in line with the explicit reservation in the preliminary ruling²⁵¹¹, the Panel intends to further develop the reasons for its ruling in the light of Australia's subsequent arguments.

7.922 The Panel addressed the threshold issue raised by Australia in the context of New Zealand's Article 5.5 claim, in the part of its preliminary ruling, dealing with whether New Zealand's panel request provides a brief summary of the legal basis of its complaint, as required by Article 6.2 of the DSU. First, the Panel held that New Zealand's panel request laid out a connection between each of the challenged measures and the specific provisions invoked, including Article 5.5 of the SPS Agreement:

"In its panel request, New Zealand has listed a number of provisions of the covered agreements, which it alleges are breached by the measures adopted by Australia. New Zealand has not drawn an explicit and detailed connection between the specific

²⁵⁰⁷ Written submission of Australia in response to New Zealand's submission on Australia's first request for a preliminary ruling, 14 April 2008, paras. 34-35 (original emphasis).

²⁵⁰⁸ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, paras. 11-12.

²⁵⁰⁹ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 13(a).

²⁵¹⁰ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 14.

²⁵¹¹ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, p. 1.

measures challenged and the provisions invoked. New Zealand has only stated in general terms that 'the above measures are inconsistent with the obligations of Australia under [nine provisions of the Agreement on the Application of Sanitary and Phytosanitary Measures, (SPS Agreement)]'.²⁵¹² Having carefully considered the language used in the panel request and the specific content of the provisions of the SPS Agreement cited therein, the Panel understands that New Zealand has claimed that 'every measure ... [identified] in its panel request is inconsistent with each of the [nine] provisions referred to [in the panel request]'.²⁵¹³ In the Panel's view, this satisfies the requirement that the panel request lays out a connection between the various measures challenged and the specific provisions invoked.^{2514,2515}

7.923 The Panel's preliminary ruling then turned to whether New Zealand's panel request provides a brief summary of the legal basis of the complaint that is sufficient to present the problem clearly. At the outset of this analysis, the Panel noted that it "would ideally have preferred a more explicit explanation of *how* or *why* the measures at issue are considered by New Zealand to be violating the identified provisions of the SPS Agreement."²⁵¹⁶

7.924 Disputes under the SPS Agreement, in particular disputes involving more than one pest, disease or product, tend to be particularly complex and require considerable preparation by both parties and panels. It would certainly be helpful if complainants making claims under the SPS Agreement specified as much detail as possible in their panel request to allow more time for the defendant to prepare its defence. The Panel does not agree with New Zealand that the complainant faces particular challenges under Article 5.5 of the SPS Agreement. At the same time, the Panel believes that where the complainant makes claims under provisions of the SPS Agreement that require a comparison of the situation at issue in the dispute with other situations, such as Article 5.5, it would be particularly helpful if complainants specified the situation that was to serve as the basis of comparison.

7.925 However, it is important to bear in mind that the latter situation only serves as a basis of comparison. Strictly speaking, it is not at issue in the dispute. In the current dispute, and in the context of its Article 5.5 claim, New Zealand contests the 17 Australian measures at issue and the *de facto* ALOP reflected in these measures, in regard to New Zealand apples. New Zealand does not claim any inconsistency of Australia's ALOP for Japanese nashi pears, nor of any measures applied by Australia to this product.

7.926 The Panel does not view the comparison situation in this dispute, namely the one relating to Japanese nashi pears, as part of New Zealand's claim. Rather, it belongs to New Zealand's arguments. In *EC – Bananas III*, the Appellate Body established a clear distinction between claims and arguments. "[T]here is a significant difference between the *claims* identified in the request for the establishment of a panel, which establish the panel's terms of reference under *DSU* Article 7, and the

²⁵¹² (footnote original) *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, p. 3.

²⁵¹³ (footnote original) *Australia – Apples*, Written Submission by New Zealand on Australia's Request for a Preliminary Procedural Ruling in Relation to the Consistency of New Zealand's Panel Request with Article 6.2 of the DSU, 7 April 2008, para. 2.51.

²⁵¹⁴ (footnote original) See Appellate Body Report on *US – Oil Country Tubular Goods Sunset Reviews*, para. 162.

²⁵¹⁵ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 10.

²⁵¹⁶ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 11 (original emphasis).

arguments supporting those claims, which are set out and progressively clarified in the first written submissions, the rebuttal submissions and the first and second panel meetings with the parties."²⁵¹⁷

7.927 As recognized by the Panel's preliminary ruling²⁵¹⁸, the Appellate Body also stated that, while an absence of claims in a panel request cannot be corrected at a later stage²⁵¹⁹, there is no requirement for the complainant to specify its arguments in the panel request. "Article 6.2 of the DSU requires that the *claims*, but not the *arguments*, must all be specified sufficiently in the request for the establishment of a panel in order to allow the defending party and any third parties to know the legal basis of the complaint."²⁵²⁰

7.928 The due process consideration with regard to panel requests serves to allow the defendant to "begin" preparing its defence. In this regard, the Panel's preliminary ruling referred to the decision of the Appellate Body in *Thailand – H-Beams*, which provides that:

"Article 6.2 of the DSU calls for sufficient clarity with respect to the legal basis of the complaint, that is, with respect to the 'claims' that are being asserted by the complaining party. *A defending party is entitled to know what case it has to answer, and what violations have been alleged so that it can begin preparing its defence.* Likewise, those Members of the WTO who intend to participate as third parties in panel proceedings must be informed of the legal basis of the complaint. This requirement of due process is fundamental to ensuring a fair and orderly conduct of dispute settlement proceedings."²⁵²¹

7.929 The requirement that the complainant submit a panel request allowing the defendant to "begin" preparing its defence does not amount to a requirement for allowing the defendant to fully develop its defence on the sole basis of the complainant's panel request. Such an interpretation would wipe out any distinction between claims and arguments. It would also reduce to futility the subsequent phases of WTO dispute settlement. It is during the exchange of written submissions and the presentation of oral arguments that the parties confront each other's arguments and counterarguments.

7.930 As the Panel's preliminary ruling stated, the panel request in this dispute identified that New Zealand claims an inconsistency of the 17 measures at issue with, among other specific provisions, Article 5.5 of the SPS Agreement. This allowed Australia to begin preparing its defence. In fact, even without knowing the product of comparison, Australia could start preparing some of its legal arguments concerning New Zealand's Article 5.5 claim, for instance, concerning the legal standard to be applied by the Panel in its analysis of this claim. Following the Panel's preliminary ruling, Australia was fully aware that New Zealand's Article 5.5 claim relates to 17 specific measures in regard to New Zealand apples. Thus, Australia could begin preparing its arguments under Article 5.5 of the SPS Agreement in regard to the specific situation applicable to New Zealand apples, even if it ignored the specific situations to be argued by New Zealand as the other half of the comparisons under Article 5.5.

7.931 Australia could have even begun preparing its defence in regard to this second half of the comparison. As Australia has argued since its first written submission, it has the same stated ALOP for all biosecurity risks from all parts of the world. Further, once New Zealand specified in its panel request that its Article 5.5 claim relates to 17 specific measures in regard to New Zealand apples,

²⁵¹⁷ Appellate Body Report on *EC – Bananas III*, para. 141.

²⁵¹⁸ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 11.

²⁵¹⁹ Appellate Body Report on *EC – Bananas III*, para. 143.

²⁵²⁰ *Ibid.* (original emphasis).

²⁵²¹ Appellate Body Report on *Thailand – H-Beams*, para. 88 (footnotes omitted; emphasis added).

the number of comparable situations that Australia could begin looking at was significantly reduced. In fact, Australia was supposed to take the comparable situations into account when it developed its IRA for New Zealand apples, including the 17 specific measures called into question in this dispute. This is the essence of Article 5.5 with regard to both pre-existing (but currently applicable) and currently developed ALOPs, and the risk management measures to achieve such ALOPs. This is confirmed by the explanations provided in the Guidelines to Further the Practical Implementation of Article 5.5 adopted in June 2000 by the Committee on Sanitary and Phytosanitary Measures. In regard to ALOPs, the Guidelines provide that:

"To avoid arbitrary or unjustifiable differences in the level of protection a Member considers to be appropriate in different situations, a Member should compare any proposed decision on the level of protection in a particular situation with the level it has previously considered or is considering to be appropriate in situations which contain sufficient common elements so as to render them comparable with regard to human life or health, to animal life or health, or to plant life or health.

It can be useful to compare a proposed appropriate level of protection with previous decisions, including those that might have been taken in an ad hoc fashion, to ensure that any differences in levels of protection applied in a similar situation are justifiable and would not result in discrimination or a disguised restriction on international trade. If differences are observed in comparable situations, either the proposed level may need to be modified, or the level of protection previously determined may need to be revised in light of the Member's current views on its appropriate level of protection, or a combination of the two."²⁵²²

7.932 Further, the Guidelines explain that:

"In determining a new or modified appropriate level of protection, a Member should review its previous decisions regarding appropriate levels of protection in the light of the objectives and obligations of Article 5.5, taking into account current decisions and developments.

In undertaking this review, a Member may wish to give priority to the review and revision, as necessary, of those decisions which most substantially deviate from the objectives and obligations of Article 5.5 and which may have the most negative impact on international trade.

Unless changes are made at the same time to all its comparable decisions on appropriate levels of protection, a Member may find it difficult to avoid (at least temporary) unjustifiable differences in levels of protection.

²⁵²² SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, para. A.4. The Panel notes that these Guidelines are "intended to provide assistance to Members in the practical implementation of the provisions of Article 5.5 of the SPS Agreement [and] do not add to nor detract from the existing rights and obligations of Members under the SPS Agreement nor any other WTO Agreement." Further the Guidelines "do not provide any legal interpretation or modification to the Agreement itself [and] are without prejudice to the right of a Member to determine its appropriate level of sanitary and phytosanitary protection against risks to human life or health, or to animal and plant life or health." SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, Introduction.

A Member should review its previous decisions on appropriate levels of protection at suitable intervals."²⁵²³

7.933 The Guidelines include similar explanations with regard to pre-existing (but currently applicable) and currently developed SPS measures to achieve a Member's ALOP.²⁵²⁴

7.934 Furthermore, as New Zealand argues, Australia's 1998 Final IRA Report for New Zealand apples already considered Japanese nashi pears as providing a comparable situation in the context of fire blight:

"Australia has allowed imports of nashi type pears from Japan for some years. Recently the reoccurrence of a bacterial disease bacterial shoot blight was reported in Japan on the island of Hokkaido (Kim *et al*, 1996). This disease is similar to fire blight disease and therefore AQIS immediately suspended imports until the situation could be assessed and adequate arrangements implemented to manage any risks.

...

Trade in [nashi] pears from Japan is broadly comparable to the New Zealand proposal in that it involves trade in a susceptible host product from a country with a disease similar to fire blight. It differs from the New Zealand proposal in that it involves only a very low volume of fruit, risk management is based on a robust area freedom arrangement and there is a stringent eradication program for the disease in place.

The New Zealand proposal does not offer an equivalent level of protection to the protocol in place for trade with Japan."²⁵²⁵

7.935 In sum, the Panel accepts that Australia could not fully develop its defence merely based on New Zealand's panel request. Nevertheless, as explained above, Australia could have begun preparing its defence based on the panel request, and there is no evidence that Australia's ability to defend itself was prejudiced in this dispute. In this regard, the Panel's preliminary ruling provides that, despite the Panel's preference for more explanations by New Zealand as to how or why it considered the measures at issue to violate the identified provisions of the SPS Agreement, there was enough information in New Zealand's panel request for the Panel to allow the case to proceed. "[C]onsidering the language used in the panel request and the specific content of the provisions of the SPS Agreement cited therein, the Panel concludes that New Zealand's panel request contains enough information to adequately inform the responding party and other WTO Members on the nature of the complaint²⁵²⁶ and to allow the responding party to begin preparing its defence.^{2527, 2528}

7.936 The Panel confirms its rejection of the threshold issue raised by Australia in regard to New Zealand's Article 5.5 claim, and turns to the substantive analysis of that claim according to the three elements of Article 5.5 developed by the Appellate Body and previous panels.

²⁵²³ SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, para. A.5.

²⁵²⁴ SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, paras. B.3 and B.4.

²⁵²⁵ See *Final Import Risk Analysis of the New Zealand Request for the Access of Apples* (*Malus pumila Miller var. domestica Schneider*) into Australia (December 1998), in Exhibit AUS-112.

²⁵²⁶ (footnote original) Appellate Body Report on *EC – Bananas III*, para. 142.

²⁵²⁷ (footnote original) Appellate Body Report on *Thailand – H-Beams*, para. 88.

²⁵²⁸ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 11.

3. The three elements of Article 5.5

(a) The first element of Article 5.5

7.937 The panel in *Australia – Salmon* referenced the first element of the Article 5.5 test as "[d]istinctions in levels of protection for 'different situations'"²⁵²⁹, and analysed two aspects of this first element: (i) "different situations"²⁵³⁰; and (ii) "difference in levels of protection".²⁵³¹ The compliance panel in *Australia – Salmon (Article 21.5 – Canada)* looked at the same two aspects of the first element of the Article 5.5 test.²⁵³² Likewise, this Panel will assess whether the situations identified by New Zealand are different (but comparable), and whether they involve a difference in ALOP.

(i) Different but comparable situations

7.938 The first aspect of the first element of the three-pronged test under Article 5.5 involves whether the situations identified by New Zealand are different but comparable. Article 5.5 mentions "different situations", but this term has been interpreted as meaning different but comparable situations. For instance, the panel in *EC – Hormones* noted that it would "refer to ... 'different situations' as 'comparable situations' since these [different] situations need to be compared for the purposes of Article 5.5 and are, therefore, 'comparable'".²⁵³³ In the same dispute, the Appellate Body confirmed that:

"The situations exhibiting differing levels of protection cannot, of course, be compared unless they are comparable, that is, unless they present some common element or elements sufficient to render them comparable. If the situations proposed to be examined are *totally* different from one another, they would not be rationally comparable and the differences in levels of protection cannot be examined for arbitrariness."²⁵³⁴

7.939 This basic requirement that the "different situations" mentioned in Article 5.5 need to be comparable has been inherent in subsequent reports that analysed the first element of the Article 5.5 test.²⁵³⁵

7.940 New Zealand identifies two pairs of comparator situations in its arguments under Article 5.5:

- (a) Australia's requirements on New Zealand apples regarding fire blight (*Erwinia amylovora*), compared with Australia's requirements on Japanese nashi pears regarding *Japanese Erwinia*; and
- (b) Australia's requirements on New Zealand apples regarding European canker (*Neonectria galligena*), compared with Australia's requirements on Japanese nashi pears regarding brown rot (*Monilinia fructigena*).

²⁵²⁹ Panel Report on *Australia – Salmon*, p. 174, DSR 1998:VIII, 3410, at 3640.

²⁵³⁰ Panel Report on *Australia – Salmon*, p. 175, DSR 1998:VIII, 3410, at 3642.

²⁵³¹ Panel Report on *Australia – Salmon*, p. 178, DSR 1998:VIII, 3410, at 3646.

²⁵³² Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.89.

²⁵³³ Panel Report on *EC – Hormones (US)*, para. 8.176; and Panel Report on *EC – Hormones (Canada)*, para. 8.179.

²⁵³⁴ Appellate Body Report on *EC – Hormones*, para. 216 (original emphasis).

²⁵³⁵ See Panel Report on *Australia – Salmon*, paras. 8.115-8.122; Appellate Body Report on *Australia – Salmon*, paras. 143-153; and Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.89. See also SPS Committee's *Guidelines to further the practical implementation of Article 5.5 (G/SPS/15)*, 18 July 2000, paras. A.2 and A.4.

7.941 Both comparisons involve circumstances that are clearly different: they deal with distinct pests and distinct fruits from distinct origins. Whether these comparator situations are comparable depends on whether they fulfil the conditions laid down by the Appellate Body in *Australia – Salmon*:

"Situations which involve a risk of entry, establishment or spread of the same or a similar disease have some common elements sufficient to render them comparable under Article 5.5. Likewise, situations with a risk of the same or similar associated potential biological and economic consequences also have some common elements sufficient to render them comparable under Article 5.5. We, therefore, consider that for 'different' situations to be comparable under Article 5.5, there is no need for both the disease *and* the biological and economic consequences to be the same or similar. We recognize that ... the risk which needs to be examined in a risk assessment, pursuant to Article 5.1 and the first definition of risk assessment of paragraph 4 of Annex A, is the risk of *both* the entry, establishment or spread of a disease *and* the associated potential biological and economic consequences. However, we fail to see how this can be of relevance to the question of comparability of different situations under Article 5.5 We, therefore, conclude that ... situations can be compared under Article 5.5 if these situations involve *either* a risk of entry, establishment or spread of the same or a similar disease, *or* a risk of the same or similar 'associated potential biological and economic consequences'."²⁵³⁶

7.942 Importantly, in developing these alternative conditions of comparability the Appellate Body refrained from qualifying the word "risk" with the term "same or similar". Rather, it used the term "same or similar" to qualify the words "disease" and "associated potential biological and economic consequences". Accordingly, the comparison of situations needs to focus on the diseases or the associated potential biological and economic consequences involved in the comparator situations.

7.943 In other words, the comparability test under the first element of the Article 5.5 analysis does not involve a comparison of risk levels. Indeed, in analysing whether different situations existed in the *Australia – Salmon* dispute, the panel stated that:

"[A]t this stage of our examination we only address the question whether two situations can be compared under Article 5.5. We do not examine nor decide at this point whether the risk (both in the sense of risk of entry, establishment or spread of the disease and the associated consequences) linked to these two situations is the same or has been addressed inconsistently. This issue needs to be examined under the second element of Article 5.5."²⁵³⁷

7.944 The first condition of comparability identified by the Appellate Body refers to "a risk of entry, establishment or spread of the same or a similar disease". In the light of the above, the Panel needs to assess whether the diseases involved in the allegedly comparable situations are effectively the same or similar. The second condition of comparability identified by the Appellate Body refers to "a risk of the same or similar associated potential biological and economic consequences". This requires an assessment of whether the potential biological and economic consequences associated with the diseases are the same or similar. These two conditions of comparability being non-cumulative, the Panel will turn to the second, alternative condition only if it finds that the first one is not fulfilled.

²⁵³⁶ Appellate Body Report on *Australia – Salmon*, para. 146 (original emphasis). See also SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, para. A.2.

²⁵³⁷ Panel Report on *Australia – Salmon*, para. 8.118.

Comparability of fire blight (*Erwinia amylovora*) and Japanese *Erwinia*

7.945 Fire blight (*Erwinia amylovora*) in apples and *Japanese Erwinia* in nashi pears are not the same diseases. They are very similar diseases, though. One of the experts consulted by the Panel, Dr Deckers, confirms that, while in some respects the risks involved in the two pests might be different, "[t]here is a great similarity between the *Japanese Erwinia* associated with nashi pears and *Erwinia amylovora* on apples from New Zealand. In both cases it concerns a bacterial disease on fruits, the one *Japanese Erwinia* on pear and the other fire blight one on apple and pear."²⁵³⁸

7.946 Conceding that "little is known in the literature about [*Japanese Erwinia* as a] Nashi disease", another expert, Dr Paulin, agrees that, apart from certain potential differences in the risks associated with the two pests, "it seems that the bacteria (*Erwinia*-Japan and *E. amylovora*) are very similar but *not identical*, and the symptoms seem similar as well."²⁵³⁹

7.947 Biological similarity is a key element of the comparison of the two diseases. In this respect, the Panel finds the following arguments and evidence submitted by New Zealand particularly convincing: "*Japanese Erwinia* is very hard to differentiate from *E. amylovora*. Each produces very similar symptoms and analysis at the molecular level is used to distinguish between the two (Kim *et al.* 2001: 2951 and Shrestha *et al.* 2007: 1023)."^{2540,2541}

7.948 In fact, the Kim *et al.* 2001 article referenced by New Zealand had to conduct a molecular analysis of various *Erwinia* cultures originating from Nashi pear trees in Japanese orchards, to draw the limited conclusion that, despite symptoms similar to fire blight, these *Erwinia* cultures in Japanese nashi pears were "possibly" different from fire blight:

"Several strains of the genus *Erwinia*, which were isolated in Japan from pear trees with necrotic symptoms that resembled fire blight, and tentatively identified as *Erwinia amylovora*, were reinvestigated for their relationship to the fire blight pathogen. ... It is concluded that pathogenic bacteria isolated in Japan from pear trees with symptoms resembling fire blight are possibly different from *Erwinia amylovora*."²⁵⁴²

7.949 Accordingly, the Panel finds that fire blight in New Zealand apples and *Japanese Erwinia* in Japanese nashi pears can be qualified as similar diseases for the purposes of the first element of the Article 5.5 test.

7.950 The Panel recalls that the Appellate Body described the first condition of the comparability test under Article 5.5 by reference to "a risk of entry, establishment or spread of the same or a similar

²⁵³⁸ Dr Deckers's reply to Panel question 12, in List of Replies from the scientific experts to questions posed by the Panel, para. 107.

²⁵³⁹ Dr Paulin's reply to Panel question 12, in List of Replies from the scientific experts to questions posed by the Panel, para. 109 (original emphasis).

²⁵⁴⁰ (*footnote original*) see Exhibit NZ-68: Kim WS, Hildebrand M, Jock S and Geider K (2001) "Molecular comparison of pathogenic bacteria from pear trees in Japan and fireblight pathogen *Erwinia amylovora*", *Microbiology* 147, 2951-2959, and Shrestha R, Lee SH, Kim JE, Wilson C, Choi SG, Park DH, Want MH, Hur JH and Lim CK (2007) "Diversity and detection of Korean *Erwinia pyrifoliae* strains as determined by plasmid profiling, phylogenetic analysis and PCR", *Plant Pathology* 56, 1023-1031.

²⁵⁴¹ New Zealand's first written submission, para. 4.437.

²⁵⁴² Kim *et al.*, "Molecular comparison of pathogenic bacteria from pear trees in Japan and the fire blight pathogen *Erwinia amylovora*" (2001), in Exhibit NZ-68, p. 1.

disease."²⁵⁴³ As explained above, the assessment of this condition does not require a comparison of levels of risk. However, the Appellate Body defined the first condition of the comparability test by including the term "risk". Thus, for there to be comparable situations, some degree of risk needs to be associated with both comparator diseases, or both sets of associated potential biological and economic consequences. To establish this, the complainant needs to make a prima facie case – not successfully rebutted by the respondent – that some degree of risk is associated with the situations that are being compared to the situations at issue in the dispute. New Zealand needs to show that the comparator situations it advances for Japanese nashi pears are not completely without risk for Australia. For the purpose of the comparability test and in the circumstances of this dispute, New Zealand does not need to quantify risk, just prove its basic existence. In fact, the situations would not be "rationally comparable and the differences in levels of protection [could] not be examined for arbitrariness"²⁵⁴⁴ if the comparator situations advanced by New Zealand in regard to Japanese nashi pears did not involve any risk at all for Australia.

7.951 For the purpose of the comparability test and in the circumstances of this dispute, the question for the Panel is whether *Japanese Erwinia* in Japanese nashi pears entails any risk for Australia at all. New Zealand argues that it does, and advances a number of arguments in regard to the risk profile of *Japanese Erwinia*. Conversely, Australia argues that its May 1989 Quarantine Circular Memorandum for Japanese nashi pears did not consider *Japanese Erwinia* because, as Dr Schrader confirmed, there is no need to assess the risk of a pest or disease which does not occur in the geographical area for which a risk assessment is conducted. In Australia's view, ISPM No. 11 supports this: "If no potential quarantine pests are identified as likely to follow the pathway, the PRA may stop at this point." Accordingly, Australia argues that, as a consequence of *Japanese Erwinia* never having occurred in Tottori prefecture, the consideration of *Japanese Erwinia* was not, and is not, a pest relevant to the importation of nashi pears from Tottori prefecture in Japan. Its consideration as a comparable disease to fire blight under New Zealand's Article 5.5 claim therefore has little relevance.²⁵⁴⁵

7.952 One of the experts, Dr Paulin, notes in regard to *Japanese Erwinia* that "it is not certain that this particular *Erwinia* from Japan be considered as a quarantine pathogen" as "too little knowledge is available on this Nashi disease to be sure."²⁵⁴⁶

7.953 The Panel reiterates that assessing the existence of a risk under the first condition of the comparability test of Article 5.5 does not require a detailed assessment of risk levels. In particular, the Panel does not consider at this point whether, as Australia argues, Japanese nashi pears are imported only from Tottori prefecture. The question is whether Japanese nashi pears involve a risk of *Japanese Erwinia* for Australia at all. Australia implicitly admits that to be the case by arguing that it has in place a requirement for *Japanese Erwinia*, applicable also to Japanese nashi pears imported from Tottori prefecture:

"As a direct consequence of *Japanese Erwinia* never having occurred in Tottori prefecture, the only requirement in place for *Japanese Erwinia* is that Japan notify Australia of any future outbreaks of the disease *anywhere* in Japan. This requirement was included in the 2003 review as a result of the 1995 outbreak in Hokkaido. However, given the confinement of the outbreak to the geographically remote island

²⁵⁴³ Appellate Body Report on *Australia – Salmon*, para. 146 (original emphasis). See also, SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, para. A.2.

²⁵⁴⁴ Appellate Body Report on *EC – Hormones*, para. 216 (original emphasis).

²⁵⁴⁵ Australia's reply to Panel question 119 after the second substantive meeting.

²⁵⁴⁶ Dr Paulin's reply to Panel question 12, in List of Replies from the scientific experts to questions posed by the Panel, para. 110.

of Hokkaido; the eradication program implemented by Japan; and the absence of *Japanese Erwinia* occurrences elsewhere in Japan, no further requirements were deemed necessary."²⁵⁴⁷

7.954 Accordingly, *Erwinia amylovora* in New Zealand apples and *Japanese Erwinia* in Japanese nashi pears involve a risk of similar diseases, and therefore fulfil the first condition of the comparability test established by the Appellate Body in *Australia – Salmon*.

7.955 As noted above, in the same dispute the Appellate Body also explained that the two conditions of this comparability test are not cumulative. Accordingly, the Panel finds that the situations with respect to fire blight in New Zealand apples and to *Japanese Erwinia* in Japanese nashi pears are comparable. Having made its finding on the basis of the first condition of the comparability test laid down by the Appellate Body, the Panel does not need to analyze the second, alternative condition of comparability: whether the situations concern a risk of the same or similar associated potential biological and economic consequences.

Comparability of European canker (*Neonectria galligena*) and brown rot (*Monilinia fructigena*)

7.956 Turning to the comparison of European canker (*Neonectria galligena*) in New Zealand apples and brown rot (*Monilinia fructigena*) in Japanese nashi pears, the Panel analyses first whether these situations entail a risk of the same or similar diseases. New Zealand argues that these diseases are similar in that they are both fungal diseases, and "[l]ike European canker, brown rot is transmitted by spores and can infect both pears and apples, usually through natural openings or wounds. Apparently healthy fruit can be infected without showing any symptoms" ²⁵⁴⁸

7.957 Australia accepts that European canker and brown rot are similar only to the extent that both are fungal diseases which can produce spores on fruit. ²⁵⁴⁹

7.958 The Panel recalls that in *EC – Hormones* the Appellate Body linked the essence of the comparability test to the existence of some common element or elements sufficient to render the situations comparable:

"The situations exhibiting differing levels of protection cannot, of course, be compared unless they are comparable, that is, unless they present some common element or elements sufficient to render them comparable. If the situations proposed to be examined are *totally* different from one another, they would not be rationally comparable and the differences in levels of protection cannot be examined for arbitrariness." ²⁵⁵⁰

7.959 Based on New Zealand's arguments, the Panel sees four main points in common between European canker and brown rot. Both are fungal diseases, both are transmitted via spores, both can infect apples (usually through natural openings or wounds), and can involve latent infection of symptomless fruit. ²⁵⁵¹ Australia has not rebutted these similarities. Therefore, even though European canker (*Neonectria galligena*) in New Zealand apples and brown rot (*Monilinia fructigena*) in Japanese nashi pears are distinct diseases, they share some common elements sufficient to render them similar.

²⁵⁴⁷ Australia's reply to Panel question 199 after the second substantive meeting (original emphasis).

²⁵⁴⁸ New Zealand's first written submission, para. 4.441.

²⁵⁴⁹ Australia's first written submission, para. 1001.

²⁵⁵⁰ Appellate Body Report on *EC – Hormones*, para. 216 (original emphasis).

²⁵⁵¹ New Zealand's first written submission, paras. 4.440-4.441

7.960 The Panel notes that ever since its May 1989 Quarantine Circular Memorandum for Japanese nashi pears, Australia has been applying or at least proposing measures against the risk of brown rot. Accordingly, like European canker in New Zealand apples, brown rot in Japanese nashi pears also poses a risk. This, in addition to the basic similarity of the two diseases, allows the Panel to conclude that the situations involving European canker (*Neonectria galligena*) in New Zealand apples and brown rot (*Monilinia fructigena*) in Japanese nashi pears are comparable.

7.961 As noted above, the two conditions of comparability under the first element of the Article 5.5 test are not cumulative. Consequently, there is no need to engage in an analysis of the second, alternative condition of comparability: whether the situations entail a risk of the same or similar associated potential biological and economic consequences.

(ii) *The ALOPs in the different situations*

7.962 Having found that the two pairs of comparator situations identified by New Zealand are comparable given the similarities of the diseases involved, the Panel turns to the second aspect of the first element of the Article 5.5 test: the ALOPs in these different but comparable situations.

7.963 The Parties agree that currently Australia has the same stated and generic ALOP for all of the different situations identified by New Zealand, i.e. fire blight in New Zealand apples and *Japanese Erwinia* in Japanese nashi pears, as well as European canker in New Zealand apples and brown rot in Japanese nashi pears. This ALOP is: "providing a high level of sanitary and phytosanitary protection aimed at reducing risk to a very low level, but not to zero."²⁵⁵² In other words, Australia has formulated one ALOP for all of these comparable situations.

7.964 If Australia's ALOP is the same for Japanese Nashi pears and New Zealand apples with respect to the four pests identified, the Panel must consider whether it can proceed with its analysis under Article 5.5. In *EC – Hormones* the Appellate Body referred to "situations exhibiting differing levels of protection", and stated categorically that "[c]learly comparison of *several* levels of sanitary protection deemed appropriate by a Member is necessary if a panel's inquiry under Article 5.5 is to proceed at all."²⁵⁵³

7.965 It is noteworthy that the Parties reference two definitions by the Appellate Body for the first element of the three-pronged Article 5.5 test. Australia quotes the report in *Australia – Salmon*, where the Appellate Body included in the first element of Article 5.5 the distinctions in the ALOPs applicable to the different comparator situations:

"Following our Report in *European Communities – Hormones*, the Panel [in *Australia – Salmon*] considered:

... that three elements are required in order for a Member to act inconsistently with Article 5.5:

²⁵⁵² See *Import Risk Analysis Handbook* (2003), in Exhibit AUS-10, p. 5, and *Import Risk Analysis Handbook* (2007), p. 9 and Annex 3. Formerly, Australia maintained a similar qualitative ALOP. According to the 1998 AQIS Import Risk Analysis Process Handbook, "Australia does not ... maintain a zero risk quarantine policy, which would be impracticable since it would imply the exclusion of all import trade and entry of international passengers. Rather, Australia's quarantine policy is based on the concept of the management of risk to an acceptably low level." 1998 AQIS Import Risk Analysis Process Handbook, p. 11.

²⁵⁵³ Appellate Body Report on *EC – Hormones*, para. 214 (emphasis added).

- the Member concerned adopts different appropriate levels of sanitary protection in several 'different situations'; ...²⁵⁵⁴

7.966 The Panel notes that in *Australia – Salmon* the Appellate Body referenced the first element of the Article 5.5 test as "the existence of distinctions in appropriate levels of protection in different situations."²⁵⁵⁵

7.967 Conversely, New Zealand references the earlier definition of the three-pronged test in *EC – Hormones*. In that dispute, the Appellate Body mentioned "distinctions" in ALOP as part of the second element:

"Close inspection of Article 5.5 indicates that a complaint of violation of this Article must show the presence of three distinct elements. The first element is that the Member imposing the measure complained of has adopted its own appropriate levels of sanitary protection against risks to human life or health in several different situations. The second element to be shown is that those *levels of protection* exhibit arbitrary or unjustifiable differences ('distinctions' in the language of Article 5.5) in their treatment of different situations."²⁵⁵⁶

7.968 The Panel does not read this passage in *EC – Hormones* as necessarily reducing the first element of the Article 5.5 test to a mere requirement that an ALOP exist in the different situations that are being compared. In fact, in the same dispute the Appellate Body also enunciated the above-quoted categorical requirement that several ALOPs need to exist before any analysis of Article 5.5 can proceed in earnest. Further, in its detailed analysis under the Article 5.5 test, in *EC – Hormones* the Appellate Body referenced "the first element set out in Article 5.5, namely that a Member has established different levels of protection which it regards as appropriate for itself in differing situations."²⁵⁵⁷ The Panel also notes that in the Guidelines to Further the Practical Implementation of Article 5.5, the definition of the three elements "a Member should, when determining an appropriate level of protection, either as an overall policy objective or for a specific situation, consider"²⁵⁵⁸ include a "difference" in ALOP as part of the first element:

- "– whether there is a difference between the level of protection under consideration and levels already determined by the Member in different situations and, if so,
- whether these differences are arbitrary or unjustifiable, and, if so,
- whether they may result in discrimination or in a disguised restriction on international trade."²⁵⁵⁹

7.969 Given that Australia has the same stated ALOP for the situations New Zealand intends to compare, the Panel is satisfied that Australia has adopted its own ALOP in these situations in the literal sense of the Appellate Body's above-quoted definition of the first element of Article 5.5 in *EC - Hormones*. However, this is clearly not sufficient for the Panel to proceed with its analysis of New Zealand's Article 5.5 claim. In the light of the categorical statement by the Appellate Body in *EC – Hormones*, the second quoted definition of the first element of the Article 5.5 test in the same

²⁵⁵⁴ Appellate Body Report on *Australia – Salmon*, para. 140 (footnotes omitted).

²⁵⁵⁵ Appellate Body Report on *Australia – Salmon*, para. 143.

²⁵⁵⁶ Appellate Body Report on *EC – Hormones*, para. 214.

²⁵⁵⁷ Appellate Body Report on *EC – Hormones*, para. 216.

²⁵⁵⁸ SPS Committee's *Guidelines to further the practical implementation of Article 5.5 (G/SPS/15)*,

18 July 2000, para. A.2.

²⁵⁵⁹ *Ibid.*

dispute, and the similar definition in *Australia – Salmon*, the Panel also needs to assess whether New Zealand has demonstrated that the measures Australia applies in the comparable situations result in a different *de facto* ALOP.

7.970 The Panel agrees with New Zealand that Members should not be allowed to hide behind a generically stated ALOP. Otherwise, Members' obligations under Article 5.5 would be diminished. This would be particularly serious in the case of Australia – or, for that matter, any other Members – whose generically stated ALOP covers a wide range of products and diseases, and thus a wide range of potentially comparable situations.

7.971 The Panel notes that in *Australia – Salmon* the Appellate Body warned in general terms against reading out entire provisions from the SPS Agreement. "It would obviously be wrong to interpret the *SPS Agreement* in a way that would render nugatory entire articles or paragraphs of articles of this Agreement and allow Members to escape from their obligations under this Agreement."²⁵⁶⁰

7.972 Further in *Australia – Salmon (Article 21.5 – Canada)* the compliance panel noted, in the context of its analysis under Article 5.6 of the SPS Agreement, that while a vaguely determined ALOP is not ideal, it should not prevent scrutiny under the SPS Agreement, including under Article 5.5:

"Although, according to the Appellate Body, Australia determined its ALOP with sufficient precision to apply Article 5.6, we find it rather difficult to evaluate whether any of the options before us would also meet Australia's somewhat vaguely determined level of 'a high or very conservative level of protection aimed at reducing risk to very low levels, while not based on a zero-risk approach'. We are of the view, however, that this should not prevent us from carrying out the task. As noted by the Appellate Body, '[o]therwise, a Member's failure to comply with the implicit obligation to determine its appropriate level of protection – with sufficient precision – would allow it to escape its obligations under this Agreement and, in particular, its obligations under Articles 5.5 and 5.6'. We note, parenthetically, that a more explicit and in particular a quantitative expression of a Member's ALOP would greatly facilitate the consideration of compliance with not only Article 5.6 but with other provisions of the SPS Agreement as well."²⁵⁶¹

7.973 Indeed, the Panel can imagine the possibility, argued by New Zealand in this dispute, that despite a generic ALOP, the measures applied in different situations may lead to a *de facto* difference in ALOPs. Whether this is the case will depend on both the measures applied to implement the same stated ALOP in different situations, as well as the risks against which such measures are applied.

7.974 Measures are indicative – although not necessarily conclusive – of a Member's ALOP. Annex A(5) of the SPS Agreement defines "appropriate level of sanitary or phytosanitary protection" by specific reference to the SPS measures applied to implement that ALOP:

"*Appropriate level of sanitary or phytosanitary protection* – The level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory."

7.975 Previous panels have also recognised the close link between a Member's SPS measures and the ALOP such measures serve to implement. The panel in *EC – Hormones* stated that, in contrast to

²⁵⁶⁰ Appellate Body Report on *Australia – Salmon*, para. 206.

²⁵⁶¹ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.129 (footnotes omitted).

Article 2.3 of the SPS Agreement, "Article 5.5 ... deals more specifically with *distinctions in levels of protection* (which will normally be reflected in one or more sanitary measures) ...".²⁵⁶² Likewise, the panel in *Australia – Salmon* found that "any sanitary measure applied to a given situation inherently reflects and achieves a certain level of protection"²⁵⁶³, and reiterated that "the appropriate level of sanitary protection will normally be reflected in the sanitary measures imposed for a specific situation."²⁵⁶⁴ Further, the panel in *EC – Biotech* held that "although Article 5.5 does not explicitly refer to 'SPS measures'"²⁵⁶⁵, this provision "implies a reference to 'SPS measures'".²⁵⁶⁶ The same panel quoted paragraph B.1 of the Guidelines to Further the Practical Implementation of Article 5.5, which provides that "the concept of appropriate level of protection is applied in practice through sanitary or phytosanitary measures."²⁵⁶⁷ The panel confirmed that this guidance "is consistent with relevant Appellate Body jurisprudence"²⁵⁶⁸, and quoted the Appellate Body's reference in *EC – Hormones* to a "measure embodying or implementing a particular level of protection."²⁵⁶⁹

7.976 Yet, as New Zealand concedes²⁵⁷⁰, a Member's ALOP in a specific situation cannot be deduced solely from the SPS measures the Member applies. In *Australia – Salmon* the Appellate Body clearly distinguished ALOP and measures, by stating that "[t]he 'appropriate level of protection' established by a Member and the 'SPS measure' have to be clearly distinguished. They are not one and the same thing. The first is an *objective*, the second is an *instrument* chosen to attain or implement that objective."²⁵⁷¹

7.977 Risk is also an inherent element of a Member's ALOP. The note to the definition of "appropriate level of sanitary or phytosanitary protection" in Annex A(5) of the SPS Agreement indicates that "[m]any Members otherwise refer to this concept as the 'acceptable level of risk'." Further, the panel in *Australia – Salmon* pointed out that "the level of protection achieved by a specific sanitary measure will also depend on the degree of risk against which that measure is intended to protect."²⁵⁷² As the same panel explained, this is because:

"[I]mposing the same sanitary measure for different situations does not necessarily result in the same level of protection. Indeed, in many situations (e.g., situations representing different risks) the same sanitary measure might result in different levels of protection. On the other hand, different sanitary measures for different situations might ensure the same level of protection. Indeed, one given situation might only represent a small risk for which a lenient sanitary measure will achieve a high level of protection, whereas another situation might pose very high risks requiring a very strict and different sanitary measure in order to meet that same high level of protection."²⁵⁷³

7.978 In the same vein, the Guidelines to Further the Practical Implementation of Article 5.5 state that, in the context of the practical implementation of the concept of an appropriate level of

²⁵⁶² Panel Report on *EC – Hormones (US)*, para. 8.168 and Panel Report on *EC – Hormones (Canada)*, para. 8.171 (emphasis added).

²⁵⁶³ Panel Report on *Australia – Salmon*, para. 8.107.

²⁵⁶⁴ Panel Report on *Australia – Salmon*, para. 8.123.

²⁵⁶⁵ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1416.

²⁵⁶⁶ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1417.

²⁵⁶⁷ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1415.

²⁵⁶⁸ *Ibid.*

²⁵⁶⁹ Appellate Body Report on *EC – Hormones*, para. 214 (original emphasis).

²⁵⁷⁰ New Zealand's reply to Panel question 131 after the first substantive meeting.

²⁵⁷¹ Appellate Body Report on *Australia – Salmon*, para. 200 (footnote omitted; original emphasis).

²⁵⁷² Panel Report on *Australia – Salmon*, para. 8.123

²⁵⁷³ *Ibid.*

protection, "[w]hat a Member is comparing are the measures against the risks posed by potential hazards to human, animal or plant life or health."²⁵⁷⁴

7.979 Accordingly, the Panel will assess whether Australia's measures reflect different ALOPs, by looking at both the measures applied by Australia in the various situations identified by New Zealand, and the risks against which such measures are applied. This analysis involves an assessment of the Parties' arguments as regards the measures applicable in the comparable situations and the related risks against which the measures in question are applied.

7.980 The Panel will carry out this assessment under the second element of the Article 5.5 test. In this, the Panel follows the panel in *Australia – Salmon* and the compliance panel in *Australia – Salmon (Article 21.5 – Canada)*.

7.981 The panel in *Australia – Salmon* referenced the first element of the Article 5.5 test as "[d]istinctions in levels of protection for 'different situations'".²⁵⁷⁵ It analysed two aspects of this first element, "different situations"²⁵⁷⁶ and "difference in levels of protection", by declining to engage in a detailed analysis of the risk under both aspects.²⁵⁷⁷ As noted above, in regard to the first aspect ("different situations"), the panel held that:

"[A]t this stage of our examination we only address the question whether two situations can be compared under Article 5.5. We do not examine nor decide at this point whether the risk (both in the sense of risk of entry, establishment or spread of the disease and the associated consequences) linked to these two situations is the same or has been addressed inconsistently. This issue needs to be examined under the second element of Article 5.5."²⁵⁷⁸

7.982 The panel adopted a similar approach to the second aspect of the first element ("difference in levels of protection"):

"To determine whether Australia makes a distinction in the levels of protection it considers to be appropriate for the situations compared, we thus need to examine the sanitary measures Australia currently imposes for these different situations. Since we have found that these situations are comparable as 'different situations' under Article 5.5 (because they have at least one disease agent in common and, presumably, also represent the same or similar biological and economic consequences) and since we will consider the potential difference in the degree of risk posed by these different situations under the second element of Article 5.5, we will for present purposes assume that if there is a difference in the sanitary *measures* imposed for the different situations we compare under Article 5.5, this difference does reflect a distinction in *levels of protection* achieved in – and considered to be appropriate by – Australia."²⁵⁷⁹

7.983 Likewise, the compliance panel in *Australia – Salmon (Article 21.5 – Canada)* held that the situations in question were comparable under Article 5.5, and then explicitly declined to assess under the first element of the Article 5.5 test whether Australia adopted different ALOPs in regard to these

²⁵⁷⁴ SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, para. B.2. See also, SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, para. A.4.

²⁵⁷⁵ Panel Report on *Australia – Salmon*, p. 174, DSR 1998:VIII, 3410, at 3640.

²⁵⁷⁶ Panel Report on *Australia – Salmon*, p. 175, DSR 1998:VIII, 3410, at 3642.

²⁵⁷⁷ Panel Report on *Australia – Salmon*, p. 178, DSR 1998:VIII, 3410, at 3646.

²⁵⁷⁸ Panel Report on *Australia – Salmon*, para. 8.118.

²⁵⁷⁹ Panel Report on *Australia – Salmon*, para. 8.124.

different situations. "Whether or not Australia adopts different ALOP's in respect of these 'different situations' is an issue we address under the second element of Article 5.5."²⁵⁸⁰

7.984 The Panel will adopt a similar approach in the current dispute. It will assess under the second element of the three-pronged Article 5.5 test whether the measures applied by Australia in the different situations result in a different *de facto* ALOP.

7.985 The Panel is cognizant that in *EC – Hormones* the Appellate Body referenced "three distinct elements" that need to be addressed under Article 5.5.²⁵⁸¹ However, this dispute has specific circumstances in that New Zealand contests alleged differences in the level of protection achieved in practice by the measures applied in comparable situations, despite Australia's generically stated ALOP. Given these special circumstances, the Panel finds it appropriate to refrain from a detailed analysis of risks under the first element of the Article 5.5 test, and to assess under the second element of this test whether there is a difference in the levels of protection achieved by the measures applied in the different situations at issue.

7.986 Indeed, the second element of the Article 5.5 test is concerned with whether any distinctions in the ALOP in different situations are arbitrary or unjustifiable. In the light of New Zealand's arguments in this dispute, in effect this involves a comparison between the measures Australia applies to achieve its ALOP in the different situations and the risks against which such measures are applied. As explained above, the analysis of any distinctions in ALOP in this dispute involves the same exercise in the light of New Zealand's arguments.

7.987 The Panel will assess under the second element of the Article 5.5 test whether Australia applies measures to achieve its generically stated ALOP in a way that leads to arbitrary or unjustifiable distinctions in the *de facto* ALOP applied in the situations that have been found to be comparable. If the Panel finds that this is the case, it will complete its current analysis under the first element of the Article 5.5 test by finding that there are indeed distinctions in the levels of *de facto* ALOP adopted by Australia, despite Australia's generically stated ALOP. Logically, if there are arbitrary or unjustifiable distinctions in the *de facto* ALOP, there will be distinctions in the ALOPs achieved by the measures applied by Australia in the comparable situations. Alternatively, if the Panel finds under the second element of the Article 5.5 test that there are no arbitrary or unjustifiable distinctions in the *de facto* ALOP adopted by Australia, there will be no need to complete its current analysis of the first element. As the Appellate Body explained in *EC – Hormones*, "the three elements [of the Article 5.5. test] are cumulative in nature; all of them must be demonstrated to be present if violation of Article 5.5 is to be found."²⁵⁸²

(b) The second element of Article 5.5

7.988 In the light of the language of Article 5.5 and the guidance of the Appellate Body²⁵⁸³, the second element of the three-pronged Article 5.5 test is whether there are arbitrary or unjustifiable distinctions in the ALOP achieved by the measures applied by Australia in the different situations. As explained above, the Panel will assess this by comparing the risks involved in the comparable situations and the measures applied by Australia against such risks.

7.989 The Panel is aware that this requires a very delicate balancing act between carrying out a meaningful and objective analysis of the Parties' arguments and evidence, and refraining from a

²⁵⁸⁰ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.89.

²⁵⁸¹ Appellate Body Report on *EC – Hormones*, para. 214.

²⁵⁸² Appellate Body Report on *EC – Hormones*, para. 215.

²⁵⁸³ Appellate Body Report on *EC – Hormones*, para. 214; and Appellate Body Report on *Australia – Salmon*, para. 154.

de novo review of the risks involved in the different situations, in particular in the context of nashi pears, which is only a comparator product in this dispute. The Panel finds the detailed guidance from the panel in *Australia – Salmon* particularly relevant, and quotes it in full here:

"[A]ccording to Article 5.5 and our mandate set out in Article 11 of the DSU (to make an 'objective assessment of the matter before [us], including an objective assessment of the facts of the case'), we are called upon in this case to make th[e] comparison [of the levels of protection related to the comparable situations] and to do so on the basis of the evidence before us. We cannot conduct our own risk assessment. Nor do we attempt to do so in this report. The fact that one of the experts advising the Panel stated that 'if you are trying to say which [of two products] is the most risky, then you need to know something about and possibly do a full assessment for [the other] product' and that 'it would be sensible to assess that which you have prioritized initially to have the highest risk first, but until you have done the risk assessment, you actually cannot be sure you have got that right', does not change our position. Nor do we disagree with these statements. Indeed, for a scientist to say with scientific certainty that one product represents a higher risk than the other, there may be a need to have two, more or less, complete sets of data, including two risk assessments. And even on that basis a scientist would probably not be able to state with absolute certainty that one product is riskier than the other. Our mandate is different. We are not asked to make a scientific risk comparison nor to state with scientific certainty that one product is riskier than the other. We can only weigh the evidence put before us and, on the basis of the rules of burden of proof we adopted, including the use of factual presumptions, decide whether sufficient evidence is before us – evidence which has not been rebutted – in order to state that it can be presumed that one product is riskier than the other."²⁵⁸⁴

7.990 Likewise, in the present case, the Panel will weigh the evidence put forward by New Zealand and Australia and decide whether New Zealand has made a *prima facie* case, not rebutted by Australia, that it can be presumed that one product is riskier than the other. The Panel will compare the risks involved in each of the two pairs of comparable situations in this dispute.

7.991 The Panel notes that Annex A(4) of the SPS Agreement defines "Risk assessment" as:

"The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs."

7.992 Based on this provision, the Guidelines to Further the Practical Implementation of Article 5.5 define risk as follows:

"Risk' in the context of the SPS Agreement refers to the *likelihood* that an adverse event (pest or disease) will occur and the *magnitude of the associated potential*

²⁵⁸⁴ Panel Report on *Australia – Salmon*, para. 8.126.

consequences on plant or animal life or health of the adverse event, or to the potential for adverse effects on human or animal life or health from food-borne risks."²⁵⁸⁵

The Guidelines add that "[a]ccordingly, categorizing risks as 'similar' must include a comparison of both the relevant likelihood and the corresponding consequences."²⁵⁸⁶

(i) *Comparison of the risks of European canker in New Zealand apples and of brown rot in Japanese nashi pears*

7.993 As regards the comparison of the risks associated with European canker in New Zealand apples and with *Monilinia fructigena* in Japanese nashi pears, New Zealand argues that the risk of Japanese Nashi pears transmitting brown rot is not just comparable, but significantly higher than any risk of apples from New Zealand transmitting European canker.²⁵⁸⁷ In response, Australia argues that the risk associated with Japanese nashi pears is much lower than the risk associated with New Zealand apples because both the likelihood and the consequences of the entry, establishment and spread of brown rot into Australia are lower than the likelihood and consequences associated with European canker in New Zealand apples.²⁵⁸⁸

7.994 The Panel looks at seven different risk factors argued by the Parties in this context:

- (a) The facility of transmission of the two pests – because, other things being equal, a more easily transmittable pest presents a higher risk;
- (b) The potential biological and economic consequences of the pests – because, other things being equal, more serious consequences entail a higher risk;
- (c) The range of host plants – because, other things being equal, a wider range of host plants for a pest results in a higher risk;
- (d) The presence of the pests in the exporting areas – because, other things being equal, a pest present in exporting areas poses a higher risk than one that is not present;
- (e) The presence of the pests in Australia – because, other things being equal, as the compliance panel in *Australia – Salmon (Article 21.5 – Canada)* explained, a pest not present in, or in other words "exotic" to, the importing country "may be ... of more concern [than non-exotic pests] both in terms of risk of introduction of the disease and its potential impact"²⁵⁸⁹;
- (f) The volume of trade – because, as Dr Latorre and Dr Sgrillo explain, in general, as the volume of trade increases, so does the probability that a given biological event may occur; and,

²⁵⁸⁵ SPS Committee's *Guidelines to further the practical implementation of Article 5.5 (G/SPS/15)*, 18 July 2000, footnote 2 (original emphasis). See also, SPS Committee's *Guidelines to further the practical implementation of Article 5.5 (G/SPS/15)*, 18 July 2000, para. A(4).

²⁵⁸⁶ SPS Committee's *Guidelines to further the practical implementation of Article 5.5 (G/SPS/15)*, 18 July 2000, para. A(4).

²⁵⁸⁷ New Zealand's first written submission, para. 4.442. See also New Zealand's second written submission, paras. 2.832 and 2.864.

²⁵⁸⁸ Australia's first written submission, para. 1006.

²⁵⁸⁹ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.93.

- (g) The efficacy of existing controls in Australia for the two pests in question – because, other things being equal, if Australian controls already in place are also effective against one of the pests in question, the risks from that pest are lower.

Facility of transmission

7.995 New Zealand argues that brown rot presents a higher risk than European canker because brown rot is more easily transmitted than European canker. "[T]he scientific evidence is clear that pears that are latently infected with brown rot *do* produce spores after removal from cold storage [T]his is not the case for European canker. Pears are therefore a potential vector of brown rot, unlike apples in respect of European canker."²⁵⁹⁰

7.996 Dr Swinburne seems to agree with this point:

"The risk posed by brown rot incited by *M. fructigena* differs from that associated with *N. galligena* in a number of important respects. For example, it can spread from fruit to fruit in bulk bins leading to 'nesting', and thus inoculum enhancement, which is not found with *N. galligena*. Rotted fruit almost invariably produce prolific numbers of conidia on sporodochia which form in concentric circles across the surface of the rotted area. The conidia are dispersed by wind alone and are thus not reliant on rain-fall. This contrasts with *N. galligena* in which spore production is relatively low and the spores are dispersed by rain splash (Byrde & Willetts, 1977; Swinburne 1975)."²⁵⁹¹

7.997 In the light of the above, and the Panel's findings under Article 5.1 of the SPS Agreement in regard to European canker, the Panel finds that New Zealand has demonstrated that brown rot can be more easily transmitted through fruit than European canker.

Potential biological and economic consequences

7.998 As to the potential biological and economic consequences of the two pests, New Zealand argues that both diseases cause fruit rots in apples and pears.²⁵⁹² Dr Latorre points out that "there is not enough published information to allow an adequate comparison of the risk of entrance, establishment and spread between brown rot and European canker." Nevertheless, he explains that in general the potential biological and economic consequences of the two pests could be similar, although he emphasizes that this also depends on weather conditions:

"The biological impact of both diseases would be highly dependent on weather conditions during fruit maturity. Among other factors, the severity of both diseases depends on the presence of frequent rains during harvest. If this is accepted, the economic and biological impact on Australian agriculture, particularly for apple and pear production, would be similar.

"... Brown rot rarely causes economical losses, unless frequent summer rains occur, it is weather dependant. The same is true for European canker."²⁵⁹³

²⁵⁹⁰ New Zealand's first written submission, para. 4.441 (footnote omitted).

²⁵⁹¹ Dr Swinburne's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 381.

²⁵⁹² New Zealand's first written submission, para. 4.440.

²⁵⁹³ Reply of Dr Latorre to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, paras. 379-380.

7.999 The Panel notes that New Zealand has not submitted evidence on the weather conditions in Japanese nashi pear-producing areas.

7.1000 Australia argues that, in its environment, the consequences of *Monilinia fructigena* are less severe than those of European canker.²⁵⁹⁴ Dr Deckers supports this view by explaining that European canker has more pernicious biological consequences:

"The introduction of brown rot on pear would surely create a large problem of rotting phenomena on different fruit species. But the introduction of European canker should not only create rotten fruit problems but also problems of NG infections on branches or on the rootstock and can even kill fruit trees completely. The impact of NG on apple is thus more important than the impact of brown rot on pear."²⁵⁹⁵

7.1001 In the light of the expert views and in the absence of arguments from New Zealand on weather conditions for brown rot in Japan, the Panel finds that New Zealand has not made a prima facie case that the potential biological and economic consequences of brown rot in Japanese nashi pears are similar to, or more severe than, those of European canker in New Zealand apples. Indeed, although the Panel refrains from making a specific finding on this, it seems from Dr Deckers's statement that under certain circumstances brown rot may have less severe potential biological and economic consequences than European canker.

Range of host plants

7.1002 New Zealand argues that brown rot has a wider range of host plants, given that it is also a significant disease of apricots, cherries, peaches and plums, which European canker is not.²⁵⁹⁶ Australia does not contest this. Dr Swinburne states that "the host range of *M. fructigena*, including as it does fruit types of importance to Australia, ... suggests that it poses a greater risk to commerce than *N. galligena*."²⁵⁹⁷

7.1003 The Panel therefore finds that New Zealand has demonstrated that brown rot has a wider range of host plants than European canker.

Presence of the two pests in export areas

7.1004 As indicated above, most apple export production in New Zealand takes place in areas where European canker has either never been recorded or the disease occurs only sporadically in very wet seasons.²⁵⁹⁸

7.1005 As regards brown rot, New Zealand argues that brown rot has been observed in several prefectures in Japan since at least 1986.²⁵⁹⁹ New Zealand does not dispute Australia's contention that it has only ever imported Nashi pears from Tottori prefecture. New Zealand also concedes that under the 2003 Arrangement, "apples [sic] are to be exported from an area (Tottori prefecture), which is certified as free from brown rot."²⁶⁰⁰ New Zealand argues, however, that it appears that Australia is

²⁵⁹⁴ Australia's first written submission, p. 302.

²⁵⁹⁵ Dr Deckers's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 376.

²⁵⁹⁶ New Zealand's first written submission, para. 4.440.

²⁵⁹⁷ Dr Swinburne's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 382.

²⁵⁹⁸ See para. 2.18 above.

²⁵⁹⁹ New Zealand's first written submission, para. 4.440.

²⁶⁰⁰ New Zealand's second written submission, para. 2.857.

content to manage risks on the basis of an assumption and Japanese government assurances that pears would be sourced from a pest free area.²⁶⁰¹

7.1006 Australia argues that it has only imported Japanese nashi pears from Tottori. Brown rot had occurred in Tottori but not since at least 1976, as confirmed by ten years of surveys and petal testing data supplied by Japan to support their access request in 1988.²⁶⁰² In fact, Japan's survey methodology was audited and verified by AQIS prior to the commencement of trade, and since 1989 Japan has provided Australia with over ten years of survey, petal and flower testing data.²⁶⁰³ Tottori's freedom from brown rot was recognized in the import conditions, which are based on the assumption that pears would be sourced only from Tottori.²⁶⁰⁴ As brown rot may have previously occurred in Tottori prefecture, Australia requires certification of area freedom by Japanese authorities through surveys and orchard inspections. Further, area freedom in Tottori is a formal import requirement in respect of brown rot.²⁶⁰⁵ In the light of Article 6 of the SPS Agreement, Australia submits that its recognition of area freedom in relation to *Japanese Erwinia* is clearly consistent with the requirements of the SPS Agreement.²⁶⁰⁶ By comparison, Australia argues, European canker is reported in several districts of New Zealand where apple export orchards are located. New Zealand has not demonstrated that it has procedures in place to establish, maintain and verify either area freedom or areas of low pest prevalence in relation to European canker.²⁶⁰⁷

7.1007 Dr Latorre and Dr Swinburne explain that if Japanese nashi pears are exported effectively from pest-free areas, the risk involved in brown rot is lower than the risk of European canker in New Zealand apples. Dr Latorre states that "Australia claims that pears are imported only from pest-free areas ("areas of freedom"), which I assume was demonstrated previously. If so, the likelihood of the entrance of *M. fructigena* drops down considerably, to negligible."²⁶⁰⁸ Dr Swinburne agrees: "if the Japanese pears are indeed coming from localities verifiably free of the disease then perhaps the risk is small."²⁶⁰⁹

7.1008 The panel in *Australia – Salmon* explained that Article 5.5 involves a comparison between current situations. "Article 5.5 directs us to compare for different situations the related levels of protection as they are currently considered to be appropriate by Australia and this whether or not the sanitary measures enacted to achieve that level are based on a risk assessment."²⁶¹⁰

7.1009 The Parties reference the 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China as the most recent modification of Australia's import regime applicable *inter alia* to Japanese nashi pears. As the 2003 Review explains, "Nashi fruit has been imported into Australia from Tottori Prefecture in Honshu Island, Japan since 1989. The quarantine

²⁶⁰¹ New Zealand's second written submission, para. 2.835. See also New Zealand's second written submission, para. 2.858.

²⁶⁰² Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁰³ Australia's first written submission, para. 992.

²⁶⁰⁴ Australia's first written submission, para. 988. See also Australia's second written submission, para. 741 and Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 218.

²⁶⁰⁵ Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁰⁶ *Ibid.*

²⁶⁰⁷ Australia's first written submission, para. 993. See also Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁰⁸ Dr Latorre's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 378.

²⁶⁰⁹ Dr Swinburne's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 382.

²⁶¹⁰ Panel Report on *Australia – Salmon*, para. 8.126.

measures for each season have been mutually agreed through an annual 'Arrangement' between BA and Japan's MAFF. The last 'Arrangement' signed in October 2001 permits imports of nashi pear into Australia from 2001 until a review is deemed necessary."²⁶¹¹

7.1010 Importantly, the 2003 Review was only a partial review of Australia's SPS measures applicable to Japanese nashi pears. In fact, the 2003 Review notes that its "scope is limited to existing requirements for petal and blossom cluster testing for brown rot (*Monilinia fructigena*), black spot (*Alternaria gaisen*) and scab (*Venturia nashicola*) in Asian pome fruit orchards in Korea, Japan and China that are designated by quarantine authorities for the purpose of exporting fruit to Australia."²⁶¹²

7.1011 Under the header "Australia's concerns regarding diseases and existing risk management measures", the 2003 Review includes two Tottori-specific "[q]uarantine measures implemented to address identified risk." The first one expressly limits exports to registered orchards located in parts of Tottori prefecture by providing for "fruit to be sourced only from registered orchards in designated export areas of Tottori Prefecture". The second Tottori-specific measure is "orchard inspection for brown rot by MAFF – immediate notification by MAFF to BA if there is a detection of brown rot anywhere in Tottori Prefecture, including in unregistered orchards or household fruit trees."²⁶¹³

7.1012 Further, the "amended import protocol for nashi pear fruit from Japan to Australia" resulting from the 2003 Review includes measures, which also seem to be based on the assumption that Japanese nashi pears would be exported to Australia only from Tottori prefecture:

- "1. Certification by Ministry of Agriculture, Forestry and Fisheries (MAFF) that Tottori Prefecture is free from brown rot (*Monilinia fructigena*) and scab based on Prefectural surveys. If the level of black spot exceeds a threshold of 0.5% after orchard inspection, those orchards will be excluded from the export program.
2. MAFF to inform BA immediately if there is a detection of *M. fructigena* anywhere in Tottori Prefecture, including in unregistered orchards or household fruit trees.
3. Registration of orchards in export areas.

Each orchard registered for export as a result of meeting conditions in (1) is to be numbered and the location identified by MAFF. This information is to be given to the AQIS inspector by MAFF.

4. MAFF to notify BA immediately if unusual weather conditions occur resulting in brown rot, black spot or scab in export orchards.

[...]

²⁶¹¹ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 26.

²⁶¹² 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 13.

²⁶¹³ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 26.

13. MAFF is to apply door seals to the shipping containers in Tottori and again after Customs' verification inspection in Kobe port and ensure that the container numbers are correctly recorded on the phytosanitary certificates."²⁶¹⁴

7.1013 In the light of the above, the Panel finds that Australia has demonstrated that its current measures applicable to Japanese nashi pears are based on the assumption that exports will be sourced only from Tottori prefecture. The Panel notes in this regard that New Zealand does not contest that since 1989 Australia has imported Japanese nashi pears only from Tottori prefecture. As mentioned above, New Zealand also concedes that freedom from brown rot is certified in Tottori prefecture.²⁶¹⁵ Also, as noted above, the 2003 Review limits Japanese nashi pear exports to Tottori prefecture.

7.1014 Nevertheless, should the 2003 Review be read as allowing imports from Japanese orchards outside of Tottori prefecture, the Panel notes that the Review imposes several requirements to make sure that Japanese nashi pears may be exported only from orchards free from brown rot. In fact, the 2003 Review concludes that:

"[I]t is proposed that the requirement for petal testing for brown rot (*Monilinia fructigena*) and flower cluster examination for scab (*Venturia nashicola*) be removed, to be replaced by a requirement for orchard freedom from both diseases, as verified by orchard surveillance through the growing season.

Orchards in which brown rot is identified will be deregistered by the NPPO and will not be allowed to export fruit to Australia. Due to the potential for latent infections from external infection sources, the bag covering the developing export fruit is an essential and effective barrier to infection and a significant phytosanitary measure. NPPOs will be required to notify Australia of any detection of brown rot in fruit export regions and the measures that have been taken to control outbreaks.

[...]

The import protocols contain a series of controls that will ensure that only fruit free from diseases of concern to Australia are allowed for import. BA is confident that this change does not compromise the ALOP established through IRAs on pome fruit imports from Japan, Korea and China.

Given the possibility of changes to the status of the diseases in pome fruit orchards in Japan, Korea and China resulting from unusual weather conditions that give rise to conducive conditions for disease development, BA has included an additional requirement stating that the quarantine authority in the exporting country must notify BA immediately if unusual weather conditions occur which result in disease development in export orchards above the thresholds indicated."²⁶¹⁶

7.1015 Further, the part of the 2003 Review entitled "Framework for Review" emphasizes the central role of area freedom as a precondition for Japanese nashi pear imports to Australia:

"BA is to consider the removal of the requirement for petal testing in export orchards for brown rot (*Monilinia fructigena*) and black spot (*Alternaria gaisen*), and flower

²⁶¹⁴ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, Appendix 2, pp. 61-62.

²⁶¹⁵ New Zealand's second written submission, para. 2.857.

²⁶¹⁶ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, pp. 23-24.

cluster examination for scab (*Venturia nashicola*) in pear orchards designated to export pear fruit to Australia. BA will undertake the review in accordance with the International Standards for Phytosanitary Measures (ISPM) developed by the FAO, in particular, Part 4 of the ISPM - Pest Surveillance: *Requirements for the establishment of pest free areas* (ISPM No. 4, 1996). The three main components in establishing and maintaining a PFA are:

1. systems to achieve area freedom
2. measures to maintain area freedom
3. procedures to verify maintenance of area freedom."²⁶¹⁷

7.1016 As the experts explained, this significantly reduces the risk involved in the importation of Japanese nashi pears into Australia.

7.1017 In the light of the above, the Panel finds that Australia has demonstrated that, even if its current measures applicable to Japanese nashi pears should be read as allowing imports from Japanese orchards outside of Tottori prefecture, these measures ensure that Japanese nashi pears may be exported only from orchards free from brown rot.

Presence of the two pests in Australia

7.1018 As indicated above, European canker was identified in 1954 in four orchards in Spreyton, Tasmania, but was eradicated by 1991.²⁶¹⁸

7.1019 As regards brown rot, both Parties accept that Australia is free of brown rot proper.²⁶¹⁹ Australia argues, however, that other species of brown rot are already present in Australia (for example, *Monilinia laxa* and *Monilinia fructicola*). Since this is not the case for European canker, the economic impact for the Australian apple and pear industry would be lower if *M. fructigena* were to establish in Australia than if European canker were to establish in Australia.²⁶²⁰ New Zealand responds that the other species of brown rot referred to by Australia (*M. fructicola* and *M. laxa*) relate primarily to stone fruit.²⁶²¹

7.1020 As noted above, the compliance panel in *Australia – Salmon (Article 21.5 – Canada)* found that a disease exotic to the importing country involves a higher risk than a non-exotic disease.²⁶²² The Panel cannot tell whether this principle applies in regard to brown rot and European canker in the current dispute, since neither Party has submitted arguments concerning any similarities between brown rot proper and "other species of brown rot already present in Australia."²⁶²³

²⁶¹⁷ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 25.

²⁶¹⁸ See para. 2.18 above.

²⁶¹⁹ New Zealand's first written submission, para. 4.440; and Australia's first written submission, para. 1004.

²⁶²⁰ Australia's first written submission, para. 1004.

²⁶²¹ New Zealand's second written submission, para. 2.850.

²⁶²² Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.93.

²⁶²³ Australia's first written submission, para. 1004.

Volumes of trade

7.1021 New Zealand asserts that trade in nashi pears from Japan is comparable to trade in New Zealand apples.²⁶²⁴ The 1998 Final Import Risk Analysis of the New Zealand Request for the Access of Apples into Australia accepted that "trade in pears from Japan is broadly comparable to the [New Zealand] proposal in that it involves trade in a susceptible host product from a country with a disease similar to fire blight".^{2625, 2626} According to the trade figures submitted by New Zealand, since 2005 Japan has exported no pears and quinces to Australia.²⁶²⁷ New Zealand concedes that plant health status, trade volumes and risk management practices may change over time; however, unless the ALOP also changes, it is entirely appropriate to consider past situations as evidence of an ongoing breach of Article 5.5.²⁶²⁸ New Zealand adds that the ALOP is best ascertained by considering measures in the light of the risk as it existed at the time the measures were adopted.²⁶²⁹ A subsequent drop off in trade or eradication of a pest does not change the ALOP being applied.²⁶³⁰ If the volume of trade is relevant at all, the relevance lies in the volume of trade as predicated at the time the comparator risk assessment was conducted. Yet the 1988 investigation and measures imposed under the Quarantine Circular Memorandum made no assumptions about the potential volume of trade. Further, the risk management measures under the 2003 Arrangement for the Shipment of Nashi Fruit from Japan to Australia are not limited to specific volumes. There is nothing on the face of the Arrangement that indicates that at higher volumes, different measures would apply. Moreover, nothing prevents Japan from re-establishing trade at any time and at any volume on the basis of the measures set out under the 2003 Arrangement.²⁶³¹

7.1022 Australia refers to the significantly different volumes of trade involved in the respective products. Australia notes Dr Sgrillo's statement that risk is directly proportional to the volume imported, and Dr Latorre's point that as the volume of trade increases, so too does the likelihood of a biological event occurring.²⁶³² Australia concedes that the 1998 Final IRA Report for New Zealand apples recognized that trade in nashi pears from Japan was broadly comparable to trade in New Zealand apples in that it involved a susceptible host product (i.e. nashi pears) from a country with a disease similar to fire blight (i.e. *Japanese Erwinia*). However, the 1998 IRA also identified several fundamental differences between the two situations, one of which was the potential volume of trade.²⁶³³

7.1023 Australia argues that if there is no trade in a product, there is no risk that a pest or disease will gain entry into a Member's territory via trade in that product.²⁶³⁴ Australia points out that there has been no trade in Japanese nashi pears between Australia and Japan since 2003, when 36 tonnes were imported by Australia. Prior to 2003, the maximum volume imported in any one year since 1994 was

²⁶²⁴ New Zealand's reply to Panel question 131 after the first substantive meeting.

²⁶²⁵ (*footnote original*) Exhibit AUS-112, *Final Import Risk Analysis of the NZ Request for the Access of Apples Into Australia* (December 1998), p. 27. The statement is made with reference to bacterial shoot blight (BSB), the disease name for *Japanese Erwinia*.

²⁶²⁶ New Zealand's second written submission, para. 2.828.

²⁶²⁷ New Zealand's reply to Panel question 120 after the second substantive meeting, Annex 2.

²⁶²⁸ New Zealand's second written submission, paras. 2.823 and 2.824.

²⁶²⁹ New Zealand's second written submission, para. 2.823.

²⁶³⁰ *Ibid.*

²⁶³¹ New Zealand's second written submission, para. 2.838. See also New Zealand's second written submission, para. 2.845.

²⁶³² Australia's comments on the experts' replies to questions 12 and 61, para. 271.

²⁶³³ Australia's first written submission, para. 994.

²⁶³⁴ Australia's first written submission, para. 995. See also Australia's second written submission, para. 739.

86 tonnes.²⁶³⁵ These figures are confirmed by the trade figures submitted by New Zealand on pear (and quince) exports from Japan to Australia.²⁶³⁶ This is much lower than the likely volume of trade in New Zealand apples²⁶³⁷, estimated in the IRA as 150 million apples per year, or approximately 27,000 tonnes.²⁶³⁸ Even New Zealand's more conservative estimate of 50 million apples (approximately 9,000 tonnes) per year dwarfs the past, and now non-existent, volume of trade in Japanese nashi pears.²⁶³⁹

7.1024 In response to a question from the Panel whether Australia took into account volume of trade in its assessment of Japanese nashi pears, Australia points out that, on the basis of the PRA for nashi pears in 1988-1989, a trial shipment of 5,600 cartons (roughly 101 tonnes) of nashi pears from Japan to Australia was conducted in 1989 to determine if the proposed risk management measures would be successful. Following that trial shipment, trade was allowed to continue, and up until 2003 the highest total volume of trade was 86 tonnes in 1994. This is an *evidence*-based, consistently low volume of trade. The low volumes of trade were also referred to in the 2003 review, which is the most recent assessment of unrestricted risk and measures associated with nashi pears from Japan. Further, the volume of trade for the trial shipment was never exceeded in the following years.²⁶⁴⁰

7.1025 Australia agrees with New Zealand that Japan could seek to re-establish trade at any time. However, Japan could not re-establish trade unilaterally. Since there has been no trade in nashi pears in six years, and since there are currently no valid import permits for the importation of nashi pears into Australia, Australia would reconsider the relative risks associated with any proposed recommencement of trade, including with respect to the likely volume of trade. Further, it is highly improbable that trade which averaged around 37 tonnes per year between 1994 and 2003 would suddenly jump to between 9,000 and 27,000 tonnes per year.²⁶⁴¹

7.1026 Australia also notes that the IRA for New Zealand apples provides for a review of the import conditions applying to New Zealand apples after one year of trade. A similar review of the import conditions applying to Japanese nashi pears occurred after taking into account surveys or export orchards, the history of trade and visits by Australian plant pathologists²⁶⁴², and again in 2003.²⁶⁴³ The reviews considered the results of orchard surveys, petal and flower testing data, history of trade, and reports from Australian plant pathologists, orchard management programmes, AQIS inspector pre-clearance reports, and latency testing results. Further, national surveillance data by Japan's national plant protection organization indicated that the diseases of concern in the review had either not been reported for a number of years, or had occurred sporadically and were readily controlled by contemporary orchard management practices. Import conditions were modified on the basis of these reviews. Analysis of the outcomes of each measure included in the existing importation conditions indicated areas of overlap between orchard surveillance, disease management measures and disease tests. Where there was a clear redundancy in overlapping measures, Biosecurity Australia considered that it would be possible to remove or modify them without loss of phytosanitary security.²⁶⁴⁴

²⁶³⁵ Australia's first written submission, para. 996. See also, Australia's reply to Panel question 120 after the second substantive meeting.

²⁶³⁶ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 217.

²⁶³⁷ Australia's first written submission, p. 300.

²⁶³⁸ Australia's first written submission, para. 997. See also Australia's second written submission, para. 739.

²⁶³⁹ Australia's first written submission, para. 997.

²⁶⁴⁰ Australia's reply to Panel question 121 after the second substantive meeting.

²⁶⁴¹ *Ibid.*

²⁶⁴² Australia's first written submission, para. 1019.

²⁶⁴³ Australia's reply to Panel question 133 after the first substantive meeting.

²⁶⁴⁴ *Ibid.*

7.1027 As the Panel noted above, the panel in *Australia – Salmon* explained that an analysis of Article 5.5 involves a comparison between current situations. "Article 5.5 directs us to compare for different situations the related levels of protection as they are currently considered to be appropriate by Australia and this whether or not the sanitary measures enacted to achieve that level are based on a risk assessment."²⁶⁴⁵

7.1028 In the current dispute, Australia's *de facto* ALOP needs to be determined in part based on the risks related to Japanese nashi pear imports. An important element of that risk is the volume of trade in Japanese nashi pears.

7.1029 The May and September 1989 Quarantine Circular Memoranda both refer to a requirement for a trial shipment before the initiation of exports. The September 1989 Quarantine Circular Memorandum also confirms Australia's argument that the trial shipment involved 5600 cartons of Japanese nashi pears.²⁶⁴⁶ Australia alleges that this corresponds to roughly 110 tonnes, and that up until 2003 the highest total of trade was 86 tonnes in 1994. In other words, according to Australia, the volume of trade for the trial shipment was never exceeded in the following years.²⁶⁴⁷ New Zealand does not contest these arguments by Australia, nor that the trial shipment has taken place.

7.1030 Further, the 2003 Review references annual reviews for Japanese nashi pears. "Nashi fruit has been imported into Australia from Tottori Prefecture in Honshu Island, Japan since 1989. The quarantine measures for each season have been mutually agreed through an annual 'Arrangement' between BA and Japan's MAFF. The last 'Arrangement' signed in October 2001 permits imports of nashi pear into Australia from 2001 until a review is deemed necessary."²⁶⁴⁸ Presumably, these annual reviews provided an opportunity for Australia to adjust its measures should trade suddenly surge.

7.1031 Also, the 2003 Review explicitly notes that it has taken the history of trade into account:

"[H]istory of trade has been taken into account. As a result of ongoing trade and dialogue with respective countries, AQIS and BA have developed a high level of confidence in the outcomes achieved by phytosanitary measures applied through the existing importation conditions. They also have confidence in the verification and validation of measures by each of the NPPOs as evidenced through outturn and inspection and audit of the export pathway by AQIS officers and Australian technical experts. The end result is that there have been no quarantine pests or diseases detected in imported pome fruit from North Asia."²⁶⁴⁹

7.1032 As regards the period since 2003, Australia argues that there have been no Japanese nashi pear imports at all. New Zealand does not contest this. Japanese nashi pear exports could recommence subject at least to an import permit from Australia. Nevertheless, as Australia argues, it is highly unlikely that they would surge above their previous levels. New Zealand certainly has not provided any evidence to show why that should happen. Accordingly, the Panel finds that the history of trade in Japanese nashi pears, including the lack of trade in the last years, clearly informs Australia's current assumptions of the risks involved in that product. New Zealand has not brought forward evidence that would lead the Panel to disregard Australia's assumption that any volume of

²⁶⁴⁵ Panel Report on *Australia – Salmon*, para. 8.126.

²⁶⁴⁶ September 1989 Quarantine Circular Memorandum, p. 7.

²⁶⁴⁷ Australia's reply to Panel question 121 after the second substantive meeting.

²⁶⁴⁸ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 26.

²⁶⁴⁹ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, pp. 19-20.

imports of Japanese nashi pears would be significantly lower than the volume of trade predicted for New Zealand apples in its IRA (approximately 27000 tonnes) or even that estimated by New Zealand (9000 tonnes).

Existing controls in Australia

7.1033 Australia argues that existing controls in Australia reduce the risk of brown rot. According to Australia, brown rot caused by *M. fructigena*, is only one particular species of brown rot. Other species of brown rot are already present in Australia (for example, *Monilinia laxa* and *Monilinia fructicola*) and Australian industry already has controls in place for these diseases that would also be effective for *M. fructigena*. This is not the case for European canker. Accordingly, the economic impact for the Australian apple and pear industry would be lower if *M. fructigena* were to establish in Australia than if European canker were to establish in Australia.²⁶⁵⁰

7.1034 New Zealand responds that Australia's recent draft IRA for apples from China does not refer to any such effect.²⁶⁵¹ The other species of brown rot referenced in Australia's arguments, namely *M. fructicola* and *M. laxa*, relate primarily to stone fruit, so the controls applied to stone fruit trees would not have any effect on the risk of infection of apple trees by *M. fructigena*.²⁶⁵² Further, New Zealand contends, there are comparable controls that would also be effective against European canker in Australia. The IRA for New Zealand apples notes that "[c]ultural practices and chemical measures used to control apple scab ... in most Australian apple-growing regions (except Western Australia) would assist in controlling European canker".^{2653, 2654}

7.1035 Dr Latorre seems to agree with this, stating that "[s]everal of the fungicides used to prevent apple scab (*V. inaequalis*) can also control European canker".²⁶⁵⁵

7.1036 Accordingly, the Panel finds that Australia has not made the case that there is a major difference between the two situations in terms of existing controls.

Overall consideration of the various risk factors

7.1037 Having analyzed these seven risk factors argued by the Parties, the Panel would need to draw conclusions as to how the overall risks regarding European canker in New Zealand apples compare with the overall risks for brown rot in Japanese nashi pears.

7.1038 The Panel recalls that it is:

"[N]ot asked to make a scientific risk comparison nor to state with scientific certainty that one product is riskier than the other. We can only weigh the evidence put before us and, on the basis of the rules of burden of proof we adopted, including the use of factual presumptions, decide whether sufficient evidence is before us – evidence which has not been rebutted – in order to state that it can be presumed that one product is riskier than the other."²⁶⁵⁶

²⁶⁵⁰ Australia's first written submission, para. 1004.

²⁶⁵¹ New Zealand's second written submission, para. 2.849.

²⁶⁵² New Zealand's second written submission, para. 2.850.

²⁶⁵³ (footnote original) IRA, p. 148.

²⁶⁵⁴ New Zealand's second written submission, para. 2.851.

²⁶⁵⁵ Dr Latorre's reply to Panel question 61, in List of Replies from the scientific experts to questions posed by the Panel, para. 380.

²⁶⁵⁶ Panel Report on *Australia – Salmon*, para. 8.126.

7.1039 The above analysis of the seven factors argued by the Parties shows a mixed picture. In light of the Parties' arguments and the evidence on record, some factors, namely the facility of transmission and the range of host plants, point towards a higher risk associated with brown rot. Some others, namely volumes of trade and presence in export areas, imply a higher risk of European canker in New Zealand apples. In regard to existing controls, there appears to be no major difference between the two situations. Two factors, potential biological and economic consequences and the presence of the pests in Australia, appear to be inconclusive with regard to the risk of the comparable situations.

7.1040 It would not be appropriate for the Panel to compare the number of risk factors in favour of a higher risk of one or the other pest, and then conclude that one comparable situation involves a higher risk than the other one. Such a simplistic approach would disregard that overall risk results from various factors, where each factor has a specific weight. In fact, it is possible that one single factor – with the proper weight attributed to it – might tilt the comparison of overall risks in favour of one or the other situation. The Panel does not know what weight to attribute to the various factors, as New Zealand has not submitted any specific arguments in this regard. Accordingly, the Panel cannot assess how the overall risks in the two comparable situations relate to each other.

7.1041 In regard to the overall level of risks, New Zealand argues that "Australia's ... *Draft IRA Report – Fresh Apple Fruit from the People's Republic of China* ..., released in January 2009,²⁶⁵⁷ identified the risk associated with *M. fructigena* as higher than that associated with *N. galligena*.^{2658, 2659} The same draft IRA also identified the consequences of *M. fructigena* as higher than that associated with *N. galligena*.²⁶⁶⁰

7.1042 This argument sounds appealing: it suggests that the defendant itself has found that brown rot poses a higher risk than European canker. At the same time, New Zealand refers to an assessment Australia made in the context of apple imports from China. This is a distinct situation from both European canker in New Zealand apples and brown rot in Japanese nashi pears. Again, New Zealand has not provided any argument or evidence to demonstrate how the situation of Chinese apple imports into Australia can be relevant for assessing a comparison between Japanese nashi pears and New Zealand apples. Accordingly, the Panel finds New Zealand's reference to Australia's Draft IRA on Fresh Apple Fruit from the People's Republic of China unconvincing.

7.1043 In the light of the above, the Panel does not have sufficient evidence from New Zealand to assess how the overall risks for European canker in New Zealand apples compare with the overall risks for brown rot in Japanese nashi pears. Consequently, the Panel cannot continue its analysis under Article 5.5 with regard to the comparison of European canker in New Zealand apples and brown rot in Japanese nashi pears. In fact, a comparison of the risks in the two situations would be an essential element of the Panel's analysis of whether the two situations involve distinctions, in particular arbitrary or unjustifiable distinctions, in the *de facto* ALOP reflected in the measures applied by Australia. Since the Panel is not able to compare the risks in the two situations, it will not engage in a detailed comparison of the measures that serve to achieve Australia's *de facto* ALOP.

²⁶⁵⁷ (*footnote original*) Draft Import Risk Analysis Report for Fresh Apples Fruit from the People's Republic of China, January 2009 (Draft IRA – China Apples), Exhibit NZ-128.

²⁶⁵⁸ (*footnote original*) The probability of entry, establishment and spread for *M. fructigena* was assessed for Chinese apples as "high", and the overall unrestricted risk (both PEES and consequences) was assessed as "moderate": Draft IRA – China Apples, Exhibit NZ-128, p. 131. This is to be compared with the conclusions in respect of *N. galligena* (described in the Draft IRA – China Apples with the alternate name *N. Ditissima*), which was assessed in the Draft IRA – China Apples (consistent with the IRA for New Zealand apples) as "low" and "low" for PEES and overall unrestricted risk respectively.

²⁶⁵⁹ New Zealand's second written submission, para. 2.843.

²⁶⁶⁰ New Zealand's second written submission, para. 2.846.

7.1044 The Panel notes New Zealand's argument that the measures applied by Australia in the two comparable situations show significant differences, which are indicative of an unjustifiable or arbitrary distinction in the ALOP. However, as noted above, New Zealand itself concedes that measures alone do not provide conclusive evidence in respect of Australia's ALOP. In fact, New Zealand identifies risks as a key first element of the analysis of its Article 5.5 claim. "While New Zealand agrees that measures alone do not constitute conclusive proof of differences in levels of protection, if the risks associated with the comparable products are substantially the same, then the measures applied should be examined to determine whether they may reflect differences in the level of protection."²⁶⁶¹

7.1045 The Panel also recalls the Appellate Body's statement in *EC – Hormones* that Article 5.5 does not contain a legal obligation of absolute or perfect consistency between ALOPs in different situations:

"The objective of Article 5.5 is formulated as the "achieving [of] consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection". Clearly, the desired consistency is defined as a goal to be achieved in the future. ... We agree with the Panel's view that the statement of that goal does not establish a *legal obligation* of consistency of appropriate levels of protection. We think, too, that the goal set is not absolute or perfect consistency, since governments establish their appropriate levels of protection frequently on an *ad hoc* basis and over time, as different risks present themselves at different times. It is only arbitrary or unjustifiable inconsistencies that are to be avoided."²⁶⁶²

7.1046 Finally, the Panel recalls that Australia has adopted the same generically stated ALOP in both situations. In these circumstances and in the light of the foregoing arguments, without a better understanding of how the overall risks involved in the two situations relate to each other, the Panel concludes that New Zealand has not demonstrated the second element of the Article 5.5 test in regard to the comparison of European canker in New Zealand apples with brown rot in Japanese nashi pears. Accordingly, the Panel also concludes that New Zealand has not demonstrated that there are distinctions in the levels of protection actually achieved by the measures applied in the two situations, which is the outstanding part of the first element of the Article 5.5 test.

(ii) *Comparison of the risks of fire blight in New Zealand apples and of Japanese Erwinia in Japanese nashi pears*

7.1047 New Zealand argues that Australia seeks to eliminate completely the negligible risk of fire blight being vectored by New Zealand apples, yet it is willing to tolerate, without any efforts at mitigation, the risk of *Japanese Erwinia* from Japanese pears. New Zealand adds that given the comparable risk profiles at issue, the significant difference in treatment constitutes an arbitrary and unjustifiable distinction in the levels of protection.²⁶⁶³

7.1048 Australia argues that since both the likelihoods and the consequences of entry, establishment and spread into Australia in relation to *Japanese Erwinia* are lower than the associated likelihoods in relation to fire blight, the risk associated with Japanese nashi pears is much lower than the risk associated with New Zealand apples.²⁶⁶⁴ As a result of this lower risk, different measures are required

²⁶⁶¹ New Zealand's reply to Panel question 131 after the first substantive meeting.

²⁶⁶² Appellate Body Report on *EC – Hormones*, para. 213.

²⁶⁶³ New Zealand's first written submission, para. 4.445.

²⁶⁶⁴ Australia's first written submission, para. 1006.

in order to achieve Australia's ALOP. Australia asserts that New Zealand ignores these important points, and thereby fails to establish that Australia's measures in practice reflect different ALOPs.²⁶⁶⁵

7.1049 For the reasons explained earlier, the Panel will assess the following three risk factors argued by the Parties in this context:

- (a) the presence of the two pests in export areas;
- (b) the presence of the two pests in Australia; and
- (c) the potential biological and economic consequences of the two pests, including the range of host plants.

7.1050 In addition, the Panel recalls its earlier analysis on volume of trade in Japanese nashi pears.²⁶⁶⁶

Presence of the two pests in export areas

7.1051 New Zealand argues that, to determine any differences in ALOP, one needs to consider the pest status at the time the comparable risk was assessed. *Japanese Erwinia* was reported in Japan in 1972 and may have been present in Japan from the early 1900s.²⁶⁶⁷ Eradication was not claimed until 2003.²⁶⁶⁸ Still, the 1988 investigation by AQIS into pest risk associated with the import of nashi pears did not assess the risks associated with *Japanese Erwinia*.²⁶⁶⁹ Despite the presence of *Japanese Erwinia* in Japan, it was not analysed as part of any pest risk analysis and no measure requiring area freedom from the pest in export areas was adopted. It appears that Australia is content to rely on assurances that Japan (including Tottori Prefecture) is free from *Japanese Erwinia*.²⁶⁷⁰ In fact, to this day, no measures are in place to ensure that Tottori Prefecture is and remains free of *Japanese Erwinia*. The only reference to *Japanese Erwinia* in the 2003 Arrangement is a requirement that the Japanese Ministry of Agriculture Forestry and Fisheries notify Biosecurity Australia should there be an outbreak "in Hokkaido or elsewhere in Japan". There is no explicit requirement to notify Biosecurity Australia if there is an outbreak in Tottori Prefecture (the only prefecture from which nashi pears are allegedly exported to Australia). Further, the consequence of notification of an outbreak is discretionary. Import conditions could be reviewed under the Arrangement. However, despite Australia's assertion in its responses to Panel questions that such a review would, "of course" follow, this is not in fact a requirement under the Arrangement.²⁶⁷¹

7.1052 Australia argues that the geographic area relevant to the risk associated with the importation of nashi pears to Australia is Tottori prefecture – not the whole of Japan.²⁶⁷² *Japanese Erwinia* was restricted to Hokkaido island in Japan, whereas Australia has imported nashi pears only from Tottori prefecture on Honshu island, which is free from *Japanese Erwinia* and geographically remote from

²⁶⁶⁵ Australia's first written submission, para. 1018. See also Australia's first written submission, para. 1009.

²⁶⁶⁶ See paras. 7.1021-7.1032 above.

²⁶⁶⁷ New Zealand's first written submission, para. 4.436.

²⁶⁶⁸ New Zealand's reply to Australia's question 16 after the second substantive meeting, para. 39.

²⁶⁶⁹ New Zealand's second written submission, para. 2.837.

²⁶⁷⁰ New Zealand's reply to Australia's question 16 after the second substantive meeting, para. 39.

²⁶⁷¹ New Zealand's second written submission, para. 2.859.

²⁶⁷² Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 218.

Hokkaido. Australia has never imported nashi pears from Hokkaido, and the import conditions are based on the assumption that pears would be sourced only from Tottori.²⁶⁷³

7.1053 Australia recognizes that the 1989 pest risk analysis for Japanese nashi pears did not mention *Japanese Erwinia*. However, Australia argues that, at the Panel's meeting with the experts, Dr Schrader confirmed that there is no need to assess the risk of a pest or disease which does not occur in the geographical area in relation to which a risk assessment is conducted. ISPM No. 11 also supports this view. Accordingly, *Japanese Erwinia* was not, and is not, a pest relevant to the importation of nashi pears from Tottori prefecture in Japan.²⁶⁷⁴ Given the limitation of nashi pear exports to Tottori prefecture, *Japanese Erwinia* is not, and never has been, a pest of direct concern in relation to trade in Japanese nashi pears to Australia.²⁶⁷⁵ In the light of Article 6 of the SPS Agreement, Australia argues that its recognition of area freedom in Tottori prefecture in relation to *Japanese Erwinia* is consistent with the requirements of the SPS Agreement.²⁶⁷⁶

7.1054 New Zealand responds that Article 6 of the SPS Agreement also provides that:

"Exporting members claiming that areas within their territories are pest- or disease-free areas ... shall provide the necessary evidence thereof in order to objectively demonstrate to the importing Member that such areas are, and are likely to remain pest- or disease-free areas ... For this purpose, reasonable access shall be given, upon request, to the importing member for inspection, testing and other relevant procedures."

New Zealand argues that there is no evidence that AQIS was ever involved in auditing any surveys for area freedom done by MAFF in Tottori or anywhere else in Japan.²⁶⁷⁷

7.1055 In any event, Australia adds, Japan notified to the IPPC the eradication of *Japanese Erwinia* from Hokkaido in 2003²⁶⁷⁸, resulting from intensive emergency controls to eradicate the disease.²⁶⁷⁹ As a result of the review of the import conditions applying to Japanese nashi pears conducted by Biosecurity Australia in 2003, and taking into account Japan's eradication notification, Australia now requires Japan's Ministry of Agriculture, Fisheries and Forestry to notify Biosecurity Australia of any further detection of *Japanese Erwinia* in Hokkaido or elsewhere in Japan. To date, no such notifications have been made to Biosecurity Australia, but in the event of notification of an outbreak of *Japanese Erwinia* in Japan, Australia would review the relevant import conditions.²⁶⁸⁰

7.1056 In effect, Australia argues, the notification requirement of any outbreaks of *Japanese Erwinia* anywhere in Japan operates as an area freedom requirement: Tottori prefecture must remain free from *Japanese Erwinia*.²⁶⁸¹ The efficacy of the requirement was confirmed in November 2008, when Japan notified Australia of an outbreak of a "Bacterial Black Shoot disease of European pear" in Yamagata prefecture, a geographical area again remote from Tottori prefecture. The disease is reportedly a "new

²⁶⁷³ Australia's first written submission, para. 988. See also Australia's second written submission, para. 741 and Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 218.

²⁶⁷⁴ Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁷⁵ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 218.

²⁶⁷⁶ Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁷⁷ New Zealand's comments on Australia's reply to Panel question 119 after the second substantive meeting, para. 275.

²⁶⁷⁸ Australia's first written submission, para. 989.

²⁶⁷⁹ Australia's reply to Panel question 132 after the first substantive meeting.

²⁶⁸⁰ *Ibid.* See also, Australia's first written submission, para. 989.

²⁶⁸¹ Australia's second written submission, para. 740.

bacillus of the *Erwinia* genus", but it is distinct from *Erwinia amylovora*. As a result of this notification, Australia immediately suspended the issuance of import permits for Japanese nashi pears until further information is obtained.²⁶⁸²

7.1057 Australia contends that the only requirement in place for *Japanese Erwinia*, namely that Japan notify Australia of any future outbreaks of the disease anywhere in Japan, was included in the 2003 review as a result of the 1995 outbreak in Hokkaido.²⁶⁸³ No further requirements were deemed necessary, given the confinement of the outbreak to the geographically remote island of Hokkaido, the eradication programme implemented by Japan and the absence of *Japanese Erwinia* occurrences elsewhere in Japan.²⁶⁸⁴

7.1058 By comparison, Australia argues, fire blight is widely distributed in the apple-growing areas of New Zealand, and New Zealand has not provided evidence to confirm that it has procedures in place to establish, maintain and verify areas free from the disease.²⁶⁸⁵ If the disease is no longer present in Hokkaido, and Australia imports nashi pears only from Tottori prefecture, the basis for a comparison of the likelihood of entry, establishment and spread (along with the basis of comparison of risk) disappears.²⁶⁸⁶

7.1059 New Zealand responds that in regard to *Japanese Erwinia*, Australia simply relies on a generic notification to the IPPC in 2003 that *Japanese Erwinia* is absent from Japan, which post-dates the commencement of trade, and a requirement that Australia be notified should it reoccur – the efficacy of which may be called into question. New Zealand notes that Australia exhibits a letter from November 2008 which refers to an outbreak of bacterial black shoot disease of European pear (belonging to the same genus with the pathogenic bacteria of fire blight *Erwinia amylovora*) in Yamagata prefecture.²⁶⁸⁷ However, the Japanese notification related to an outbreak reported one and a half years earlier – hardly a demonstration of a functioning area freedom requirement. In response to this belated notification (by which stage Japan had in fact taken measures to protect and confine the organism and no further detections had been made), Australia asserts that it immediately suspended the issuance of import permits, although it provides no evidence of this. Indeed, in the light of the fact that no imports have occurred since 2003, this presumably amounted to doing nothing.²⁶⁸⁸

7.1060 Dr Paulin notes that:

"The key-difference between the two situations, as far as risk associated with fruits is concerned, is that, according to Australia (following Japan statement), this disease caused by *Erwinia sp.* on Nashis is present only in the Hokkaido Island. This allows Australia to import fruits from an other area, remote from Hokkaido. This is a clear objective difference between *Erwinia*/Japan, and *E. amylovora*/New Zealand situations."²⁶⁸⁹

²⁶⁸² Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁸³ *Ibid.*

²⁶⁸⁴ *Ibid.*

²⁶⁸⁵ Australia's first written submission, para. 990. See also Australia's reply to Panel question 119 after the second substantive meeting.

²⁶⁸⁶ Australia's first written submission, para. 989.

²⁶⁸⁷ Ministry of Agriculture, Forestry and Fisheries, Japan "Detection and measures of Bacterial Black Shoot disease of European pear (provisional name)", MAFF press release, 6 November 2008 (English translation provided by Australia), in Exhibit AUS-174.

²⁶⁸⁸ New Zealand's comments on Australia's reply to Panel question 119 after the second substantive meeting, para. 272.

²⁶⁸⁹ Dr Paulin's reply to Panel question 12, in List of Replies from the scientific experts to questions posed by the Panel, para. 108 (original emphasis).

7.1061 The Panel notes that the original pest risk analysis conducted by Australia in 1989 did not involve *Japanese Erwinia*. Neither of the two Quarantine Circular Memoranda identified by the Parties from May and September 1989 refer to that pest. The Memoranda do not explain if this is because Dr Kable during his two visits did not encounter *Japanese Erwinia* in Tottori prefecture, or because he encountered the pest but did not consider it to be of quarantine concern for Australia.

7.1062 As Australia argues, the 2003 Review of the Australian Requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China includes the following notification requirement: "MAFF is to notify BA of any further detections of bacterial shoot blight (BSB) in Hokkaido or elsewhere in Japan as soon as confirmed."²⁶⁹⁰ New Zealand does not contest that this measure covers the pest referenced in this dispute as *Japanese Erwinia*.

7.1063 As noted above, the panel in *Australia – Salmon* explained that Article 5.5 involves a comparison between current situations. "Article 5.5 directs us to compare for different situations the related levels of protection as they are currently considered to be appropriate by Australia and this whether or not the sanitary measures enacted to achieve that level are based on a risk assessment."²⁶⁹¹ The panel in *Australia – Salmon* added that: "[t]o determine whether Australia makes a distinction in the levels of protection it considers to be appropriate for the situations compared, we thus need to examine the sanitary measures Australia currently imposes for these different situations."²⁶⁹²

7.1064 The Panel therefore needs to focus on the 2003 Review and the notification requirement spelt out in that review. Indeed, the 2003 Review is the most recent reflection of Australia's *de facto* ALOP with regard to *Japanese Erwinia*.

7.1065 The 2003 Review does not contain an explicit requirement for area freedom from *Japanese Erwinia*. Still, as Australia argues, it is highly probable that notification of bacterial shoot blight would result in a suspension of trade in Japanese nashi pears. In the context of Fuji apple from Japan to Australia, the 2003 Review recognizes bacterial shoot blight of pear as a disease of quarantine concern to Australia, and prescribes immediate notification of the disease for Japan, to be followed by appropriate action by Australia:

"Detection/monitoring surveys for pests and diseases must be conducted by MAFF in orchards registered for export within the designated areas. MAFF must submit the results using a standardised reporting format to BA. The standardised reporting format is to be determined by MAFF. These surveys must include ... bacterial shoot blight of pear (*Erwinia amylovora*) or related species The designated export areas must be free of th[is] disease[.]. If any specified pest or disease or other exotic pest or disease of quarantine concern to Australia is detected through detection/monitoring surveys or joint inspection of orchards, then BA must be notified immediately for appropriate action to be taken."²⁶⁹³

7.1066 Further, the 2003 Review explicitly foresees the suspension of trade if bacterial shoot blight in pear is detected. "MAFF has indicated that designated export areas are free from bacterial shoot blight of pear (*Erwinia amylovora*). MAFF will monitor for this exotic disease of quarantine concern and notify BA immediately if it is detected in the designated export areas. If bacterial shoot blight of

²⁶⁹⁰ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 63.

²⁶⁹¹ Panel Report on *Australia – Salmon*, para. 8.126.

²⁶⁹² Panel Report on *Australia – Salmon*, para. 8.124.

²⁶⁹³ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 45.

pear (*Erwinia amylovora*) or related species is found, imports will be suspended pending an investigation."²⁶⁹⁴

7.1067 Likewise, the 2003 Review explains that:

"Bacterial shoot blight of pear caused by *Erwinia amylovora*, a disease similar to fire blight, is restricted to Chinese pear in Hokkaido, according to information provided by MAFF. Adequate internal quarantines must be maintained to prevent the movement of host material from Hokkaido into designated export areas to preserve the area freedom status for bacterial shoot blight of pear. Details of any changes to these control measures should be provided to BA. If this disease, or related species, is detected outside of Hokkaido then AQIS must be notified immediately and trade will cease, pending the outcome of an investigation."²⁶⁹⁵

7.1068 Although these latter passages from the 2003 Review relate to Japanese Fuji apples, they do reflect a general concern of Australia with bacterial shoot blight and related species in Japanese pear. It is therefore highly probable that Japanese nashi pear imports would be suspended if Japan notified Australia of bacterial shoot blight and related species.

7.1069 In principle, Australia's reliance on Japanese authorities in this regard does not reduce the validity of this conclusion. In fact, Annex A(6) of the SPS Agreement defines "pest- or disease-free area" as "[a]n area, whether all of a country, part of a country, or all or parts of several countries, as identified by the competent authorities, in which a specific pest or disease does not occur."

7.1070 Yet, the Panel notes the significant delay in Japan's 2008 notification to Australia of bacterial shoot blight of pear in Yamagata prefecture in mid-2007. The notification indicates that Japan took steps to eradicate the disease, including by burning the trees affected, immediately after detection in mid-2007. While this amounts to an effort by Japan to restore pest freedom as quickly as possible, the notification does not explain what steps were taken to prevent the transmission of the pest through exported fruit, either by Japan or Australia.

7.1071 Having considered all of these points, the Panel finds that the 2003 Review does not include a *de facto* requirement of area freedom from *Japanese Erwinia*.

7.1072 At the same time, the Panel notes that New Zealand does not contest Australia's argument that Japanese nashi pear exports have been limited to Tottori prefecture, and that Tottori has been free of *Japanese Erwinia*. New Zealand does not contest either that *Japanese Erwinia* or bacterial shoot blight in pears was present only in regions of Japan that are distant from Tottori prefecture.

7.1073 The Panel has analysed above whether Australia effectively limited Japanese nashi pear exports to Tottori prefecture. In the light of the relevant documents, the Panel concluded that Australia applies a *de facto* limitation to that effect. If that is the case, the risk arising from *Japanese Erwinia* in Japanese nashi pears is reduced. The Panel notes, in comparison, that fire blight is present in various apple production areas in New Zealand since 1919.²⁶⁹⁶

7.1074 Even if Australia should not *de facto* limit the importation of Japanese nashi pears to Tottori prefecture, the Panel notes that in 2003 Japan notified that it had eradicated *Japanese Erwinia* even from Hokkaido. Again, New Zealand does not contest this, but rather Australia's reliance on Japanese

²⁶⁹⁴ 2003 Review of the Australian requirement for Petal Testing and Flower Cluster Examination at Blossoming for Pome Fruit from Japan, The Republic of Korea and The People's Republic of China, p. 46.

²⁶⁹⁵ *Ibid.*

²⁶⁹⁶ See para. 2.8 above.

assertions in this regard. In the light of the definition of pest-free areas in the SPS Agreement, in principle the Panel does not see any problem with Australia's reliance on statements by Japan's competent authorities. In fact, Article 6 of the SPS Agreement implies a reliance in recognizing pest-free areas on statements by the exporting Member's authorities in regard to eradication programmes and control measures:

"1. Members shall ensure that their sanitary or phytosanitary measures are adapted to the sanitary or phytosanitary characteristics of the area – whether all of a country, part of a country, or all or parts of several countries – from which the product originated and to which the product is destined. In assessing the sanitary or phytosanitary characteristics of a region, Members shall take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

2. Members shall, in particular, recognize the concepts of pest- or disease-free areas and areas of low pest or disease prevalence. Determination of such areas shall be based on factors such as geography, ecosystems, epidemiological surveillance, and the effectiveness of sanitary or phytosanitary controls.

3. Exporting Members claiming that areas within their territories are pest- or disease-free areas or areas of low pest or disease prevalence shall provide the necessary evidence thereof in order to objectively demonstrate to the importing Member that such areas are, and are likely to remain, pest- or disease-free areas or areas of low pest or disease prevalence, respectively. For this purpose, reasonable access shall be given, upon request, to the importing Member for inspection, testing and other relevant procedures."

7.1075 The Panel concludes that, although the 2003 Review does not include a *de facto* requirement of area freedom from *Japanese Erwinia*, it limits Japanese nashi pear imports to Tottori prefecture, and New Zealand does not contest Australia's argument that this prefecture has been free from *Japanese Erwinia*. Accordingly, the Panel finds that Australia has demonstrated that it imports Japanese nashi pears from an area free from *Japanese Erwinia*. Furthermore, in the meantime, the pest has been reported to have been eradicated from Japan, so even if Australia imported Japanese nashi pears outside of Tottori prefecture, those imports would come from areas free from *Japanese Erwinia*.

Presence of the two pests in Australia

7.1076 Currently both pests are absent from Australia. The Panel notes that Australia does not contest New Zealand's argument that *Japanese Erwinia* has not been detected in Australia.²⁶⁹⁷ In comparison, as noted above, fire blight was detected in Australia in the Melbourne Royal Botanic Gardens in 1997, but eradication efforts were undertaken and no further outbreaks have been reported.²⁶⁹⁸

²⁶⁹⁷ New Zealand's first written submission, para. 4.436.

²⁶⁹⁸ Australia's first written submission, para. 77; Australia's IRA, Part C, p. 107; New Zealand's first written submission, para. 3.55.

Potential biological and economic consequences (range of host plants)

7.1077 New Zealand argues that *Japanese Erwinia* and *Erwinia amylovora* produce very similar symptoms²⁶⁹⁹, and the biological and economic consequences of the diseases are also similar.²⁷⁰⁰ Given the close similarities between *Japanese Erwinia* and *Erwinia amylovora*, these pests also result in comparable biological and economic consequences for Australia.²⁷⁰¹ New Zealand concedes that *Japanese Erwinia* has a narrower range of host plants, since in the field it has been recorded only on pears, while *Erwinia amylovora* appears on both pears and apples.²⁷⁰² Nevertheless, New Zealand argues that Australia has a large domestic pear production industry, comprising more than 2.1 million trees with an annual fruit production of over 150,000 tonnes.²⁷⁰³ In 2007-2008, Australian pear production corresponded to 33 per cent of total Australian pipfruit production.²⁷⁰⁴ Also, the IRA indicates that yield reduction as a result of a fire blight outbreak may be more significant for the pear industry than the apple industry.²⁷⁰⁵

7.1078 Australia argues that the narrower range of host plants of *Japanese Erwinia* alone immediately differentiates the potential consequences of *Japanese Erwinia* from fire blight. Given that the Australian industry produces roughly half as many pears as apples, the difference in potential economic consequences is obvious.²⁷⁰⁶ Accordingly, in Australia's circumstances, the consequences associated with *Japanese Erwinia* are lower than those for fire blight.²⁷⁰⁷

7.1079 Dr Deckers explains that the two diseases have quite similar symptoms:

"There is a great similarity between the Japanese *Erwinia* associated with nashi pears and *Erwinia amylovora* on apples from New Zealand. In both cases it concerns a bacterial disease on fruits [...] ... [T]he risk for epiphytial presence of the bacteria on the surface of the fruits is comparable for both bacteria and should ask for a comparable strategy to avoid entrance of the disease."²⁷⁰⁸

7.1080 At the same time, Dr Deckers accepts Australia's argument that the narrower range of host plants for *Japanese Erwinia* involves a lower risk for that pest. "*Japanese Erwinia* [is a bacterial disease] on pear and the other fire blight one on apple and pear. This distinction will of course have consequences for the global risk evaluation."²⁷⁰⁹

7.1081 Likewise, Dr Paulin sees the two pests as rather similar, while he also attributes importance to the difference in range of host plants:

"Otherwise it seems that the bacteria (*Erwinia*-Japan and *E. amylovora*) are very similar but *not identical*, and the symptoms seem similar as well, but *Erwinia* from Nashis shows a narrow range of host plants, which could account for lower risks

²⁶⁹⁹ New Zealand's first written submission, para. 4.437.

²⁷⁰⁰ New Zealand's second written submission, para. 2.830.

²⁷⁰¹ New Zealand's first written submission, para. 4.438. See also New Zealand's second written submission, para. 2.839.

²⁷⁰² New Zealand's first written submission, para. 4.437.

²⁷⁰³ New Zealand's first written submission, para. 4.438.

²⁷⁰⁴ New Zealand's second written submission, para. 2.839.

²⁷⁰⁵ *Ibid.*

²⁷⁰⁶ Australia's first written submission, para. 1000.

²⁷⁰⁷ Australia's first written submission, p. 302.

²⁷⁰⁸ Dr Deckers's reply to Panel question 12, in List of Replies from the scientific experts to questions posed by the Panel, para. 107.

²⁷⁰⁹ *Ibid.*

(limited to pears?). To be honest it is important to recognise that little is known in the literature about this Nashi disease."²⁷¹⁰

7.1082 The Panel finds that New Zealand has not made a prima facie case that *Japanese Erwinia* in Japanese nashi pears and *E. amylovora* in New Zealand apples have comparable biological and economic consequences for Australia. In addition, Australia has shown that the narrower host range of *Japanese Erwinia* would likely result in less severe biological and economic consequences of that disease than the consequences of *Erwinia amylovora* in New Zealand apples.

Overall consideration of the various risk factors

7.1083 Having analysed the various risk factors argued by the Parties, the Panel would again need to draw conclusions on how the overall risks associated with *Erwinia amylovora* in New Zealand apples compare with the overall risks associated with *Japanese Erwinia* in Japanese nashi pears.

7.1084 Three risk factors argued by the Parties, namely the volume of trade, the potential biological and economic consequences (including the range of host plants) and the presence of the pests in export orchards, seem to point towards a lower risk for *Japanese Erwinia* in Japanese nashi pears. As to the presence of the pests in Australia, there seems to be no difference between the two situations.

7.1085 The Panel notes that New Zealand argues that *Japanese Erwinia* in Japanese nashi pears and *Erwinia amylovora* in New Zealand apples have "similar risk profiles".²⁷¹¹ Since three of the risk factors argued by the Parties in regard to these pests point towards a higher risk profile of *Erwinia amylovora* and with regard to the fourth risk factor there seems to be no difference between the two situations, the Panel finds that New Zealand has not demonstrated that *Japanese Erwinia* in Japanese nashi pears and *Erwinia amylovora* in New Zealand apples have similar overall risk profiles. In fact, it seems that *Erwinia amylovora* has the higher overall risk profile of the two pests.

7.1086 The Panel notes New Zealand's argument that the measures applied by Australia to the two comparable situations show significant differences, which may be indicative of an unjustifiable or arbitrary distinction in ALOP. However, as noted above, New Zealand itself concedes that measures alone are not conclusive in respect of Australia's ALOP.

7.1087 The Panel also recalls the Appellate Body's statement in *EC – Hormones* that Article 5.5 does not involve a legal obligation of absolute or perfect consistency between ALOPs adopted in different situations.²⁷¹²

7.1088 Finally, Australia has the same generically stated ALOP for both situations. In these circumstances and in the light of the foregoing arguments, the Panel finds that New Zealand has not demonstrated the second element of the Article 5.5 in the context of the comparison between *Japanese Erwinia* in Japanese nashi pears and *Erwinia amylovora* in New Zealand apples. Accordingly, the Panel also concludes that New Zealand has not demonstrated that there are distinctions in the levels of protection actually achieved by the measures applied in the two situations, which is the outstanding part of the first element of the Article 5.5 test.

²⁷¹⁰ Dr Paulin's reply to Panel question 12, in List of Replies from the scientific experts to questions posed by the Panel, para. 109 (original emphasis).

²⁷¹¹ New Zealand's reply to Panel question 131 after the first substantive meeting. See also, New Zealand's first written submission, para. 4.445 and New Zealand's second written submission, para. 2.854.

²⁷¹² Appellate Body Report on *EC – Hormones*, para. 213.

4. The Panel's conclusion on New Zealand's Article 5.5 Claim

7.1089 The Panel has found in regard to both pairs of comparator situations advanced by New Zealand that New Zealand has not demonstrated the second and the first elements of the three-pronged Article 5.5 test.

7.1090 As the Appellate Body explained, the three elements of this tests are cumulative: each has to be demonstrated by the complainant to prove a violation of Article 5.5 of the SPS Agreement. Accordingly, the Panel will not proceed to the third element, and dismisses New Zealand's claim under Article 5.5 of the SPS Agreement.

E. NEW ZEALAND'S CLAIM UNDER ARTICLE 2.3 OF THE SPS AGREEMENT

7.1091 In its panel request New Zealand claims a violation of "both sentences"²⁷¹³ of Article 2.3 of the SPS Agreement, which reads:

"Members shall ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a disguised restriction on international trade."

7.1092 New Zealand's claim under Article 2.3 is consequential on its claim under the first sentence of Article 5.5. Referring to the Appellate Body report in *Australia – Salmon*, New Zealand argues that since Australia is in violation of its obligations under Article 5.5, it is accordingly also in violation of its obligations under Article 2.3.²⁷¹⁴ While Article 2.3 is more general than Article 5.5, a finding of violation will necessarily imply a violation of Article 5.5.²⁷¹⁵ Where there is a relationship between two provisions such that proof of a breach of one implies a breach of the other, it is not necessary to explicitly establish inconsistency with all of the terms in the provision for which a breach is implied. This is inherent in the notion that the breach is "implied" as opposed to established explicitly.²⁷¹⁶

7.1093 In response, Australia recognizes that "there is a close relationship between Articles 2.3 and 5.5 [of the SPS Agreement]", and agrees with New Zealand that Article 2.3 has a broader application than Article 5.5. Accordingly, where a violation of Article 5.5 has been established, there is an implied violation of Article 2.3.²⁷¹⁷

7.1094 Australia points out that New Zealand's consequential claim under Article 2.3 is entirely dependent on the result of its claims under Article 5.5.²⁷¹⁸ New Zealand, however, fails to establish a violation of Article 5.5; therefore its consequential claim under Article 2.3 must also fail.²⁷¹⁹ Since New Zealand has not provided any separate arguments or evidence in relation to its claims

²⁷¹³ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-2 to this report, p. 3. See also New Zealand's reply to Panel question 136 after the first substantive meeting.

²⁷¹⁴ New Zealand's first written submission, para. 4.483.

²⁷¹⁵ New Zealand's reply to Panel question 122 after the second substantive meeting. See also New Zealand's reply to Panel question 137 after the first substantive meeting.

²⁷¹⁶ New Zealand's second written submission, para. 2.872.

²⁷¹⁷ Australia's reply to Panel question 137 after the first substantive meeting.

²⁷¹⁸ Australia's first written submission, para. 1068. See also Australia's second written submission, para. 183 and Australia's reply to Panel question 122 after the second substantive meeting.

²⁷¹⁹ Australia's first written submission, para. 1068.

under Article 2.3, in effect it has abandoned its Article 2.3 claim.²⁷²⁰ Because New Zealand has not presented substantive arguments in relation to Article 2.3, if the Panel finds consistency with Article 5.5, there will be no arguments or evidence for the Panel to take into account in deciding on consistency with Article 2.3. Recalling the fundamental principle that a Member's measures are presumed WTO-consistent unless sufficient evidence is presented to the contrary, Australia's measures should therefore be presumed consistent with Article 2.3.²⁷²¹

7.1095 The Panel notes that New Zealand's claim under Article 2.3 is entirely dependent on its claim under Article 5.5 of the SPS Agreement. Since the Panel has dismissed New Zealand's Article 5.5 claim, it also has to dismiss New Zealand's consequential Article 2.3 claim.

F. NEW ZEALAND'S CLAIM UNDER ARTICLE 5.6 OF THE SPS AGREEMENT

1. The Panel's approach to assessing New Zealand's claim

(a) Three cumulative conditions of the Article 5.6 test

7.1096 New Zealand claims that each of the 16 measures that remain at issue in this dispute²⁷²² are inconsistent with Australia's obligations under Article 5.6 of the SPS Agreement²⁷²³, which provides:

"Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of protection, taking into account technical and economic feasibility."

7.1097 The footnote to Article 5.6 adds:

"For the purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade."²⁷²⁴

7.1098 The Parties agree that three cumulative conditions need to be fulfilled to establish a violation of Article 5.6.²⁷²⁵ As the Appellate Body explained, to pass this three-pronged test of Article 5.6, the complainant needs to demonstrate that another, alternative measure:

"(1) is reasonably available taking into account technical and economic feasibility;

²⁷²⁰ Australia's first written submission, paras. 1068-1069. See also Australia's second written submission, para. 161.

²⁷²¹ Australia's reply to Panel question 137 after the first substantive meeting. See also Australia's second written submission, paras. 183 and 1068.

²⁷²² Measure 12 relating to European Canker is no longer at issue in this dispute. See para. 2.96 above.

²⁷²³ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3. See also the preliminary ruling, where the Panel found that "[it] understands that New Zealand has claimed that 'every measure ... [identified] in its panel request is inconsistent with each of the [nine] provisions referred to [in the panel request]'", including Article 5.6 of the SPS Agreement. *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, para. 10 (footnote omitted).

²⁷²⁴ Footnote 3 to Article 5.6 of the SPS Agreement.

²⁷²⁵ New Zealand's first written submission, paras. 4.487-4.488; Australia's first written submission, paras. 1073-1074.

- (2) achieves the Member's appropriate level of sanitary or phytosanitary protection; and
- (3) is significantly less restrictive to trade than the SPS measure contested.²⁷²⁶

7.1099 New Zealand argues that alternative measures to the 16 that remain at issue in this dispute fulfil these three cumulative conditions. In particular, New Zealand identifies alternatives for the measures at issue relating to fire blight and European canker, and to ALCM, as well as for the three "[g]eneral"²⁷²⁷ measures that apply to all three pests. Australia contests New Zealand's Article 5.6 claim, arguing *inter alia* that the alternatives identified by New Zealand would not achieve Australia's ALOP and that, in any event, New Zealand has failed to properly identify certain alternative measures.

7.1100 In light of these arguments, the Panel will structure its analysis of New Zealand's Article 5.6 claim according to the three categories of measures contested by New Zealand under Article 5.6, namely:

- (a) The measures at issue relating to fire blight and European canker;
- (b) The ALCM measure; and,
- (c) The general measures.

7.1101 Under each of these three categories, the Panel will assess what alternative measures New Zealand has properly identified, and whether the alternative measure satisfies the three-pronged Article 5.6 test.

- (b) The Panel's order of analysis of the three conditions of the Article 5.6 test

7.1102 As to the order of analysis of the three conditions of the Article 5.6 test, Australia argues that the most logical starting point for the Panel would be the second condition, namely whether the alternative measures identified by New Zealand achieve Australia's ALOP.²⁷²⁸ Australia submits that without first determining that a particular alternative measure achieves Australia's ALOP, it is meaningless to assess a particular alternative measure's relative trade-restrictiveness or reasonable availability.²⁷²⁹ Throughout its submissions, in the context of Article 5.6, Australia focuses on the second condition of the test.

7.1103 New Zealand argues that Australia's assertion regarding the most logical starting point reveals that it does not contest that the alternative measures proposed by New Zealand meet the first and third conditions of the Article 5.6 test. In any event, New Zealand contends, regardless of which one of the three conditions is examined first, the conclusion will be that Australia has breached its obligations under Article 5.6 of the SPS Agreement.²⁷³⁰

²⁷²⁶ Appellate Body Report on *Australia – Salmon*, para. 194; and Appellate Body Report on *Japan – Agricultural Products II*, para. 95.

²⁷²⁷ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

²⁷²⁸ Australia's first written submission, para. 1075. See also Australia's second written submission, paras. 154-155.

²⁷²⁹ Australia's first written submission, para. 1075.

²⁷³⁰ New Zealand's second written submission, para. 2.884.

7.1104 The Panel recalls that the three elements of the Article 5.6 test are cumulative.²⁷³¹ The Appellate Body explained in *EC – Hormones* that the complainant must establish a prima facie case by presenting "evidence and legal arguments" sufficient to demonstrate that the defendant has breached its obligations with respect to a specific provision.²⁷³² In the context of Article 5.6, the Appellate Body confirmed in a subsequent dispute that "[p]ursuant to the rules on burden of proof ... it was for the [complainant] to establish a prima facie case that there is an alternative measure that meets all three elements under Article 5.6 in order to establish a prima facie case of inconsistency with Article 5.6."²⁷³³

7.1105 New Zealand needs to demonstrate that all three conditions of the Article 5.6 test are fulfilled.

7.1106 Previous panels and the Appellate Body did not establish a specific order for analysing the three conditions of the Article 5.6 test. They followed different approaches. In *Australia – Salmon*, the panel and the Appellate Body followed the order of the three conditions as they appear in footnote 3 to Article 5.6 of the SPS Agreement: they analysed the first, the second and then the third condition.²⁷³⁴ Conversely, the panel in *Japan – Agricultural Products II* analysed the first and third conditions of the Article 5.6 test before turning to the second condition.²⁷³⁵ The compliance panel in *Australia – Salmon (Article 21.5 – Canada)* followed a third approach. It first examined the second condition, which it described as the "most controversial element" of the three-pronged Article 5.6 test.²⁷³⁶ After having found that the second condition was fulfilled, the compliance panel turned to the other two conditions.²⁷³⁷

7.1107 In light of Australia's request, the Panel will follow the same sequence in the present dispute in regard to the pest-specific measures contested by New Zealand (Measures 1-8 for fire blight, Measures 9-11 and 13 for European canker, and Measure 14 for ALCM). The Panel will first analyse whether the second condition of the Article 5.6 test is fulfilled, namely whether the alternative measures properly identified by New Zealand for these pest-specific measures achieve Australia's ALOP. Only if the Panel finds that the second condition is fulfilled, will it turn to the first and third of the three cumulative conditions under Article 5.6.

7.1108 As regards the general measures (Measures 15-17), the Panel will start its analysis with the third prong of the Article 5.6 test, since it involves the threshold issue whether the alternative put forward by New Zealand can be usefully compared with these measures, or at least with Measure 15. If the Panel finds that the third condition of the Article 5.6 test can be and is fulfilled in regard to the general measures, the Panel will turn to the first and second conditions of the test.

2. Measures at issue regarding fire blight and European canker

(a) Alternative measure regarding fire blight and European canker identified by New Zealand

7.1109 For the eight fire blight measures (Measures 1-8) and four European canker measures (Measures 9-11 and 13) at issue, New Zealand's first written submission references one alternative measure, and argues that it would fulfil the three cumulative conditions of the Article 5.6 test:

²⁷³¹ Appellate Body Report on *Australia – Salmon*, para. 194; and Appellate Body Report on *Japan – Agricultural Products II*, para. 95.

²⁷³² Appellate Body Report on *EC – Hormones*, para. 109.

²⁷³³ Appellate Body Report on *Japan – Agricultural Products II*, para. 126.

²⁷³⁴ See Panel Report on *Australia – Salmon*, paras. 8.167-8.183; and Appellate Body Report on *Australia – Salmon*, paras. 194-213.

²⁷³⁵ Panel Report on *Japan – Agricultural Products II*, paras. 8.72-8.104.

²⁷³⁶ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.127.

²⁷³⁷ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, paras. 7.146-7.152.

"There is a very simple and straightforward measure which accords with the scientific evidence on the transmission of fire blight and European canker that could have been imposed by Australia. It is *the restriction of imports to apple fruit that are mature and symptomless*. ... [S]uch a measure is reasonably available, it would achieve Australia's ALOP and it is significantly less trade restrictive than the measures imposed by Australia."²⁷³⁸

7.1110 Continuing, New Zealand references two possible additional alternative measures for fire blight, although it then immediately discounts their relevance as proper alternative measures under its Article 5.6 claim:

"With regard to fire blight, alternative measures that would also be reasonably available, be less trade restrictive and achieve Australia's ALOP include *restricting apple fruit imports to those fruit that have been cold stored, or limiting imports to apples that are 'retail-ready packaged fruit.'* Such measures have little justification, however, as they would be based on an assumption that mature, symptomless apples could be a vector for the transmission of fire blight. *Since there is no scientific basis for any such assumption, New Zealand will restrict its consideration to the alternative measure of restricting imports to mature, symptomless apple fruit.*"²⁷³⁹

7.1111 Likewise, New Zealand references two possible additional alternatives for European canker, but immediately excludes their consideration as valid alternative measures in the context of Article 5.6:

"With regard to European canker, alternative measures that would also be reasonably available, be less trade restrictive and achieve Australia's ALOP include *restricting imports of apples to those that are sourced from 'pest-free places of production', to be determined by a single inspection of each exporting orchard and maintained through controls on the subsequent movement of nursery stock, or limiting imports to apples sourced from areas of 'low pest prevalence' to be determined by inspection of a sample of orchards*. Again, such measures are without justification, as they would be based on an assumption that mature, symptomless apples could transmit European canker, and an assumption that the climatic conditions in Australia are conducive to European canker establishing and spreading. *Since there is no scientific basis for either assumption, New Zealand will restrict its consideration to the alternative measure of restricting imports to mature, symptomless apples.*"²⁷⁴⁰

7.1112 In light of these statements, Australia argues that for fire blight and European canker New Zealand has limited its Article 5.6 claim to a single alternative measure: the restriction of imports to mature, symptomless apples. Therefore, Australia submits, the Panel should not consider the other four possible measures referenced by New Zealand as genuine alternatives under Article 5.6.²⁷⁴¹

7.1113 New Zealand contests this, and reiterates that the four additional alternatives it proposes are based on the incorrect assumption that mature, symptomless apples are vectors for fire blight, and would therefore violate Articles 2.2 and 5.1 of the SPS Agreement:

²⁷³⁸ New Zealand's first written submission, para. 4.489 (emphasis added).

²⁷³⁹ New Zealand's first written submission, para. 4.490 (emphasis added).

²⁷⁴⁰ New Zealand's first written submission, para. 4.491 (emphasis added).

²⁷⁴¹ Australia's first written submission, paras. 1087-1088.

"In its first written submission, New Zealand also identified various other alternative measures for fire blight, European canker and ALCM that would meet the requirements of Article 5.6, but which would still be more trade restrictive than required. A measure limiting imports to apples that are retail-ready packaged fruit was identified. Indeed, as noted above in respect of Article 5.1 and as confirmed by the experts, such a measure would effectively exclude the primary pathway for ALCM identified by the IRA. In respect of fire blight, an alternative measure restricting apple fruit imports to those fruit that have been cold stored was noted. In respect of European canker, alternatives such as restricting imports of apples to those that are sourced from 'pest-free places of production,' ... or limiting imports to apples sourced from areas of 'low pest prevalence' were identified.

Australia argues in respect of those additional alternatives, that they should be ignored by the Panel because New Zealand 'chose not to substantiate' them. As made clear in New Zealand's first written submission, *New Zealand considers that these alternative measures meet the requirements of Article 5.6.* Relative to the measures imposed by Australia they are significantly less trade restrictive, reasonably available, and would meet Australia's ALOP. *However, given that these additional alternatives are based on the assumption that mature, symptomless apples are vectors for fire blight and European canker, they are still more trade restrictive than required and would not be consistent with Articles 2.2 and 5.1 of the SPS Agreement. The fact that less trade restrictive measures than the measures at issue are still more trade restrictive than required simply indicates the severity of the breach in this case.*"²⁷⁴²

7.1114 In its response to the Panel after the second meeting, New Zealand elaborates on these points in regard to one of the four additional requirements, namely the retail-ready requirement:

"Contrary to Australia's claims, New Zealand has identified a retail ready requirement as an alternative to Australia's measures pursuant to Article 5.6. See paragraph 4.490 of New Zealand's first written submission and paragraph 2.894 of New Zealand's second written submission.

As explained in New Zealand's written submissions, relative to the measures imposed by Australia, a retail ready measure is significantly less trade restrictive, reasonably available and would meet Australia's ALOP. However, it is still more trade restrictive than a mature, symptomless apples requirement. Indeed, the fact that a retail ready requirement is *less* trade restrictive than the measures at issue, yet still *more* trade restrictive than required simply indicates the severity of the breach of Article 5.6 in this case.

As a result, *the fact that New Zealand did not base its primary arguments under Article 5.6 on a retail ready measure does not mean that there was no obligation on Australia to consider it under Article 5.1 and Annex A(4).* It was a genuine, reasonable and feasible measure (though not, in New Zealand's view, the least trade restrictive one).

Indeed, had the IRA come to an objectively justifiable conclusion that a retail ready measure was necessary, New Zealand may have accepted this. As explained in New Zealand's written submissions, in expressly requesting that the IRA Team evaluate a retail ready measure, New Zealand clearly indicated that it would be

²⁷⁴² New Zealand's second written submission, paras. 2.894-2.895 (emphasis added). See also New Zealand's reply to Panel questions 123 and 125 after the second substantive meeting.

prepared to accept such a requirement in the event that Biosecurity Australia determined through a science-based assessment of risk that it was necessary to meet Australia's ALOP.²⁷⁴³

7.1115 The Panel notes that New Zealand identifies the four additional alternatives for fire blight and European canker as "various other *alternative measures*"²⁷⁴⁴, and asserts that they fulfil the three-pronged Article 5.6 test. At the same time, immediately after having identified these four alternatives in its first written submission, New Zealand discounts their relevance for its Article 5.6 claim as proper alternative measures for fire blight and European canker. In its subsequent submissions New Zealand insists that these measures should be considered as alternatives under its Article 5.6 claim; however, each time New Zealand does so, it confirms its earlier arguments for discounting the relevance of these measures for its Article 5.6 claim. Accordingly, the Panel considers that the restriction of imports to mature, symptomless apples is the only alternative measure validly identified by New Zealand for its Article 5.6 claim in the context of fire blight and European canker.

7.1116 Even if New Zealand had validly identified the four additional alternatives, New Zealand argues that these measures are based on an unacceptable assumption, and would therefore violate Articles 2.2 and 5.1 of the SPS Agreement. The Panel has found that there is no evidence in the IRA to support the contention that fire blight or European canker may be introduced through trade in mature apple fruit. Accordingly, the IRA's reasoning in this regard has been found by the Panel not to be coherent and objective and therefore the resulting measures in the IRA at issue in this dispute violate Articles 5.1, 5.2 and 2.2 of the SPS Agreement.²⁷⁴⁵ Consequently, it would be inappropriate for the Panel to assess these four additional alternatives, even if New Zealand had validly identified them. The Panel cannot review the consistency of the fire blight and European canker measures at issue with Article 5.6 in light of alternatives that the complainant regards as based on an assumption that could result in a violation of Articles 5.1, 5.2 and 2.2 of the SPS Agreement. Through its analysis of New Zealand's Article 5.6 claim, the Panel cannot promote alternative measures based on such an assumption.

7.1117 In fact, Article 3.7 of the DSU stipulates that "[t]he aim of the dispute settlement mechanism is to secure a positive solution to a dispute." Further, Article 3.5 of the DSU prescribes that all solutions shall be consistent with the covered agreements:

"All solutions to matters formally raised under the consultation and dispute settlement provisions of the covered agreements, including arbitration awards, shall be consistent with those agreements and shall not nullify or impair benefits accruing to any Member under those agreements, nor impede the attainment of any objective of those agreements."

7.1118 In any event, the Panel could not carry out the substantive analysis of these four alternatives under Article 5.6, even if it was appropriate for it to do so. As Australia points out²⁷⁴⁶, New Zealand does not develop arguments for these four additional alternatives in regard to all cumulative conditions of the Article 5.6 test. In the context of its Article 5.6 claim relating to fire blight and European canker, New Zealand advances arguments and evidence for all three conditions of the Article 5.6 test only in regard to the alternative measure restricting imports to mature, symptomless apples. For three of the four additional alternatives, New Zealand does not advance any specific arguments or evidence in the context of fire blight or European canker in regard to the three

²⁷⁴³ New Zealand's reply to Panel question 124 after the second substantive meeting (emphasis added).

²⁷⁴⁴ New Zealand's second written submission, para. 2.894 (emphasis added).

²⁷⁴⁵ See paras. 7.445 and 7.741 above.

²⁷⁴⁶ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 209.

conditions of the Article 5.6 test. For the retail-ready measure, in the context of fire blight and European canker, New Zealand advances arguments only in regard to the first condition of the Article 5.6 test, but not for the other two conditions.²⁷⁴⁷ Further, New Zealand explicitly notes that the four additional alternatives "simply [serve to] indicate[] the severity of the breach"²⁷⁴⁸ of Article 5.6.

7.1119 In *Chile – Price Band System* the Appellate Body held that panels act *ultra petita* and inconsistently with Article 11 of the DSU if they assess claims that the complainant has not articulated or for which it has not submitted arguments.²⁷⁴⁹ The Panel considers that this applies also to the current dispute, even if the question before the Panel arises in regard to alleged alternatives to the measures within the Panel's terms of reference under Article 5.6 of the SPS Agreement. In the absence of arguments and evidence by New Zealand on how the four additional alternatives fulfil all three cumulative conditions of the Article 5.6 test, it would be inappropriate for the Panel to assess whether, in comparison with these four alternatives, the fire blight and European canker measures at issue violate Article 5.6. If necessary, the Panel can take these alternatives into account only as argued by New Zealand: an alleged indication of the severity of the breach of Article 5.6 under the comparison of the fire blight and European canker measures at issue with the alternative measure of restricting imports to mature, symptomless apples.

7.1120 The Panel will proceed accordingly, and assess whether this single alternative measure properly identified and adequately argued by New Zealand for fire blight and European canker fulfils the three cumulative conditions of the Article 5.6 test.

- (b) Whether restricting imports to mature, symptomless apples satisfies the three-pronged Article 5.6 test
- (i) *Second condition: whether restricting imports to mature, symptomless apples achieves Australia's ALOP in regard to fire blight and European canker*

Summary of the Parties' arguments

7.1121 New Zealand alleges that restricting imports to mature and symptomless apples will achieve Australia's ALOP, which the IRA determines as "providing a high level of sanitary or phytosanitary protection aimed at reducing risk to a very low level, but not to zero".²⁷⁵⁰ According to New Zealand, there is no scientific evidence that mature, symptomless apples can provide a pathway for the transmission of fire blight and European canker. Thus, the risk of transmission is even lower than Australia's ALOP; it is negligible. Therefore, New Zealand's alternative will achieve Australia's ALOP.²⁷⁵¹

7.1122 New Zealand also argues that Australia's climatic conditions in the apple-producing areas preclude the establishment or spread of European canker.²⁷⁵² New Zealand stresses its experience as one of the world's "top ten apple exporters", and that it has never been associated with the transmission of any pests, including fire blight and European canker.²⁷⁵³

²⁷⁴⁷ New Zealand's reply to Panel question 114 after the second substantive meeting.

²⁷⁴⁸ New Zealand's second written submission, paras. 2.894-2.895 (original emphasis). See also New Zealand's second written submission, para. 2.895; and New Zealand's reply to Panel question 127 after the second substantive meeting.

²⁷⁴⁹ Appellate Body Report on *Chile – Price Band System*, para. 173. See also Appellate Body Report on *US – Certain EC Products*, para. 114.

²⁷⁵⁰ New Zealand's first written submission, para. 4.498.

²⁷⁵¹ New Zealand's first written submission, paras. 4.499-4.500.

²⁷⁵² New Zealand's first written submission, para. 4.501.

²⁷⁵³ New Zealand's first written submission, para. 4.502.

7.1123 New Zealand refers to *Japan – Apples (Article 21.5 – US)*, where the compliance panel found that requiring apples to be mature and symptomless achieves the defendant's ALOP which aimed at "preventing the introduction of *E. amylovora* with the security equivalent of import prohibition". In New Zealand's view, this ALOP, while different, is the functional equivalent of Australia's ALOP, if not a stricter level of protection.²⁷⁵⁴

7.1124 New Zealand argues that Australia's defence under Article 5.6 is contingent on the consistency of the IRA with Article 5.1. The IRA does not find support in the scientific evidence and is inconsistent with Article 5.1. New Zealand also contends that there is no scientific evidence that mature symptomless apples provide a pathway for fire blight and European canker.²⁷⁵⁵ Australia's argument that New Zealand's alternative has already been factored in the IRA misses the point because New Zealand is challenging the validity of that assessment and argues that it is not supported by scientific evidence.²⁷⁵⁶

7.1125 According to New Zealand, Australia relies on the experts' responses to questions not linked to whether restricting imports to mature, symptomless apples would achieve Australia's ALOP. Australia attempts to take the experts' responses out of context to support its view that the alternative would not achieve its ALOP. Australia relies on experts' responses, which in some instances are premised on an assumption that the risk assessment in the IRA is correct, or directed to only certain aspects of the pathway (for example probability of entry). New Zealand claims that the experts' responses taken "as a whole", meaning the experts' responses on exposure²⁷⁵⁷, establishment and spread²⁷⁵⁸ and consequences²⁷⁵⁹, demonstrate that requiring apples to be mature and symptomless would achieve Australia's ALOP.²⁷⁶⁰

7.1126 New Zealand refers to the responses of Dr Paulin and Dr Deckers to support its arguments that there is a lack of scientific evidence underpinning the IRA's conclusions under several of the main importation steps for fire blight as well as the IRA's conclusion on the percentage of New Zealand apples that would be contaminated with fire blight.²⁷⁶¹ Dr Paulin indicated that the risk of fire blight being introduced by New Zealand apples was "probably of the same order of magnitude as the transport of contaminated insects by natural way from New Zealand to Australia by air jet or things like that".²⁷⁶² In light of Dr Paulin's response, New Zealand states that measures on apple fruit would provide no additional protection for Australia against fire blight than having no measures, and that fire blight is equally (un)likely to be transmitted by existing natural means as by mature apples.²⁷⁶³

7.1127 In relation to European canker, New Zealand argues that the experts have confirmed that there is no risk of entry, establishment and spread of the disease from trade in fruit, other than the kind of theoretical possibility that can never be ruled out.²⁷⁶⁴ New Zealand claims that Dr Swinburne suggested that New Zealand's alternative measure may be more than adequate to meet the negligible risk of entry, establishment and spread through trade in apple fruit.²⁷⁶⁵

²⁷⁵⁴ New Zealand's first written submission, para. 4.503.

²⁷⁵⁵ New Zealand's second written submission, para. 2.891.

²⁷⁵⁶ New Zealand's second written submission, para. 2.892.

²⁷⁵⁷ New Zealand's second written submission, para. 2.635.

²⁷⁵⁸ New Zealand's second written submission, para. 2.659.

²⁷⁵⁹ New Zealand's second written submission, para. 2.685.

²⁷⁶⁰ New Zealand's second written submission, para. 2.893.

²⁷⁶¹ New Zealand's reply to Panel question 126 after the second substantive meeting, para. 203.

²⁷⁶² Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380.

²⁷⁶³ New Zealand's reply to Panel question 126 after the second substantive meeting, para. 204.

²⁷⁶⁴ New Zealand's reply to Panel question 126 after the second substantive meeting, para. 207.

²⁷⁶⁵ New Zealand's reply to Panel question 126 after the second substantive meeting, para. 208.

7.1128 Australia disagrees with New Zealand that restricting imports to mature, symptomless apples would achieve Australia's ALOP.²⁷⁶⁶ New Zealand's alternative has already been factored into the assessment of the IRA as implying a "low" risk, which is in excess of the "very low level" of Australia's ALOP as established by the IRA.²⁷⁶⁷ Even if the IRA Team has limited its analysis for fire blight and European canker to "mature apple fruit free of trash", it assessed "the potential for symptomless apples to carry the diseases".²⁷⁶⁸ The external (epiphytic) infestation by *E. amylovora* bacteria, which would be symptomless, was the IRA Team's primary concern for fire blight. With respect to European canker, latent infection by *N. galligena* which would also be symptomless was the risk scenario of greatest concern for the IRA Team. Bacteria and latent European canker infections are not visible to the naked eye.²⁷⁶⁹ Thus, Australia claims that restricting imports to mature symptomless apples would in no way reduce the risks of concern to Australia associated with fire blight and European canker. Accordingly, this restriction would not achieve Australia's ALOP.²⁷⁷⁰

7.1129 According to Australia, New Zealand's arguments against the measures at issue are predicated on Australia's calculations of the unrestricted risk for fire blight²⁷⁷¹ and European canker²⁷⁷² not being valid. But the IRA Team considered that apples which are externally (epiphytically) infested with *E. amylovora* bacteria (fire blight) and apples which are latently infected (or infested) with *N. galligena* (European canker), would not show symptoms, and therefore restricting imports to those "symptomless" apples would have no impact whatsoever on the relevant risk scenario of concern for the IRA Team. Also, New Zealand has not demonstrated any serious flaws with the IRA's analysis of the unrestricted risk.²⁷⁷³

7.1130 Australia submits that the IRA is a valid risk assessment. Accordingly, Australia is entitled to rely upon the IRA's findings on the unrestricted risk associated with fire blight and European canker, and to implement the measures that should be taken to reduce those risks to achieve Australia's ALOP.²⁷⁷⁴ Australia argues that restricting imports to mature symptomless apples would not achieve its ALOP without further risk management measures.²⁷⁷⁵ If the Panel finds no violation under Article 5.1, Australia's measures are consequentially consistent with Article 5.6.²⁷⁷⁶

7.1131 As regards the experts' responses, Australia points out that Dr Deckers and Dr Paulin explain that the alternative measure identified by New Zealand would not achieve Australia's ALOP for fire blight.²⁷⁷⁷ Responding to New Zealand's reliance on Dr Paulin's statement to assert that no measures are warranted for fire blight, Australia notes that the experts' responses confirm the IRA Team's

²⁷⁶⁶ Australia's first written submission, para. 1088. See also, Australia's second written submission, para. 452.

²⁷⁶⁷ Australia's first written submission, para. 1084. See also, Australia's reply to Panel question 138 after the first substantive meeting.

²⁷⁶⁸ Australia's reply to Panel question 138 after the first substantive meeting. See also, Australia's first written submission, para. 1084.

²⁷⁶⁹ Australia's first written submission, para. 1084. See also, Australia's reply to Panel question 138 after the first substantive meeting.

²⁷⁷⁰ Australia's reply to Panel question 138 after the first substantive meeting.

²⁷⁷¹ Australia's second written submission, para. 448.

²⁷⁷² Australia's second written submission, para. 609.

²⁷⁷³ Australia's second written submission, para. 452. See also, Australia's second written submission, para. 611-612.

²⁷⁷⁴ Australia's first written submission, para. 1085.

²⁷⁷⁵ Australia's first written submission, para. 1086.

²⁷⁷⁶ Australia's second written submission, paras. 613.

²⁷⁷⁷ Australia's second written submission, para. 315 and 451. See also Australia's comments on the experts' replies to questions, Australia's communication to the Panel, 25 March 2009, para. 38.

conclusions.²⁷⁷⁸ In particular, Australia claims that Dr Paulin agreed with Australia's principal risk reduction measures.²⁷⁷⁹ Consequently, the conclusion that the risk of fire blight introduction through mature symptomless apples exceeds Australia's ALOP falls within the spectrum of legitimate science.²⁷⁸⁰

7.1132 In relation to European canker, Australia argues that New Zealand has not demonstrated any serious flaws regarding the IRA's conclusion on the unrestricted risk or established that its alternative would achieve Australia's ALOP.²⁷⁸¹ Australia notes that even if Dr Latorre did not specifically address whether the alternative would achieve Australia's ALOP, his response confirmed that restricting imports to mature symptomless apples would not take into account that latent infection may occur on mature apple fruit.²⁷⁸² In addition, Australia relies on Dr Swinburne's response that the latent infection of apples with European canker may not be visible at the time of inspection.²⁷⁸³ Accordingly, Australia submits, the experts' views support Australia's conclusion that New Zealand's alternative would not achieve Australia's ALOP for European canker.²⁷⁸⁴

The Panel's analysis

The Panel's approach to the second condition of the Article 5.6 test

7.1133 Although New Zealand identifies one alternative measure for both fire blight and European canker, the Panel will assess the second condition of the Article 5.6 test separately for these two pests. The matters the Panel intends to address in this context are specifically linked to the two pests, and whether restricting the imports of New Zealand apples to mature, symptomless apples would achieve Australia's ALOP needs to be analysed in the specific pest context.

7.1134 As regards the Panel's approach to analysing the second condition of the Article 5.6 test, the Panel agrees with Australia²⁷⁸⁵ that it cannot conduct a *de novo* review. But the Panel cannot read Article 5.6 out of the SPS Agreement either. Even if Australia has the right to establish its ALOP and to devise risk management measures if necessary to achieve such ALOP, Australia has to do so consistently with the SPS Agreement. The panel in *Australia – Salmon* has addressed this question:

"We fully agree with Australia that the determination of its *level* of sanitary protection is a decision to be made by Australia, not by any other WTO Member or international organization. ... However, this decision on what level of protection is appropriate has to comply with the SPS Agreement The same applies to Australia's decision as to which sanitary *measure* will achieve Australia's *level* of protection. It is for Australia to decide on this, but, again, in so doing it has to act consistently with the SPS Agreement, in particular Articles 2, 5.1 to 5.3 and 5.6. Our examination under Article 5.6 is not aimed at a *de novo* review of what sanitary

²⁷⁷⁸ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 132.

²⁷⁷⁹ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 133.

²⁷⁸⁰ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 134.

²⁷⁸¹ Australia's second written submission, para. 612.

²⁷⁸² Australia's comments on the experts' replies to questions; Australia's communication to the Panel, 25 March 2009, para. 209.

²⁷⁸³ Australia's comments on the experts' replies to questions; Australia's communication to the Panel, 25 March 2009, para. 210.

²⁷⁸⁴ Australia's comments on the experts' replies to questions; Australia's communication to the Panel, 25 March 2009, para. 211.

²⁷⁸⁵ Australia's first written submission, para. 1098.

measure Australia should have chosen to achieve its appropriate level of protection. On the other hand, we cannot completely defer this decision to Australia and thus not give effect to Article 5.6. Our mandate under Article 11 of the DSU requires us to 'make an objective assessment of the matter before [us], including an objective assessment of the facts of the case'.²⁷⁸⁶

7.1135 On appeal, the Appellate Body confirmed this approach, and held in the context of Article 5.6 that "[i]t would obviously be wrong to interpret the *SPS Agreement* in a way that would render nugatory entire articles or paragraphs of articles of this Agreement and allow Members to escape their obligations under this agreement."²⁷⁸⁷

7.1136 Australia has a qualitative ALOP, defined as "providing a high level of protection aimed at reducing risk to a very low level, but not to zero."²⁷⁸⁸ In *Australia – Salmon (Article 21.5 – Canada)*, the compliance panel held that such an ALOP might complicate, but should in no way prevent, a panel's analysis of Article 5.6 claims, in particular as regards the second condition of the Article 5.6 test:

"[A]lthough, according to the Appellate Body, Australia determined its ALOP with sufficient precision to apply Article 5.6, we find it rather difficult to evaluate whether any of the options before us would also meet Australia's somewhat vaguely determined level of 'a high or very conservative level of protection aimed at reducing risk to very low levels, while not based on a zero-risk approach'. We are of the view, however, that this should not prevent us from carrying out the task. As noted by the Appellate Body, '[o]therwise, a Member's failure to comply with the implicit obligation to determine its appropriate level of protection – with sufficient precision – would allow it to escape its obligations under this Agreement and, in particular, its obligations under Articles 5.5 and 5.6'. We note, parenthetically, that a more explicit and in particular a quantitative expression of a Member's ALOP would greatly facilitate the consideration of compliance with not only Article 5.6 but with other provisions of the SPS Agreement as well."²⁷⁸⁹

7.1137 In light of the above, the Panel will not refrain from a substantive analysis of New Zealand's Article 5.6 claim in this dispute. As regards the second condition of the Article 5.6 test, the Panel will follow the Appellate Body's guidance in *Australia – Salmon*, and assess "whether [the] ... alternative SPS measures [advanced by New Zealand] meet the appropriate level of protection *as determined by [Australia]*."²⁷⁹⁰ Bearing in mind the standard rules on burden of proof, applicable also in SPS disputes, the Panel will assess whether New Zealand has "establish[ed] a prima facie case of inconsistency [with Article 5.6]"²⁷⁹¹, in particular as regards the second condition of the Article 5.6 test. In other words, the standard rules on burden of proof, as articulated by the Appellate Body in *US – Wool Shirts and Blouses*, apply here.²⁷⁹² Accordingly, the Panel will assess whether New Zealand

²⁷⁸⁶ Panel Report on *Australia – Salmon*, para. 8.172 (original emphasis). See also Appellate Body Report on *Australia – Salmon*, para. 199.

²⁷⁸⁷ Appellate Body Report on *Australia – Salmon*, para. 206.

²⁷⁸⁸ Australia's IRA, Part A, p. 3.

²⁷⁸⁹ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.129 (footnotes omitted).

²⁷⁹⁰ Appellate Body Report on *Australia – Salmon*, para. 204 (original emphasis).

²⁷⁹¹ Appellate Body Report on *EC – Hormones*, para. 98. See also Appellate Body Report on *Japan – Agricultural Products II*, para. 122.

²⁷⁹² In *US – Wool Shirts and Blouses* the Appellate Body held that "it is a generally-accepted canon of evidence in civil law, common law and, in fact, most jurisdictions, that the burden of proof rests upon the party, whether complaining or defending, who asserts the affirmative of a particular claim or defence. If that party adduces evidence sufficient to raise a presumption that what is claimed is true, the burden then shifts to the other

has adduced sufficient evidence to raise a presumption that the proposed alternative measure would achieve Australia's ALOP. If New Zealand succeeds in raising this presumption, then the burden of proof shifts to Australia, who must adduce sufficient evidence to rebut the presumption. If Australia fails to rebut this presumption, then, as a matter of law, New Zealand will have satisfied the second prong of the Article 5.6 test.

7.1138 Annex A(5) of the SPS Agreement defines ALOP as follows:

"Appropriate level of sanitary or phytosanitary protection – The level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory.

NOTE: Many Members otherwise refer to this concept as the '*acceptable level of risk*.' (Emphasis added)

7.1139 Further, Article 5.6 of the SPS Agreement references "sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection." Likewise, Article 5.3 of the SPS Agreement makes reference to "assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary and phytosanitary protection from such risk." This is underscored by the Guidelines to Further the Practical Implementation of Article 5.5, which repeatedly refer to SPS measures designed and applied to achieve the ALOP.²⁷⁹³

7.1140 These passages from the SPS Agreement and the Guidelines to Further the Practical Implementation of Article 5.5 make it clear that the measures necessary to meet a Member's ALOP must flow from, and reflect, the Member's risk assessment. In fact, Article 5.1 of the SPS Agreement explicitly lays down this requirement.

7.1141 In other words, risk management measures are warranted only if the risk exceeds the ALOP. The Panel notes in this regard that ISPM No. 5 defines "Pest risk analysis" as "[t]he process of evaluating biological or other scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures to be taken against it [FAO, 1995; revised IPPC, 1997; ISPM No. 2, 2007]".²⁷⁹⁴ In turn, ISPM No. 11 explains that risk management measures should be adopted only if the risk exceeds the ALOP:

"Overall risk is determined by the examination of the outputs of the assessments of the probability of introduction and the economic impact. If the risk is found to be unacceptable, then the first step in risk management is to identify possible phytosanitary measures that will reduce the risk to, or below an acceptable level. *Measures are not justified if the risk is already acceptable* or must be accepted because it is not manageable (as may be the case with natural spread). ...

Appropriate measures should be chosen based on their effectiveness in reducing the probability of introduction of the pest."²⁷⁹⁵

party, who will fail unless it adduces sufficient evidence to rebut the presumption." Appellate Body Report on *US – Wool Shirts and Blouses*, p. 14.

²⁷⁹³ SPS Committee's *Guidelines to further the practical implementation of Article 5.5* (G/SPS/15), 18 July 2000, Part B.

²⁷⁹⁴ *Glossary of phytosanitary terms*, 2008 (ISPM No. 5, FAO, Rome), in Exhibit AUS-164, p. 13.

²⁷⁹⁵ *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome), in Exhibit AUS-6, pp 130-131 (emphasis added).

7.1142 Further, the higher the margin by which the risk exceeds the ALOP, the stricter the risk management measures that might be necessary to reduce the risk to the ALOP. By the same token, if the assessment of risk is exaggerated, there may be reason to believe that the measures that are designed to protect against that risk may also be exaggerated – or too strict.

7.1143 Accordingly, the Panel will assess first whether New Zealand has demonstrated that Australia's calculation of the risk resulting of the importation of New Zealand apples is exaggerated. If New Zealand is successful in making this case, it would cast doubt on whether the risk would exceed Australia's ALOP to the extent calculated by the IRA, and warrant as strict risk management measures as those developed by the IRA. Further, it would cast doubt on whether the risk of the three pests at issue necessarily exceeds Australia's ALOP and warrants risk management measures at all. Since risk management measures are necessary only if the risk exceeds the ALOP, in case there is doubt that the risk exceeds the ALOP to the extent calculated, or doubt that it exceeds the ALOP at all, then it is appropriate for the Panel to go on to consider whether the less strict alternative measure suggested by New Zealand may meet Australia's ALOP.

7.1144 Second, the Panel will assess more directly whether, assuming that risk management measures are necessary, the alternative measures properly identified by New Zealand might sufficiently reduce the risk to, or below, Australia's ALOP. Obviously, the Panel cannot conduct a *de novo* risk assessment. The Panel's task is to assess whether New Zealand has raised a presumption, not successfully rebutted by Australia, that the alternative measures have a sufficient risk reduction effect. The Panel will analyse whether New Zealand has advanced sufficient indices for such a risk reduction effect, and consider what the experts say about such an effect. The Panel will also assess whether the IRA evaluated the alternatives identified by New Zealand, and – if they were evaluated – whether their eventual rejection by the IRA was justified.

Analysis of the second condition of the Article 5.6 test for fire blight

7.1145 The Panel will assess first whether New Zealand has demonstrated that Australia's calculation of the fire blight risk resulting from the importation of New Zealand apples is exaggerated. Under Article 5.1 of the SPS Agreement, the Panel has already found this to be the case. In particular:

- (a) In regard to importation step 1, the Panel has found that the IRA's estimation that *E. amylovora* will always be present in the source orchards in New Zealand is not sufficiently supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.²⁷⁹⁶ In particular, the Panel has found that, while the IRA's basis with respect to this importation step comes from respected and qualified scientific sources, the IRA's reasoning in this regard is not coherent and objective and the resulting likelihood assigned to this step is exaggerated.²⁷⁹⁷ The Panel has added that importation step 1 is a very important starting point for Australia's IRA. The following step, importation step 2, assesses the likelihood that picked fruit is contaminated with *Erwinia amylovora*. The likelihood in step 2 is directly related to the history of fire blight in the year of cropping (whether active symptoms producing inoculum were present) and in the previous years (for the possibility of internal presence of *Erwinia amylovora* in the xylem).²⁷⁹⁸
- (b) For importation step 2, the Panel has found that the IRA's estimation of the likelihood that fruit coming from an infected or infested orchard is infected or infested with

²⁷⁹⁶ See para. 7.259 above.

²⁷⁹⁷ See para. 7.258 above.

²⁷⁹⁸ See para. 7.257 above.

E. amylovora is not coherent and objective.²⁷⁹⁹ The Panel has noted that according to Dr Paulin the probability range for this step is high.²⁸⁰⁰ The Panel has held that it is not clear from the IRA how the results from different studies were aggregated in order to arrive at an estimation for the probability range assigned to importation step 2 and why, in this context, less weight was given to studies that found lower frequencies of contamination with fire blight.²⁸⁰¹ Dr Paulin also pointed out that no general and reasonable conclusion for the presence of *Erwinia amylovora* on or in mature apple fruit can be based on the disparate results in the relevant studies.²⁸⁰²

- (c) For importation step 3, the Panel has found that the IRA's estimation of the likelihood that clean fruit from infected or infested orchards is contaminated with *E. amylovora* during picking and transport to the packing house does not rely on adequate scientific evidence and is accordingly not coherent and objective.²⁸⁰³ The Panel has also noted that according to Dr Deckers, 1 per cent as the most likely value of the triangular distribution for this importation step seems too high.²⁸⁰⁴
- (d) For importation step 4, the Panel has concluded that New Zealand has not made a case that the IRA's estimation of the likelihood that *E. amylovora* survives routine processing procedures in the packing house is exaggerated and does not rely on adequate scientific evidence. At the same time, the Panel has noted that according to some of the experts the probability range and pattern distribution estimated by the IRA for this importation step seems too high, particularly considering the possible effect of the use of disinfectants.²⁸⁰⁵
- (e) For importation step 5, the Panel has found that the IRA's estimation of the likelihood that clean fruit is contaminated by *E. amylovora* during processing in the packing house is not coherent and objective. The Panel has noted that the experts considered the IRA's estimation regarding importation step 5 to be strongly exaggerated.²⁸⁰⁶
- (f) For importation step 6, the Panel has found that New Zealand has not made a case that the IRA's estimation of the likelihood that *Erwinia amylovora* survives palletization, quality inspection, containerization and transportation to Australia is inflated or that it is not based on a coherent and objective reasoning. Nonetheless, the Panel has noted Dr Deckers's statement that "[t]he survival of the [*E. amylovora*] bacteria during palletization, containerization and transport is considered to be low, surely after the external disinfection of the fruits during the packaging process."²⁸⁰⁷
- (g) For importation step 7, the Panel has found that the IRA's conclusion that the likelihood that clean fruit is contaminated by *Erwinia amylovora* during palletization, quality inspection, containerization and transportation is negligible appears to be coherent and objective.²⁸⁰⁸ The separate question of the IRA's choice of a probability interval of zero to one in one million for such type of "negligible" events was

²⁷⁹⁹ See para. 7.275 above.

²⁸⁰⁰ See para. 7.273 above.

²⁸⁰¹ See para. 7.274 above.

²⁸⁰² *Ibid.*

²⁸⁰³ See para. 7.290 above.

²⁸⁰⁴ See para. 7.288 above.

²⁸⁰⁵ See paras. 7.305-7.306 above.

²⁸⁰⁶ See paras. 7.318-7.320 above.

²⁸⁰⁷ See paras. 7.330-7.331 above.

²⁸⁰⁸ See para. 7.342 above.

subsequently addressed by the Panel in the context of New Zealand's allegations regarding the IRA's methodological flaws.²⁸⁰⁹

- (h) For importation step 8, the Panel has noted that New Zealand did not call into question the IRA's estimation of the likelihood of the event represented by this particular importation step. The Panel has concluded that there is no reason to believe that such estimation is not coherent and objective in light of the scenario addressed by the IRA.²⁸¹⁰

7.1146 In light of the above, the Panel has also found that the IRA's estimation of the overall probability of importation does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.²⁸¹¹ The Panel has held in this context that if the estimations of one or more of the individual likelihoods are questionable, because those estimations are either not supported by adequate scientific evidence or not based on a coherent and objective reasoning, the overall figure necessarily becomes questionable.²⁸¹² Moreover, the IRA does not attempt to find justification for the estimated overall probability of importation, other than the aggregation of the different individual likelihoods represented by each importation step. The Panel has also noted that according to Dr Deckers this overall probability is a relatively high value and is probably overestimated.²⁸¹³

7.1147 As to the probability of entry of fire blight into Australia through apples imported from New Zealand, in particular as regards exposure, the Panel has found that the scientific evidence cited in the IRA supports the conclusions on the viability and the survival of fire blight bacteria on imported apples. The Panel has stated, however, that both conclusions rest on the assumption that there will be some bacterial populations on mature apples from New Zealand. Additionally, both conclusions must be qualified by the caveat that any bacterial populations would decrease and would be unlikely to be able to multiply. The Panel has found that the IRA's conclusions on the transfer mechanisms are not supported by scientific evidence, especially in regard to the proposition of a mechanical transmission mechanism. The browsing insects scenario, while not totally unreasonable seems to correspond to a highly unlikely scenario. The IRA's conclusions on inoculum dose and host receptivity are generally coherent and supported by evidence, although the former fails to recognize the importance of the number of bacteria for the likelihood of initiating an infection, and the latter tends to exaggerate the number of potential host plants and does not take into account the discontinuity in the receptivity of host plants. Finally, the IRA's conclusions on environmental conditions seem generally coherent. In light of the assumptions and qualifications that affect most of the sections of the IRA's conclusions on exposure, the Panel has found that overall these conclusions do not rely on adequate scientific evidence and, accordingly, are not coherent and objective.²⁸¹⁴

7.1148 As regards the probability of fire blight establishment, the Panel has noted that the IRA's discussion on the minimum population needed for establishment reflects an assumption that has already been addressed by the Panel, regarding the alleged capacity of such low bacterial populations to initiate an infection. This assumption is an important factor in any conclusion regarding the probability of establishment of fire blight. It had been found by the Panel not to be supported by scientific evidence nor based on a coherent and objective reasoning.²⁸¹⁵

²⁸⁰⁹ See paras. 7.484 and 7.508 above.

²⁸¹⁰ See para. 7.349 above.

²⁸¹¹ See para. 7.356 above.

²⁸¹² See para. 7.355 above.

²⁸¹³ See para. 7.356 above.

²⁸¹⁴ See para. 7.417 above.

²⁸¹⁵ See para. 7.420 above.

7.1149 As regards fire blight spread, the Panel has found that the IRA's conclusions regarding the probability of spread seem generally coherent. At the same time, the Panel has pointed out that the value assigned to such probability should be commensurate to the extremely low likelihood of transmission through the browsing insects scenario.²⁸¹⁶

7.1150 In light of the above, in regard to exposure, establishment and spread in general, the Panel has concluded that with respect to several aspects of its discussion on exposure, establishment and spread, the IRA's reasoning seems on its face generally coherent. The Panel has added, however, that all of these sections rest on the assumption that at least some imported apples will be infested with *Erwinia amylovora*.²⁸¹⁷ Furthermore, the Panel has stated that throughout the discussion of the different factors, the IRA tends to exaggerate the risk, by not emphasizing that any bacterial populations would likely be small, diminishing and not able to multiply and that no infection can occur unless host plants are in a susceptible stage. The IRA instead emphasizes certain factors that would tend to increase the likelihood of entry, establishment and spread, in the absence of adequate scientific evidence or even disregarding available evidence to the contrary.²⁸¹⁸ The Panel has also found that the reasoning articulated in Australia's IRA, with respect to the likelihood of entry, establishment and spread of fire blight, including the IRA's estimation of the value for the respective probabilities, does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.²⁸¹⁹

7.1151 Further, the Panel has found that, with respect to the methodological flaws identified by New Zealand, the IRA overestimates the overall probability of the entry, establishment and spread of fire blight in this dispute. The Panel has found that the choice of a probability interval of 0 to 10^{-6} (zero to one in one million), and a midpoint (if uniform distribution is used) of 5×10^{-7} (0.5 in one million) for events with a "negligible" likelihood of occurring (corresponding to the qualitative descriptor "the event would almost certainly not occur") is not properly justified in the IRA and leads to an overestimation of the probability of entry, establishment and spread of fire blight. Likewise, the Panel has concluded that the combination of this probability interval for events with a "negligible" likelihood of occurring, with the IRA's use of a uniform distribution to model the likelihood of these events, would tend to result in an additional overestimation of the likelihood of such "negligible" events. The Panel has agreed with New Zealand that these two flaws "magnify the assessment of risk, turning what are often the remotest of possibilities into events that are assessed as occurring with some frequency."²⁸²⁰

7.1152 Finally, with respect to consequences, the Panel has found that the IRA's evaluation of the potential consequences associated with the entry, establishment or spread of fire blight into Australia does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.²⁸²¹

7.1153 In the light of these findings under Articles 5.1 and 5.2 of the SPS Agreement, the Panel concludes that for the purposes of its Article 5.6 claim New Zealand has made the case that Australia's IRA overestimates the fire blight risk resulting from imports of New Zealand apples. Thus, New Zealand has cast doubt on whether the fire blight risk would exceed Australia's ALOP to the extent calculated by the IRA, and warrant as strict risk management measures as those developed by the IRA. Further, New Zealand has cast doubt on whether the unrestricted fire blight risk would necessarily exceed Australia's ALOP. Accordingly, there is no reason to believe that the alternative measure suggested by New Zealand would not meet Australia's ALOP.

²⁸¹⁶ See para. 7.423 above.

²⁸¹⁷ See para. 7.428 above.

²⁸¹⁸ See para. 7.429 above.

²⁸¹⁹ See para. 7.448 above.

²⁸²⁰ See para. 7.508 above. See also, New Zealand's second written submission, para. 2.297.

²⁸²¹ See para. 7.470 above.

7.1154 As outlined above²⁸²², the Panel now turns to assessing more directly whether, assuming that risk management measures are necessary, New Zealand has raised a presumption, not successfully rebutted by Australia, that its alternative measure sufficiently reduces the fire blight risk to, or below, Australia's ALOP.

7.1155 The Panel notes that Australia's IRA did not formally consider restricting New Zealand apple imports to mature, symptomless apples as a potential risk management measure. The IRA rejected certain "other potential risk management measures for fire blight" without mentioning the possibility of restricting imports to mature symptomless apples:

"Other potential risk management measures

The IRA team considered other possible risk management measures including irradiation, fumigation and treatments with different bactericidal agents, vacuum infiltration of disinfectants and the use of pest free places of production. There was insufficient data relevant to fire blight for the IRA team to adequately assess the efficacy of these alternatives. However, the proposed measures are always open to review if additional relevant information is forthcoming that suggests alternative measures may be capable of reducing the risks to Australia's ALOP."²⁸²³

7.1156 At the same time, Australia argues that the underlying basis of the IRA Team's analysis for fire blight and European canker was predominantly concerned with mature, symptomless apples.²⁸²⁴ In the context of importation step 2 (the likelihood that fruit coming from an infected or infested orchard is infected or infested with *E. amylovora*), the IRA did look at whether mature, symptomless apples from New Zealand can carry fire blight:

"In considering the appropriate value that should be assigned to [Importation Step 2], the IRA team assessed the relevance of the information reviewed above. It should be noted that, at this stage, only the unrestricted risk is being assessed. As such, this evaluation ... needs to take into account the fact that apples could be sourced from anywhere in New Zealand irrespective of the fire blight status of orchards. For example, *mature, symptomless apples* could be sourced from, among other things, orchards:

with active fire blight, including many fire blight strikes on each tree; or

that show few or no symptoms, but are very close to active fire blight in hedgerow plants (such as cotoneaster); or

that show no symptoms and are some distance from an active fire blight host.

Given the widespread distribution of fire blight in New Zealand, the IRA team concluded that more weight should be given to those studies on apples sourced from orchards that were showing symptoms of fire blight disease.

The IRA team acknowledged that there are several studies that found no evidence of the presence of fire blight bacteria on *mature symptomless apples* and that some of these studies were carried out on orchards showing symptoms of fire blight.

²⁸²² See para. 7.1144 above.

²⁸²³ Australia's IRA, Part B, p. 113. See also, Australia's IRA, Part B, pp. 105 and 112.

²⁸²⁴ Australia's second written submission, paras. 450 and 611; Australia's first written submission, para. 1084; Australia's replies to Panel question 138 after the first substantive meeting.

However, given that there are a number of studies that confirm the presence of fire blight bacteria on such fruit, studies that found no evidence of fire blight bacteria on *mature symptomless apples* were given much less weight.

Turning to the studies that detected fire blight bacteria on *mature, symptomless apples*, there is a considerable amount of variation on the infestation rates reported. For example, Roberts et al. (1998) reviewed the literature and concluded that the average infestation rate for apples sourced from orchards with symptoms was around 4.9%, and from orchards with no consideration of orchard symptoms was approximately 0.35%. One stakeholder has claimed that Roberts et al. (1998) used an inappropriate method to combine results from different studies to calculate infestation rates. The stakeholder concluded that the infestation rates should be higher. The IRA team has reviewed this paper and agrees that there may be better ways of combining the data. However, the IRA team's conclusions on [importation step 2] are based on a consideration of all relevant information – not just the Roberts et al. (1998) paper – and the IRA team considers that the values suggested in the draft are appropriate.²⁸²⁵ (emphasis added)

7.1157 In its analysis of New Zealand's Article 5.1 claim, the Panel has found that this Part of the IRA does not find sufficient support in the scientific evidence relied upon and, accordingly, is not coherent and objective. The Panel has stated that there is no adequate justification for the IRA's statement that more weight should be given to studies on apples sourced from orchards that were showing symptoms of fire blight disease.²⁸²⁶ As noted by Dr Paulin, this statement does not seem to take adequately into account that there is no indication that fire blight will be present at all times, even in an infected orchard. While it is reasonable to assume that no orchard in New Zealand is or has been permanently free of fire blight, that does not mean that all orchards will permanently show active symptoms.²⁸²⁷ According to the evidence cited in the IRA, one year with *Erwinia amylovora* infection may alternate with years with a much lower fire blight incidence, and even in an infected orchard, there may be years without fire blight symptoms.²⁸²⁸

7.1158 While the Panel has found that most of the scientific sources cited by the IRA in the context of importation step 2 seem respected and credible, the Panel has also noted that the IRA should have used great caution when relying on the two studies that find that mature, symptomless apples could carry fire blight.²⁸²⁹ As noted by Dr Paulin, the van der Zwet *et al.* (1990) study should have been considered with extreme caution, in light of the subsequent qualifications made by its own first author.²⁸³⁰ In a declaration made in July 2002, Dr van der Zwet advised that the results of his 1990 study were obtained from fruit harvested in West Virginia, United States, in a situation of severe fire blight. In the view of that author, the results from the study "are not relevant for purposes of setting quarantine measures on exported, mature fruit".²⁸³¹ Dr Paulin also noted that other data, such as in the paper from Sholberg *et al.* (1988), which found an infestation/infection rate of at least 33 per cent,

²⁸²⁵ Australia's IRA, Part B, p. 65.

²⁸²⁶ See para. 7.272 above. See also, Australia's IRA, Part B, p. 65.

²⁸²⁷ Dr Paulin's reply to Panel question 25, in List of Replies from the scientific experts to questions posed by the Panel, para. 177.

²⁸²⁸ Dr Deckers's reply to Panel question 25, in List of Replies from the scientific experts to questions posed by the Panel, para. 176. See also, Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 323.

²⁸²⁹ See para. 7.270 above.

²⁸³⁰ Declaration of Tom van der Zwet, 16 July 2002, in Exhibit AUS-32. Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31. Dr Paulin's reply to Panel question 24, para. 175. But see, Australia's IRA, Part B, pp. p. 63.

²⁸³¹ Declaration of Tom van der Zwet, 16 July 2002, p. 4, in Exhibit AUS-32. Van der Zwet *et al.*, "Population of *Erwinia amylovora* on External and Internal Apple Fruit Tissues" (1990), in Exhibit AUS-31.

should be considered with care as the paper seems to describe a specific case study, which may be different from the normal situation in an orchard devoted to export of apples.²⁸³²

7.1159 Also, the Panel has called into question in general the IRA's reliance on the scientific papers mentioned in the context of importation step 2.²⁸³³ The Panel has held that because of the wide variation in the information reported in the various studies cited in the relevant Part of the IRA, it is not possible to find justification from these studies for the probability range assigned by the IRA to importation step 2. The results of the various studies are not comparable, since the papers do not deal with the same type of fruit (some deal with mature fruit, others with immature fruit, and still others do not indicate with precision the type of fruit). Additionally, each paper has its own technique of detecting the bacteria. As a result, no general and reasonable conclusion for the presence of *E. amylovora* on or in mature apple fruit can be based on the simple aggregation of these disparate results.²⁸³⁴

7.1160 Australia explains that the external (epiphytic) infestation by *E. amylovora* bacteria, which would be symptomless, was the IRA Team's primary concern for fire blight.²⁸³⁵ The IRA confirms this by stating that "[t]he importation risk scenario of particular relevance to *E. amylovora* is the one that is associated with the epiphytic (external) infestation. Epiphytic infestations can occur at the stem- and calyx-end and on the surface of mature fruit. *E. amylovora* cannot be detected by visual inspection."²⁸³⁶

7.1161 Dr Deckers agrees, explaining that "[t]here is not sufficient qualified research available that indicate the importance of endophytic populations of *Erwinia amylovora* in apple fruits."²⁸³⁷ Dr Paulin notes that to his knowledge there is no evidence of endophytically infected but symptomless and mature apple fruit.²⁸³⁸ Likewise, Dr Deckers explains that there is no scientific evidence in fire blight epidemiology that endophytically infected fruit would have a chance of developing into healthy-looking mature fruit.²⁸³⁹

7.1162 As regards epiphytic fire blight infestation, Dr Paulin explains that it is rare and has important prerequisites: "orchards (or areas) where there is an available inoculum (ooze), produced nearby by active symptoms of fire blight"²⁸⁴⁰

7.1163 Dr Deckers also explains that, although mature apple fruits may harbour fire blight bacteria epiphytically, such bacteria do not survive or multiply well because "multiplication of the epiphytical

²⁸³² Australia's IRA, Part B, pp. p. 56-57. Reply of Dr Paulin to Panel question 24, para. 175. Sholberg et al., "Occurrence of *Erwinia amylovora* of pome fruit in British Columbia in 1985 and its elimination from the apple surface" (1988), in Exhibit AUS-34.

²⁸³³ See para. 7.270 above.

²⁸³⁴ See para. 7.274 above.

²⁸³⁵ Australia's first written submission, para. 1084. See also Australia's reply to Panel question 138 after the first substantive meeting.

²⁸³⁶ Australia's IRA, Part B, p. 52.

²⁸³⁷ Dr Deckers's reply to Panel question 7, in List of Replies from the scientific experts to questions posed by the Panel, para. 63.

²⁸³⁸ Dr Paulin's reply to Panel question 6, in List of Replies from the scientific experts to questions posed by the Panel, para. 45.

²⁸³⁹ Dr Deckers's reply to Panel question 6, in List of Replies from the scientific experts to questions posed by the Panel, para. 54.

²⁸⁴⁰ Dr Paulin's reply to Panel question 7, in List of Replies from the scientific experts to questions posed by the Panel, para. 57.

[fire blight] bacteria in the calyx end of the fruits will not occur; multiplication of the bacteria will only occur on a medium rich in sugar or in amyllum."²⁸⁴¹ As a result, according to Dr Deckers:

"[T]he level of epiphytic populations of the [fire blight] bacteria on the apple fruits will remain low. This will make it difficult to detect these low number of bacteria on the fruit skin. The chance that this epiphytic population of [*E. amylovora*] serves as a new source of infestation in the orchard is very small is not described in the biological cyclus of an [*E. amylovora*] infection under orchard condition. The calyx of the fruit is not a place where the [fire blight] bacteria can multiply; in the best case the bacteria can survive for a period on that place."²⁸⁴²

7.1164 At the Panel's meeting with the experts, Dr Paulin also stated that fire blight is not a truly epiphytic bacteria, and would be present on apple surfaces only in residual populations, diminishing over time:

"[T]he term epiphytic is probably not the best term to be used in the case of *E amylovora*. This is a bacteria which has a poor fitness with plant surfaces. So if you have bacteria on a plant surface, on apple trees surface, this is something which is temporary and not permanent. We tend to qualify as epiphytes bacteria which are able to multiply on plant surfaces without producing symptoms. This, I think everyone would agree, is not the case with *E amylovora* on apple or pear. We may have on apple and fire blight the presence of a bacteria which is sourced from elsewhere, such as ooze or progressive infection in the same tree in the orchard. You may have, sometimes, a bacterial population. If this population is not able to infect the plant tissues, for some reason, then this population will tend to disappear and you will have residual populations like the one that was being evocated in the calyx of the fruits. *E amylovora* is not a true epiphytic bacteria."²⁸⁴³

7.1165 Similarly, in a written response to the Panel, Dr Paulin states that:

"The available scientific evidence shows that *E. amylovora* is not a true 'epiphyte', hence it cannot multiply, but only survive, with decreasing population on contaminated surfaces. It could multiply, and then maintain a high level of population, only if it were able to infect the plant. On a mature fruit this possibility of infection does not exist. Mature fruits are then concerned only at best with transient populations, which are likely to be soon disappearing. In addition, these transient populations would be present in the case where active, ooze producing fire blight lesions are present in the orchard at, or just before, picking time. Such a condition seems easy to avoid.

Therefore mature symptomless fruit will not bring in a packing house significant population of *E. amylovora* on their surface. Consequently, the evaluation of risk for this step seems too high, for mature symptomless fruits. Decaying fruits and trashes would represent a higher risk."²⁸⁴⁴

²⁸⁴¹ Dr Deckers's reply to Panel question 7, in List of Replies from the scientific experts to questions posed by the Panel, para. 62.

²⁸⁴² *Ibid.*

²⁸⁴³ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 230.

²⁸⁴⁴ Dr Paulin's reply to Panel question 26, in List of Replies from the scientific experts to questions posed by the Panel, paras. 187-188.

7.1166 In another written response to the Panel, Dr Paulin similarly states that:

"We have already commented on the probability of the presence of residual population of bacteria on fruit surface. Some people prefer to use the word 'epiphytic' exclusively for microorganisms that are able *to multiply*, and therefore to reach high level of population on leaves or plant surfaces, without producing symptoms. This is typically the case of some phytopathogenic bacteria called *Pseudomonas syringae* (some pathovars of this species). Such a capacity *does not exist* in the case of *E. amylovora* (Thomson 2000), except on stigma in flowers. Therefore the bacterial cells eventually present on the fruit surface could not multiply on the same site. They should be first carried to a *suitable site for multiplication* (i.e. an infection site, presumably an open flower on a host plant)."²⁸⁴⁵

7.1167 Dr Paulin is also sceptical about the likelihood that apples entering packing houses free of *E. amylovora* would become contaminated during processing (importation step 5):

"The liquid medium (in which mature symptomless apple fruits are immersed during the process), even without disinfectant, can not be considered as a culture medium for *E. amylovora*: an artificial medium for such bacteria must contain among other elements a rather high level of soluble sugar (0,5g/l is a minimum, 5g/l is the standard for a culture medium for *E. amylovora*). Therefore it is rather a dilution effect that could be expected from this step. In this particular case, the probability suggested in the IRA seems to be strongly exaggerated. Only if decaying apples (supposedly decaying from *E. amylovora* infection-then immature and not 'symptomless') or large amount of infected trashes, were present, the dilution effect in a non-disinfectant medium could lead to a significant amount of bacterial cells on fruit surfaces. This seems very unlikely in practical conditions.

The scientific evidence is that, in artificial medium *E. amylovora* does not compete very successfully against natural antagonistic bacteria (such as *Pantoea agglomerans* or *Pseudomonas fluorescens*, Vanneste, 2008), which are naturally found in high concentration on plant and on fruit surface, and which would compete with *E. amylovora*, thus preventing a multiplication of *E. amylovora*, if present. Finally I would therefore consider that the risk of contamination of apples by packing shed machinery is negligible."²⁸⁴⁶

7.1168 Likewise, as regards the likelihood of clean fruit being contaminated by *E. amylovora* during palletization, quality inspection, containerization and transportation (importation step 7), Dr Paulin explains that:

"In its analysis of this step, IRA does not provide any scientific evidence that such external pollution can happen, except in the case of oozing fruits. It referred to van der Zwet 1999 paper, which has already been considered as not providing the correct information on the case, which the author recognizes himself. In addition, internally infected fruits immature producing ooze, if any, would have been discarded well before this step.

²⁸⁴⁵ Dr Paulin's reply to Panel question 19, in List of Replies from the scientific experts to questions posed by the Panel, para 140 (original emphasis).

²⁸⁴⁶ Dr Paulin's reply to Panel question 30, in List of Replies from the scientific experts to questions posed by the Panel, paras. 216-217.

I would consider the probability to be nil in this case, for symptomless mature apples."²⁸⁴⁷

7.1169 Dr Paulin adds that:

"Ooze can only be produced following a progressive invasion of susceptible tissue by the bacteria. Oozing out from mature fruit is not described in fire blight symptoms. It could possibly (?) happen in the case of a delayed evolution originating from an infection of an immature fruit, but as far as I know, this has not been described in the scientific literature. The only scientific basis for oozing on mature fruit (?) is from van der Zwet 1990, which has already been discussed, and which can be considered as irrelevant for the case."²⁸⁴⁸

7.1170 Likewise, Dr Deckers states that "[i]nternally infected mature fruits will not be able to produce bacterial ooze. These fruits will immediately be invaded by fungal infections. Ooze production occurs only on immature fruits where the starch of the immature fruits is used by the EA bacteria during the multiplication phase."²⁸⁴⁹

7.1171 Dr Paulin explains that transfer to a host plant is also highly unlikely:

"The transfer to an host plant could be performed most likely by insects or wind driven rain, but the probability of successful localization at the right place should be very low, and the probability of infection even lower. The highest probability I can think of is a pollinating insect taking the few bacterial cells to the hypanthium of a flower of an host plant. This remains unlikely because trace bacterial populations (not multiplying) will be hardly grasped by insects (it would be easier in the case of a multiplying population, where cells are embedded in exudate). Finally the likelihood of successful multiplication on the hypanthium and infection would be extremely low. In addition, it would be necessary that such open flower be available when these surface polluted fruits are present. All this cannot be considered to constitute an evidence."²⁸⁵⁰

7.1172 Dr Paulin confirms this in one of his later written responses to the Panel:

"*E. amylovora* is not able to multiply on plant surface (except for a short time, on the hypanthium of stigmata in flowers). It is difficult to imagine conditions conducive to actively growing cells in natural conditions on the surface of a symptomless apple.

The spread of surface population from fruit to infection sites is similarly hard to imagine, especially because these non-multiplying cells are not embedded in exudate, and therefore not attractive to insects or other vectors. In artificial inoculations, bacterial populations at low level need to be placed *very precisely* at the right site of

²⁸⁴⁷ Dr Paulin's reply to Panel question 32, in List of Replies from the scientific experts to questions posed by the Panel, paras. 227-228.

²⁸⁴⁸ Dr Paulin's reply to Panel question 33, in List of Replies from the scientific experts to questions posed by the Panel, para. 230.

²⁸⁴⁹ Dr Deckers's reply to Panel question 33, in List of Replies from the scientific experts to questions posed by the Panel, para. 229.

²⁸⁵⁰ Dr Paulin's reply to Panel question 19, in List of Replies from the scientific experts to questions posed by the Panel, para. 141.

infection, to successfully infect its host plant (Crosse et al.). This is probably a difficulty impossible for the bacteria to tackle in natural conditions."²⁸⁵¹

7.1173 Dr Deckers agrees that the chances of epiphytic fire blight infestation on mature apple fruit sufficient to initiate an infection on a host plant would be very low. "The chance that the epiphytic bacteria that can be present on mature apple fruits initiate an infection on an other host plant will be very low. The critical point will be the transfer of viable [fire blight] bacteria to susceptible organs of an other host plant where the bacteria can multiply before a new infection can take place."²⁸⁵²

7.1174 Dr Deckers confirms this in a later written response to the Panel. "As mentioned earlier there is a possibility that mature apple fruit can harbour viable epiphytic [fire blight] bacteria. The step of the transfer from these infected fruits to the possible host plant stays the most critical step and will be difficult to prove."²⁸⁵³

7.1175 Dr Paulin adds that "it can be assumed that most of the time during the year most host plants should not be at a receptive stage when the import of apple would take place (peak in winter)."²⁸⁵⁴ Likewise, Dr Deckers states that "[d]uring dormant season, there is no infection possibility of the fire blight host plants when the host plants don't have the susceptible organs or when the climatological conditions are not allowing bacterial multiplication."²⁸⁵⁵

7.1176 Further, Dr Deckers explains that:

"Mature symptomless apple fruits coming from heavily infected orchards can harbour an epiphytic population of [fire blight] bacteria in their calyx end or as bacterial ooze stucked [sic] on the fruit skin and dried out, but the chance that this bacterial population will be capable to start a new infection on a susceptible host plant under natural conditions is rather low.

When the fruits are harvested from orchard without active fire blight symptoms in and around the orchard, without the presence of hail and when the fruits have been disinfected during preparation in the packing house, the chance for an initiation and establishment of the disease under natural conditions in another area is considered to be extremely low."²⁸⁵⁶

7.1177 Dr Paulin confirms this, by explaining that:

"[M]ature symptomless apple may harbour some surface cells of *E. amylovora*, at least if collected in an orchard showing active symptoms before cropping time. The only 'mechanisms' I can think of for the transfer of such bacteria to infection site on a living susceptible host plant at the proper stage of receptivity are:

²⁸⁵¹ Dr Paulin's reply to Panel question 27, in List of Replies from the scientific experts to questions posed by the Panel, paras. 190-191 (original emphasis).

²⁸⁵² Dr Deckers's reply to Panel question 27, in List of Replies from the scientific experts to questions posed by the Panel, para. 189.

²⁸⁵³ Dr Deckers's reply to Panel question 37, in List of Replies from the scientific experts to questions posed by the Panel, para. 252.

²⁸⁵⁴ Dr Paulin's reply to Panel question 10, in List of Replies from the scientific experts to questions posed by the Panel, para. 78.

²⁸⁵⁵ Dr Deckers's reply to Panel question 10, in List of Replies from the scientific experts to questions posed by the Panel, para. 84.

²⁸⁵⁶ Dr Deckers's reply to Panel question 18, in List of Replies from the scientific experts to questions posed by the Panel, paras. 135-136.

- Insects (whatever they are, pollinating or not), which could take bacterial cells to open blossoms, or to wounds on growing shoots,
- Wind driven rain.

These two 'mechanisms' suppose a close proximity between these fruits and the infection sites. Both are *questionable*, due to the expected low or very low level of the bacterial population present on these fruits, and its localisation (calyx), which makes the accessibility of cells rather difficult. In addition, bacterial cells on fruit are probably not embedded in ooze (as they are when actively multiplying from active lesions) and therefore not well protected from adverse conditions, and, which is more, probably have no the adhesive capacity, which is said to be a facilitating factor for transportation by insects."²⁸⁵⁷

7.1178 Further, Dr Deckers explains that the chance of a successful transfer and multiplication of bacteria will be rather exceptional:

"There will be no multiplication of the epiphytic bacterial population on the fruit surface or in the calyx tissue. The fire blight bacteria are not surviving well as an epiphytic bacterial population. The bacteria should be transferred first to a susceptible organ of a fire blight host plant like a stigma of a flower where the bacteria can multiply and start a new infection. The chance for such a successful transfer and multiplication of bacteria will be rather exceptional."²⁸⁵⁸

7.1179 Dr Deckers adds that:

"The [*Erwinia amylovora*] bacteria can indeed multiply rapidly but not on the epiphytic surfaces of the fruits. This multiplication can only occur on susceptible organs like immature fruitlets or on the stigma of the flowers and only when the climatological conditions (temperature and relative humidity) are optimal for bacterial growth. The question here is if these circumstances will be present at the time that the fruits from New Zealand arrives in Australia."²⁸⁵⁹

7.1180 Likewise, Dr Paulin states that:

"The rapid multiplication of *E. amylovora* in natural orchard environment can be observed only after infection (or artificial inoculation) of a susceptible host plant. The values indicated in the literature are strictly linked to the conditions in which they are obtained (no nutrient limitation, no water limitation, optimal and constant temperature..). They are obtained from credible scientific sources, but need to be considered as the *maximum potential* for the bacterial multiplication, in absence of any limiting factor. In addition the multiplication rates obtained in the laboratory (for example on sections of immature fruits) follow relatively massive inoculations with young fresh bacterial cultures.

The most likely limiting factor for *E. amylovora* in orchard condition is the site where it could multiply. Except in laboratory conditions, no multiplication of *E. amylovora*

²⁸⁵⁷ Dr Paulin's reply to Panel question 18, in List of Replies from the scientific experts to questions posed by the Panel, paras. 137-138 (original emphasis).

²⁸⁵⁸ Dr Deckers's reply to Panel question 19, in List of Replies from the scientific experts to questions posed by the Panel, para. 139.

²⁸⁵⁹ Dr Deckers's reply to Panel question 40, in List of Replies from the scientific experts to questions posed by the Panel, para. 261.

outside an infection of host plant (the first step being on the hypanthium) has ever been described. So a rapid multiplication is possible in an orchard, but *only after* infection, in the plant tissues."²⁸⁶⁰

7.1181 These responses from the experts indicate that the likelihood of fire blight spreading through mature, symptomless apples is very low. Indeed, as regards mature symptomless apples in general, Dr Deckers notes that:

"In the biological cycle of [*E. amylovora*] mature apples are not included as an important way of spreading the fire blight disease. In contrast to the absence of specific measures on export on fruits, specific measures are imposed in Europe in the countries with fire blight around the fruit tree nurseries with the aim to prevent export of contaminated trees from infected countries to countries free of fire blight. The trade of apple fruits between the different countries is not subjected to special measures. This means that the spread of the fire blight disease by fruit tree nursery material is considered to be much more important than the risk for spread by the export of contaminated apple fruits."²⁸⁶¹

7.1182 Dr Deckers adds that:

"Between the different countries in the European union, the risk for fire blight introduction in new countries by infected plant material (variety and or rootstock) is estimated much more important than the introduction possibility by infected apple fruits. In Spain there is a strong indication that some of the fire blight infections was [sic] related to the import of infected host plants coming from Belgium. Therefore there is a European legislation regulating the control measures in and around the fruit tree nurseries. The risk for introduction of the disease by infected fruits is estimated much lower and no special measures for the export of fruits are undertaken between the different countries in Europe."²⁸⁶²

7.1183 Likewise, Dr Paulin states that:

"In my view, the importation of bacteria with apple is probably possible. The further step from this imported bacterial population to a new plant in Australia is probably even less likely. And I think that the total process, the risk represented by the total process, is probably of the same order of magnitude as the transport of contaminated insects by natural way from New Zealand to Australia by air jet or things like that. So that is my personal view, that there is a possibility which level of risk is not far higher than the natural spreading possibility of the bacteria to go from place to another with something else, I would say, which has no connection with trade of apples."²⁸⁶³

7.1184 In its conclusions under Articles 5.1 and 5.2 regarding fire blight exposure, establishment and spread, the Panel has noted that the experts agreed that there is a theoretical possibility of the importation of fire blight bacteria with apple fruit. Dr Paulin acknowledged that, although he is not

²⁸⁶⁰ Dr Paulin's reply to Panel question 40, in List of Replies from the scientific experts to questions posed by the Panel, paras. 262-263 (original emphasis).

²⁸⁶¹ Dr Deckers's reply to Panel question 6, in List of Replies from the scientific experts to questions posed by the Panel, para. 52.

²⁸⁶² Dr Deckers's reply to Panel question 16, in List of Replies from the scientific experts to questions posed by the Panel, para. 123.

²⁸⁶³ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380.

aware of any scientific evidence to support such scenario, as a scientist it is not possible to exclude that it may happen.²⁸⁶⁴

"Australia has shown that you can imagine a system in which mature apple fruits can carry the bacteria from New Zealand to Australia. The point is that it is difficult to estimate the value of 'can'. Is it a rare possibility, a frequent event or something exceptional? This is far more difficult to tell. ... [A]nything which goes from New Zealand or from a contaminated country to another country 'can' carry something including bacteria, including pathogenic bacteria, that is the minimum level. Then you may have specific transport of specific bacteria, e.g., with rootstock material which would be the maximum danger for the installation of the disease in a new country. So, the apple fruit, which is in-between these two limits, cannot be excluded. That that can be considered as a real risk, is the matter in question."²⁸⁶⁵

7.1185 The Panel has noted also that Dr Deckers agreed that, in other countries when they are trying to limit the risk of introduction of fire blight, "they are not talking in the first place about fruits, they are talking more about plant material and potential infections on plant material, root stock or variety materials".²⁸⁶⁶

7.1186 The Panel has concluded that the experts did not consider that the IRA contains any adequate scientific evidence to support the proposition that the introduction of fire blight via mature apple fruit has occurred or could occur. They found even less likely the further step of transfer from this imported bacterial population to a new plant in Australia.²⁸⁶⁷ The likelihood of introduction via mature apple fruit would, in any event, be less than that of introduction via plant material or root stock. There would not be a higher likelihood of introducing *Erwinia amylovora* through mature apple fruit than "the natural spreading possibility of the bacteria to go from place to another with something else ... which has no connection with trade of apples".²⁸⁶⁸

7.1187 When asked specifically whether restricting imports of New Zealand apples to mature, symptomless apples would achieve Australia's ALOP, Dr Paulin responds in the affirmative:

"Mature symptomless apples'

Mature: Indicates that fruits have completed their development on trees, and therefore that they were not infected at an early stage (otherwise they would not achieve this development up to the mature stage). Mature fruits are recognized as resistant to infection: they do not develop symptoms if inoculated, because they do not allow the multiplication of bacteria.

Symptomless means that they show no fire blight (or other disease) symptoms: this eliminates infected fruits issued from early infections.

²⁸⁶⁴ Dr Paulin's reply to Panel question 37, in List of Replies from the scientific experts to questions posed by the Panel, para. 253. See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380.

²⁸⁶⁵ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 226. See also, Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 254.

²⁸⁶⁶ Dr Deckers's reply in Transcript of the Panel's meeting with experts, para. 379. See also, Dr Deckers's reply to Panel question 16, in List of Replies from the scientific experts to questions posed by the Panel, para. 123.

²⁸⁶⁷ See para. 7.443 above.

²⁸⁶⁸ See para. 7.445 above and Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380. See also, Dr Paulin's reply to Panel question 16, in List of Replies from the scientific experts to questions posed by the Panel, paras. 129-131.

Both these measures are actually necessary to *eliminate the more evident* risks of transfer of the bacteria with fruit. It decreases the risk drastically in eliminating the opportunities of carrying high population of *E. amylovora* which are associated with tissues harbouring progressive infection, for example in immature fruits. Nevertheless it cannot be considered as eliminating absolutely the risk of introduction of low (external) bacterial populations associated with fruits. It can then be considered to decrease the likelihood for entry of the bacteria with fruits from very low to extremely low, in the ALOP."²⁸⁶⁹

7.1188 While Dr Paulin states that limiting imports from New Zealand to mature, symptomless apples would "decrease the likelihood for entry of the bacteria with fruits from very low to extremely low, in the ALOP", in response to the Panel's question No. 15 he also states that it would be even safer to combine New Zealand's alternative measure with Australia's contested fire blight measures:

"The restriction of export to mature symptomless apples would make even safer the different measures taken by Australia (disinfection, storage...), but could not replace any of them."²⁸⁷⁰

7.1189 The Panel notes the answers quoted above by Dr Paulin, where he casts doubt on the key importation steps reviewed by the IRA in the context of fire blight. In summary, Dr Paulin states that the risk represented by the total process of importation:

"[I]s probably of the same order of magnitude as the transport of contaminated insects by natural way from New Zealand to Australia by air jet or things like that. So that is my personal view, that there is a possibility which level of risk is not far higher than the natural spreading possibility of the bacteria to go from place to another with something else, I would say, which has no connection with trade of apples."²⁸⁷¹

7.1190 Taking these answers of Dr Paulin together with his answer to the Panel's Question No. 15, the Panel finds that the totality of Dr Paulin's expert advice indicates that while, as a matter of fact, combining New Zealand's alternative measure with Australia's contested measures will make the trade in apples "even safer", limiting trade to "mature symptomless apples" renders the risk extremely low and akin to the risk of the bacteria making its way from New Zealand to Australia on air jet or some other mode of transport not connected to trade in apples.

7.1191 In his responses cited above Dr Deckers explains that apple fruit are not considered an important way of spreading the fire blight disease and thus the trade in apple fruit in Europe is not subject to fire blight control measures. This said, Dr Deckers is sceptical whether New Zealand's alternative measure would achieve Australia's ALOP on its own:

"The limitation of apple exports to mature symptomless apples is not enough to achieve Australia's ALOP. Traceability of the fruits to the level of orchard where the apples have been produced is necessary for the risk evaluation in Australia. Fruits from heavy infected orchards or from orchards with hail damage can harbour the bacteria in the calyx end of the fruits."²⁸⁷²

²⁸⁶⁹ Dr Paulin's reply to Panel question 15, in List of Replies from the scientific experts to questions posed by the Panel, paras. 118-121.

²⁸⁷⁰ Dr Paulin's reply to Panel question 15, in List of Replies from the scientific experts to questions posed by the Panel, para. 122.

²⁸⁷¹ Dr Paulin's reply in Transcript of the Panel's meeting with experts, para. 380.

²⁸⁷² Dr Deckers's reply to Panel question 15, in List of Replies from the scientific experts to questions posed by the Panel, para. 117.

7.1192 Despite this latter response from Dr Deckers, the Panel finds that the previously cited statements from Dr Deckers and Dr Paulin show that they consider the overall risk of fire blight entry, establishment and spread through mature, symptomless apples imported from New Zealand to be very low – both overall and in regard to specific key points in the import scenario assessed by the IRA.

7.1193 As noted above, in the context of Article 5.5, the panel in *Australia – Salmon* explained that its legal analysis is different from the scientific assessment and certainty that scientific experts consulted by panels might prefer.²⁸⁷³ The Panel considers that this also applies in the context of Article 5.6 of the SPS Agreement, in particular when assessing the second condition of the Article 5.6 test. If the Panel tried to achieve the same scientific certainty as scientific experts, it would slip into conducting a *de novo* review. If the Panel were to recoil from carrying out its legal analysis merely because it could not achieve the same scientific certainty, it would not be acting in conformity with Article 11 of the DSU. As noted above, what the Panel has to look at, in the context of the second prong of Article 5.6 of the SPS Agreement, is whether New Zealand has raised a presumption, not successfully rebutted by Australia, that the alternative measures would achieve Australia's ALOP. Obviously, the Panel can conclude this only if New Zealand has advanced sufficient and convincing arguments and evidence to that effect.

7.1194 The Panel notes that it has found that New Zealand has demonstrated that the IRA does not constitute a proper risk assessment under Articles 5.1 and 5.2 of the SPS Agreement and that consequently the resulting fire blight measures are also inconsistent with Article 2.2 of the SPS Agreement. The Panel has reached this finding partly based on arguments from New Zealand comparing the IRA's importation scenario and risk assessment with the importation of mature, symptomless apples.

7.1195 The Panel also notes that the experts consider that New Zealand would only export to Australia mature, symptomless apples that would also be free of trash. Dr Deckers describes the Pipfruit New Zealand, Class 1 export fruit standard as "a standard method of maturity and fruit quality determination."²⁸⁷⁴ Likewise, Dr Paulin confirms that the Pipfruit New Zealand, Class 1 export fruit standard corresponds to a "high standard of quality" and "[t]he specifications for absence of damage are of a proper level of precision to guarantee 'symptomless fruits'".²⁸⁷⁵ Dr Latorre finds that "the requirements established by Pipfruit New Zealand with regard to maturity and absence of fruit damage are acceptable."²⁸⁷⁶ He also suggests that in light of the relevant exhibit submitted by New Zealand there is no risk that apples exported from New Zealand "will not always be mature, asymptomatic and free of trash".²⁸⁷⁷ Likewise, according to Dr Schrader:

"With regard to the requirements for maturity, the inclusion of background colour and ethylene content as established by Pipfruit New Zealand goes beyond the requirements asked by the Streifindex. Regarding absence of damage, class 1 as defined in Exhibit NZ-93 is more detailed than e.g. quality standards required by the European Union, where trade class 1 refers to good quality, slight shape and

²⁸⁷³ Panel Report on *Australia – Salmon*, para. 8.126 (emphasis added).

²⁸⁷⁴ Reply of Dr Deckers to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 20.

²⁸⁷⁵ Dr Paulin's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 22.

²⁸⁷⁶ Dr Latorre's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 21.

²⁸⁷⁷ Dr Latorre's reply to Panel question 3, in List of Replies from the scientific experts to questions posed by the Panel, para. 29.

development defects, slight colouring defects, only slightest bruises, sufficient firmness."²⁸⁷⁸

7.1196 Further, the Panel has found in the context of Articles 5.1 and 5.2 of the SPS Agreement that the choice of a probability interval of 0 to 10^{-6} (zero to one in one million), and a midpoint (if uniform distribution is used) of 5×10^{-7} (0.5 in one million) for events with a "negligible" likelihood of occurring (corresponding to the qualitative descriptor "the event would almost certainly not occur") is not properly justified in the IRA and leads to an overestimation of the probability of entry, establishment and spread of fire blight.²⁸⁷⁹

7.1197 Australia has a qualitative ALOP, defined as "providing a high level of protection aimed at reducing risk to a very low level, but not to zero."²⁸⁸⁰ In light of the above considerations, the Panel finds that New Zealand has raised a sufficiently convincing presumption, not successfully rebutted by Australia, that the alternative fire blight measure of restricting imports of New Zealand apples to mature, symptomless apples would meet this ALOP. Accordingly, this alternative measure fulfils the second condition of the Article 5.6 test in the context of fire blight.

Analysis of the second condition of the Article 5.6 test for European canker

7.1198 As outlined above²⁸⁸¹, the Panel will assess first whether New Zealand has demonstrated that Australia's calculation of the European canker risk resulting from the importation of New Zealand apples is exaggerated. Under Article 5.1 of the SPS Agreement, the Panel has already found this to be the case. In particular:

- (a) For importation step 1, the Panel has noted that New Zealand has not called into question the IRA's estimation of the likelihood that *N. galligena* is present in the source orchards in New Zealand. The Panel has pointed out that the IRA's value of this importation step "takes into account the variations in climatic conditions across New Zealand, and the information indicating that about 95% of the apple export production in New Zealand comes from orchards in areas where the disease has either never been recorded or the disease occurs only sporadically in very wet seasons."²⁸⁸²
- (b) For importation step 2, the Panel has noted that the IRA's estimation of the likelihood that fruit coming from an infected or infested orchard is infected or infested with *N. galligena* does not find sufficient support in the scientific evidence relied upon by the IRA and is therefore not coherent and objective.²⁸⁸³ The Panel has also noted that the IRA does not contain adequate scientific evidence that would allow an estimation of the frequency of apple infection and latency in New Zealand or elsewhere. Moreover, the studies on fruit infection cited in the IRA are based on research conducted in areas or periods with frequent summer rainfalls at harvest. Accordingly, the Panel has found that the IRA fails to properly take into account the existence of climatological conditions in New Zealand that would be necessary for inoculum production, dissemination and infection.²⁸⁸⁴

²⁸⁷⁸ Dr Schrader's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 23.

²⁸⁷⁹ See paras. 7.484, 7.496 and 7.508 above.

²⁸⁸⁰ Australia's IRA, Part A, p. 3.

²⁸⁸¹ See para. 7.1143 above.

²⁸⁸² See paras. 7.520-7.521. Australia's IRA, Part B, p. 121.

²⁸⁸³ See para. 7.545 above.

²⁸⁸⁴ See para. 7.544 above.

- (c) For importation step 3, the Panel has found that the IRA's estimation of the likelihood that clean fruit is contaminated with *N. galligena* during picking and transport to the packing house is not sufficiently supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.²⁸⁸⁵ In this regard, the Panel has noted Dr Latorre's opinion that the IRA's analysis overestimates the risk of inoculum dispersal.²⁸⁸⁶ The Panel has pointed out that the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *N. galligena* spores, which could then be transferred to clean fruit. Also, the Panel has noted that there is no indication in the IRA of the existence of climatological conditions in New Zealand that are necessary for inoculum production, dissemination and infection of clean fruit during picking and transport to the packing house. The IRA's discussion fails to take into account that conidia are poor epiphytes. Further, there is no scientific evidence in the IRA to support the proposition that perithecia would play a role in the contamination of clean fruit.²⁸⁸⁷
- (d) For importation step 4, the Panel has concluded that the IRA's estimation of the likelihood that *N. galligena* survives routine processing procedures in the packing house is not objectively justifiable.²⁸⁸⁸ There is no explanation in the IRA for the estimation that there would be a minimum 70 per cent likelihood that *N. galligena* survives routine processing procedures in the packing house, and a most likely value of 85 per cent.²⁸⁸⁹
- (e) For importation step 5, the Panel has found that the IRA's estimation of the likelihood that clean fruit is contaminated by *N. galligena* during processing in the packing house is not sufficiently supported by the scientific evidence relied upon by the IRA and is accordingly not coherent and objective. There is no support in the IRA for the estimation made for the likelihood of this importation step either in the scientific evidence cited in the IRA, nor on the IRA's discussion in this regard.²⁸⁹⁰
- (f) For importation step 6, the Panel has found that the IRA's estimation of the likelihood that *N. galligena* survives palletization, quality inspection, containerization and transportation to Australia is not sufficiently supported by the scientific evidence that the IRA relied upon and, accordingly, is not coherent and objective.²⁸⁹¹ The IRA acknowledges that some infected fruit not detected during sorting may be identified at quality inspection. Moreover, the IRA fails to take into account the effects that the processes occurring during this step could have on external infestation. The scientific evidence cited in the IRA does not support the estimation that there would be a 100 per cent likelihood that *Neonectria galligena* survives palletisation, quality inspection, containerization and transportation to Australia. The likelihood of the removal of some surface contamination in fruits and the detection of some latently infected apples during this step may be very small, but it would be different from zero.²⁸⁹²

²⁸⁸⁵ See para. 7.573 above.

²⁸⁸⁶ See para. 7.562 above.

²⁸⁸⁷ See para. 7.572 above.

²⁸⁸⁸ See para. 7.594 above.

²⁸⁸⁹ See para. 7.593 above.

²⁸⁹⁰ See para. 7.606 above.

²⁸⁹¹ See para. 7.620 above.

²⁸⁹² See para. 7.619 above.

- (g) For importation step 7, the Panel has found that the IRA's estimation of the likelihood that clean fruit is contaminated with *N. galligena* during palletization, quality inspection, containerization and transportation is not supported by a coherent and objective reasoning.²⁸⁹³
- (h) For importation step 8, the Panel has noted that New Zealand has not called into question the IRA's estimation of the likelihood that *N. galligena* survives and remains with the fruit after on-arrival minimum border procedures is 1 (100 per cent).²⁸⁹⁴ In this context, the Panel has also noted that the IRA provides that "[o]n-arrival inspections of documentation would fail to detect fruit rot symptoms or latent infections, and these would remain when the fruit arrives in Australia. The likelihood rating for this importation step would not be significantly reduced by any normal on-arrival procedure."²⁸⁹⁵

7.1199 In the light of the Panel's conclusions regarding the IRA's estimations of individual importation steps, and of the lack of separate justification and evidence in the IRA regarding the estimated overall likelihood of importation, the Panel has found that the IRA's estimation of the *overall probability of importation* is not supported by the scientific evidence relied upon by the IRA and, accordingly, is not coherent and objective.²⁸⁹⁶ The Panel has held that if the estimations of one or more of the individual likelihoods are questionable, because those estimations are either not supported by adequate scientific evidence or not based on a coherent and objective reasoning, the overall figure necessarily becomes questionable. Moreover, the IRA does not attempt to find justification for the estimated overall probability of importation, other than the arithmetic aggregation of the different individual likelihoods represented by each importation step.²⁸⁹⁷ The Panel has noted Dr Sgrillo's view that this overall probability value could be overestimated.²⁸⁹⁸ The Panel has also noted Dr Latorre's statement that the overall value falls out of the range that could be considered legitimate on the basis of general knowledge regarding the European canker.²⁸⁹⁹ Dr Swinburne agreed, adding that "all the uncertainty in the calculations ... does not inspire confidence".²⁹⁰⁰

7.1200 In estimating the probability of entry, establishment and spread of European canker, the IRA has taken into account the following factors in addition to the probability of importation: "proximity", i.e. the proportion of utility points near host plants susceptible to the pest in each exposure group; the probability of exposure of a susceptible host plant in the exposure group to the pest by an infested/infected apple discarded near it; the probability of establishment; and the probability of spread.²⁹⁰¹

7.1201 With regard to the proximity values, the Panel has found that New Zealand has not made a prima facie case that the IRA's discussion on utility points and estimated proximity ratings for the combination of each utility point with exposure groups is not objectively justifiable. At the same

²⁸⁹³ See para. 7.631 above.

²⁸⁹⁴ See para. 7.637 above. See, Australia's IRA, Part B, p. 128.

²⁸⁹⁵ See para. 7.636 above. See, Australia's IRA, Part B, p. 128.

²⁸⁹⁶ See para. 7.649 above.

²⁸⁹⁷ See para. 7.646 above.

²⁸⁹⁸ *Ibid.* See also, Dr Sgrillo's reply to Panel question 84, in List of Replies from the scientific experts to questions posed by the Panel, para. 489.

²⁸⁹⁹ See para. 7.647 above. See also, Dr Latorre's reply to Panel question 84, in List of Replies from the scientific experts to questions posed by the Panel, para. 486.

²⁹⁰⁰ See para. 7.648 above. Dr Swinburne's reply to Panel questions 84 and 85, in List of Replies from the scientific experts to questions posed by the Panel, para. 497.

²⁹⁰¹ See para. 7.650 above. See also, Australia's IRA, Part B, p. 129. See also, Australia's IRA, Part B, p. 17.

time, the Panel has noted that the IRA offers little explanation and supporting evidence for its reasoning regarding the estimation of the different proximity values.²⁹⁰²

7.1202 In relation to exposure, the Panel has found that the IRA's conclusions on this value do not rely on adequate scientific evidence and, accordingly, are not coherent and objective.²⁹⁰³ The Panel has found with respect to waste disposal, for example, that the IRA's assertion that consumer waste would present "potential inoculum sources for transfer to susceptible host plants" is not supported by evidence. The IRA's exposure analysis also rests on assertions regarding the possibility that latently infected but symptomless fruit could develop rot and generate *N. galligena* spores, the mummification of fruits, and the possibility that perithecia would play a role in the contamination of new hosts that do not find sufficient support in the scientific evidence relied upon. With respect to the survival and viability of the fungus, there is no support in the evidence for the IRA's apparent assumption that inoculum for infection would always be available. With respect to the transfer mechanism for *N. galligena*, the Panel has noted that the IRA does not contain scientific evidence that wind can serve as a dispersal mechanism for conidia in the absence of rain. Also, the IRA's reasoning is not coherent and objective, as it fails to take into account that dispersion of conidia by rain splash would be very limited and, in order to achieve transfer, would also require certain climatic conditions, which are unlikely to be present in Australia, particularly during the most critical periods for infection. The Panel has found that there is no evidence in the IRA in support of the possibility that birds or insects could be involved as vectors in the transfer of *N. galligena*. The IRA's discussion on the availability of entry points fails to take into account that conidia are poor epiphytes and will not survive as a surface contaminant. Regarding the discussion on inoculum dose, the Panel has pointed out that the IRA fails to explain how it took into account the inoculum dose necessary for infection when estimating the probability of exposure to susceptible host plants. Moreover, the IRA fails to adequately recognize the importance of the number of spores and other factors, such as the host cultivar, for the likelihood of initiating an infection. Finally, the Panel has found that the IRA's discussion regarding environmental factors fails to take into account that the necessary climatological conditions for inoculum production, dissemination and infection, in terms of the appropriate combination of cool temperatures and wetness, are unlikely to be present in Australia, particularly during summer and early fall, the most critical periods for infection.²⁹⁰⁴

7.1203 The Panel has found that the IRA's estimation of the *overall entry, establishment and spread of European canker* does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.²⁹⁰⁵ The IRA tends to exaggerate the risk, for example, by not taking into account that any epiphytical fungal populations would likely be small and diminishing and that the number of latently infected apples would also diminish over time, by not considering the climatic conditions that are necessary for inoculum production, dissemination and infection, and by assuming that inoculum for infection and infection sites would be always available. The IRA instead emphasizes a number of factors and assumes some hypotheses that would tend to increase the likelihood of entry, establishment and spread, despite the absence of adequate scientific evidence to support these factors or even in the face of available evidence to the contrary.²⁹⁰⁶

7.1204 The Panel has also found that the IRA's evaluation of the potential consequences associated with the entry, establishment or spread of European canker into Australia does not rely on adequate scientific evidence and, accordingly, is not coherent and objective.²⁹⁰⁷

²⁹⁰² See para. 7.675 above.

²⁹⁰³ See para. 7.717 above.

²⁹⁰⁴ See para. 7.715 above.

²⁹⁰⁵ See para. 7.749 above.

²⁹⁰⁶ See para. 7.744 above.

²⁹⁰⁷ See para. 7.777 above.

7.1205 Regarding the alleged methodological flaws identified by New Zealand, the Panel has found that the choice of a probability interval and midpoint for events with a "negligible" likelihood of occurring, as well as the combination of this probability interval with the use of a uniform distribution to model the likelihood of these events, are not properly justified in the IRA and lead to an overestimation of the probability of entry, establishment and spread of European canker.²⁹⁰⁸

7.1206 The Panel has found that, in regard to the analysis of the likelihood of entry, establishment and spread of European canker, Australia's IRA is not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A of the SPS Agreement. The flaws also constitute a failure by the IRA to take sufficiently into account factors such as the available scientific evidence, the relevant processes and production methods in New Zealand and Australia, and the actual prevalence of European canker, as required by Article 5.2 of the SPS Agreement. Accordingly, Australia's European canker measures contested by New Zealand are inconsistent with Articles 5.1 and 5.2 and, consequently also inconsistent with Article 2.2 of the SPS Agreement.²⁹⁰⁹

7.1207 In the light of these findings under Articles 5.1 and 5.2 of the SPS Agreement, the Panel concludes that for the purposes of its Article 5.6 claim New Zealand has made the case that Australia's IRA overestimates the European canker risk resulting from imports of New Zealand apples. Thus, New Zealand has cast doubt on whether the European canker risk would exceed Australia's ALOP to the extent calculated by the IRA, and warrant as strict risk management measures as those developed by the IRA. Further, New Zealand has cast doubt on whether the unrestricted European canker risk would necessarily exceed Australia's ALOP. Accordingly, there is no reason to believe that the less strict alternative measure suggested by New Zealand would not meet Australia's ALOP.

7.1208 As outlined above, the Panel now turns to assessing more directly whether, assuming that risk management measures are necessary, New Zealand has raised a presumption, not successfully rebutted by Australia, that its alternative measure sufficiently reduces the European canker risk to, or below, Australia's ALOP.²⁹¹⁰

7.1209 As in the context of fire blight, the IRA did not formally consider restricting New Zealand apple imports to mature, symptomless apples as a risk management measure for European canker. In fact, the IRA's main risk scenario is "any latent infection in fruit that would not have been detected at harvesting or during processing in the packing house".²⁹¹¹ "The risk pathway of greatest concern to export with regard to European canker is symptomless infection and infestation of fruit that cannot be detected by inspection. Under suitable conditions the fungus could develop to produce spores that transmit the disease."²⁹¹²

7.1210 With regard to the likelihood that *N. galligena* is present in the source orchards in New Zealand (importation step 1), the Panel has noted the IRA's statement that the range estimated for this importation step takes into account the variations in climatic conditions across New Zealand, and the information indicating that about 95 per cent of the apple export production in New Zealand comes from orchards in areas where the disease has either never been recorded or the disease occurs only sporadically in very wet seasons.²⁹¹³

7.1211 As to whether there is a likelihood that picked fruit is latently infested/infected with *N. galligena* (importation step 2), Dr Swinburne and Dr Latorre explain that in principle it is possible

²⁹⁰⁸ See paras. 7.780-7.781.

²⁹⁰⁹ See paras. 7.778-7.779 above.

²⁹¹⁰ See para. 7.1144 above.

²⁹¹¹ Australia's IRA, Part B, p. 118.

²⁹¹² Australia's IRA, Part B, p. 151.

²⁹¹³ See para. 7.520 above. Australia's IRA, Part B, p. 121.

for infected fruit of all varieties to be harvested with no visible symptoms.²⁹¹⁴ Dr Latorre defines the occurrence of endophytically infected mature apples as "a possibility rather than a real issue, which needs to be proven before admitting this as an important mechanism for long-distance dissemination of *N. galligena*."²⁹¹⁵ At the same time, Dr Latorre identifies three cumulative factors that would be indispensable for apples to carry latent infections:

"[T]hree key factors are necessary for the infection of apple fruit with European canker: (i) conducive climatic conditions; (ii) the presence of a susceptible host; and (iii) sufficient inoculum concentration. The co-occurrence of these three factors is necessary for fruit infection. It has been demonstrated that humid (wet) conditions are necessary for inoculum production and liberation. Frequent rains are essential for conidia and ascospore dissemination from cankered lesions to fruits within infected trees. Therefore, mature fruits would only carry latent infection in cool and rainy summer climates."²⁹¹⁶

7.1212 The experts explain that it is highly unlikely that these three factors would occur in New Zealand at the same time. As regards New Zealand's climatic conditions conducive to the infection of apple fruit with *Neonectria galligena*, the IRA refers to a study by Braithwaite:

"In the higher rainfall areas of Auckland and the Waikato region, where European canker is present and climatic conditions are more conducive to spore production mainly due to wetter winters (NIWA, 2004), fruit could become infected during the harvest period. Fruit infected late in the season, and showing no obvious rot symptoms, could be picked from these orchards.

Braithwaite (1996), in a report to MAFNZ, acknowledged the possibility that European canker could go unnoticed at harvest or during the early part of storage, and therefore could be transmitted in fruit as latent infections."²⁹¹⁷

7.1213 However, both Dr Swinburne and Dr Latorre criticize the IRA's reliance on this study. As Dr Swinburne explains:

"Braithwaite (1996) contains an unconfirmed report that fruit rotting with [*Neonectria galligena*] has been detected in NZ, and it seems to be accepted by both parties that this does occur occasionally, although it is by no means clear if these reports refer to pre- or postharvest. Braithwaite then goes on to speculate that rotted fruit can transmit infection, basing his argument on European observations on the formation of ascospores on mummified fruit. This is a very rare occurrence, and most unlikely to be found in the climates of NZ or Australia ... For these reasons this aspect of the paper can be disregarded."²⁹¹⁸

7.1214 Dr Latorre agrees that the Braithwaite study is not a reliable basis for the IRA to conclude that latent infections may occur in mature apples in New Zealand:

²⁹¹⁴ Dr Swinburne's and Dr Latorre's replies to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, paras. 310-314 and 306-309.

²⁹¹⁵ Dr Latorre's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 307.

²⁹¹⁶ Dr Latorre's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, para. 351.

²⁹¹⁷ Australia's IRA, Part B, p. 122.

²⁹¹⁸ Dr Swinburne's reply to Panel questions 54 and 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 349.

"Braithwaite (1996) (Exhibit NZ-34) published a brief review on the currently available knowledge regarding European canker, based on studies of the disease's development in the United Kingdom and Northern Europe, without examining conditions in New Zealand. No new objective data is reported in this paper. Therefore, I agree that it is not a reliable and relevant reference to support the hypothesis that latent infections may also occur in mature apple in New Zealand."²⁹¹⁹

7.1215 Dr Latorre adds that care should be exercised when attempting to draw conclusions for New Zealand from the research conducted in Europe and referenced by the IRA:

"Australia's IRA based their risk assessment on the information already published from studies in Northern Ireland (Swinburne, 1964, 1975, Exhibits NZ-11 and NZ-9, respectively). These results were obtained on apple varieties quite different from those produced today in New Zealand and under environmental conditions that appear to be far more conducive to fruit infection (in Northern Ireland) than those in New Zealand. Although this does not invalidate the risk assessment analysis, and it does not reject the hypothesis that latent infections may occur in mature fruits in New Zealand, it is a factor that should be taken into consideration by Australia's IRA. Latent infection on mature fruits should not be under discussion, but the probability of latent infection in many apple cultivars produced under different environmental conditions in New Zealand is of utmost interest."²⁹²⁰

7.1216 Indeed, Dr Latorre is of the view that New Zealand's meteorological conditions are unfavourable for European canker development. "[I]t appears that summer conditions in New Zealand are very unfavourable for the development of European canker, and that fruit infection would be an extremely rare event. Therefore, the likelihood of latent infection on mature apple fruits would be extremely low or negligible."²⁹²¹

7.1217 Dr Swinburne concurs. In his opinion, it is important to consider not only annual rainfall, but rainfall patterns, in order to determine whether there are sufficiently long periods of leaf wetness:

"The essential weakness of the approach in the IRA is that it assumes that inoculum (spores) for infection is always available, and all that is required is a suitable period (hours of leaf wetness within given temperature limits) for infection to occur. The major flaw in this argument is the assumption that regions can be compared on the basis of annual rainfall, without regard to rainfall patterns. Even in regions such as N. Ireland (Loughgall) with rain in all seasons, more than 5hrs of leaf wetness was required following a few dry days before ascospore discharge resumed (Swinburne, 1971b). The situation in regions with a pronounced dry season, such as California and the Pacific Northwest in the USA, spore formation does not even begin until some time (as yet undetermined) into the rainy period (Zeller, 1926, Wilson, 1966/8). For such an area data relating only to simple 'infection periods' would greatly overestimate the risk of disease establishment."²⁹²²

²⁹¹⁹ Dr Latorre's reply to Panel question 54, in List of Replies from the scientific experts to questions posed by the Panel, para. 344.

²⁹²⁰ Dr Latorre's reply to Panel question 55, in List of Replies from the scientific experts to questions posed by the Panel, para. 346.

²⁹²¹ Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 358.

²⁹²² Dr Swinburne's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 399. See also, Dr Swinburne's and Dr. Latorre's replies in Transcript of the Panel's meeting with experts, paras. 525-526.

7.1218 As regards the presence of a susceptible host, Dr Swinburne notes that a fruit becomes infected if its own tree is infected. He points out in this regard that the IRA acknowledges that 95 per cent of New Zealand's orchards should be canker free:

"[F]or fruit to become infected it generally requires to be grown on a tree which is itself infected..., so we are talking about fruit being infected from its mother tree, from its own particular tree. So if you pick fruit from trees which have no canker, the likelihood of them having latent infection is vanishingly small. And as I gather, 95 per cent of New Zealand's orchards are largely canker free, from the exhibits presented."²⁹²³

7.1219 Dr Swinburne adds that, "[g]iven that some 95% of New Zealand orchards are either disease free or have very low levels of infection, coupled with a climate that is not well suited to summer fruit infection, it necessarily follows that the probability of there being post harvest rots is very low indeed."²⁹²⁴

7.1220 Likewise, Dr Latorre points out that "[l]atent infections may occur in *a small proportion* of the fruits harvested from cankered trees if frequent summer rainfalls occurred at harvest". "[L]atent infections would be extremely unlikely in apples from orchards free of European canker in the absence of summer rains. Under these circumstances, the risk of latent infection is close to zero (in practice zero)."²⁹²⁵

7.1221 As regards the way in which an mature, symptomless apple fruit would become a true vector for European canker, Dr Swinburne notes that "fruit has to produce conidia in order to become an infectious unit."²⁹²⁶ Dr Latorre agrees, and explains that "conidia are only formed under very wet conditions in the orchard, mainly in the cankers and almost never, or never at least in my experience, on the fruit".²⁹²⁷

7.1222 Dr Swinburne adds that European canker needs an entry point in order to actually infect:

"In the discussion concerning fire blight *Erwinia*, we were pointing out that *Erwinia* is not an epiphytic organism and neither is *Cylindrocarpon heteronema*, which is the asexual stage of *Nectria*. The conidia are relatively short lived in any event, particularly in a dry climate, and they cannot survive on the unbroken surface of an apple. They do require an entry point in order to infect. Conidia merely contaminating the surface of fruit at harvest will not play a part in any future latent infection. Those infections will already have taken place, as is known in the European context, either through the calyx end, stem end or under very rare circumstances through open lenticels, because in very wet climates the lenticels on the fruit are actually open, enabling spores to enter."²⁹²⁸

7.1223 Dr Latorre agrees with Dr Swinburne that conidia can survive only for a short period of time on the surface of apple fruit:

²⁹²³ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 432.

²⁹²⁴ Dr Swinburne's reply to Panel questions 62 and 63, in List of Replies from the scientific experts to questions posed by the Panel, para. 388.

²⁹²⁵ Dr Latorre's reply to Panel guideline (g), in List of Replies from the scientific experts to questions posed by the Panel, para. 2. See also, Dr Latorre's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 306.

²⁹²⁶ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 419.

²⁹²⁷ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 413.

²⁹²⁸ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 434.

"[O]n my experience conidia cannot multiply on the surface of the fruit, and they can only survive maybe for a very short period of time, depending on weather conditions of the environment where they are. ... There is no data showing that conidia can really survive for a long period of time outside the host, on the surface of the host, in this case on the fruit, nor that they can multiply on clean fruit."²⁹²⁹

7.1224 The Panel has already noted that European canker would not survive as a surface contaminant.²⁹³⁰ As explained by Dr Latorre, "[t]here is no information demonstrating that conidia or ascospores of *N. galligena* can survive epiphytically (as surface contaminant) on mature apple fruits."²⁹³¹ Likewise, the survival and viability of the fungus would require specific climatological conditions. The Panel has noted, with regard to the IRA's discussion of importation steps 2 and 3, that certain meteorological conditions are necessary for inoculum production, dissemination and infection.²⁹³² Dr Latorre explains that "favourable climatic conditions are compulsory for sporulation (inoculum production, mainly conidia), dissemination and survival of the inoculum."²⁹³³

7.1225 Furthermore, Dr Swinburne explains that the presence of lesions cannot predict the likelihood of fruit infection:

"The sequence of events outlined above are applicable to regions where wood cankers are frequent and weather conditions favour production of conidia during the summer months (e.g. the U.K., and N. Ireland in particular). The presence of stem lesions alone can not predict the likelihood of fruit infection. It is unfortunate that there is so little data on the causes and extent of rotting of fruit in New Zealand, but what there is suggests that summer weather conditions are not favourable for infections by *N. galligena* and the challenged requirements seem excessive (see Q72)."²⁹³⁴

7.1226 Dr Swinburne also points out that in New Zealand fruit rots attributable to *N. galligena* should not be common:

"The limited information available in [the Parties first written submission] suggests that rots attributable to *N. galligena* in fruit grown in New Zealand are by no means as common as they are in Europe, and (of course) are seemingly confined to regions of [New Zealand] where tree cankers are present. The weather data presented in Annex 2 of [New Zealand's first written submission] would accord with a low incidence of fruit infection, and, based on Wilson's (1966) observations in California, even conidial production from stem cankers may be sparse during summer. It is perhaps significant that in what was described as an epidemic of canker in Auckland that Brooke & Bailey (1965) only found occasional fruit rots. Unfortunately that paper does not record whether the rots were found before or after harvest."²⁹³⁵

²⁹²⁹ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 435.

²⁹³⁰ See, for example, paras. 7.682, 7.702 and 7.715 above.

²⁹³¹ Dr Latorre's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 308.

²⁹³² See paras. 7.531-7.534 and 7.564-7.566 above.

²⁹³³ Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

²⁹³⁴ Dr Swinburne's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 314.

²⁹³⁵ Dr Swinburne's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 361. See, Wilson, "Development of European canker in a California apple district" (1966), in Exhibit NZ-64.

7.1227 Dr Swinburne emphasises the importance of adequate climatic conditions for fruit rots. "Both parties seem to agree that the frequency of fruit rotting is low, given the paucity of positive identifications. That this is so, even from regions with tree cankers (e.g. Auckland) this [sic] must be attributable to unfavourable weather conditions, especially the absence of rain, during the summer months."²⁹³⁶

7.1228 The Panel has noted that the IRA does not contain scientific evidence regarding the possibility that latently infected but symptomless fruit could develop rot and generate *Neonectria galligena* spores, which could then be transferred to clean fruit. The Panel has concluded that there is no scientific evidence in the IRA to support the proposition that perithecia would play a role in the contamination of clean fruit.²⁹³⁷

7.1229 Dr Swinburne explains that, in any event, most fruit infections would not occur at harvest:

"The majority of fruit infections in the European context are to be found either at the stem end or the calyx end, and generally speaking it means that the core has been infected. The time at which that infection occurs [would be] surprisingly early on in the fruits development. It isn't at the time of harvest, it isn't in the dump tank. That core rot is taking place at some stage when either the calyx or the stem end is enabling an entry point for conidia which are washing down over the surface of the tree and either accumulating it in the stem well or going around and entering the calyx. I don't have any information which would ever suggest that infestation of apples at harvest, and I stress that point, or even after harvest leads to any significant level of rotting in commercial conditions."²⁹³⁸

7.1230 Dr Swinburne adds that it would seem "extraordinary, if true" that a high proportion of apples rotted with *N. galligena* would go unnoticed by research centres in New Zealand and that "[a]lternatively, the arbitrary probability maximum set in the IRA is too high."²⁹³⁹

7.1231 As regards survival of European canker after cold storage, Dr Latorre points out that the evidence in the IRA suggests that in principle the fungus may survive even after cold storage, but only inside apple fruit. "Australia states that cool storage and transport processes would not adversely affect the viability of the fungus. This may be true only for the fungus inside the fruit ... In other words, mycelia can survive in latently infected fruits; growth may resume after cool storage and eventually the fungus may sporulate on the surface of mummified fruits."²⁹⁴⁰

7.1232 Dr Latorre adds that "[f]requent summer rainfalls are necessary for inoculum production, dissemination and infection. If summer rainfalls are frequent, it would be reasonable to assume that some of the infected fruits may develop symptoms on the tree, and other fruits may be latently infected, developing symptoms after several weeks or even months in cold storage."²⁹⁴¹

²⁹³⁶ Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 438.

²⁹³⁷ See, for example, para. 7.572 above.

²⁹³⁸ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 441.

²⁹³⁹ Dr Swinburne's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 439. See also, Dr Deckers's reply to Panel question 75, in List of Replies from the scientific experts to questions posed by the Panel, para. 436.

²⁹⁴⁰ Dr Latorre's reply to Panel question 71, in List of Replies from the scientific experts to questions posed by the Panel, para. 413.

²⁹⁴¹ Dr Latorre's reply to Panel question 57, in List of Replies from the scientific experts to questions posed by the Panel, para. 357. See also, Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

7.1233 Both Dr Latorre and Dr Swinburne explain that there is no evidence of perithecia forming on rotten fruit. As explained by Dr Latorre:

"I have no information indicating that European canker can develop from rotten fruit. In my experience, rotten fruit is very rare, almost never occurs in our conditions and sometimes we do see it after several months or weeks of cold storage in a very low proportion and never sporulated on the surface of the fruit. If this fruit are not sporulating it is impossible to admit that it can spread at least easily to the clean fruit. Well, I think the observation about perithecia on the fruit is something that has to be reviewed. We have never seen perithecia form on the fruit. I don't have any good paper that can really demonstrate that in the recent years they have seen perithecia in very susceptible varieties, but not in today's apple varieties."²⁹⁴²

7.1234 As regards the likelihood that *N. galligena* survives routine processing procedures in the packing house (importation step 4), the experts agree in principle with the IRA's proposition that:

"[N]o aspect of the process in the packing house reduces the number of latently infected fruits. Once the fungus has penetrated mature fruits, the normal post-harvest management including brushing, waxing, sorting and grading, cold storage and even fungicide treatments, will be unable to arrest the fungus inside the fruits. Cold temperature would only be able to retard symptom development by lowering the rate of fungal growth."²⁹⁴³

7.1235 In particular, according to Dr Latorre, cold storage, for example, would "retard symptom development by lowering the rate of fungal growth", but would not reduce infections.²⁹⁴⁴ At the same time, Dr Latorre agrees with New Zealand that the use of water dump tanks, followed by high-volume, high-pressure water washing, would be effective in removing external contaminants.²⁹⁴⁵ This is also noted by the IRA.²⁹⁴⁶ In the words of the expert, "[t]he likelihood that inocula contaminating the surface of the fruits can survive this process, attached to the fruit surface, is negligible or zero and it should be disregarded from the risk analysis."²⁹⁴⁷

7.1236 Nevertheless, Dr Latorre and Dr Swinburne caution that the IRA fails to take into account the effect of store conditions and the duration of storage. Dr Swinburne explains that:

"It is usual for dessert apples to be harvested into bulk bins that are transported to on-site CA (controlled atmosphere) stores, where they are cooled, and sealed in chambers with adjusted CO₂ and O₂ concentrations. At intervals dictated by marketing strategies they are removed from these stores and dispatched to specialist

²⁹⁴² Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 413. See also, Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 461.

²⁹⁴³ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 454. See also, reply of Dr Swinburne to Panel questions 77, 78 and 79, para. 459; and Dr Deckers's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 453.

²⁹⁴⁴ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 454.

²⁹⁴⁵ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 456. See also, Dr Sgrillo's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 465.

²⁹⁴⁶ Australia's IRA, Part B, p. 125.

²⁹⁴⁷ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 456. See also, Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 459.

pack houses, where the operations of washing, grading and packed for retail. The process may extend over many months, which has not been factored into the IRA model. Any infections present may develop into rots during this time, and this will be strongly influenced by both the store temperature and environment (Berrie et al 2007, appendix 1). At grading these would be removed, so the numbers of infected fruit will diminish with time, consequently the statement that 'none of the pack house measures would reduce infection' is incorrect, as it must also embrace the CA store period."²⁹⁴⁸

7.1237 In the words of Dr Swinburne, "[t]he probabilities assigned in the IRA to these steps are all difficult to reconcile with the observations above, especially as they all omit the factor of time."²⁹⁴⁹ Dr Swinburne concludes that "the store conditions and the duration of the holding period will be a factor in any subsequent development of any quiescent infections that may be present (Berrie, Xu & Johnson 2007 in appendix)."²⁹⁵⁰ Likewise, Dr Latorre notes that "symptoms may appear after several weeks of cold storage. If lots of mature asymptomatic fruits are kept for several weeks in cold storage in New Zealand, it would be possible to remove infected fruits before export to Australia, lowering the risk of entrance."²⁹⁵¹

7.1238 Furthermore, Dr Latorre and Dr Swinburne find no justification in the IRA for the likelihood values assigned to importation step 4. Dr Latorre states that "[t]here is no scientific literature to support" the likelihood values estimated by the IRA for importation step 4.²⁹⁵² This likelihood "falls within a range that is difficult to legitimize, if this assumption implies that the inoculum must remain on the fruit surface. Rather, it would be possible for the inoculum to be present internally in the fruit."²⁹⁵³

7.1239 As regards the probability of European canker entering Australia, Dr Latorre confirms that specific climatic conditions and the prevalence of infected trees are essential factors for European canker infections in new areas:

"Latent infections may occur in a small proportion of the fruits harvested from cankered trees if frequent summer rainfalls occurred at harvest. Fruit infections are negligible or extremely low in areas with dry climate conditions at harvest. If cankered trees are not prevalent (0% infected trees), I would not expect to observe any latent infections, even under high summer rainfalls. Therefore, the risk of

²⁹⁴⁸ Dr Swinburne's reply to Panel questions 78, 80, 81, 82 and 83, in List of Replies from the scientific experts to questions posed by the Panel, para. 482. See also, Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 459.

²⁹⁴⁹ Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 460.

²⁹⁵⁰ Dr Swinburne's reply to Panel questions 77, 78 and 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 459. See also, Dr Deckers's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 461.

²⁹⁵¹ Dr Latorre's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 455. See also, Dr Deckers's reply to Panel question 79, in List of Replies from the scientific experts to questions posed by the Panel, para. 453.

²⁹⁵² Dr Latorre's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 462. See also, Dr Sgrillo's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 467.

²⁹⁵³ Dr Latorre's reply to Panel question 80, in List of Replies from the scientific experts to questions posed by the Panel, para. 462.

entrance would vary considerably based on climate conditions and disease prevalence and severity."²⁹⁵⁴

7.1240 Dr Latorre explains that "temperatures and rainfalls are relatively unfavourable for *N. galligena* during summer and early fall in Australia, which may be the most critical period for infection."²⁹⁵⁵

7.1241 Likewise, Dr Swinburne notes that even if a New Zealand apple was infected, it would not necessarily be capable of initiating a new series of European canker infections in Australia:

"The production of conidia from an apple rotted with *Nectria* discarded in an Australian orchard and thinking in terms of its ability to initiate a new series of infections in an area which had never had it. As I have said, there is no information concerning the possibility that that would happen. The point that I want to emphasize is that fruit has to produce conidia in order to become an infectious unit. It may be infected, but it is not necessarily infectious and even if it does become infectious, being presumably on the ground and not deliberately placed somewhere up in a tree, the dissemination of those conidia which depends on splash dispersal is actually going to be over a very limited area but I wouldn't want to overemphasize that particular possibility but there is no information which tells us that it cannot happen and as biologists one can never say it would never happen."²⁹⁵⁶

7.1242 While Dr Latorre accepts the IRA's conclusion in regard to European canker development in Australia, he notes that the values relied upon by the IRA have not been validated locally and seem exaggerated:

"The available information demonstrating that mature asymptomatic apples (infected or latently infected) can readily sporulate under the Australian environment is not provided. Based on published scientific information, Australia assumes that fungal growth and fruit rot resume when fruit is removed from cool storage, sold to consumers and stored at room temperature. Therefore, rotted fruits discarded near susceptible hosts could be potentially (but not necessarily) a source of inoculum (mainly conidia) for infections in new areas. This conclusion is acceptable and likelihood values for establishment and spread in Australia have been assigned (Table 34, AUS-2BA p.144). However, the likelihood assigned seems to be high and these values have not been validated locally. Based on the general information available, I would assume that these events have a likelihood of occurring different from zero, but still extremely low."²⁹⁵⁷

7.1243 Further, Dr Swinburne is sceptical about the risk presented in retail packs or in a domestic environment:

"As discussed in Q58 rotted fruit incubated under conditions of high humidity can produce conidia, but it is extremely unlikely that they would produce perithecia, still less that ascospores would be released. The importance of high humidity to conidia

²⁹⁵⁴ Dr Latorre's reply to Panel question 49, in List of Replies from the scientific experts to questions posed by the Panel, para. 306. See also, Dr Latorre's reply to Panel question 56, in List of Replies from the scientific experts to questions posed by the Panel, paras. 351-352.

²⁹⁵⁵ Dr Latorre's reply to Panel question 66, in List of Replies from the scientific experts to questions posed by the Panel, para. 398.

²⁹⁵⁶ Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 419.

²⁹⁵⁷ Dr Latorre's reply to Panel question 69, in List of Replies from the scientific experts to questions posed by the Panel, para. 407.

production has to be stressed. The surface of fruit held in cold stores is usually moist, and fully developed rots usually produce conidia. Fruits rotting subsequently in retail packs or in a domestic environment at less than 100% RH are not likely to produce conidia. In the uncertain event that an apple shipped to Australia from New Zealand rotted with *N. galligena* its ability to act as vector of disease would depend on the handling system on arrival. (See Q52)"²⁹⁵⁸

7.1244 When asked specifically whether restricting imports to mature, symptomless apples would achieve Australia's ALOP, Dr Latorre responds that under New Zealand's alternative, apples may carry *Neonectria galligena*; the likelihood of this is "close but not equal to zero":

"Exporting only 'mature asymptomatic apples' from New Zealand would disregard the fact that latent infection may occur on a mature apple fruit, the main issue of this dispute. Latent infection (fruits that are infected but asymptomatic at harvest) may be extremely rare in New Zealand, considering that weather conditions at harvest are not very favourable for European canker in New Zealand apple-producing areas, as previously discussed. However, it has to be admitted that the likelihood of such an occurrence is close but not equal to zero; at least, until objective results prove otherwise."²⁹⁵⁹

7.1245 Likewise, Dr Swinburne notes that New Zealand's alternative measure would involve a very low level of transmission:

"Given that some 95% of New Zealand orchards are either disease free or have very low levels of infection, coupled with a climate that is not well suited to summer fruit infection, it necessarily follows that the probability of there being post harvest rots is very low indeed. Exclusion of exports from the remaining 5% of orchards would reduce the risk to insignificance.

Australia's insistence on receiving only fruit from inspected orchards certified as free from canker would eliminate virtually all risk of fruit being infected. Moreover, as there is no evidence to support Australia's concerns that cross contamination might occur in the pack house during grading etc. no further measures would be necessary."²⁹⁶⁰

7.1246 Referencing the experience of other apple exporting countries, Dr Latorre points out that the IRA's conclusion that symptomless apples from New Zealand would carry latent infections is not supported by scientific information:

"The [pest risk analysis], and particularly the ALOP, is the crucial aspect of this dispute with regard to European canker. Australia considers [the probability of entry, establishment and spread as] low. However, there is a general perception that [the probability of entry, establishment and spread] is extremely low or negligible in other apple-producing countries. Data provided by Australia to support their conclusion appear to be insufficient. For instance, *data to validate the probability of*

²⁹⁵⁸ Dr Swinburne's reply to Panel question 69, in List of Replies from the scientific experts to questions posed by the Panel, para. 408.

²⁹⁵⁹ Dr Latorre's reply to Panel question 63, in List of Replies from the scientific experts to questions posed by the Panel, para. 386.

²⁹⁶⁰ Dr Swinburne's reply to Panel question 63, in List of Replies from the scientific experts to questions posed by the Panel, paras. 388-389.

N. galligena entrance via asymptomatic fruits has not been provided; similarly, data supporting the probability of establishment and spread were not presented.

The long experience of other exporting countries where European canker is present (e.g., Chile, United States) suggests that the probability that asymptomatic fruits carrying latent infection may introduce *N. galligena* into a new area is negligible (extremely rare), rather than low. This probability would increase if apples were harvested from infected orchards located in areas with high summer rainfalls. Therefore, the risk of long-distance disease spread by infected fruits (fruits with latent infection or visible symptoms of the disease) should be considered extremely low or negligible until sufficient experimental evidence is provided to neglect this conclusion."²⁹⁶¹

7.1247 When meeting with the Panel, the experts were more doubtful about whether New Zealand's alternative would achieve Australia's ALOP. Dr Swinburne stated that:

"The assumption behind this particular measure is that fruit which become infected during the growing season will all show symptoms of rotting, at or before they are mature harvestable fruit, because of the nature of the varieties. And the point that was made in some of the presentations was that the resistance mechanism, which is expressed by cooking apples which restricts the fungus for some period of time, wasn't present in modern dessert varieties. That is not the European experience. In Europe, and particularly in United Kingdom, we know that fruit of the same sort of varieties as we are discussing here, can and do become infected during the growing season are harvested at the appropriate moment but still symptomless and are then placed in store, and this is the important thing is what happens to them in store, because the conditions the gas and temperature conditions within those stores is critical to the development of subsequent rotting, but they can therefore develop rots some weeks perhaps months after they have been picked in a mature symptomless condition. So it is incorrect to assume that that particular measure would satisfy the requirement."²⁹⁶²

7.1248 Dr Latorre agreed: "I agree with Dr Swinburne has mentioned [sic]. Since it is impossible to differentiate symptomless fruit from those having the internal infection, I think this measure would be very difficult to satisfy the requirement, in my opinion."²⁹⁶³

7.1249 As noted above in regard to fire blight²⁹⁶⁴, what the Panel has to look at, in the context of the second prong of Article 5.6 of the SPS Agreement, is whether New Zealand has raised a presumption, not successfully rebutted by Australia, that the alternative measures would achieve Australia's ALOP. As the panel in *Australia – Salmon* explained²⁹⁶⁵, this legal analysis is different from the scientific assessment and certainty that scientific experts consulted by panels might prefer.

7.1250 The Panel accepts that it might be impossible to differentiate symptomless fruit from fruit having latent internal infection. However, the distinction between mature, symptomless fruit and latently infected fruit is not the key issue here. The key issue is the probability of New Zealand apples successfully initiating a European canker infection in Australia. Significantly, Dr Latorre and

²⁹⁶¹ Dr Latorre's reply to Panel question 51, in List of Replies from the scientific experts to questions posed by the Panel, paras. 323-324 (emphasis added).

²⁹⁶² Dr Swinburne's reply in Transcript of the Panel's meeting with experts, para. 426.

²⁹⁶³ Dr Latorre's reply in Transcript of the Panel's meeting with experts, para. 427.

²⁹⁶⁴ See para. 7.1137 above.

²⁹⁶⁵ Panel Report on *Australia – Salmon*, para. 8.126 (emphasis added).

Dr Swinburne clearly state – and the Panel has found under Articles 5.1 and 5.2 – that the IRA's risk assessment is flawed at various key points concerning the probability that latently infected New Zealand apples would actually carry *Neonectria galligena*. In particular, Dr Latorre and Dr Swinburne explain that it would be highly unlikely that latently infected apples would appear in New Zealand and be harvested in the first place. They are also sceptical about the survival of the *N. galligena* for a sufficiently long time on the surface of apple fruit. Further, they question the possibility of latently infected New Zealand apples initiating a European canker infection in Australia.

7.1251 As also noted in the context of fire blight, the experts confirm that New Zealand would only export to Australia mature, symptomless apples that would also be free of trash.²⁹⁶⁶ Further, the Panel has found under Articles 5.1 and 5.2 of the SPS Agreement that the choice of a probability interval and a midpoint for events with a "negligible" likelihood of occurring, as well as the combination of this probability interval with the use of a uniform distribution to model the likelihood of these events, are not properly justified in the IRA and lead to an overestimation of the probability of entry, establishment and spread of European canker.²⁹⁶⁷

7.1252 Australia has a qualitative ALOP, defined as "providing a high level of protection aimed at reducing risk to a very low level, but not to zero."²⁹⁶⁸ In the light of the above considerations, the Panel finds that New Zealand has raised a sufficiently convincing presumption, not successfully rebutted by Australia, that the alternative European canker measure of restricting imports of New Zealand apples to mature, symptomless apples would meet this ALOP. Accordingly, this alternative measure fulfils the second condition of the Article 5.6 test in the context of European canker, too.

(ii) *First condition: whether restricting imports to mature, symptomless apples is reasonably available taking into account technical and economic feasibility*

7.1253 New Zealand claims that restricting imports to apple fruit that are mature and symptomless instead of the 12 measures at issue for fire blight and European canker is reasonably available taking into account technical and economic feasibility.²⁹⁶⁹ New Zealand explains that "international fruit buyers" require New Zealand apples to meet the minimum standard set out as the Pipfruit New Zealand Class 1 export fruit standard. This standard requires apples to be mature and symptomless²⁹⁷⁰, and New Zealand's pipfruit industry has pre- and post-harvest quality control measures to ensure that the apples to be exported meet the Pipfruit New Zealand Class 1 export fruit standard for fruit maturity.²⁹⁷¹ Thus, the requirement for apples to be mature and symptomless would only make New Zealand's current practice mandatory.²⁹⁷² New Zealand quotes the experts' responses to confirm that compliance with such standards would ensure that only mature and symptomless apples will be exported to Australia.²⁹⁷³ New Zealand also refers to the *Japan – Apples (Article 21.5 – US)* dispute where the compliance panel found that an alternative measure requiring apples to be mature and symptomless was reasonably available taking into account technical and economic

²⁹⁶⁶ See para. 7.1195 above.

²⁹⁶⁷ See paras. 7.780, 7.781 and 7.1205 above.

²⁹⁶⁸ Australia's IRA, Part A, p. 3.

²⁹⁶⁹ New Zealand's first written submission, para. 4.497. See also, New Zealand's second written submission, para. 2.889.

²⁹⁷⁰ New Zealand's first written submission, para. 4.492.

²⁹⁷¹ New Zealand's first written submission, para. 4.493.

²⁹⁷² New Zealand's first written submission, para. 4.495. See also New Zealand's second written submission, para. 2.888.

²⁹⁷³ New Zealand's second written submission, para. 2.888.

feasibility.²⁹⁷⁴ New Zealand submits that Australia does not contest that the alternative fire blight and European canker measure is reasonably available.²⁹⁷⁵

7.1254 Australia does not directly contest that New Zealand's alternative is reasonably available taking into account technical and economic feasibility. Australia refers to the *Japan – Apples (Article 21.5 – US)* dispute and argues that an alternative measure is reasonably available if it could be reasonably implemented "in practice" taking into account technical and economic feasibility "in the real world". Australia also submits that the risk of the "incorrect enforcement" of an alternative measure is part of its technical feasibility.²⁹⁷⁶

7.1255 The Panel considers that New Zealand has demonstrated that the requirement for apples to be mature and symptomless is part of its current apple production and export practice. In fact, the requirement for apples to be mature and symptomless is part of the Pipfruit New Zealand, Class 1 export standard, which New Zealand submitted to the Panel.²⁹⁷⁷ Accordingly, New Zealand has demonstrated that it has quality control measures in place to ensure that the mature, symptomless requirement is respected.

7.1256 As noted above, Dr Deckers describes the Pipfruit New Zealand, Class 1 export fruit standard as "a standard method of maturity and fruit quality determination."²⁹⁷⁸ Likewise, Dr Paulin confirms that the Pipfruit New Zealand, Class 1 export fruit standard corresponds to a "high standard of quality" and "[t]he specifications for absence of damage are of a proper level of precision to guarantee 'symptomless fruits'".²⁹⁷⁹ Dr Latorre finds that "the requirements established by Pipfruit New Zealand with regard to maturity and absence of fruit damage are acceptable."²⁹⁸⁰ He also confirms that in light of the exhibit submitted by New Zealand there is no risk that apples exported from New Zealand "will not always be mature, asymptomatic and free of trash".²⁹⁸¹ Likewise, according to Dr Schrader:

"With regard to the requirements for maturity, the inclusion of background colour and ethylene content as established by Pipfruit New Zealand goes beyond the requirements asked by the Streifindex. Regarding absence of damage, class 1 as defined in Exhibit NZ-93 is more detailed than e.g. quality standards required by the European Union, where trade class 1 refers to good quality, slight shape and development defects, slight colouring defects, only slightest bruises, sufficient firmness."²⁹⁸²

7.1257 The Panel agrees with Australia that whether an alternative is considered reasonably available taking into account technical and economic feasibility must be assessed "in the real world" as suggested by the compliance panel in *Japan – Apples (Article 21.5 – US)*. As stated in the same dispute, the "risk of incorrect enforcement" is also part of the technical feasibility of the

²⁹⁷⁴ New Zealand's first written submission, para. 4.496.

²⁹⁷⁵ New Zealand's second written submission, para. 2.886.

²⁹⁷⁶ Australia's first written submission, para. 1077.

²⁹⁷⁷ Pipfruit New Zealand Incorporated, "Best Practices Guidelines for Production, Harvest, Cool-chain and Packing of NZ pipfruit: Industry Quality Recommendations" (January 2005), in Exhibit NZ-93.

²⁹⁷⁸ See para. 7.1195 above. Dr Deckers's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 20.

²⁹⁷⁹ See para. 7.1195 above. Dr Paulin's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 22.

²⁹⁸⁰ See para. 7.1195 above. Dr Latorre's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 21.

²⁹⁸¹ See para. 7.1195 above. Dr Latorre's reply to Panel question 3, in List of Replies from the scientific experts to questions posed by the Panel, para. 29.

²⁹⁸² See para. 7.1195 above. Dr Schrader's reply to Panel question 2, in List of Replies from the scientific experts to questions posed by the Panel, para. 23.

alternative.²⁹⁸³ Nonetheless, Australia failed to explain how these two parameters apply in the current dispute to refute the prima facie case made by New Zealand that the first condition of the Article 5.6 test is fulfilled in the context of fire blight and European canker. In fact, Australia did not even contest New Zealand's specific arguments in regard to fire blight and European canker under the first condition of the Article 5.6 test.

7.1258 In light of its aforementioned arguments and these responses by the experts, New Zealand has made a prima facie case that the first condition of the Article 5.6 test is fulfilled in the context of fire blight and European canker, which Australia has failed to rebut.

(iii) *Third condition: whether restricting imports to mature, symptomless apples is significantly less trade restrictive than Australia's current fire blight and European canker measures*

7.1259 New Zealand argues that its alternative would be significantly less trade restrictive than the eight measures in place for fire blight and that it already has procedures in place to ensure that it would export only mature, symptomless apples to Australia. The additional costs for the implementation of the alternative measure would be limited to merely validating this procedure.²⁹⁸⁴ The alternative measure that simply validates, through auditing, existing arrangements for the export of apples is less trade restrictive than measures imposing multiple new requirements.²⁹⁸⁵

7.1260 New Zealand claims that Australia's contested fire blight and European canker measures introduce a high degree of risk for any New Zealand apple grower since a single fire blight or European canker strike would make the apples from that orchard ineligible for export.²⁹⁸⁶ This would not happen under the alternative proposed by New Zealand.²⁹⁸⁷ Also, orchards without any history of fire blight and European canker would still have to comply with Australia's existing requirements, whereas New Zealand's alternative would not impose such compliance.²⁹⁸⁸ The potential reduction of costs of the alternative measure would promote the competitiveness of New Zealand apple growers, in contrast to Australia's existing requirements that impose increased compliance costs.²⁹⁸⁹ New Zealand also contends that Australia does not contest that the alternative measure is "significantly less trade restrictive".²⁹⁹⁰

7.1261 Australia indicates that a WTO Member does not need to adopt the least trade-restrictive measure.²⁹⁹¹ When comparing the trade restrictiveness between the existing and the alternative measure, it is not enough to establish that the alternative is merely less trade restrictive; rather, the alternative must be significantly less trade restrictive, "significant" meaning "important, notable, consequential".²⁹⁹² Australia's understanding of the panel report in *EC – Approval and Marketing of Biotech Products* is that a given risk assessment may be supported by a range of possible measures and it is within the Member's discretion to choose a measure providing the best protection taking into account its ALOP.²⁹⁹³ Accordingly, Australia submits that the Panel must respect "a Member's right

²⁹⁸³ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.171.

²⁹⁸⁴ New Zealand's first written submission, para. 4.505.

²⁹⁸⁵ New Zealand's first written submission, para. 4.506.

²⁹⁸⁶ New Zealand's first written submission, para. 4.507.

²⁹⁸⁷ New Zealand's first written submission, para. 4.508.

²⁹⁸⁸ New Zealand's first written submission, para. 4.509.

²⁹⁸⁹ New Zealand's first written submission, para. 4.510.

²⁹⁹⁰ New Zealand's second written submission, para. 2.886.

²⁹⁹¹ Australia's first written submission, para. 1078.

²⁹⁹² Australia's first written submission, para. 1079.

²⁹⁹³ Australia's first written submission, para. 1080.

to choose its preferred measure, unless there is another measure that is significantly less restrictive to trade".²⁹⁹⁴

7.1262 Previous panels assessed the third condition of the Article 5.6 test by looking at the difference in market access under the measures at issue and the alternative measure(s) identified by the complainant. In particular, previous panels analysed whether, under the alternative measure, "market access would be obtained significantly more easily than under the current regime"²⁹⁹⁵ and whether "the increased market access that would result under the alternative[] ... would be significant."²⁹⁹⁶ At least two fire blight measures (M4 and M5) and one European canker measure (M13) have a direct effect on market access, and thus trade, in that they involve a suspension of trade in case of non-compliance.

7.1263 A comparison of New Zealand's alternative measure with the 12 contested fire blight and European canker measures also confirms that the former would be significantly less trade restrictive. In fact, Australia's contested fire blight measures are not just more numerous, they are also more stringent and costly to comply with. In contrast, through its Class 1 export fruit standard, New Zealand already complies with the alternative requirement of restricting the import of New Zealand apples to mature, symptomless apples.

7.1264 The Panel agrees with Australia that the third condition of the Article 5.6 test requires that the complainant identify an alternative measure that is "*significantly* less restrictive to trade" than the contested measure. This is in line with the language of footnote 3 to Article 5.6 of the SPS Agreement²⁹⁹⁷, and it also accords with how previous panels and the Appellate Body have identified this third condition.²⁹⁹⁸ Nonetheless, Australia does not explain why New Zealand's alternative measure for fire blight and European canker would be merely less trade restrictive. Nor does Australia contest any of the specific arguments advanced by New Zealand in the context of fire blight and European canker in regard to the third condition of the Article 5.6 test.

7.1265 Accordingly, the Panel finds that New Zealand has demonstrated that a measure requiring that imports of New Zealand apples be mature and symptomless is significantly less trade restrictive than Australia's contested fire blight and European canker measures.

(c) Conclusion on New Zealand's Article 5.6 claim with regard to fire blight and European canker

7.1266 The Panel has found that New Zealand has demonstrated that its alternative measure for fire blight and European canker fulfils the three cumulative conditions of the Article 5.6 test. Accordingly, the Panel finds that the fire blight and European canker measures contested by New Zealand (Measures 1-11 and 13) are inconsistent with Article 5.6 of the SPS Agreement.

²⁹⁹⁴ Australia's first written submission, para. 1081.

²⁹⁹⁵ Panel Report on *Japan – Agricultural Products II*, para. 8.96.

²⁹⁹⁶ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.151.

²⁹⁹⁷ Footnote 3 to Article 5.6 of the SPS Agreement provides that "[f]or the purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is *significantly* less restrictive to trade." (emphasis added).

²⁹⁹⁸ See, Appellate Body Report on *Australia – Salmon*, paras. 186 and 194; Panel Report on *Japan – Agricultural Products II*, para. 8.72; and Appellate Body Report on *Japan – Agricultural Products II*, para. 95.

3. Measure regarding ALCM

(a) Alternative measure regarding ALCM identified by New Zealand

7.1267 New Zealand claims that Australia's measure regarding ALCM listed in the panel request (Measure 14)²⁹⁹⁹ is inconsistent with Australia's obligations under Article 5.6 of the SPS Agreement³⁰⁰⁰ because requiring inspection of a 600-fruit sample of each import lot is an alternative measure satisfying all three cumulative conditions of the Article 5.6 test. "A single measure could have been imposed by Australia in respect of ALCM that would be consistent with standard AQIS inspection procedures for detection of quarantine pests. This single measure is the inspection of a 600 fruit sample from each import lot."³⁰⁰¹

7.1268 Australia argues that this is the only alternative measure identified by New Zealand regarding ALCM.³⁰⁰² New Zealand, however, contends that it has also identified the retail-ready requirement as a further alternative measure regarding ALCM that would satisfy the three-pronged Article 5.6 test.³⁰⁰³

7.1269 New Zealand refers to the retail-ready requirement as an alternative measure for the first time in its first written submission, but only in the context of fire blight:

"With regard to fire blight, alternative measures that would also be reasonably available, be less trade restrictive and achieve Australia's ALOP include restricting apple fruit imports to those fruit that have been cold stored, or limiting imports to apples that are 'retail-ready packaged fruit.'"³⁰⁰⁴

7.1270 In its second written submission, New Zealand extends the relevance of this alternative to ALCM:

"In its first written submission, New Zealand also identified various other alternative measures for fire blight, European canker and ALCM that would meet the requirements of Article 5.6, but which would still be more trade restrictive than required. A measure limiting imports to apples that are retail-ready packaged fruit was identified.³⁰⁰⁵ Indeed, as noted above in respect of Article 5.1 and as confirmed by the experts, such a measure would effectively exclude the primary pathway for ALCM identified by the IRA."^{3006,3007}

7.1271 This argument by New Zealand references *inter alia* the retail-ready requirement that it raised originally only in regard to fire blight. To expand the relevance of this alternative measure to ALCM,

²⁹⁹⁹ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 2. See also, New Zealand's first written submission, para. 3.83.

³⁰⁰⁰ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), attached as Annex A-1 to this report, 7 December 2007, p. 3.

³⁰⁰¹ New Zealand's first written submission, para. 4.513. See also, New Zealand's first written submission, para. 4.523; and New Zealand's second written submission, para. 2.896.

³⁰⁰² Australia's reply to Panel question 138 after the first substantive meeting.

³⁰⁰³ New Zealand's second written submission, para. 2.894.

³⁰⁰⁴ New Zealand's first written submission, para. 4.490.

³⁰⁰⁵ (footnote original) NZFWS, para. 4.490.

³⁰⁰⁶ (footnote original) See paras. 2.251 to 2.257. Cross RPQ, Q 105 p. 15. Professor Cross confirms that "if fruit were supplied from New Zealand 'retail ready' or 'just in time', then it seems most unlikely that any fruit would be returned to the orchard wholesalers for repacking": Cross RPQ, Q 122, p. 22.

³⁰⁰⁷ New Zealand's second written submission, para. 2.894.

New Zealand's argument references the following two responses by Dr Cross on whether the importation of retail-ready packaged apples might be an effective measure against ALCM:

"Question 105

Please comment on whether the consideration in Australia's IRA regarding the inadequacy of an inspection and treatment system based on a 600 fruit sample to manage the risk for ALCM was objective and credible, relying on respected and qualified scientific sources. Is such consideration sufficiently supported by the available scientific evidence? (IRA, Part B, p. 188-190; paras. 1094-1096 of Australia's FWS; paras. 4.517-4.522 of New Zealand's FWS)

Dr Cross:

The adequacy of the 600 fruit sample size will very much depend on the way fruit is handled in Australia in particular the number of fruit that are likely to be placed or disposed of in the vicinity of an apple tree or trees. As set out in my answer to question 98, two very different fruit handling scenarios would give very different risks of entry and establishment and quite different sampling sizes would be appropriate.

If higher value, fruit is retail ready in packs or cartons ready for sale held in cold stores and redistributed to markets with minimal breaks in the cold chain and there were minimal losses resulting in disposal of fruits in the vicinity of orchards, the potential risks in this scenario are very low: [sic] There would be virtually no opportunity for leaf midge adults to emerge, mate, exit the pack house and locate a susceptible apple tree. A 600 fruit sample size would be very adequate to give a very minimal risk from disposal of small numbers of fruits by consumers etc in gardens or near orchards etc.

If fruit arrived in bulk bins for grading and packing with larger numbers of discarded fruit being held temporarily at ambient temperatures outside before being disposed of possibly nearby in the vicinity of an apple orchard, the potential risks for this scenario are much higher.

...

Question 122

Does Australia's IRA provide an objective and coherent assessment of the likelihood and implications of New Zealand apples being repacked at rural packing houses in close proximity to orchards, when assessing the risks related to fire blight, European canker and ALCM? Was such assessment made with proper methodological rigour? (Para. 4.418 of New Zealand's FWS; and R 99 by Australia)

Dr Cross:

Australia's IRA did provide an objective and coherent assessment with respect to 'apples free from trash either packed or sorted and graded bulk from New Zealand' but appears it did not consider the case of retail ready fruit. It took into account two scenarios of different amounts of fruit being handled by the orchard pack house, 70-100% versus 0.1-5%. This led to very large (33 fold) differences in the estimates of the numbers of infested apples being handled [sic] at the orchard wholesaler utility

points (Tables 42 and 43) which resulted in the estimates of the partial probabilities of entry, establishment and spread which are high for the orchard wholesalers (Tables 44 and 45). However, if fruit were supplied from New Zealand 'retail ready' or 'just in time', then it seems most unlikely that any fruit would be returned to the orchard wholesalers for repacking. The IRA needs to be recalculated with respect to this scenario."³⁰⁰⁸

7.1272 To extend the relevance of the retail-ready requirement regarding ALCM, New Zealand also references an earlier part of its second written submission.³⁰⁰⁹ In this earlier part New Zealand argues, under its Article 2.2 claim, that, as regards ALCM, Australia's IRA failed to take into account that New Zealand apples would be exported retail-ready.³⁰¹⁰

7.1273 As noted above, New Zealand identified in its first written submission the retail-ready requirement as an alternative only for fire blight, but immediately excluded the possibility of considering that as an alternative fire blight measure for the purposes of its Article 5.6 claim:

"Such measures have little justification, however, as they would be based on an assumption that mature, symptomless apples could be a vector for the transmission of fire blight. *Since there is no scientific basis for any such assumption, New Zealand will restrict its consideration to the alternative measure of restricting imports to mature, symptomless apple fruit.*"³⁰¹¹

7.1274 Likewise, as noted above, in its second written submission New Zealand argues that the retail-ready requirement would not be consistent with Articles 2.2 and 5.1 of the SPS Agreement:

"However, given that these additional alternatives are based on the assumption that mature, symptomless apples are vectors for fire blight and European canker, they are still more trade restrictive than required and would not be consistent with Articles 2.2 and 5.1 of the SPS Agreement. The fact that *less* trade restrictive measures than the measures at issue are still *more* trade restrictive than required simply indicates the severity of the breach in this case."³⁰¹²

7.1275 In the light of these statements by New Zealand, the Panel has found that New Zealand did not validly identify the retail-ready requirement as an alternative measure regarding fire blight in the context of Article 5.6.³⁰¹³ Given the absence of evidence and arguments by New Zealand under the three-pronged Article 5.6 test, the Panel has also found that, even if New Zealand had properly identified the retail-ready requirement as an alternative fire blight measure, it would not have been appropriate or possible for the Panel to analyse this alternative under Article 5.6.³⁰¹⁴

7.1276 New Zealand attempts to extend the relevance of the retail-ready requirement regarding ALCM; however, as the Panel has found, without having validly identified it in the first place as an alternative in the context of fire blight. Accordingly, it would be inappropriate for the Panel to consider the mere reference in New Zealand's second written submission as having validly identified this requirement as an alternative in the context of ALCM. As Australia points out, New Zealand's

³⁰⁰⁸ Dr Cross's replies to Panel questions 105 and 122, in List of Replies from the scientific experts to questions posed by the Panel, paras. 629-631 and 692.

³⁰⁰⁹ New Zealand's second written submission, para. 2.894, footnote 1305.

³⁰¹⁰ New Zealand's second written submission, paras. 2.251 to 2.257.

³⁰¹¹ New Zealand's first written submission, para. 4.490 (emphasis added).

³⁰¹² New Zealand's second written submission, paras. 2.894-2.895 (original emphasis). See also, New Zealand's reply to Panel question 124 after the second substantive meeting.

³⁰¹³ See para. 7.1115 above.

³⁰¹⁴ See paras. 7.1118-7.1119 above.

second written submission misrepresents the relevant part of New Zealand's first written submission, which identified the retail-ready requirement only as an alternative in the context of fire blight and not ALCM.

7.1277 The question is therefore, whether New Zealand's attempt in its second written submission can be considered as identifying a new, second alternative measure regarding ALCM for the first time. In principle, New Zealand would not be prevented from doing so. According to the Appellate Body, "[t]here is no requirement in the DSU or in GATT practice for arguments on all claims relating to the matter referred to the DSB to be set out in a complaining party's first submission to the panel."³⁰¹⁵ Likewise, the panel in *Japan – Apples* found that "it is well established that a complainant is not prevented, as a matter of principle, from developing in its second submission arguments relating to a claim that is within the terms of reference of the panel, even if it did not do so in its first written submission."³⁰¹⁶

7.1278 In its second written submission New Zealand does not merely reference its argument in its first written submission concerning the retail-ready requirement constituting an alternative fire blight measure but tries to extend its relevance to ALCM by also referencing another part of its same submission and two responses from Dr Cross on the issue of retail-ready apple imports. Although these referenced materials relate to New Zealand's Article 2.2 claim, the Panel sees no problem with New Zealand using these materials also in regard to its Article 5.6 claim for ALCM. At the same time, the party in question needs to explain how cross-referenced arguments and evidence advanced under another claim are relevant for the claim in question.

7.1279 In the context of Article 5.6, New Zealand explicitly references arguments and evidence it has made under its Article 2.2 claim. Given the subject-matter addressed in these cross-referenced arguments and evidence, New Zealand's cross-referencing under Article 5.6 could be read as advancing arguments and evidence on how the retail-ready requirement might fulfil the second element of the three-pronged Article 5.6 test, namely whether it would achieve Australia's ALOP. The problem, however, is that neither these cross-referenced materials, nor any argument advanced by New Zealand in this dispute in the context of ALCM relates to the first and third conditions of the Article 5.6 test. In its attempt at extending the retail-ready requirement to ALCM, New Zealand merely alleges that these two conditions are fulfilled, without advancing any specific arguments on how the retail-ready requirement might be reasonably available taking into account technical and economic feasibility as well as being significantly less trade restrictive than the contested SPS measure.

7.1280 Later on in the proceedings, New Zealand has advanced arguments in regard to the first condition of the Article 5.6 test for the retail-ready measure, but not for the other two conditions.³⁰¹⁷

7.1281 As New Zealand also recognizes, the three conditions of the Article 5.6 test are cumulative.³⁰¹⁸ Also, it is the complainant's task to adduce arguments and evidence to demonstrate that all three elements are fulfilled. Since, in the context of ALCM, New Zealand has not done that in regard to the third element of the Article 5.6 test for the retail-ready requirement, the Panel refrains from analyzing that requirement as an alternative measure for ALCM in the context of New Zealand's Article 5.6 claim.

³⁰¹⁵ Appellate Body Report on *EC – Bananas III*, para 145.

³⁰¹⁶ Panel Report on *Japan – Apples*, para 8.64.

³⁰¹⁷ New Zealand's reply to Panel question 114 after the second substantive meeting, paras. 178-180.

³⁰¹⁸ New Zealand's first written submission, para. 4.487.

7.1282 As the Appellate Body stated in *Japan – Agricultural Products*, panels "[can]not ... make the case for a complaining party"³⁰¹⁹. "[I]t was for the [complainant] to establish a prima facie case that there is an alternative measure that meets all three elements under Article 5.6 in order to establish a prima facie case of inconsistency with Article 5.6."³⁰²⁰

7.1283 By alleging that a retail-ready requirement fulfils the first and third elements of the Article 5.6 test for ALCM, New Zealand has articulated a claim under Article 5.6. However, by advancing arguments for that measure only in regard to the first condition of the Article 5.6 test, New Zealand cannot be found to have made a prima facie case for that claim.

7.1284 In the light of the above, the Panel will restrict its Article 5.6 analysis under ALCM to the sole alternative measure properly identified and argued by New Zealand in this context: the inspection of a 600-fruit sample from each import lot.

(b) Whether inspection of a 600-fruit sample from each import lot satisfies the three-pronged Article 5.6 test

7.1285 As indicated above, the Panel will first assess whether New Zealand has made a prima facie case that the alternative ALCM measure suggested by New Zealand fulfils the second condition of the Article 5.6 test. Only if the Panel has found that the second condition is fulfilled, will it turn to assessing the first and third of the three cumulative conditions under Article 5.6.³⁰²¹

(i) *Second condition: whether the inspection of a 600-fruit sample from each import lot achieves Australia's ALOP in regard to ALCM*

Summary of the Parties' arguments

7.1286 New Zealand asserts that the inspection of a 600-fruit sample from each import lot will achieve Australia's ALOP and thus fulfils the second condition of the Article 5.6 test. According to New Zealand, there is no basis for Australia's imposition of a 3,000-unit sample and the additional sensitivity it provides. The IRA's assessment of the risk of ALCM is not valid because it failed to take into account viability, key aspects of ALCM biology and normal trade practices. Had the IRA taken such matters into account, the unavoidable conclusion would have been that the unrestricted risk of ALCM through the export of apples from New Zealand is negligible. This would meet Australia's ALOP.³⁰²²

7.1287 New Zealand contends that even assuming, for the sake of argument, that the IRA's assessment of the unrestricted risk was valid, a 600-unit sample inspection would meet Australia's ALOP because it would ensure that the number of viable cocoons entering Australia is not enough to allow for establishment to occur and the risk of transmission would remain negligible.³⁰²³ The standard AQIS fruit inspection of a 600 fruit sample would provide 95 per cent confidence that no more than 0.5 per cent (1 in 200) fruit have cocoons on them. On this assumption, at least 4,000 fruit (20 apples with cocoons ÷ 0.005 (infestation level) = 4,000) would need to be deposited in one place at the same time to obtain three apples with three live ALCM.³⁰²⁴ According to the New Zealand interception data provided to Australia and set out in the IRA, the actual infestation

³⁰¹⁹ Appellate Body Report on *Japan – Agricultural Products II*, para. 129.

³⁰²⁰ Appellate Body Report on *Japan – Agricultural Products II*, para. 126.

³⁰²¹ See 7.1107 above

³⁰²² New Zealand's reply to Australia's question 4 after the first substantive meeting, paras. 11-14. See also, New Zealand's reply to Panel question 139 after the first substantive meeting, para. 293.

³⁰²³ New Zealand's reply to Australia's question 4 after the first substantive meeting, paras. 12-14; New Zealand's reply to Panel question 139 after the first substantive meeting, para. 293.

³⁰²⁴ New Zealand's first written submission, para. 4.127.

level is much lower than that detected with 95 per cent confidence with a 600 fruit sample, and is more likely to be 0.13 per cent, not 0.5 per cent, suggesting that over 15,000 fruit would need to be deposited in one place at the same time to obtain three apples with live ALCM (20 apples with cocoons \div 0.0013 (infestation level) = 15,384).³⁰²⁵

7.1288 New Zealand argues that apple exports to Australia will be retail ready and are therefore unlikely to be sent to orchard wholesalers. As apples will be sent straight to urban centres, the chance of large quantities of apples being discarded near apple trees is minimal.³⁰²⁶ In any event, large quantities of apples would not be discarded uncovered near apple trees at an orchard wholesaler. In Australia, where removal of discarded fruit from orchards is essential for good fruit fly management, it would be contrary to good operational practice for commercial packing house operators, or even nearby orchardists, to leave any discarded fruit uncovered and exposed to pests. Also, fruit discarded in a landfill would almost certainly be covered within hours of it being left there.³⁰²⁷ Even if large quantities of apples were left uncovered for a short time, emergence would be unlikely to occur. ALCM will not emerge from fruit as soon as it is removed from cold storage. It first has to break diapause and complete pupation, which takes at least 13-18 days. Thus, an ALCM could not emerge from a viable cocoon attached to a discarded apple during the few hours it might remain uncovered as waste.³⁰²⁸ The likelihood of an Australian buyer of New Zealand apples disposing of at least 4,000 (let alone 15,000) of those apples uncovered at a single site near apple trees with new shoots is negligible.³⁰²⁹

7.1289 In a later submission, New Zealand advances similar arguments with slightly higher figures. New Zealand contends that the effect of a 600-unit sample would be that no more than 1 in approximately 6,500 New Zealand apples entering Australia would have a viable cocoon. This equates to a final importation rate for total imports of 0.015 per cent (i.e. only 0.015 per cent of New Zealand apples entering Australia would have viable cocoons). On the basis of such an importation rate (even discounting the prolonged period of adult emergence) approximately 19,000 apples would need to be left outside of cold storage, uncovered, in the same place at the same within 30-50 metres of newly unfurling apple trees, for there to be any likelihood of ALCM mating and egg laying occurring. However, the likelihood of such a sequence of events occurring is negligible – it is an event that would almost certainly not occur. Therefore, the 600-fruit inspection would clearly meet Australia's ALOP.³⁰³⁰

7.1290 New Zealand concedes that the IRA has reviewed and rejected the possibility that a 600-fruit inspection would achieve Australia's ALOP. However, New Zealand points out, the IRA's calculations on the effect of a 600-unit sample inspection were incorrect because they failed to factor in cocoon viability, ALCM biology and normal trade practices.³⁰³¹ Further, the IRA's analysis of the appropriate measure for ALCM is incorrectly premised on the infestation level, rather than the overall likelihood of ALCM entry, establishment and spread.³⁰³² As confirmed by Dr Cross, the IRA should not have relied on the infestation level, but on the overall risk of entry, establishment and spread, as the key determinant of the appropriate measure for ALCM. The infestation level is relevant only as an aspect of that assessment of the overall risk. Had the IRA correctly focused on the overall risk of ALCM entry, establishment and spread – which, as explained above in respect of Article 5.1 is

³⁰²⁵ New Zealand's first written submission, para. 4.128.

³⁰²⁶ New Zealand's first written submission, para. 4.129.

³⁰²⁷ New Zealand's first written submission, para. 4.130.

³⁰²⁸ New Zealand's first written submission, para. 4.131.

³⁰²⁹ New Zealand's first written submission, para. 4.132.

³⁰³⁰ New Zealand's second written submission, para. 2.902. See also, New Zealand's reply to Australia's question 4 after the first substantive meeting, para. 13.

³⁰³¹ New Zealand's reply to Australia's question 4 after the first substantive meeting, para. 14.

³⁰³² New Zealand's second written submission, para. 2.900

negligible – it would have been clear that a 600-unit sample goes beyond what is required to meet Australia's ALOP.³⁰³³

7.1291 According to New Zealand, contrary to Australia's claims, Dr Cross did not express the view that the intensity of any inspection would need to be determined by reference to more reliable data such as viability. Rather, he confirmed New Zealand's position that the intensity of any inspection (i.e. the appropriate sample size) should be selected on the basis of a tolerance infestation level, determined on the basis of the overall risk and relevant ALOP. Moreover, New Zealand argues that Dr Cross confirmed in both his written and oral responses that this was not the approach used in the IRA.³⁰³⁴ Instead of identifying a tolerance level, the IRA simply used the infestation level as the key determinant in setting its measures and selected measures that would result in fumigation of virtually every apple, effectively taking a zero risk approach.³⁰³⁵ In New Zealand's view, Dr Cross has confirmed that the Australian measures were designed to detect all ALCM cocoons present on New Zealand apples. The IRA is explicit on this point. It states that the reason the 600-unit inspection was not considered appropriate was because it "would allow lots to pass without treatment."³⁰³⁶

7.1292 New Zealand adds that, contrary to Australia's claim, ISPM 31 confirms that in selecting an appropriate sample size a tolerance infestation level should be identified to determine what would be an unacceptable risk. In New Zealand's view, it does not endorse an approach of selecting measures designed to detect all infestation present. Nor did Dr Sgrillo endorse the IRA's approach. New Zealand claims that, to the contrary, Dr Sgrillo confirmed only that a high inspection rate is required to detect low infestation levels.³⁰³⁷ While, New Zealand agrees with this statement, it submits that there was *no need* for Australia to put in place measures that would detect all ALCM cocoons on New Zealand apples. Imposing a measure with such an aim is akin to taking a zero risk approach. But, as Australia acknowledges, its ALOP is not zero risk. Therefore, in New Zealand's view, as confirmed by Dr Cross, Australia should only have put in place measures designed to bring the risk within its ALOP.³⁰³⁸

7.1293 Australia argues that its ALOP is not reviewable by a WTO panel or the Appellate Body.³⁰³⁹ Application of the appropriate standard of review precludes a panel from conducting a *de novo* review of whether a particular alternative measure would achieve a Member's ALOP, where the efficacy of such measure has been previously evaluated as Part of a risk assessment.³⁰⁴⁰ If a panel has determined that the risk assessment is "objectively justifiable" (or where the validity of a particular risk assessment has not been challenged), that panel may not substitute its judgment on these Article 5.6 questions for that of the risk assessor. If a complainant fails to demonstrate serious flaws with those aspects of the risk assessor's analysis, the panel should accept the relevant findings of the risk assessment in the context of a claim under Article 5.6.³⁰⁴¹

³⁰³³ New Zealand's second written submission, para. 2.901. See also New Zealand's second written submission, paras. 2.896-2.902.

³⁰³⁴ New Zealand's reply to Panel question 126 after the second substantive meeting, paras. 209-210. See, Dr Cross's reply to Panel question 120, in List of Replies from the scientific experts to questions posed by the Panel, para. 686.

³⁰³⁵ New Zealand's reply to Panel question 126 after the second substantive meeting, paras. 209-210.

³⁰³⁶ New Zealand's comments to Australia's reply to Panel question 104 after the second substantive meeting, para. 246.

³⁰³⁷ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 683.

³⁰³⁸ New Zealand's comments to Australia's reply to Panel question 104 after the second substantive meeting, para. 249.

³⁰³⁹ Australia's first written submission, para. 1075.

³⁰⁴⁰ Australia's first written submission, para. 1098.

³⁰⁴¹ Australia's second written submission, para. 53.

7.1294 Australia argues that it does not aim for zero risk; its ALOP is "very low". Measures only need to be sufficient to bring the risk down to achieve the ALOP. In the case of ALCM, there may be a situation where the infestation of New Zealand apples with viable ALCM is at such a low level that the unrestricted risk would no longer exceed the ALOP; in such a case, SPS measures would not be required.³⁰⁴² Australia contends that it based its measures on the findings in the IRA indicating that the unrestricted risk for ALCM is "low", and therefore exceeds Australia's ALOP. The IRA Team assessed the alternative measure proposed by New Zealand, but found that a 600-unit inspection system alone would not reduce the risks associated with ALCM sufficiently to achieve Australia's ALOP. As New Zealand has failed to show that the Final IRA Report is not valid, the Panel should find that New Zealand's has not properly made its ALCM claim under Article 5.6.³⁰⁴³

7.1295 Australia adds that its ALCM measure was not devised to detect the pest on the majority of New Zealand apple samples. In this regard, Dr Cross has not fully understood the IRA Team's reasoning for finding that a 600-unit inspection would not be adequate. The IRA Team took into account both its estimate that the unrestricted infestation rate for ALCM would be 4.1 per cent (mean) of the total proposed number of apples imported from New Zealand annually, and the August 2005 data provided by New Zealand that the infestation rate of the varieties of New Zealand apples exported to the United States (by the methods deployed) was between 0.1 and 0.38 per cent.³⁰⁴⁴ The IRA Team initially examined whether a 600-unit inspection would reduce the risk to Australia's ALOP, and found that a 600-unit inspection is very effective in detecting lots carrying pests at an infestation rate of 4.1 per cent. However, the IRA Team's analysis concluded that if the infestation rate is as low as New Zealand's information suggested it may be (0.17 per cent), a 600-unit inspection system would not detect infestation in a certain proportion of lots. At this rate, a 600-unit inspection system would allow lots to pass without treatment resulting in a final importation rate of ALCM for total imports of around 0.06 per cent. When placed in the model by the IRA Team this importation rate resulted in a restricted risk estimate that exceeded Australia's ALOP, indicating that, at least for infestation levels below 0.5 per cent, an inspection/treatment system based on a 600 fruit sample would not be adequate to manage the risk for ALCM. The IRA Team found that at these infestation rates, a 3,000-unit inspection was needed to achieve Australia's ALOP. All of these figures are based on the 95 per cent confidence level.³⁰⁴⁵

7.1296 Australia adds that New Zealand has assumed that the level of unrestricted risk for ALCM determined in the Final IRA Report is false, but it has not demonstrated that its alternative measure for ALCM would achieve Australia's ALOP on the basis of the level of risk calculated by the IRA Team.³⁰⁴⁶

7.1297 Australia agrees with Dr Cross that the choice of a risk management measure should be aimed at reducing the risk to a level which would achieve the importing Member's ALOP. There is a very close connection between the ALOP and the intensity of sampling for inspection. The purpose of Australia's inspection requirement for ALCM is to detect lots where the numbers of ALCM present are at a level that results in a risk that would exceed Australia's ALOP. In other words, the ALOP is used to derive the level of ALCM that could be tolerated in imported lots of apples but would still achieve Australia's ALOP. The sampling intensity needs to be set based on both the level of ALCM

³⁰⁴² Australia's reply to Panel question 104 after the second substantive meeting, para. 468. See also, Australia's first written submission, paras. 1093-1097.

³⁰⁴³ Australia's first written submission, para. 1092. See also, Australia's first written submission, para. 1098.

³⁰⁴⁴ Australia's first written submission, para. 1093.

³⁰⁴⁵ Australia's reply to Panel question 104 after the second substantive meeting, paras. 464-465. See also, Australia's first written submission, paras. 1093-1097.

³⁰⁴⁶ Australia's first written submission, para. 1091. See also Australia's first written submission, paras. 155 and 1089.

present before any inspection, and the level of ALCM that can be tolerated which would still remain following the inspection.³⁰⁴⁷

7.1298 Australia points out that Dr Sgrillo confirmed the following three significant factors relevant to selection of an inspection level. First, that the underlying level of infestation is the appropriate starting point for determining the requisite rate of inspection. Second, that one would expect the inspection rate required to increase as the underlying infestation level decreases. Third, that a confidence level of 95 per cent is typically used by the scientific community when determining an appropriate phytosanitary inspection rate, although there is no accepted international standard in this regard. According to Australia, ISPM No. 31 also provides support to its contentions.³⁰⁴⁸

The Panel's analysis

7.1299 As Australia points out, the IRA has reviewed the 600-unit inspection suggested by New Zealand, and rejected it as inappropriate for achieving Australia's ALOP.³⁰⁴⁹ Australia argues that this should prevent the Panel from reviewing the same alternative measure under Article 5.6 of the SPS Agreement, unless New Zealand proves that the IRA does not constitute a proper risk assessment.

7.1300 In the current dispute, the Panel has already found that Australia's IRA is not a proper risk assessment for ALCM within the meaning of Article 5.1 and Annex A(4) of the SPS Agreement.³⁰⁵⁰ Accordingly, even accepting Australia's arguments, there is no reason for the Panel to refrain from assessing whether the 600-unit inspection discarded by the IRA fulfils the second condition of the Article 5.6 test.

7.1301 The IRA's assessment of ALCM risk management measures started by considering the alternative measure of 600-unit inspection suggested by New Zealand.³⁰⁵¹ First, the IRA concluded that this measure would be effective in certain circumstances. "With an infestation rate of 4.1% apple leafcurling midge will be detected in practically every lot and therefore every lot will be fumigated. A 600 unit inspection is very effective in detecting lots carrying pests at this infestation rate. This combined with the high efficacy of a treatment results in a high degree of risk reduction."³⁰⁵²

7.1302 However, the IRA then added that:

"Clearly as the infestation rate decreases then the probability that a 600-unit inspection system will detect apple leafcurling midge in a lot decreases. Therefore some lots may not be treated but may still contain some apple leafcurling midge.

... It was found that the 'worst case' for the total number of apple leafcurling midge that would enter Australia undetected if a 600 fruit inspection/treatment system was used is with an infestation rate for apple fruit of about 0.17%. If the infestation rate was around 0.17% then inspection followed by treatment based on a 600 fruit sample would allow lots to pass without treatment resulting in a final importation rate for the total imports of around 0.06%. When placed in the model this importation rate was

³⁰⁴⁷ Australia's reply to Panel question 104 after the second substantive meeting, paras. 462-463.

³⁰⁴⁸ Australia's reply to Panel question 104 after the second substantive meeting, para. 466.

³⁰⁴⁹ Australia's IRA, Part B, pp. p. 188-192.

³⁰⁵⁰ See para. 7.886 above.

³⁰⁵¹ The IRA's analysis of "Risk management for apple leafcurling midge" states at the outset that "[t]he assessment of the restricted risk starts by first considering the effect of a 600-unit inspection and any remedial action taken as a result of that inspection finding pests of quarantine concern." Australia's IRA, Part B, p. 188.

³⁰⁵² Australia's IRA, Part B, p. 190.

found to result in a restricted risk estimate that exceeded Australia's ALOP. This indicates that, at least for some infestation levels, an inspection/treatment system based on a 600 fruit sample may not be adequate to manage the risk for apple leafcurling midge."³⁰⁵³

7.1303 The IRA concluded that a 3,000-fruit inspection is necessary at this "worst case" infestation rate:

"This predicted 'worst case' prevalence of 0.17% falls into the range of the 'August 05 data' (0.1%–0.38%) on infestation provided by Pipfruit, New Zealand (Pipfruit NZ, 2005). ... The relationship between sample sizes and the number of apple leafcurling midge that could be imported for infestation rates between 0.1% and 0.38% was explored using standard statistical techniques On the basis of this analysis it was concluded that a sample size of 3000 per lot was needed. With these infestation rates with a 3000 sample size the 'worst case' infestation rate that could be present in imports after inspection and treatment was 0.005%.

...

On the basis of this analysis the IRA team concluded that if infestation rates of export fruit were in the range of 0.1% to 0.38% then a 3000 fruit inspection would be effective in detecting apple leafcurling midge."³⁰⁵⁴

7.1304 The IRA added that the IRA Team was not ready to revert to the 600-unit inspection requirement, despite New Zealand's arguments about limited cocoon viability:

"New Zealand provided additional data (Rogers et al., 2006) showing that 36–42% of apple leafcurling midge cocoons on apples were empty, and nearly 60% of all cocoons contained dead apple leafcurling midge. However, the IRA team still considers that this low level of infestation is still a risk, albeit a lower risk and maintains that a 3000 fruit inspection is required."³⁰⁵⁵

7.1305 The IRA then identified an alternative risk management measure to the 3,000-unit inspection, namely the treatment, e.g. fumigation, of all export lots:

"An alternative to the inspection/treatment approach may be the routine use of a mandatory treatment such as fumigation to all export lots. This may be a less trade restrictive approach if the prevalence of apple leafcurling midge is such that most or all lots are likely to fail at inspection. A stakeholder suggested that fumigation should be mandatory. However, the IRA team concluded that inspection as specified above with treatment only if live insects are found would be adequate to manage the risk. Therefore a requirement for mandatory fumigation was not justified."³⁰⁵⁶

7.1306 As a result of this analysis, the IRA identified two risk management options:

"1. Inspection of a random sample of 3000 fruit from each lot. Application of a suitable treatment (e.g. fumigation) or rejection of any lots where apple leafcurling midge is found; or

³⁰⁵³ Australia's IRA, Part B, p. 190.

³⁰⁵⁴ Australia's IRA, Part B, p. 191.

³⁰⁵⁵ Australia's IRA, Part B, p. 192.

³⁰⁵⁶ *Ibid.*

2. Treatment of all lots with a suitable treatment to kill apple leafcurling midge.³⁰⁵⁷

7.1307 These are the measures whose consistency with Article 5.6 New Zealand contests in this dispute in the context of ALCM. As noted above, the Panel has already found in regard to these measures that the IRA's evaluation of the likelihood of entry, establishment and spread of ALCM is not based on a proper risk assessment.³⁰⁵⁸ The Panel has also found that various flaws in the IRA constitute a failure by the IRA to adequately take into account factors such as the available scientific evidence, the relevant processes and production methods in New Zealand and Australia, the actual prevalence of viable ALCM, and relevant environmental conditions, as required by Article 5.2 of the SPS Agreement.³⁰⁵⁹ In particular:

- (a) The Panel has found that the IRA's reasoning regarding the viability of ALCM, is not objectively justifiable, because the IRA does not adequately take into account the data on occupancy and viability of ALCM in cocoons and because the IRA contains no indication of how the exercise of expert judgement was exercised.³⁰⁶⁰
- (b) Similarly, the Panel has found that the IRA's reasoning regarding the viability of ALCM in the light of the possible incidence of parasitism, caused by the wasp *Platygaster demades*, is not objectively justifiable, because the IRA does not consider the impact of parasitism by *Platygaster demades* on cocoon occupancy and viability in its estimations.³⁰⁶¹
- (c) The Panel has also found that the IRA's reasoning regarding the likelihood of transfer of ALCM in light of the protracted emergence of ALCM, is not objectively justifiable, because the IRA fails to take into account the diminished chances of mating of ALCM due to the protracted period of emergence of ALCM adults relative to their short life span.³⁰⁶²
- (d) Further, the Panel has found that the IRA's reasoning regarding the likelihood of establishment and spread of ALCM in Australia, in the light of the existence of necessary climatic conditions and geographic range of these conditions, is not objectively justifiable.³⁰⁶³
- (e) Finally, the Panel has found that the IRA's reasoning regarding the unrestricted risk for ALCM through the importation of New Zealand apples into Australia, in the light of the mode of trade of those apples, is not objectively justifiable, because consideration of the different possible modes of trade does not seem to have been adequately considered or transparently reflected in the IRA and has not had any evident impact on the IRA's conclusions.³⁰⁶⁴

7.1308 The Panel has found that New Zealand has not made a prima facie case that orchards surrounding wholesale packing houses would not be located at a distance that is within the flying range of ALCM.³⁰⁶⁵ Nevertheless, the Panel has concluded that the flaws mentioned above are

³⁰⁵⁷ Australia's IRA, Part B, p. 192. See also, Australia's IRA, Part B, pp. 319-322.

³⁰⁵⁸ See paras. 7.886-7.887 above.

³⁰⁵⁹ *Ibid.*

³⁰⁶⁰ See paras. 7.800-7.806 above.

³⁰⁶¹ See paras. 7.810-7.812 above.

³⁰⁶² See paras. 7.840-7.841 above.

³⁰⁶³ See para. 7.854 above.

³⁰⁶⁴ See paras. 7.866-7.867 above.

³⁰⁶⁵ See para. 7.824 above.

sufficient as to create reasonable doubts about the IRA as a proper risk assessment evaluating the likelihood of entry, establishment and spread of ALCM because the IRA has not properly considered a number of factors that could have a major impact on the assessment of this particular risk.³⁰⁶⁶ Hence, the Panel has concluded that the IRA's inspection and treatment requirements regarding ALCM on New Zealand apples are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement.³⁰⁶⁷ The Panel has also found that since the two alternative ALCM requirements are not based on a risk assessment as provided in Article 5.1 of the SPS Agreement, they can be presumed, more generally, not to be based on scientific principles or not to be maintained with sufficient scientific evidence within the meaning of Article 2.2.³⁰⁶⁸

7.1309 These findings under Article 2.2 call into question the two alternative ALCM requirements primarily because they are based on a flawed risk assessment. The findings also cast doubt on the IRA's justification for not accepting that the initially analysed 600-unit inspection would achieve Australia's ALOP, but instead imposing the two alternative ALCM measures.

7.1310 Significantly, the IRA justifies the rejection of the 600-unit inspection alternative by the lower, "worst case" infestation level originating in the August 2005 data supplied by New Zealand. New Zealand, however, makes the case that the IRA's analysis of New Zealand apple imports leading to an unrestricted risk exceeding Australia's ALOP is not objective and coherent. Also, New Zealand argues that, even if that were not the case, the 600-unit inspection would reduce the risk below Australia's ALOP – even at the "worst case" infestation level.

7.1311 The Panel has found in the context of Articles 5.1 and 5.2 of the SPS Agreement that the IRA's risk assessment has various flaws. These flaws show that the IRA has not properly considered a number of factors that could have a major impact on the assessment of the risk of ALCM from New Zealand apples. In fact, these flaws create reasonable doubts about the IRA as a proper risk assessment evaluating the likelihood of entry, establishment and spread of ALCM into Australia.

7.1312 Based on the factors where Australia's IRA shows the above-mentioned flaws (cocoon viability, parasitism, adult emergence, climate conditions and trade patterns) New Zealand demonstrates that with the "worst case" infestation level, several thousand apples (15,000-19,000 apples) imported from New Zealand would need to be deposited uncovered for a sufficiently long period of time for any ALCM transmission to occur. New Zealand also makes a convincing case that this situation will probably almost never occur.

7.1313 The Panel recalls that it has found that New Zealand has not made a prima facie case that orchards surrounding wholesale packing houses would not be located at a distance that is within the flight range of ALCM.³⁰⁶⁹ However, New Zealand refers to Australia's modern packing house practices, which would make it highly unlikely (should there be a serious incidence of waste deposit in the first place) that a large number of deposited apples would be left uncovered. The Panel also notes Dr Cross's statement that ALCM normally stay close to the ground, and that they are weak fliers (in particular in wind). "They are rather weak flyers. This particular species spends a lot its time close to the ground and only flies up into the tree to oviposit in the shoots when the wind conditions are rather slight. So, it seems unlikely that it would have a very long range of dispersal."³⁰⁷⁰

7.1314 The Panel notes that at the meeting with the experts, Australia asked Dr Sgrillo whether "[he w]ould ... agree that in order to have confidence in detecting a pest within a consignment that has

³⁰⁶⁶ See para. 7.871 above.

³⁰⁶⁷ See para. 7.887 above.

³⁰⁶⁸ *Ibid.*

³⁰⁶⁹ See para. 7.824 above.

³⁰⁷⁰ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 586.

low levels of underlying infestation, a higher rate of inspection may be required, compared to a consignment which had a higher level infestation"³⁰⁷¹ In response, Dr Sgrillo explains that:

"Usually, considering the same population size, if the infestation is higher you have to sample less, because ... I mean, if you have more units infested in the population, this will require a smaller number of samples to catch this infestation. However, if you have a very low number, a very low per cent of infestation, you have to increase your sample size to catch it."³⁰⁷²

7.1315 Dr Sgrillo confirms this in another of his responses to Australia: "The infestation will tell you how much you have to decrease this infestation to reach your appropriate level of risk. And also how sensitive has to be your inspection system to catch any infestation above this level."³⁰⁷³

7.1316 This response was, however, given to a question which Australia introduced by mentioning an important precondition:

"Dr Sgrillo. I'd like to ask you a question about determining an appropriate inspection rate for a consignment *in circumstances where it has been determined that the unrestricted risk is above the appropriate level of protection, and therefore that risk management measures are required*. Would you agree that the relevant factor for determining the appropriate rate of inspection for ALCM is the underlying level of infestation?"³⁰⁷⁴

7.1317 It is evident from this precondition that even Australia considers the issue of infestation rate secondary to establishing whether, in relation to ALCM, the unrestricted risk of New Zealand apples (i.e. the risk arising from importing apples without imposing risk mitigation measures) would exceed Australia's ALOP.

7.1318 Australia argues that ISPM No. 31 provides support for its assertion that a lower infestation rate requires a higher sample size.³⁰⁷⁵ ISPM No. 31 states that as in the case of Australia's IRA, inspection can be a legitimate and essential management tool for pest risks:

"[Inspection] provides the statistical basis for, and complements, ISPMs No. 20 (*Guidelines for phytosanitary import regulatory systems*) and No. 23 (*Guidelines for inspection*). Inspection of consignments of regulated articles moving in trade is an essential tool for the management of pest risks and is the most frequently used phytosanitary procedure worldwide to determine if pests are present and/or the compliance with phytosanitary import requirements."³⁰⁷⁶

7.1319 ISPM No. 20, referenced by ISPM No. 31 states that "[p]hytosanitary inspections ... should be technically justified"³⁰⁷⁷, and explains that a pest risk analysis might be the basis for technical justification for a risk management measure, such as inspection. "Technical justification such as through pest risk analysis (PRA) is required to determine if pests should be regulated and the strength

³⁰⁷¹ Australia's question to Dr Sgrillo in Transcript of the Panel's meeting with experts, para. 682.

³⁰⁷² Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 683.

³⁰⁷³ Dr Sgrillo's reply in Transcript of the Panel's meeting with experts, para. 681.

³⁰⁷⁴ Australia's question to Dr Sgrillo in Transcript of the Panel's meeting with experts, para. 680 (emphasis added).

³⁰⁷⁵ Australia's reply to Panel question 104 after the second substantive meeting, para. 466.

³⁰⁷⁶ *Methodologies for sampling of consignments*, 2008 (ISPM No. 31, FAO, Rome), submitted as Exhibit AUS-30, p. 6.

³⁰⁷⁷ *Guidelines for a phytosanitary import regulatory system*, 2004 (ISPM No. 20, FAO, Rome), submitted as Exhibit AUS-170, p. 240.

of phytosanitary measures to be taken against them (ISPM No. 11: *Pest risk analysis for quarantine pests, including analysis of environmental risks and living modified organisms*, 2004; ISPM No. 21: *Pest risk analysis for regulated non-quarantine pests*).³⁰⁷⁸

7.1320 ISPM No. 23, also referenced in ISPM No. 31, confirms that inspection as a risk management measure is closely related to the pest risk that is being addressed. "[A]n inspection may be required to detect specified regulated pests at the desired level and confidence depending on the risk associated with them (see also ISPM No. 11: *Pest risk analysis for quarantine pests including analysis of environmental risks and living modified organisms*, 2004, and ISPM No. 21: *Pest risk analysis for regulated nonquarantine pests*)."³⁰⁷⁹

7.1321 As New Zealand argues, ISPM 31 confirms that in selecting an appropriate sample size a tolerance infestation level should be identified to determine what would be an unacceptable risk.³⁰⁸⁰ ISPM No. 31 defines "tolerance level" as "the percentage of infestation in the entire consignment or lot that is the threshold for phytosanitary action."³⁰⁸¹ While ISPM No. 31 states that "[m]ost NPPOs have a zero tolerance level for all quarantine pests", it states:

"However, an NPPO may determine to establish a tolerance level for a quarantine pest based on pest risk analysis (as described in ISPM No. 11: *Pest risk analysis for quarantine pests including analysis of environmental risks and living modified organisms*, section 3.4.1) and then determine sampling rates from this. For example, NPPOs may determine a tolerance level that is greater than zero because small numbers of the quarantine pest may be acceptable if the establishment potential of the pest is considered low or if the intended end use of the product (for example, fresh fruit and vegetables imported for processing) limits the potential of entry of the pest into endangered areas."³⁰⁸²

7.1322 In turn, ISPM No. 11, which is referenced by ISPMs Nos. 20, 23 and 31, explains that the risk assessment involves the establishment of an ALOP, and that risk management measures should be adopted only if the ALOP is exceeded:

"Overall risk is determined by the examination of the outputs of the assessments of the probability of introduction and the economic impact. If the risk is found to be unacceptable, then the first step in risk management is to identify possible phytosanitary measures that will reduce the risk to, or below an acceptable level. Measures are not justified if the risk is already acceptable or must be accepted because it is not manageable (as may be the case with natural spread). ...

Appropriate measures should be chosen based on their effectiveness in reducing the probability of introduction of the pest."³⁰⁸³

7.1323 With these elements of the relevant ISPMs in mind, the Panel notes that Dr Cross explains that the sample size should not be adjusted to the infestation level but to the ALOP, and that in the

³⁰⁷⁸ *Guidelines for a phytosanitary import regulatory system*, 2004 (ISPM No. 20, FAO, Rome), submitted as Exhibit AUS-170, p. 239.

³⁰⁷⁹ *Guidelines for inspection*, 2005 (ISPM No. 23, FAO, Rome), p. 277.

³⁰⁸⁰ New Zealand's comments to Australia's reply to Panel question 104 after the second substantive meeting, para. 248.

³⁰⁸¹ *Methodologies for sampling of consignments*, 2008 (ISPM No. 31, FAO, Rome), submitted as Exhibit AUS-30, p. 8.

³⁰⁸² *Ibid.*

³⁰⁸³ *Pest risk analysis for quarantine pests including analysis of environmental risks and living modified organisms*, 2004 (ISPM No. 11, FAO, Rome), submitted as Exhibit NZ-124, pp 130-131.

latter respect the IRA's flawed risk analysis should be recalculated taking into account the factors which it has not properly considered:

"The unrestricted risk estimation presented in Table 49 of Australia's IRA Part B p 187 needs to be recalculated for two different importation scenarios:

1. Mature apple fruit free of trash, either packed or sorted and graded bulk from New Zealand
2. Retail ready fruit which would not be handled at sensitive utility points

The August 2005 infestation rate data should be used and viability, parasitism and the time span of adult emergence relative to adult longevity need to be taken into account in the recalculation. The inclusion or exclusion of different utility points for the two importation scenarios is crucial. Consideration needs to be given to the numbers of fruit that are likely to be placed or discarded within the flight range of a susceptible host at the relevant utility points in formulating the risk estimates. It might be found that the unrestricted risk estimates for one or both of these scenarios then falls below Australia's ALOP.

If not, then the sample sizes required to meet Australia's ALOP should then be recalculated for fruit subject to fumigation and not subject to fumigation for each of the two importation scenarios. *Note that the sample size should not be adjusted to fit the infestation rate which appears to be the case in the current analysis. It should be set to meet Australia's ALOP.*

Until this is done, then it is inappropriate to comment on the sample sizes and the need or otherwise for fumigation treatment required to meet Australia's ALOP.³⁰⁸⁴

7.1324 Dr Cross confirmed this at the Panel's meeting with the Parties and the experts, where he explained that the factors that the IRA has not properly taken into account are fundamental in establishing the appropriate sample size for any inspection requirement:

"[I]f a 600-fruit sample showed that there is a 95 per cent chance of the 0.5 per cent of fruit being infested, if half of those fruit are non-viable, another 30 per cent parasitized and, in any case, there is only a 1 in 5 chance that the male and female would mate and meet each other in their life, then that effective infestation level is reduced by a factor of 10, 20, 30 times, whatever the factors are that are determined by doing this risk assessment and then that needs to be applied to the sample sizes that are needed. And I find it difficult to prejudge what those sample sizes should be. Clearly one factor that I believe would make quite a big difference to the risk is the mode of trade question. If the apples were retail-ready, ready-packed in smaller packs, that were not handled at the seven wholesalers, that would greatly reduce the risk, maybe that would overcome the risk all together, but until that calculation is redone, it's difficult to decide what the sample size should be."³⁰⁸⁵

7.1325 In response to a question from the Panel, Dr Cross also confirmed that standard statistical techniques support the view that a 600-fruit sample would provide 95 per cent confidence that no more than 0.5 per cent (1 in 200) fruit have cocoons:

³⁰⁸⁴ Dr Cross's reply to Panel question 120, in List of Replies from the scientific experts to questions posed by the Panel, paras. 684-687 (emphasis added).

³⁰⁸⁵ Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 662.

"The 600 fruit sample would provide 95% confidence that no more than 0.5% (1 in 200 fruit) have occupied cocoons, but the actual infestation rate would be reduced by a factor 0.5 x 0.7 for reduced viability and parasitism and probably by a further factor of 0.1 – 0.5 for the protracted emergence relative to the short life span, actual effective infestation rates of 0.1% or even 0.05% would be more realistic.

Note also that the average rate of infestation of NZ apples by ALCM as indicated by the August 2005 data is 0.16%, 3 x lower than the 0.5% 95% confidence value that would be detected by a 600 fruit sample.

Thus approximately 100, 500 or >1000 fruits would have to be discarded for infestation rates of 0.5, 0.1, and 0.05% in one place for a 5% chance of at least one male and one female emerging to start an infestation.

So to answer the latter Part of the question, a 0.5% infestation rate of occupied cocoons would have a 5% chance of initiating an infestation if perhaps 500-1000 fruits were discarded in one place within the female flight range of a susceptible host."³⁰⁸⁶

7.1326 In response to the Panel's subsequent question, Dr Deckers was sceptical about the need for fumigating all New Zealand apples for ALCM. "The necessity to treat all the lots when a fruit sample of only 600 apples is inspected is surprising: why not only treat the lots of apples when they come from an infected orchard or when some ALCM have been found."³⁰⁸⁷

7.1327 Dr Cross added in one of his written responses to the Panel that "[t]he requirements for a 3,000-fruit inspection or for fruit fumigation are clearly restrictive and alternative measures coupled with a 600-fruit inspection would be preferable provided they met Australia's ALOP."³⁰⁸⁸

7.1328 In the light of above, the Panel finds that New Zealand has made a prima facie case that – given the flawed risk analysis in Australia's IRA, including the flawed comparison between Australia's ALCM measure and the alternative measure identified by New Zealand – a 600-unit inspection would achieve Australia's ALOP. Australia's reference to ISPM No. 31 and its own flawed analysis in the IRA has not successfully rebutted this prima facie case. Thus the alternative ALCM measure identified by New Zealand fulfils the second condition of Article 5.6 of the SPS Agreement.

7.1329 The Panel notes in this context that Australia has a qualitative ALOP, defined as "providing a high level of protection aimed at reducing risk to a very low level, but not to zero."³⁰⁸⁹ In assessing the second condition of the Article 5.6 test, the Panel had to review whether New Zealand has made a prima facie case that its alternative measure would achieve this qualitative ALOP.

7.1330 In this dispute the Panel needs to review Australia's IRA, not conduct its own risk assessment. The Panel notes that the IRA acknowledges, when describing its ALCM risk management measures, that "it may be possible to develop other risk management measures (for example, perhaps based on

³⁰⁸⁶ Dr Cross's reply to Panel question 104, in List of Replies from the scientific experts to questions posed by the Panel, paras. 624-627.

³⁰⁸⁷ Dr Deckers's reply to Panel question 105, in List of Replies from the scientific experts to questions posed by the Panel, para. 632.

³⁰⁸⁸ Dr Cross's reply to Panel question 120, in List of Replies from the scientific experts to questions posed by the Panel, para. 688.

³⁰⁸⁹ Australia's IRA, Part A, p. 3.

low pest prevalence in orchards or pest free places of production) but this would require more detailed information on apple leafcurling midge than is currently available."³⁰⁹⁰

7.1331 The Panel therefore reaches its above finding in regard to the second condition of the Article 5.6 test in the specific context of the IRA reviewed in the current dispute. In other words, the Panel's finding that New Zealand has raised a presumption (i.e., made a prima facie case) that the 600-unit inspection would reach Australia's ALOP is a legal, not a scientific finding. If Australia conducts a proper risk assessment for New Zealand apples, subject to an objectively justifiable analysis it may conclude that the ALCM risk exceeds Australia's ALOP. In light of such a conclusion, Australia may also impose a risk management measure that is different from a 600-unit inspection. Any such future risk assessment and eventual adoption of risk management measures by Australia must comply with the relevant provisions of the SPS Agreement, in particular with Articles 2.2, 5.1, 5.2 and 5.6.

(ii) *First condition: whether the inspection of a 600-fruit sample from each import lot is reasonably available taking into account technical and economic feasibility*

7.1332 New Zealand argues that the alternative measure of inspecting a 600-fruit sample from each import lot would satisfy the first condition of the Article 5.6 test, as this alternative measure is reasonably available taking into account technical and economic feasibility.³⁰⁹¹ According to New Zealand, this is the standard export and import phytosanitary inspection procedure for detection of quarantine pests applying to all plant commodities currently being traded between Australia and New Zealand, and it is used by many other countries. The procedures to implement it already exist.³⁰⁹² New Zealand adds that Australia has not contested that this alternative measure fulfils the first element of the Article 5.6 test.³⁰⁹³

7.1333 Australia does not contest this, nor advance any specific arguments in this specific context. Australia makes only general arguments with regard to the first condition of the Article 5.6 test. Referencing the compliance panel report in *Japan – Apples (Article 21.5 – US)*, Australia argues that the technical and economic feasibility of a proposed alternative measure "in the real world" is a fundamental element for determining whether such measure should be considered "reasonably available".³⁰⁹⁴

7.1334 The Panel agrees with Australia that, as the aforementioned compliance panel stated, "when considering whether an alternative measure is reasonably available taking into account technical and economic feasibility, [the adjudicator] should determine whether the alternative measure would constitute an option reasonably available taking into account technical and economic feasibility in the real world."³⁰⁹⁵

7.1335 The Panel considers that this is exactly what New Zealand has demonstrated in the current dispute. As New Zealand argues, the 600-fruit inspection is already the standard sanitary and phytosanitary export and import inspection procedure between the Parties, and the procedures to implement it already exist. New Zealand contends that the 600-fruit inspection is also applied by other WTO Members. Australia does not contest any of these arguments by New Zealand. In fact, Australia's IRA references in the context of ALCM the "*standard* 600-fruit inspection" advanced by

³⁰⁹⁰ Australia's IRA, Part B, p. 319.

³⁰⁹¹ New Zealand's first written submission, p. 192. See also New Zealand's first written submission, para. 4.516.

³⁰⁹² New Zealand's first written submission, para. 4.515.

³⁰⁹³ New Zealand's second written submission, para. 2.896.

³⁰⁹⁴ Australia's first written submission, para. 1077.

³⁰⁹⁵ Panel Report on *Japan – Apples (Article 21.5 – US)*, para. 8.171.

Pipfruit NZ.³⁰⁹⁶ Likewise, in the context of mealybugs, the IRA references "*standard* 600-unit AQIS sampling procedures (to provide 95 per cent confidence of detecting a 0.5 per cent defect level or greater)"³⁰⁹⁷, and "note[s] that the requirement for inspection of 600 fruit is a general requirement to address a range of quarantine risks, not just mealybugs."³⁰⁹⁸

7.1336 Accordingly, the 600-fruit inspection is an alternative measure that is technically and economically feasible in the real world, and therefore reasonably available – not only in theory but in actual practice. Hence, the Panel finds that the alternative measure New Zealand advances in this dispute for ALCM fulfils the first condition of the Article 5.6 test.

(c) Third condition: whether the inspection of a 600-unit sample from each import lot is significantly less trade restrictive than Australia's current ALCM requirements

(i) *Summary of the Parties' arguments*

7.1337 New Zealand argues that the alternative measure of inspecting a 600-fruit sample from each import lot would satisfy the third condition of the Article 5.6 test. The alternative would be significantly less trade restrictive than the two requirements currently imposed by Australia, namely: (i) the inspection of a 3,000 fruit sample from each lot with a find resulting in mandatory treatment or rejection for export; or (ii) the inspection of a 600 fruit sample from each lot, combined with mandatory treatment of all fruit.³⁰⁹⁹ The expert responses confirm that "[t]he requirements for a 3000 fruit inspection or for fruit fumigation are *clearly restrictive*."^{3100,3101} In response to Australia's argument that the alternative measure would need to be "significantly" less trade restrictive than Australia's current ALCM measure, New Zealand submits that the alternative measure meets that threshold.³¹⁰²

7.1338 New Zealand argues in particular that it is already required to undertake a 600-fruit sample inspection of export apple fruit in order to comply with other more general quarantine pest requirements in the IRA. Hence, the coverage of ALCM within the same 600-fruit inspection would certainly be a less time-consuming and expensive measure than sampling 3,000 fruit or requiring mandatory treatment of all fruit in addition to a 600 fruit sample.³¹⁰³

7.1339 As regards fumigation, New Zealand points out that both Australia's alternative requirements result in fumigation of virtually all consignments.³¹⁰⁴ Also, New Zealand concedes that at a cocoon infestation level of 4.1 per cent, a 600-unit inspection would detect ALCM cocoons in most lots, which would mean that nearly all lots would be subject to fumigation. But, according to New Zealand, that is irrelevant because the cocoon infestation rate of New Zealand apples is significantly lower than 4.1 per cent and only viable cocoons are a risk factor. On the basis of actual infestation rates of 0.16 per cent, and taking into account that only 60 per cent of cocoons are occupied, only approximately 44 per cent of consignments would be expected to have an occupied ALCM cocoon found by inspecting a 600-unit sample. Assuming that only detection of occupied

³⁰⁹⁶ Australia's IRA, Part B, p. 166, footnote 32 (emphasis added).

³⁰⁹⁷ Australia's IRA, Part B, p. 289 (emphasis added).

³⁰⁹⁸ Australia's IRA, Part B, p. 290.

³⁰⁹⁹ New Zealand's first written submission, para. 4.514. See also New Zealand's second written submission, paras. 2.884 and 2.896.

³¹⁰⁰ (footnote original) Cross RPQ, Q 120, p. 22.

³¹⁰¹ New Zealand's second written submission, para. 2.907 (original emphasis).

³¹⁰² New Zealand's second written submission, para. 2.903.

³¹⁰³ New Zealand's first written submission, para. 4.520. See also New Zealand's second written submission, para. 2.904.

³¹⁰⁴ New Zealand's second written submission, para. 2.905. See also, New Zealand's reply to Panel question 141 after the first substantive meeting, para. 296.

cocoons will lead to fumigation, 56 per cent of consignments would pass without fumigation. This is significantly less trade restrictive than a measure requiring a 600 unit inspection plus mandatory treatment, both in terms of the costs of fumigation and the negative impact of fumigation on the quality, and therefore the competitiveness, of the product.³¹⁰⁵ In fact, not only is fumigation costly, it may have a negative impact on fruit quality. Fumigation can cause a number of fruit disorders, including scalding, internal damage and staining, all of which restrict the marketability and therefore the competitiveness of the product.³¹⁰⁶

7.1340 Regarding Australia's suggestion that the 3,000-unit sample could be minimized through a flexible operationalization of the measure, New Zealand contends that apples exported by New Zealand to Australia would be subject to two inspections: one by MAF in New Zealand prior to export and one by Australian officials in Australia. The Australian requirement of a 3,000-unit inspection relates to the inspection completed by Australian officials in Australia (or in New Zealand, if part of a pre-clearance programme). In practice, prior to issuing a phytosanitary certificate, New Zealand would replicate the inspection requirement carried out on the Australian side, and therefore incur the costs of both the 3,000-unit sample in New Zealand and the sample in Australia. This would be necessary to ensure that lots cleared by MAF are not rejected by Australia. Australia's proposal of combining 600 unit inspections in New Zealand is therefore not appropriate, because it would not match the same confidence/sensitivity level as the 3,000-unit inspection being carried out by Australia.³¹⁰⁷ In fact, a 600-fruit sample would provide 95 per cent confidence that less than 0.5 per cent of the fruit are infested with ALCM. A 3,000-fruit sample, being a significantly larger sample, would provide 95 per cent confidence that less than 0.1 per cent fruit are infested.³¹⁰⁸

7.1341 At a later point in the proceeding, New Zealand argues that Australia misses the point in suggesting the flexible operationalization of the 3,000-unit inspection.³¹⁰⁹ In New Zealand's view, the key problem with Australia's proposal is that it relates not to the inspection completed by Australian officials in Australia but to the inspection completed by New Zealand officials in New Zealand. What Australia is proposing is that, while the Australian inspection would remain a 3,000 sample, New Zealand could combine individual 600-unit inspections in New Zealand towards the 3,000 requirement.³¹¹⁰ New Zealand submits that this measure will affect inspections undertaken by New Zealand officials since these inspections will fail to match the confidence/sensitivity levels applied by Australia.³¹¹¹

7.1342 New Zealand adds that its apple growers would be discouraged from exporting to Australia because of Australia's costly, time-consuming and unnecessary ALCM measure. According to New Zealand, the economic risk factors for New Zealand growers set out with respect to fire blight and European canker also apply in the case of ALCM.³¹¹² In the context its fire blight and European canker arguments under the third condition of the Article 5.6 test, New Zealand contends that compliance with Australia's onerous measures combined with the risk of being excluded from exports as a result of a single fire blight or European canker strike in an orchard creates a significant level of economic risk for New Zealand apple growers. Faced with this risk, New Zealand apple growers would rather refrain from registering their orchards for Australian export in the first place, and would turn to other export markets. Conversely, under the alternative measure of restricting trade to mature,

³¹⁰⁵ New Zealand's reply to Panel question 141 after the first substantive meeting, paras.295-297 See also, New Zealand's second written submission, paras. 2.905-2.906.

³¹⁰⁶ New Zealand's second written submission, para. 2.906.

³¹⁰⁷ New Zealand's reply to Panel question 139 after the first substantive meeting, paras. 291-292.

³¹⁰⁸ New Zealand's second written submission, para. 2.910.

³¹⁰⁹ New Zealand's second written submission, para. 2.908.

³¹¹⁰ New Zealand's second written submission, para. 2.909.

³¹¹¹ New Zealand's second written submission, para. 2.910.

³¹¹² New Zealand's first written submission, para. 4.521.

symptomless apple fruit, an orchard would not be disqualified as a result of the discovery of a single fire blight or European canker strike on a tree. Thus, New Zealand apple growers would avoid risking the loss of their investment.³¹¹³

7.1343 New Zealand confirms Australia's argument that New Zealand apple exports to the United States are already subjected to much higher inspection rates (up to 20,000 apples) than that required by Australia. New Zealand points out that regarding New Zealand apples, US sample sizes vary from 3,000 to 20,000 per consignment, depending on the mode of trade. However, as stated in the third party written submission of the United States, this sampling regime is designed to detect light brown apple moth, not ALCM.³¹¹⁴

7.1344 Australia accepts that New Zealand's alternative measure may be less trade restrictive than Australia's current ALCM measure. Australia contests, however, that the alternative measure would be "significantly" less trade restrictive.³¹¹⁵ According to Australia, it is not sufficient for a complainant to identify an alternative measure that is merely less restrictive to trade than the existing measure. Based on the language of footnote 3 to Article 5.6 of the SPS Agreement, the alternative measure must be "significantly less restrictive to trade" than the existing measure in order to find a violation of Article 5.6. Thus, an alternative measure would need to be less restrictive to trade by a degree which is important, notable or consequential.³¹¹⁶

7.1345 Australia submits that if the infestation rate of New Zealand apples is around 4.1 per cent, the alternative measure would clearly not be significantly less restrictive to trade than Australia's existing measure. The IRA found that at an infestation rate of 4.1 per cent a 600-unit inspection will detect ALCM in practically every lot and therefore practically every lot will be fumigated, which would effectively result in mandatory fumigation. Such a measure would then be hardly less trade-restrictive than Australia's current option of a 600-unit inspection plus mandatory treatment.³¹¹⁷ In response to New Zealand's argument that Australia's selected measures would result in fumigation of virtually every apple, Australia notes that it is entitled to set its own ALOP. Furthermore, the IRA indicates that some New Zealand apples would not be fumigated because a 3000-unit inspection would still allow 0.005 per cent of New Zealand apples to enter Australia with viable ALCM on them.³¹¹⁸

7.1346 In response to New Zealand's argument that a 300-unit inspection would be undertaken by Australian officials in addition to the 300-unit inspection required to be undertaken by New Zealand, Australia submits that it requires only a single 3000-unit inspection per consignment (rather than per orchard) to be conducted under the auspices of New Zealand.³¹¹⁹ Australia adds that it is flexible about how the 3,000-unit inspection measure could be operationalized. New Zealand packing houses typically conduct a 600-unit pest inspection of each grower lot that is received by a packing house. Multiple grower lots may be received in a day or processed in a single packing run, and go on to comprise a single consignment. The 600-unit inspections per grower lot could be aggregated for the single consignment, towards achieving the required 3,000-unit inspection. In effect, this means that in

³¹¹³ New Zealand's first written submission, paras. 4.507-4.508.

³¹¹⁴ New Zealand's reply to Panel question 140 after the first substantive meeting, para. 294.

³¹¹⁵ Australia's first written submission, paras. 1099-1100. See also Australia's reply to Panel question 138 after the first substantive meeting.

³¹¹⁶ Australia's first written submission, para. 1079.

³¹¹⁷ Australia's first written submission, para. 1101. See also, Australia's reply to Panel question 141 after the first substantive meeting.

³¹¹⁸ Australia's comments on New Zealand's reply to Panel questions after the second substantive meeting, para. 202.

³¹¹⁹ Australia's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 106.

many cases there would be no additional requirement to that which New Zealand packing houses already apply, and therefore minimal trade-restrictive effects.³¹²⁰

7.1347 Australia points out that the IRA defines "lot" as "all apple fruit packed for export to Australia each day by a registered packing house." Therefore, a "lot" is not a fixed quantity. Each lot would be inspected on the basis of a 3,000-unit sample selected at random across the whole lot. A unit is one piece of fruit. Where a lot comprises apples from more than one supplying orchard or block, then the inspection sample would be selected proportionally across all orchards/blocks. The 3,000-unit inspection would be undertaken by, or under the auspices of, MAFNZ. The cost implications will depend upon the circumstances of individual packing houses.³¹²¹ In any event, the visual inspection required by Australia for ALCM is not a destructive examination – that is, it does not require cutting or other damage to the fruit. Therefore, any fruit examined would remain available for export.³¹²²

7.1348 Australia points out that the practice of multiple units of inspection is not unusual for trade between Australia and New Zealand. For example, in respect of fresh fruit exports from Australia that pose a risk of providing a vector for fruit fly, New Zealand requires each grower lot in a consignment to be subject to a 600-unit inspection by a delegated inspector, followed by a further 600-unit inspection of the consignment by AQIS, followed by mandatory treatment.

7.1349 According to Australia, under some circumstances New Zealand apple exports to the United States are already subjected to much higher inspection rates (up to 20,000 apples) than that required by Australia.³¹²³ Although the United States' measure is targeted at light brown apple moth, this measure is not indifferent to ALCM. ALCM is an actionable quarantine pest for California, and if any ALCM is discovered during such an inspection, then a notation would have to be made on the phytosanitary certificate to that effect, and it would also have to be marked "not suitable for California". Further, lots inspected and found free of ALCM during USDA pre-clearance inspections may enter all US States including California subject to the ALCM-free status being indicated on the relevant form.³¹²⁴

(ii) *The Panel's analysis*

7.1350 The Panel agrees with Australia that the third condition of the Article 5.6 test requires that the complainant identify an alternative measure that is "*significantly* less restrictive to trade" than the contested measure(s). This is in line with the language of footnote 3 to Article 5.6 of the SPS Agreement³¹²⁵, and it also accords with how previous panels and the Appellate Body identified this third condition.³¹²⁶

7.1351 Previous panels assessed the third condition of the Article 5.6 test by looking at the difference in market access under the measures at issue and the alternative measure(s) identified by the complainant. In particular, previous panels analysed whether, under the alternative measure,

³¹²⁰ Australia's first written submission, para. 1102. See also, Australia's reply to Panel question 139 after the first substantive meeting.

³¹²¹ Australia's reply to Panel question 139 after the first substantive meeting.

³¹²² *Ibid.*

³¹²³ Australia's first written submission, para. 1103.

³¹²⁴ Australia's reply to Panel question 140 after the first substantive meeting.

³¹²⁵ Footnote 3 to Article 5.6 of the SPS Agreement provides that "[f]or the purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is *significantly* less restrictive to trade." (emphasis added).

³¹²⁶ See Appellate Body Report on *Australia – Salmon*, paras. 186 and 194; Panel Report on *Japan – Agricultural Products II*, para. 8.72; and Appellate Body Report on *Japan – Agricultural Products II*, para. 95.

"market access would be obtained significantly more easily than under the current regime"³¹²⁷ and whether "the increased market access that would result under the alternative[] ... would be significant."³¹²⁸ This Panel will assess, in light of the Parties' arguments, whether this is the case in the current dispute.

7.1352 Australia's contested ALCM measure has two alternative requirements. As regards inspection intensity, only the first requirement, the 3,000-unit inspection, would differ from the 600-unit inspection alternative advanced by New Zealand. In fact, the sample size of Australia's first requirement (3,000) is five times the sample size of the alternative advanced by New Zealand (600). Australia's second alternative requirement involves the same 600-fruit sample size as New Zealand's alternative. Importantly, the two requirements under Australia's ALCM measure are alternatives.³¹²⁹ According to the IRA, "New Zealand could choose either [of the two alternative requirements]."³¹³⁰ Accordingly, in the context of inspection, the alternative measure advanced by New Zealand might be less – let alone significantly less – trade restrictive only in comparison with Australia's first alternative requirement and not the second.

7.1353 In principle, a more intensive inspection is certainly more costly and time-consuming than an alternative inspection with a five times smaller sample size. These cost and time burdens would arise on the New Zealand side, since under the IRA, MAFNZ or its accredited agency would be involved in the 3,000-unit inspection requirement.³¹³¹ Although New Zealand does not explain exactly how much more costly or time-consuming a 3,000-unit inspection might be than a 600-unit inspection, the Panel notes that New Zealand is advancing an alternative measure with a five times smaller sample size, which has been found to meet Australia's ALOP. The Panel also recalls Dr Cross's statement that "[t]o inspect 3,000 fruits is a big requirement and would be, I think, quite a restriction on the possible trade. It would be very difficult to do, in my view – expensive to do, if it was done for every orchard."³¹³²

7.1354 Likewise, in response to the Panel Dr Cross explains that "[t]he requirements for a 3000 fruit inspection or for fruit fumigation are clearly restrictive and alternative measures coupled with a 600 fruit inspection would be preferable provided they met Australia's ALOP."³¹³³

7.1355 The Panel considers that the higher costs of Australia's 3,000-unit inspection requirement are somewhat mitigated since, as Australia points out, visible inspection for ALCM is not invasive. Inspected apples would not be physically destroyed and could still be used for export. This would reduce but not eliminate the difference in trade-restrictiveness between a 600-unit and a 3,000-unit inspection.

7.1356 Ultimately, any differences between the trade restrictiveness of a 600-unit and a 3,000-unit inspection would only partly answer the question whether the alternative measure advanced by New Zealand would be significantly less trade restrictive overall than the ALCM measure imposed by Australia. As noted above, this latter has two alternative requirements, and the first of these requirements differs from the alternative measure advanced by New Zealand only in terms of inspection sample rate.

³¹²⁷ Panel Report on *Japan – Agricultural Products II*, para. 8.96.

³¹²⁸ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.151.

³¹²⁹ Australia's IRA, Part B, p. 192. See also, Australia's IRA, Part B, pp. 319-322.

³¹³⁰ Australia's IRA, Part B, p. 319.

³¹³¹ *Ibid.*

³¹³² Dr Cross's reply in Transcript of the Panel's meeting with experts, para. 662.

³¹³³ Dr Cross's reply to Panel question 120, in List of Replies from the scientific experts to questions posed by the Panel, para. 683.

7.1357 The Panel therefore turns to assessing whether in terms of fumigation the alternative measure advanced by New Zealand would be significantly less trade restrictive than Australia's ALCM measure.

7.1358 In light of the information submitted by the Parties, the Panel has reasons to believe that the first alternative requirement under Australia's ALCM measure, a 3,000-unit inspection, would effectively result in a fumigation of all lots. In turn, the second alternative requirement under Australia's ALCM measure explicitly prescribes the fumigation of all lots.

7.1359 Whether the alternative measure advanced by New Zealand would result in a lower fumigation rate of New Zealand apples depends on the ALCM infestation rate of New Zealand apples. The Parties agree that at an infestation rate of 4.1 per cent, there would not be a significant difference in fumigation rates since at that infestation rate the 600-unit inspection would find ALCM and result in fumigation for almost every lot. At the same time, at an infestation rate of 0.16 per cent and taking into account that only 60 per cent of cocoons are occupied, according to New Zealand, only approximately 44 per cent of consignments would be expected to have an occupied ALCM cocoon found during a 600-unit sample. Thus, assuming that only detection of occupied cocoons will lead to fumigation, 56 per cent of consignments would pass without fumigation at an ALCM infestation rate of 0.16 per cent.

7.1360 The Panel notes that it has already found that the IRA's conclusion that New Zealand apples have a 4.1 per cent infestation rate does not result from a coherent and objective risk assessment. As noted above, New Zealand has made a prima facie case that an infestation rate more in the range found in the August 2005 data would be more realistic in light of the various factors that the IRA did not properly take into account.

7.1361 If only around 44 per cent of lots would be expected to have an occupied cocoon and would need to be fumigated, the costs of fumigation under the alternative measure advanced by New Zealand would be around half of the costs of mandatory or *de facto* fumigation of all lots under Australia's ALCM measure. Australia does not contest New Zealand's argument that fumigation is costly. Thus, at an infestation rate of around 0.16 per cent, the fumigation costs of the alternative measure would be significantly lower than the fumigation costs under either of the alternative requirements of Australia's ALCM measure.

7.1362 This significant difference in fumigation costs would also result in a significant difference in trade restrictiveness. An SPS measure that is significantly more costly for the complainant than an alternative measure, would certainly reduce market access or make it more difficult.

7.1363 The Panel also notes that Australia does not contest New Zealand's argument that, unlike inspection, fumigation has an impact on the quality and marketability of apples. In other words, fumigation directly affects the market access of New Zealand apples to Australia. Hence, a measure involving half the fumigation rate of another measure would be significantly less trade restrictive than that other measure.

7.1364 In the light of the above, the Panel concludes that New Zealand has demonstrated that the alternative measure of a 600-unit inspection of each import lot would be significantly less trade restrictive than Australia's current ALCM measure.

(d) Conclusion on New Zealand's Article 5.6 claim in regard to ALCM

7.1365 New Zealand has demonstrated that the alternative for the ALCM measure (Measure 14) fulfils all three cumulative conditions of the Article 5.6 test. Accordingly, the Panel finds that Measure 14 is inconsistent with Article 5.6 of the SPS Agreement.

4. General measures

(a) Alternative measure identified by New Zealand for the general measures

7.1366 In the context of Article 5.6 of the SPS Agreement, in its first written submission New Zealand references "auditing by AQIS officers of New Zealand systems applicable to the import of apples to Australia from New Zealand"³¹³⁴ as an alternative to the "[g]eneral" measures (Measures 15-17) identified in its panel request as follows:

"[15] The requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment.

[16] The requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices.

[17] The requirement that packing houses provide details of the layout of premises."³¹³⁵

7.1367 In response, Australia argues that New Zealand failed to identify any real alternative for either of these three general measures.³¹³⁶ First, Australia contends, New Zealand's alleged alternative is identical to Australia's existing requirement under Measure 15:

"Australia's requirement in respect of AQIS officers is that they will conduct systems audits only. New Zealand's description of potential AQIS systems audits accords with Australia's view of its requirement. Therefore, New Zealand has not identified an 'alternative' measure because it is in fact the same requirement as that which Australia imposes."³¹³⁷

7.1368 Second, according to Australia, the alternative measure proposed by New Zealand cannot be an alternative for Measures 16 and 17. Although New Zealand argues that Australia has not explained the basis for imposing these two measures, New Zealand has not identified any alternative measure for these measures. Therefore, New Zealand has failed to support its claim under Article 5.6³¹³⁸:

"[New Zealand] has failed to demonstrate how any 'alternative' measure could replace the other two general requirements. In particular, Australia's requirement that 'MAFNZ will ensure that all orchards registered for export to Australia are operating under standard commercial practices', is not related to New Zealand's concern with 'AQIS involvement' in inspections, etc. The measure as challenged by New Zealand [as Measure 16] is:

The requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices.

³¹³⁴ New Zealand's first written submission, para. 4.525.

³¹³⁵ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, p. 3.

³¹³⁶ Australia's first written submission, paras. 1106-1112. See also Australia's second written submission, para. 737.

³¹³⁷ Australia's first written submission, para. 1107. See also Australia's second written submission, para. 737.

³¹³⁸ Australia's first written submission, para. 1112.

Thus, the measure at issue is not any AQIS verification of this requirement – rather, the challenge is against the substantive requirement that orchards must operate under standard commercial practices. Thus, an 'alternative' to the 'AQIS involvement' requirement is not an alternative to the standard commercial practice requirement.³¹³⁹

7.1369 Australia adds that New Zealand is wrong in arguing that there is no justification in the IRA for Measures 16 and 17:

"New Zealand has alleged that 'Australia does not provide any justification' for its requirement in respect of standard commercial practice. This is clearly incorrect, as the Final IRA Report makes it clear that the IRA Team assumed that New Zealand exporters would operate under standard commercial practice throughout its assessment of the unrestricted risk associated with importing New Zealand apples, and therefore assurance was required that all orchards registered for export to Australia would be operating under standard commercial practices.

New Zealand also challenges the justification for the requirement that packing houses provide details of the layout of premises. As explained above, a basic map of packing houses is sought in order that AQIS officers can identify areas of potential risk in the packing houses in preparation for the required packing house audits.³¹⁴⁰

7.1370 In response, New Zealand explains that it sees important differences between Measure 15 and the alternative measure, which it identified in its first written submission as "auditing by AQIS officers of New Zealand systems applicable to the import of apples to Australia from New Zealand".³¹⁴¹ "New Zealand's characterisation of an AQIS audit is very different from Australia's. While, as explained above, Australia has characterised the IRA's measure requiring 'AQIS involvement' as '100% audit of survey teams and packing houses', New Zealand's proposed alternative would involve the audit of only a sample of the relevant New Zealand systems. These are two very different things."³¹⁴²

7.1371 In its second written submission New Zealand slightly rephrases the suggested alternative measure as "an audit by AQIS officials of a sample of the New Zealand systems that implement the relevant requirements"³¹⁴³, and confirms that it proposes this alternative instead of "all three general measures."³¹⁴⁴ According to New Zealand:

"In terms of the relevant New Zealand systems that would be audited, in accordance with the findings of the panel in *Japan – Apples*, any AQIS involvement should relate only to those requirements imposed by Australia that are scientifically justified in accordance with Article 2.2. Since none of the Australian measures at issue are scientifically justified, AQIS involvement should extend only to the two less trade restrictive alternatives available for fire blight, European canker and ALCM (the requirements that apples be mature and symptomless and be subject to a 600 unit sample inspection)."³¹⁴⁵

7.1372 New Zealand adds that "[c]onsequently, the less trade restrictive alternative for the three general measures would be an audit by AQIS of a sample of: (i) the relevant New Zealand systems

³¹³⁹ Australia's first written submission, paras. 1108-1109 (footnotes omitted).

³¹⁴⁰ Australia's first written submission, paras. 1110-1111 (footnotes omitted).

³¹⁴¹ New Zealand's first written submission, para. 4.525.

³¹⁴² New Zealand's second written submission, para. 2.914 (footnote omitted).

³¹⁴³ New Zealand's second written submission, para. 2.916.

³¹⁴⁴ *Ibid.*

³¹⁴⁵ New Zealand's second written submission, para. 2.915 (footnote omitted).

designed to ensure that apples are mature and symptomless, and (ii) the procedures for inspection of a 600-unit sample."³¹⁴⁶

7.1373 In the light of New Zealand's response to Australia's arguments, the Panel considers that New Zealand suggests the following alternative measure for all three general measures (Measures 15-17) in the context of its Article 5.6 claim: "an audit by AQIS of a sample of: (i) the relevant New Zealand systems designed to ensure that apples are mature and symptomless, and (ii) the procedures for inspection of a 600-unit sample."³¹⁴⁷

7.1374 As New Zealand explains, it suggests this alternative not only for Measure 15 but also for Measures 16 and 17. Accordingly, the Panel turns to assessing whether this alternative satisfies the three cumulative conditions of the Article 5.6 test in regard to Measures 15-17.

(b) Whether an audit by AQIS of a sample of: (i) the relevant systems designed to ensure that apples are mature and symptomless, and (ii) the procedures for inspection of a 600-unit sample satisfies the three-pronged Article 5.6 test

7.1375 As the Appellate Body explained, to pass this three-pronged test of Article 5.6, the complainant needs to demonstrate that another, alternative measure:

"(1) is reasonably available taking into account technical and economic feasibility;

(2) achieves the Member's appropriate level of sanitary or phytosanitary protection; and

(3) is significantly less restrictive to trade than the SPS measure contested."³¹⁴⁸

7.1376 As mentioned above, the Panel starts its analysis of the general measures with the third condition of the Article 5.6 test.³¹⁴⁹ This condition entails whether the alternative measure identified by the complainant is significantly less trade restrictive than the respondent's contested measure(s). Unlike the first two conditions of the Article 5.6 test, the third condition requires a direct comparison between the contested and the alternative measure(s).

7.1377 The Parties dispute whether such a comparison is possible, at least in regard to Measure 15. The possibility of such a comparison is thus an important threshold issue for the Panel's analysis of the third condition of the Article 5.6 test. Since the three conditions of this test are cumulative, this is also a threshold issue for the Panel's analysis of the three-pronged Article 5.6 test as such.

(i) *Summary of the Parties' arguments*

7.1378 New Zealand argues that its alternative is less trade restrictive than Australia's general measures (Measures 15-17). New Zealand notes that Australia's current measures would be time-consuming, labour-intensive and costly. Also, they are unprecedented and not required in respect of any other exports from New Zealand to Australia.³¹⁵⁰

³¹⁴⁶ New Zealand's second written submission, para. 2.915.

³¹⁴⁷ *Ibid.*

³¹⁴⁸ Appellate Body Report on *Australia – Salmon*, para. 194; and Appellate Body Report on *Japan – Agricultural Products II*, para. 95.

³¹⁴⁹ See para. 7.1108 above.

³¹⁵⁰ New Zealand's first written submission, para. 4.534. See also, New Zealand's second written submission, para. 2.920.

7.1379 New Zealand does not agree with Australia's characterization of Measure 15 as a systems audit.³¹⁵¹ An AQIS audit of New Zealand's systems would involve only a sample of all necessary aspects of the export programme. ISPM No. 20 also requires "some sort of sampling process" of the relevant systems.³¹⁵² Conversely, Measure 15 requires AQIS to conduct an audit of all survey teams and all packing houses³¹⁵³, and none of Australia's explanations suggest less than 100 per cent inspection intensity. In fact, Australia confirmed that it would be necessary to audit each survey team at least in the first year of trade.³¹⁵⁴ New Zealand adds that 100 per cent AQIS involvement for New Zealand apples is unprecedented. Under Australia's regime applicable for stone fruit, AQIS will audit a sample of the systems being implemented by each of the sample operators.³¹⁵⁵

7.1380 New Zealand argues that its alternative would involve the audit of New Zealand relevant systems implementing scientifically justified requirements³¹⁵⁶, which is significantly less trade restrictive than a measure requiring an audit of all survey teams and all packing houses.³¹⁵⁷ These systems audits would be less frequent and less intrusive since they would review and assess New Zealand phytosanitary practices only from time to time. According to New Zealand, this would validate existing procedures which Australia has never suggested would be inadequate. The alternative would involve minimal additional costs and would not require the creation of new, expensive and unnecessary systems.³¹⁵⁸

7.1381 New Zealand claims that Measure 15 would double the number of inspectors and it would more than double the cost of orchard and packing house inspections. New Zealand would be responsible for the time costs of the AQIS inspectors involved, as well as for their travel and accommodation expenses. For instance, the orchard inspections under Measure 15 involve an intensive and time-consuming requirement to use ladders to inspect the tops of trees for European canker. New Zealand growers and exporters would incur these heavy and unjustifiable costs, which would be significantly trade restrictive.³¹⁵⁹

7.1382 New Zealand points out that Measure 16 would require NZMAF to verify through a costly compliance program that the apple industry is operating in accordance with standard commercial practices. Australia does not provide any justification for Measure 16, neither for Measure 17. These two measures have the effect of placing a trade restriction behind the border and are unwarranted.³¹⁶⁰ In addition, New Zealand relies on the experts' responses to support its view that Australia does not provide any scientific basis for Measure 17.³¹⁶¹

7.1383 New Zealand argues that even if the details of Measure 16, which requires compliance with standard commercial practices, have not yet been developed, it would require MAFNZ to audit a

³¹⁵¹ New Zealand's reply to Panel question 46 after the first substantive meeting, para. 71. See also, New Zealand's comments on Australia's reply to Panel questions 105-106 after the second substantive meeting, para. 250.

³¹⁵² New Zealand's comments on Australia's reply to Panel questions 105-106 after the second substantive meeting, para. 252.

³¹⁵³ New Zealand's second written submission, para. 2.921.

³¹⁵⁴ New Zealand's comments on Australia's reply to Panel questions 105-106 after the second substantive meeting, para. 253.

³¹⁵⁵ New Zealand's reply to Panel question 109 after the second substantive meeting, para. 164. New Zealand's comments on Australia's reply to Panel question 107 after the second substantive meeting, para. 255.

³¹⁵⁶ New Zealand's second written submission, para. 2.915.

³¹⁵⁷ New Zealand's second written submission, para. 2.921.

³¹⁵⁸ New Zealand's first written submission, para. 4.536.

³¹⁵⁹ New Zealand's first written submission, para. 4.535.

³¹⁶⁰ New Zealand's first written submission, para. 4.537.

³¹⁶¹ New Zealand's second written submission, para. 2.279.

sample of growers in order to verify that the growers had followed the recommendations of the Industry Integrated Fruit Production Manual. According to New Zealand, this verification component makes the process trade restrictive. It is scientifically unjustified, it would be costly and time-consuming, and it would have flow-on effects concerning maintenance of auditable records of growers' monitoring and pest control activities.³¹⁶² In addition, Australia does not require the same verification under any other import risk analysis, for any other fruit exported to Australia, including stone fruit, kiwi or avocados.³¹⁶³

7.1384 New Zealand disagrees with Australia's argument that the standard commercial practice requirement is also included in other Australian import risk analyses. The examples cited by Australia do not contain a requirement for the NPPO in the exporting country to verify that fruit has been produced in accordance with standard commercial practice. For instance, Australia's risk analysis for longan and lychee fruit from China and Thailand states that all export orchards are expected to produce commercial longan and lychee under standard cultivation, harvesting and packing activities, and Australia's import risk analysis for Indian mango provides that the existing commercial practice of a post-harvest fungicidal dip is an underlying requirement for export to Australia. By contrast, the IRA for New Zealand apples requires that MAFNZ ensure that all orchards registered for export operate under standard commercial practice.³¹⁶⁴

7.1385 New Zealand also contests Australia's reliance on the assumption that all New Zealand exporting orchards would operate under standard commercial practices.³¹⁶⁵ The IRA provides no explanation how standard commercial practices would mitigate against assessed risk.³¹⁶⁶ A risk assessment should not be allowed to build on unjustified assumptions that only serve to impose obligations on exporting countries.³¹⁶⁷

7.1386 Australia argues that New Zealand has accepted that all of Australia's measures are based on the IRA, i.e. that there is a rational relationship between the risk assessment and the measures recommended by the IRA. Accordingly, the Panel needs to determine only whether Australia's risk assessments for the three pests at issue are objectively justifiable and whether the measures are more trade restrictive than required within the meaning of Article 5.6. Australia advances that the justification of the general measures flows from the technical justification of the pest-specific measures.³¹⁶⁸

7.1387 Australia contends that in the context of the third prong of the Article 5.6 test, it is not enough for the complainant to demonstrate that the alternative is merely less trade restrictive. The alternative must be significantly less trade restrictive; "significant" meaning "important, notable, consequential".³¹⁶⁹ Australia's understanding of the panel report in *EC – Approval and Marketing of Biotech Products* is that a given risk assessment may be supported by a range of possible measures, and it is within the Member's discretion to choose a measure providing the best protection taking into

³¹⁶² New Zealand's second written submission, para. 2.922.

³¹⁶³ New Zealand's second written submission, para. 2.923. See also, New Zealand's reply to Panel question 53 after the first substantive meeting, para. 80.

³¹⁶⁴ New Zealand's second written submission, para. 2.924.

³¹⁶⁵ New Zealand's comments on Australia's reply to Panel question 113 after the second substantive meeting, para. 266.

³¹⁶⁶ New Zealand's second written submission, para. 2.289.

³¹⁶⁷ New Zealand's comments on Australia's reply to Panel question 113 after the second substantive meeting, para. 266.

³¹⁶⁸ Australia's reply to Panel question 113 after the second substantive meeting, para. 493.

³¹⁶⁹ Australia's first written submission, para. 1079.

account its ALOP. Accordingly, the Panel must respect "a Member's right to choose its preferred measure, unless there is another measure that is significantly less restrictive to trade".³¹⁷⁰

7.1388 Australia argues that the IRA does not define the level of AQIS involvement required by Measure 15. The requirement does not demand the involvement of Australia's authorities in all orchard inspections and packing houses operations. For orchards inspections, the audit would include 100% of survey teams in the field and the intensity of the audits would be adjusted over time depending on performance. In the first year of trade, all relevant packing houses would be audited.³¹⁷¹ Australia contends that these audits will be facilitated by Measure 17.³¹⁷² The latter requires packing houses to provide a basic map of the layout of their premises, so that AQIS officers can identify areas of potential risk in preparation for the required packing house audits.³¹⁷³ Australia explains that AQIS clarified these requirements on a number of occasions during bilateral discussions on the standard operating procedure in 2007 and early 2008.³¹⁷⁴ The extent of AQIS involvement in fruit inspections will be determined when New Zealand completes the required standard operating procedure and work plan to operationalize the requirements of the Final IRA Report. At that point and based on New Zealand's intentions, there may be a number of options to minimize costs and avoid duplication, as demonstrated by Australia's experience in joint inspections with the United States' authorities.³¹⁷⁵ Based upon information provided by New Zealand during a meeting with Australian officials, Australia offered that AQIS would conduct system audits and verifications in the first year of trade.³¹⁷⁶

7.1389 With regard to Measure 16, Australia argues that the data provided by New Zealand during the IRA process was based on, or derived from, orchards and packing houses that follow standard commercial practices such as the Integrated Fruit Production (IFP) manual. According to Australia, New Zealand did not provide any data relating to orchards or packing houses that do not follow the IFP manual. Based on its meetings with New Zealand officials and the New Zealand submissions, Australia asserts that New Zealand's access request concentrated on apples processed under standard commercial practices. Therefore the IRA did not assess the risk associated with other types of production, and the measures required by the IRA only apply to apples produced under standard commercial practices.³¹⁷⁷ Australia adds that it does require operation under standard commercial practices in the context of table grapes from Chile, longans and lychees from China and Thailand and for mangoes from India.³¹⁷⁸

(ii) *The Panel's analysis*

7.1390 The Panel first addresses the threshold issue whether the alternative advanced by New Zealand can be usefully compared with the general measures, or at least Measure 15, for the purposes of the third condition of the Article 5.6 test.

7.1391 In its earlier analysis of the Parties' disagreements concerning Measure 15, the Panel has noted how, despite its efforts and questions, it never received a clear explanation of these procedures and how they would function, and particularly of the frequency of AQIS involvement.³¹⁷⁹ The Panel has also been unable to establish whether Measure 15 relates solely to the part of the IRA entitled

³¹⁷⁰ Australia's first written submission, paras. 1080-1081.

³¹⁷¹ Australia's first written submission, para. 151.

³¹⁷² Australia's first written submission, para. 152.

³¹⁷³ Australia's first written submission, para. 153.

³¹⁷⁴ Australia's first written submission, para. 154.

³¹⁷⁵ Australia's reply to Panel question 102 after the second substantive meeting, para. 458.

³¹⁷⁶ Australia's reply to Panel question 105 after the second substantive meeting, para. 471.

³¹⁷⁷ Australia's reply to Panel question 113 after the second substantive meeting, para. 491.

³¹⁷⁸ Australia's first written submission, para. 968.

³¹⁷⁹ See para. 2.231 above.

"Requirement for pre-clearance" or whether it is also addressed in the subsequent part of the IRA, entitled "Audit".³¹⁸⁰ The Panel could not establish either whether Measure 15 involves "systems audits" as that term is understood by the Parties; the Panel merely noted that this issue is more directly related to New Zealand's claim under Article 5.6 of the SPS Agreement.³¹⁸¹

7.1392 Further, the Panel has found that these uncertainties with regard to the IRA in the context of Measure 15 are underscored by the IRA's requirement that the details of pre-clearance be addressed by the Parties in the standard operating manual and work plan, which have not yet been adopted.³¹⁸²

7.1393 While the Panel understands that New Zealand may not be responsible for the uncertainty regarding the scope of Measure 15, the burden still falls on New Zealand as the complainant to make a prima facie case regarding these requirements. In the light of the above uncertainties in the IRA regarding Measure 15 and in the absence of the standard operating manual and work plan, the Panel cannot usefully compare Measure 15 with New Zealand's alternative. In particular, the Panel cannot assess whether New Zealand's alternative measure is less trade restrictive than Measure 15, let alone whether it is significantly less trade restrictive.

7.1394 The Panel will continue its analysis of the third prong of the Article 5.6 test by looking at Measures 16 and 17. The Panel will assess whether New Zealand's alternative measure is significantly less trade restrictive than these two measures.

7.1395 The Panel agrees with Australia that the third condition of the Article 5.6 test requires that the complainant identify an alternative measure that is "*significantly* less restrictive to trade" than the contested measure. This is in line with the language of footnote 3 to Article 5.6 of the SPS Agreement³¹⁸³, and it also follows how previous panels and the Appellate Body have identified this third condition.³¹⁸⁴

7.1396 Previous panels analysed the third condition of the Article 5.6 test by looking at the difference in market access under the measures at issue and the alternative measure identified by the complainant. In particular, previous panels analysed whether, under the alternative measure, "market access would be obtained significantly more easily than under the current regime"³¹⁸⁵ and whether "the increased market access that would result under the alternative[] ... would be significant."³¹⁸⁶

7.1397 In regard to Measure 16, New Zealand contests the IRA's assumption that all New Zealand growers interested in exporting to Australia would operate under standard commercial practices. However, New Zealand does not explain what proportion of New Zealand growers would need to adapt to standard commercial practices, or what would be the costs of such adaptation. In fact, the element of Measure 16 that New Zealand contests most vigorously is not growers' compliance with standard commercial practices, but the verification by MAFNZ of such compliance. New Zealand argues that it is this verification component that makes Measure 16 trade restrictive because it is scientifically unjustified, it would be costly and time-consuming, and it would have flow-on effects

³¹⁸⁰ See para. 2.215 above.

³¹⁸¹ See para. 2.231 above.

³¹⁸² See para. 2.225 above.

³¹⁸³ Footnote 3 to Article 5.6 of the SPS Agreement provides that "[f]or the purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is *significantly* less restrictive to trade." (emphasis added).

³¹⁸⁴ See Appellate Body Report on *Australia – Salmon*, paras. 186 and 194; Panel Report on *Japan – Agricultural Products II*, para. 8.72; and Appellate Body Report on *Japan – Agricultural Products II*, para. 95.

³¹⁸⁵ Panel Report on *Japan – Agricultural Products II*, para. 8.96.

³¹⁸⁶ Panel Report on *Australia – Salmon (Article 21.5 – Canada)*, para. 7.151.

concerning maintenance of auditable records of growers' monitoring and pest control activities. New Zealand adds that Australia does not require the same verification under any other import risk analysis, for any other fruit exported to Australia, including stone fruit, kiwi or avocados.

7.1398 The Panel can accept only part of these arguments as relevant for New Zealand's claim that the third prong of the Article 5.6 test is fulfilled in the context of Measure 16. Indeed, whether Measure 16 is scientifically justified is distinct from its alleged trade restrictiveness. The scientific justification of an SPS measure is not a matter of Article 5.6 but Articles 5.1 and 5.2 and 2.2 of the SPS Agreement. The Panel has already addressed this matter for Measure 16 in the context New Zealand's claim under the latter three provisions of the SPS Agreement. Likewise, whether other IRAs have similar verification requirements says little about Measure 16's alleged trade restrictiveness, and is a matter for Article 2.3, not Article 5.6 of the SPS Agreement.

7.1399 New Zealand argues that verification of growers' compliance with standard commercial practices would be costly and time-consuming, and it would have flow-on effects concerning maintenance of auditable records of growers' monitoring and pest control activities. The Panel does not necessarily contest this. Nonetheless, the Panel considers that New Zealand should have advanced more arguments and evidence to demonstrate that its alternative is less – let alone significantly less – trade restrictive than Measure 16. In particular, New Zealand should have explained and demonstrated how, by being less costly and time-consuming, its alternative measure would involve significantly increased market access for New Zealand apples to Australia than Measure 16. By merely referencing flow-on effects, and asserting that Measure 16 is costly and time-consuming, New Zealand has not demonstrated that its alternative measure would involve significantly increased market access for New Zealand apples to Australia.

7.1400 Moving on to Measure 17, the Panel notes that New Zealand argues only that this measure is unwarranted and scientifically unjustified. Again, the Panel cannot consider these arguments as sufficient to demonstrate that New Zealand's alternative measure would be significantly less trade restrictive than Measure 17.

7.1401 In the light of the above, the Panel concludes that New Zealand has not demonstrated that its alternative for the three general measure is significantly less trade restrictively than the three general measures (Measures 15-17) either individually or taken as a whole. Accordingly, New Zealand has not made a prima facie case that the alternative for the three general measures fulfils the third condition of the Article 5.6 test.

(c) Conclusion on New Zealand's Article 5.6 claim in regard to the general measures

7.1402 New Zealand has not made a prima facie case that the third condition of the Article 5.6 test is fulfilled in the context of the general measures. Since the three conditions of this test are cumulative, the Panel finds that New Zealand has not demonstrated that Measures 15, 16 and 17 are inconsistent with Article 5.6 of the SPS Agreement.

5. The Panel's conclusions on New Zealand's Article 5.6 Claim

(a) The Panel's conclusions under Article 5.6

7.1403 In the light of the above analysis, the Panel concludes that New Zealand has demonstrated that the contested pest-specific measures (Measures 1-11 and 13-14) are inconsistent with Article 5.6 of the SPS Agreement, while New Zealand has failed to demonstrate the same for the three general measures (Measures 15-17).

(b) New Zealand's arguments linking its Article 5.6 claim to Article 2.2 of the SPS Agreement

7.1404 In its first submission, New Zealand states at the end of its arguments under Article 5.6 that:

"In addition, because they are more trade restrictive than required, the measures also breach the requirement in Article 2.2 that measures be 'applied only to the extent necessary to protect human, animal or plant life or health.' Australia has also, therefore, again, acted inconsistently with Article 2.2."³¹⁸⁷

7.1405 Article 2.2 provides that:

"Members shall ensure that any sanitary or phytosanitary measure is applied *only to the extent necessary to protect human, animal or plant life or health*, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5." (emphasis added)

7.1406 In response to New Zealand, Australia argues, that in the absence of any substantive argument, it appears that New Zealand has effectively abandoned any claim under the first requirement of Article 2.2, and the Panel should refrain from considering the matter further.³¹⁸⁸ Australia points out that New Zealand has devoted only a single paragraph in its first written submission in support of any claim that Australia's measures are inconsistent with the first requirement of Article 2.2. New Zealand's argument is a postscript to its arguments in relation to Article 5.6, in particular the third condition of the Article 5.6 test.³¹⁸⁹

7.1407 Australia submits that New Zealand has failed to provide any explanation or argument as to why any finding under Article 5.6 of the SPS Agreement that measures are "more trade restrictive than required" should automatically lead to a certain finding under Article 2.2. Australia points out that the respective texts of Article 2.2 and Article 5.6 make no mention of the other provision. Previous panels or the Appellate Body have provided no guidance on this question. They have opined merely that the first element of Article 2.2 is relevant context for interpreting the obligation in Article 5.6.³¹⁹⁰

7.1408 In any event, Australia adds, any outstanding claim by New Zealand in respect of the first requirement of Article 2.2 is clearly dependent on the outcome of its claims in respect of Article 5.6. Since New Zealand has failed to discharge its burden of proof in respect of Article 5.6, it has also failed to make such a case in respect of the first requirement of Article 2.2.³¹⁹¹

7.1409 The Panel has already found that the measures at issue in this dispute are inconsistent with the clause of Article 2.2 requiring that Members' SPS measures be "based on scientific principles and is not maintained without sufficient scientific evidence."³¹⁹² Accordingly, a positive settlement of the dispute does not require the Panel to assess whether the same measures also violate the first requirement of Article 2.2.

7.1410 The Panel therefore does not consider it necessary to analyse this Article-5.6-related Article 2.2 claim by New Zealand, nor whether New Zealand has properly articulated arguments for this claim. Consequently, the Panel does not need to engage in a detailed analysis of the relationship

³¹⁸⁷ New Zealand's first written submission, para. 4.528.

³¹⁸⁸ Australia's first written submission, para. 1115. See also, Australia's second written submission, para. 160.

³¹⁸⁹ Australia's first written submission, para. 1114.

³¹⁹⁰ Australia's first written submission, para. 1115.

³¹⁹¹ Australia's first written submission, para. 1116.

³¹⁹² See paras. 7.510, 7.779, 7.887 and 7.905 above.

between the third condition of the Article 5.6 test and the first requirement of Article 2.2 of the SPS Agreement.

G. NEW ZEALAND'S CLAIMS UNDER ARTICLE 8 AND ANNEX C(1)(A) OF THE SPS AGREEMENT

1. Summary of the Parties' arguments

7.1411 New Zealand makes claims under Annex C(1)(a) and Article 8 of the SPS Agreement.³¹⁹³ according to New Zealand, Australia's violation of Annex C(1)(a) necessarily results in a violation of Article 8, which requires compliance with the provisions of Annex C.³¹⁹⁴ Australia disagrees, primarily by calling into question whether these claims, in particular the measures to which they relate, are within the Panel's terms of reference.³¹⁹⁵

(a) Parties' arguments on the substance of Annex C(1)(a)

7.1412 In regard to Annex C(1)(a), New Zealand provides a chronology of the issues regarding the access of its apples to Australia's market since 1919.³¹⁹⁶ New Zealand points out that in January 1999 it lodged its fourth request that Australia allow the importation of New Zealand apples.³¹⁹⁷ New Zealand "makes no complaint about the commencement of the approval process."³¹⁹⁸ New Zealand contests the fact that "the approval procedures were not completed until November 2006 and the measures formally endorsed in March 2007, more than eight years after the filing of the request."³¹⁹⁹

7.1413 New Zealand argues that, in the light of the panel report in *EC – Approval and Marketing of Biotech Products*, the duration of the approval process leading to the IRA constitutes undue delay within the meaning of Annex C(1)(a) of the SPS Agreement. The delay was not due to science-related factors.³²⁰⁰ Australia had already reviewed the relevant science in the context of New Zealand's three earlier apple entry requests.³²⁰¹ Moreover, the *Japan – Apples* dispute had dealt with phytosanitary measures for fire blight. Rather, the delay was due to repeated changes to the risk assessment process and a parallel and interlinked, highly charged political process.³²⁰²

7.1414 New Zealand adds that in April 1999 Australia informed stakeholders, including New Zealand, that due to the review of New Zealand's three previous entry requests, the risk analysis should not be technically complex and it "[would] take approximately twelve months to complete". Accordingly, New Zealand hoped that the *draft* IRA would be released in November 1999. That ended up not being the case, and eventually the *final* IRA was issued after 94 months.³²⁰³

³¹⁹³ New Zealand's communication to the Panel, 7 April 2008, submission regarding Australia's request for a preliminary ruling, para. 2.43.

³¹⁹⁴ New Zealand's first written submission, para. 4.563.

³¹⁹⁵ Australia's second written submission, para. 218.

³¹⁹⁶ New Zealand's first written submission, Annex 1.

³¹⁹⁷ New Zealand's first written submission, para. 4.551.

³¹⁹⁸ New Zealand's first written submission, para. 4.553.

³¹⁹⁹ New Zealand's first written submission, para. 4.551.

³²⁰⁰ New Zealand's first written submission, para. 4.559.

³²⁰¹ New Zealand's first written submission, para. 4.561.

³²⁰² New Zealand's first written submission, paras. 4.554-4.559. See also New Zealand's closing oral statement at the first substantive meeting of the Panel with the Parties, para. 11; New Zealand's reply to Panel question 146 after the first substantive meeting, paras. 299-306; and New Zealand's closing oral statement at the second substantive meeting of the Panel with the Parties, para. 12.

³²⁰³ New Zealand's second written submission, para. 2.934.

7.1415 New Zealand references a recent independent review of Australian quarantine and biosecurity arrangements initiated by the Australian Government.³²⁰⁴ New Zealand argues that, in principle, the Australian Government agrees with the outcome of this review.³²⁰⁵ This review identifies the IRA for New Zealand apples as one of the IRAs that have "done much to generate international perceptions [concerning] trade-restrictiveness, unreasonable delays and questionable science."³²⁰⁶ The report concludes that "these [IRAs] may have involved complex scientific assessments ... [but] the time taken [for completing these IRAs] is difficult to justify."³²⁰⁷ The report notes that the 2007 changes to the regulations governing IRAs prescribe much tighter timelines: 30 months for an expanded IRA, and 24 months for a standard one.³²⁰⁸ New Zealand points out that the IRA for New Zealand apples has exceeded these maximum timelines more than threefold.³²⁰⁹

7.1416 In response, Australia rejects New Zealand's substantive arguments under Annex C(1)(a) and Article 8 of the SPS Agreement. Australia submits that New Zealand's arguments that the IRA is tainted by an intertwined political process are spurious and unsupported by evidence.³²¹⁰ Intense political and public debate, parliamentary enquiries and domestic court proceedings "are not evidence of 'politicisation', but rather the normal functioning of a healthy democracy."³²¹¹ The SPS Agreement recognizes WTO Members' right to base their SPS measures on scientific evidence, and this is what Australia has done in regard to New Zealand apples.³²¹²

7.1417 Australia provides a detailed list of the steps in its IRA process to fill in the gaps it perceives in the chronology put forward by New Zealand.³²¹³ Australia points out that the independent report referenced by New Zealand recognized that the time taken to complete certain of Australia's IRAs was not unique.³²¹⁴

(b) Parties' arguments on whether New Zealand's claims are within the Panel's terms of reference

7.1418 A key point of discord between the Parties under Annex C(1)(a) and Article 8 is whether the Panel's terms of reference cover New Zealand's claims, and the measures to which these claims relate.

(i) *Parties' arguments leading to Australia's second preliminary ruling request*

7.1419 In its written submission on Australia's first preliminary ruling request under Article 6.2 of the DSU, New Zealand argues that "the final IRA as a whole is inconsistent with Australia's

³²⁰⁴ One Biosecurity: A Working Partnership, The Independent Review of Australia's Quarantine and Biosecurity Arrangements, Report to the Australian Government, 30 September 2008. See New Zealand's second written submission, para. 2.935, footnote 101.

³²⁰⁵ New Zealand's second written submission, para. 2.935, footnote 101.

³²⁰⁶ One Biosecurity: A Working Partnership, The Independent Review of Australia's Quarantine and Biosecurity Arrangements, Report to the Australian Government, 30 September 2008, p. 112. See New Zealand's second written submission, para. 2.935.

³²⁰⁷ One Biosecurity: A Working Partnership, The Independent Review of Australia's Quarantine and Biosecurity Arrangements, Report to the Australian Government, 30 September 2008, p. 100. See New Zealand's second written submission, para. 2.935.

³²⁰⁸ One Biosecurity: A Working Partnership, The Independent Review of Australia's Quarantine and Biosecurity Arrangements, Report to the Australian Government, 30 September 2008, p. 100. See New Zealand's second written submission, para. 2.937.

³²⁰⁹ New Zealand's second written submission, para. 2.938.

³²¹⁰ Australia's first written submission, para. 1125.

³²¹¹ Australia's first written submission, para. 28.

³²¹² Australia's first written submission, para. 32.

³²¹³ Australia's first written submission, para. 1058 and Annex 1.

³²¹⁴ Australia's reply to Panel question 127 after the second substantive meeting, paras. 536-537.

obligations under the *SPS Agreement*. That is the essence of New Zealand's Article 8 and Annex C(1)(a) claim."³²¹⁵

7.1420 In response, Australia points out that New Zealand's panel request did not identify "the IRA as a whole" as a measure at issue.³²¹⁶ By challenging the IRA in and of itself as a measure at issue, "New Zealand has attempted to ... introduce a new claim in the dispute."³²¹⁷

7.1421 In its preliminary ruling on Australia's first preliminary ruling request, the Panel found that "New Zealand's panel request does not identify with sufficient precision any measures contained in Australia's *FIRA*, other than the 17 specific items identified through bullet points."³²¹⁸

7.1422 After this preliminary ruling, New Zealand argues in its first written submission that "Australia's process for considering New Zealand's request for access for New Zealand applies to the Australian market was delayed well beyond any reasonable period of time for considering the request."³²¹⁹ In the light of the panel report in *EC – Approval and Marketing of Biotech Products*, undue delay in this "IRA process" is covered by Annex C(1)(a) of the SPS Agreement.³²²⁰

7.1423 In response, in its first written submission Australia argues that the "IRA process" is not a measure at issue, either. The IRA process does not fall within the scope of New Zealand's panel request³²²¹ because "no possible characterisation of the 17 measures [identified in bullet points in New Zealand's panel request] could encapsulate the IRA process."³²²² The IRA process is also outside the Panel's terms of reference as clarified by the Panel in its preliminary ruling.³²²³ Indeed, in its preliminary ruling the Panel effectively rejected New Zealand's argument that the inconsistency of the final IRA as a whole is the essence of New Zealand's Article 8 and Annex C(1)(a) claim.³²²⁴ Australia adds that New Zealand has not argued that any of the 17 measures at issue are subject to a claim of undue delay. In any event, New Zealand has failed to establish that the 17 measures are approval procedures within the meaning of Annex C(1).³²²⁵

7.1424 Days before the Panel's first substantive meeting, Australia submitted a second preliminary ruling request, making similar arguments. Australia asked the Panel to rule that, in the light of the Panel's first preliminary ruling, New Zealand's undue delay claim as it relates to the IRA process is outside the scope of the dispute.³²²⁶

7.1425 Following the first substantive meeting, in the course of which the Panel heard the Parties' and Third Parties' arguments on Australia's second preliminary ruling request, the Panel found that Australia had not shown good cause for the Panel issuing a second preliminary ruling. The Panel

³²¹⁵ New Zealand's communication to the Panel, 7 April 2008, submission regarding Australia's request for a preliminary ruling, para. 2.9.

³²¹⁶ Australia's communication to the Panel, 14 April 2008, submission regarding Australia's request for a preliminary ruling, paras. 5 and 12.

³²¹⁷ Australia's communication to the Panel, 14 April 2008, submission regarding Australia's request for a preliminary ruling, para. 3.

³²¹⁸ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, p. 4, para. 13(b).

³²¹⁹ New Zealand's first written submission, para. 4.541.

³²²⁰ New Zealand's first written submission, para. 4.546.

³²²¹ Australia's first written submission, para. 1122.

³²²² Australia's first written submission, para. 1119 (original emphasis). See also Australia's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 60.

³²²³ Australia's first written submission, para. 1122.

³²²⁴ Australia's first written submission, para. 1120.

³²²⁵ Australia's first written submission, paras. 1123-1124.

³²²⁶ Australia's second preliminary ruling request, 22 August 2008.

informed the Parties that it intended to address New Zealand's claim regarding Article 8 and Annex C(1)(a) in its final report, together with New Zealand's other claims.³²²⁷

(ii) *The Parties' further arguments*

7.1426 After this communication from the Panel, the Parties continued their exchange of arguments triggered by Australia's second preliminary ruling request. These arguments by the Parties address in particular the type of measure covered by Annex C(1)(a) of the SPS Agreement, and whether New Zealand's panel request had identified such a measure.

New Zealand

7.1427 New Zealand argues that "it has never claimed that the measure at issue is the 'IRA process'."³²²⁸ New Zealand did not refer to the IRA process in its panel request³²²⁹, and furthermore it is unclear how the IRA process could be regarded a measure at issue.³²³⁰ Nor is New Zealand arguing that the undue delay is the measure at issue.³²³¹ Rather, "the measures at issue under New Zealand's Annex C(1)(a) and Article 8 claim are the 17 measures identified in New Zealand's panel request."³²³² New Zealand contends that "the 17 measures ... at issue ... were not developed and adopted without undue delay."³²³³ In other words, the "SPS measures resulting from an unduly delayed process have not been imposed in accordance with the SPS Agreement."³²³⁴

7.1428 New Zealand references the Appellate Body report in *EC – Selected Customs Matters*³²³⁵, and argues that Australia "blurs the distinction between *legal claims* and *measures at issue*."³²³⁶ New Zealand refers to the IRA process because that approval procedure must be undertaken and completed without undue delay.³²³⁷ There is a close relationship between the IRA process and the measure at issue because "[t]he IRA process was the process by which the measures at issue were developed."³²³⁸ So the IRA process is certainly relevant to New Zealand's claim, but it is not the

³²²⁷ Panel's response to Australia's second preliminary ruling request, 8 September 2008.

³²²⁸ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 125. See also, New Zealand's second written submission, para. 2.928.

³²²⁹ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 125.

³²³⁰ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 131.

³²³¹ New Zealand's reply to Panel question 143 after the first substantive meeting, para. 298.

³²³² New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 126. See also New Zealand's second written submission, para. 2.928.

³²³³ New Zealand's reply to Panel question 143 after the first substantive meeting, para. 298.

³²³⁴ New Zealand's second written submission, para. 2.928.

³²³⁵ New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 112.

³²³⁶ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 129 (original emphasis). See also New Zealand's second written submission, para. 2.930.

³²³⁷ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 129.

³²³⁸ New Zealand's reply to Panel question 143 after the first substantive meeting, para. 298.

measure at issue.³²³⁹ It is the "procedure to check and ensure the fulfilment of SPS measures"³²⁴⁰, that is the "subject of the obligation [under Annex C(1)(a)], ... not the measure at issue."³²⁴¹

7.1429 According to New Zealand, in a literal sense, the combined actions, omissions and decisions of various actors in the Australian system cumulatively resulted in an eight-year delay. But it would be unrealistic to expect the complainant to identify these multiple causes as the measures at issue in an Annex C(1)(a) claim.³²⁴² In a broader sense, the cause of the delay is inextricably linked to the intertwined political process. However, the politicization of the IRA process cannot be thought of as the measure at issue.³²⁴³ As the Panel explained in its preliminary ruling, the complainant need not provide the arguments with respect to the undue delay claim in its panel request.³²⁴⁴

7.1430 New Zealand contends that Article C(1)(a) should be read in the context of the General Provisions of the SPS Agreement, in particular Article 1.1, which provides that SPS measures shall be "developed and applied" in accordance with the provisions of the Agreement. Consequently, the obligation to undertake and complete approval procedures without undue delay is an obligation that relates directly to the "development" of SPS measures.³²⁴⁵

7.1431 New Zealand adds that Australia is mistaken in believing that the "measures at issue" under Annex C(1) must be the "procedures to check and ensure the fulfilment of SPS measures" referred to in the *chapeau* of Annex C(1).³²⁴⁶ In the present dispute, the IRA process for New Zealand apples is the procedure to check and ensure the fulfilment of SPS measures within the meaning of Annex (C)(1).³²⁴⁷ In fact, "[t]he IRA process is a specific application of Australia's more general approval requirements relating to the importation of fresh fruit and vegetables ... [,] set out in Australia's Quarantine Proclamation 1998, and Australia's Import Risk Analysis Handbook."³²⁴⁸ The "sanitary and phytosanitary measures" referenced in the *chapeau* of Annex C(1) are Australia's regime relating to the approval of fresh fruit or vegetables.³²⁴⁹ This is not a measure at issue, and New Zealand is not claiming that Annex C(1) relates to the development of that SPS measure.³²⁵⁰

7.1432 According to New Zealand, in the light of the panel report in *EC – Approval and Marketing of Biotech Products*, the measures at issue do not themselves need to satisfy the *chapeau* of Annex C(1). The European Communities' generic approval legislation relating to GMOs was not a

³²³⁹ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 129.

³²⁴⁰ New Zealand's reply to Panel question 146 after the first substantive meeting, paras. 299-306.

³²⁴¹ New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 112. See also, New Zealand's comments on Australia's reply to Panel question 128 after the second substantive meeting, paras. 284-289.

³²⁴² New Zealand's comments on Australia's reply to Panel question 128 after the second substantive meeting, paras. 284-289.

³²⁴³ *Ibid.*

³²⁴⁴ New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 114.

³²⁴⁵ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 130.

³²⁴⁶ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 126.

³²⁴⁷ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 128.

³²⁴⁸ *Ibid.*

³²⁴⁹ New Zealand's reply to Panel question 146 after the first substantive meeting, paras. 299-306.

³²⁵⁰ New Zealand's second written submission, para. 2.930.

measure at issue in that dispute. The measure at issue was the *de facto* moratorium on approvals, which was not in itself a procedure to check and ensure the fulfilment of SPS measures.³²⁵¹

7.1433 New Zealand points out that where SPS measures were adopted following an approval process, the approval process itself has ceased to exist.³²⁵² The IRA process is not challengeable in this dispute because it has ceased to exist by the time the Panel was established.³²⁵³ In *EC – Chicken Cuts* the Appellate Body established that "the measures included in a panel's terms of reference must be measures that are in existence at the time of the establishment of the panel."³²⁵⁴ In *EC – Selected Customs Matters*, the Appellate Body specified that there are two exceptions to this rule, but neither of these apply in the present dispute. The measures at issue in this dispute did not arise after the establishment of the Panel, nor does this dispute involve subsidies whose legislative basis has expired but whose effects continue to impair benefits accruing to the complainant.³²⁵⁵ An interpretation of Annex C(1)(a) that requires the complainant to challenge measures that have ceased to exist would not accord with the DSU's objective to secure a positive solution to the dispute.³²⁵⁶

Australia

7.1434 Australia considers that New Zealand's arguments constitute an inadmissible attempt at curing the fatal flaw in its panel request.³²⁵⁷ Even at an advanced stage of the dispute, there remains considerable confusion concerning what measures New Zealand is challenging with respect to its undue delay claim.³²⁵⁸ In fact, New Zealand's undue delay claim has constantly shifted in an attempt to bring it within the Panel's terms of reference.³²⁵⁹ At different points in the dispute, New Zealand claimed that the measure at issue was the IRA process or Australia's general approval requirements concerning the importation of fresh fruit or vegetables. New Zealand's panel request, however, does not reference either the IRA process or Australia's general approval requirements.³²⁶⁰

7.1435 Australia contends that Annex C(1)(a) does not refer to the "development" of SPS measures.³²⁶¹ New Zealand's reliance on Article 1.1 of the SPS Agreement in this regard is misplaced.³²⁶² In line with the customary rules of interpretation, an analysis of Annex C(1)(a) should focus on the ordinary meaning of the terms used in that provision, in their context and in the light of the object and purpose of the SPS Agreement.³²⁶³ Annex C(1)(a) provides that "such procedures" are to be "undertaken and completed without undue delay." "Such procedure" must be understood by reference to the immediate context, found in the *chapeau* of Annex C(1): "procedures to check and

³²⁵¹ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 127. See also New Zealand's reply to Panel question 146 after the first substantive meeting, paras. 299-306; and New Zealand's reply to Australia's question 18 after the second substantive meeting, paras. 43-47.

³²⁵² New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 132.

³²⁵³ New Zealand's reply to Australia's question 18 after the second substantive meeting, paras. 43-47.

³²⁵⁴ New Zealand's opening oral statement at the second substantive meeting of the Panel with the Parties, para. 115.

³²⁵⁵ New Zealand's reply to Australia's question 17 after the second substantive meeting, paras. 40-42.

³²⁵⁶ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 133.

³²⁵⁷ Australia's intervention on New Zealand's oral statement in relation to Article 8 and Annex C(1)(a), 2 September 2008, p. 2. See also, Australia's reply to Panel question 144 after the first substantive meeting; Australia's second written submission, paras. 186 and 212; and Australia's communication to the Panel, 14 April 2008, submission regarding Australia's request for a preliminary ruling, paras. 13-14.

³²⁵⁸ Australia's reply to Panel question 144 after the first substantive meeting.

³²⁵⁹ Australia's second written submission, para. 184.

³²⁶⁰ Australia's second written submission, paras. 214-216.

³²⁶¹ Australia's reply to Panel question 128 after the second substantive meeting, paras. 538-545.

³²⁶² Australia's reply to Panel question 144 after the first substantive meeting.

³²⁶³ *Ibid.* See also Australia's second written submission, para. 187.

ensure the fulfilment of SPS measures." If a procedure checks and ensures the fulfilment of a measure, logically that measure must already exist. Thus a procedure within the scope of Annex C(1)(a) must check and ensure the fulfilment of pre-existing SPS measures. Therefore, Annex C(1)(a) cannot be an obligation that relates directly to the development of SPS measures.³²⁶⁴ If, as New Zealand argues, the IRA process is the relevant procedure in the context of Annex C(1), and assuming that the 17 requirements are the "SPS measures" referred to in Annex C(1)(a), the IRA process must be checking and ensuring the fulfilment of the 17 SPS measures at issue. The IRA process, however, took place before the 17 measures came into existence.³²⁶⁵ In fact, the 17 measures identified in New Zealand's panel request were adopted on the basis of the recommendations in the IRA, which itself was a result of the IRA process.³²⁶⁶

7.1436 Australia concedes that New Zealand's alternative formulation, according to which the IRA process (as the relevant procedure) checks and ensures the fulfilment of Australia's quarantine framework (as the relevant SPS measure), may fit better within the ordinary meaning of the text of Annex C(1). The fundamental problem with that, however, is that similar to the IRA process, Australia's quarantine framework is not identified in New Zealand's panel request.³²⁶⁷ Neither the IRA process, nor Australia's quarantine framework are set out within the 17 specific measures at issue.

7.1437 According to Australia, New Zealand's reliance on the panel report in *EC – Approval and Marketing of Biotech Products* is misguided. In that dispute, Argentina and Canada clearly identified the subject of their undue delay claim by referring, in their panel requests, to both the relevant EC approval processes and the European Communities' failure to approve without undue delay, applications for approval of specific products.³²⁶⁸

7.1438 Australia adds that it is not blurring the distinction between measures and claims. The IRA process is clearly the measure that New Zealand seeks to challenge.³²⁶⁹ Only the IRA process, and not the 17 requirements listed in New Zealand's panel request, could have caused a violation of Annex C(1)(a).³²⁷⁰ Accordingly, New Zealand should have identified the "IRA process" in its panel request as the measure at issue in the context of its undue delay claim. The IRA process clearly falls within the broad definition of measures subject to WTO dispute settlement: "any act or omission attributable to a WTO Member"³²⁷¹.³²⁷² In *EC – Selected Customs Matters*, the Appellate Body held that "[t]he 'specific measure' to be identified in a panel request is the object of the challenge, namely, the measure that is alleged to be causing the violation of an obligation contained in a covered agreement. In other words, the measure at issue is *what* is being challenged by the complaining Member."³²⁷³,³²⁷⁴

³²⁶⁴ Australia's reply to Panel question 144 after the first substantive meeting. See also Australia's second written submission, paras. 189-192.

³²⁶⁵ Australia's second written submission, para. 196.

³²⁶⁶ Australia's second written submission, para. 209.

³²⁶⁷ Australia's second written submission, para. 197.

³²⁶⁸ Australia's second written submission, para. 206.

³²⁶⁹ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 225.

³²⁷⁰ Australia's reply to Panel question 128 after the second substantive meeting, para. 544.

³²⁷¹ (footnote original) Appellate Body Report, *US – Corrosion-Resistant Steel Sunset Review*, para. 81.

³²⁷² Australia's reply to Panel question 128 after the second substantive meeting, paras. 538-545.

³²⁷³ (footnote original) Appellate Body Report, *EC – Selected Customs Matters*, para. 130 (original emphasis).

³²⁷⁴ Australia's second written submission, para. 199. See also, Australia's second written submission, para. 201.

7.1439 In Australia's view, since New Zealand's claim is that Australia failed to undertake and complete the IRA process without undue delay, an argument in support of that claim would have been that the IRA process was unduly delayed for specific reasons. However, Australia has never suggested that New Zealand needed to provide such an argument in its panel request.³²⁷⁵

7.1440 Australia sees no problem with the fact that the IRA process ceased to exist by the time the Panel was established. The quote in the Appellate Body report on *EC – Chicken Cuts* is introduced with the words "[a]s a general rule". Also, *EC – Chicken Cuts* addressed measures arising after the panel request.³²⁷⁶ Further, in *EC – Selected Customs Matters* the Appellate Body was not talking about exceptions to the rule that a measure at issue must be identified in the panel request, but about exceptions to the general rule that measures that have ceased to exist cannot be reviewed in WTO dispute settlement.³²⁷⁷ Also, the Appellate Body referenced "at least two exceptions", implying that the category of exceptions is not closed. Further, the Appellate Body approved the panel's statement in that dispute that "a panel may also be competent to make findings and make recommendations on measures that have expired"³²⁷⁸ "3279".

7.1441 Likewise, Australia does not consider that the Appellate Body report in *US – Certain EC Products* supports New Zealand's arguments on the exclusion from WTO dispute settlement of measures that ceased to exist before panel establishment. While in that dispute the Appellate Body refrained from making recommendations pursuant to Article 19.1 of the DSU, it nonetheless made findings despite the measure having ceased to exist. The Appellate Body followed a similar approach in *US – Upland Cotton*.³²⁸⁰

7.1442 In any event, Australia argues, there was nothing to preclude New Zealand from making a claim of undue delay in relation to the IRA process prior to its conclusion in November 2006.³²⁸¹ If, in the alternative, New Zealand considered that it could not challenge the IRA process because that process had already expired, New Zealand should not have made an undue delay claim under Article 8 and Annex C(1)(a) in this dispute.³²⁸²

2. The Panel's analysis

7.1443 The first and main question in regard to New Zealand's claims under Annex C(1)(a) and Article 8 of the SPS Agreement is whether these claims, in particular the measures to which the claims relate, are within the Panel's terms of reference.

7.1444 As indicated above³²⁸³, the Panel's terms of reference in this dispute are as follows:

"To examine, in the light of the relevant provisions of the covered agreements cited by New Zealand in document WT/DS367/5, the matter referred to the DSB by

³²⁷⁵ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 226.

³²⁷⁶ Australia's reply to Panel question 129 after the second substantive meeting, paras. 546-550.

³²⁷⁷ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 221.

³²⁷⁸ (footnote original) Panel Report, *EC – Selected Customs Matters*, para. 7.36; Appellate Body Report, *EC – Selected Customs Matters*, para. 184 (emphasis added).

³²⁷⁹ Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 222.

³²⁸⁰ Australia's reply to Panel question 129 after the second substantive meeting, paras. 546-550.

³²⁸¹ *Ibid.*

³²⁸² Australia's comments on New Zealand's replies to Panel questions after the second substantive meeting, para. 227.

³²⁸³ See para. 1.3 above.

New Zealand in that document, and to make such findings as will assist the DSB in making the recommendations or in giving the rulings provided for in those agreements."³²⁸⁴

7.1445 Under Article 7 of the DSU, and according to established jurisprudence, a panel's terms of reference are usually determined by the complainant's request for establishing the panel. In *EC – Bananas III*, the Appellate Body explained that "[i]t is important that a panel request be sufficiently precise for two reasons: first, it often forms the basis of the terms of reference of the panel pursuant to Article 7 of the DSU; and, second, it informs the defending party and the third parties of the legal basis of the complaint."³²⁸⁵

7.1446 In the present dispute, New Zealand's panel request provides in relevant part:

"On 27 March 2007, the Australian Director of Animal and Plant Quarantine determined a policy for the importation of apples from New Zealand: 'Importation of apples can be permitted subject to the *Quarantine Act 1908*, and the application of phytosanitary measures as specified in the *Final import risk analysis report for apples from New Zealand*, November 2006'.³²⁸⁶

New Zealand considers that the measures specified in and required by Australia pursuant to the *Final import risk analysis report for apples from New Zealand* are inconsistent with the obligations of Australia under the *Agreement on the Application of Sanitary and Phytosanitary Measures* ('SPS Agreement').

In particular, New Zealand considers that the following measures are, both individually and as a whole, inconsistent with the obligations of Australia under the SPS Agreement:

[bullet point list of 17 specific requirements spelt out in the IRA]

New Zealand considers that the above measures are inconsistent with the obligations of Australia under Article[] ... 8 (in relation to Annex C) and Annex C(1)(a) of the SPS Agreement."³²⁸⁷

7.1447 In *EC – Bananas III*, the Appellate Body prescribed a close scrutiny of panel requests. "As a panel request is normally not subjected to detailed scrutiny by the DSB, it is incumbent upon a panel to examine the request for the establishment of the panel very carefully to ensure its compliance with both the letter and the spirit of Article 6.2 of the DSU."³²⁸⁸

7.1448 In *US – Carbon Steel*, the Appellate Body held that the actual wording of panel requests is key for this kind of analysis. "[C]ompliance with the requirements of Article 6.2 must be demonstrated on the face of the request for the establishment of a panel. Defects in the request for the establishment of a panel cannot be 'cured' by subsequent submissions of the parties during the panel proceedings."³²⁸⁹

³²⁸⁴ *Australia – Apples*, Constitution of the Panel Established at the Request of New Zealand: Note by the Secretariat (WT/DS367/6), 13 March 2008, p. 2.

³²⁸⁵ Appellate Body Report on *EC – Bananas III*, para. 142.

³²⁸⁶ (footnote original) Biosecurity Australia Policy Memorandum 2007/07, 27 March 2007.

³²⁸⁷ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, attached as Annex A-1 to this report, pp. 1-3.

³²⁸⁸ Appellate Body Report on *EC – Bananas III*, para. 142.

³²⁸⁹ Appellate Body Report on *US – Carbon Steel*, para. 126.

7.1449 As explained above, upon Australia's request, in its preliminary ruling the Panel clarified its terms of reference in regard to the measures at issue as follows:

"Looking at the text of New Zealand's panel request, the Panel finds that, with respect to the 17 items identified by New Zealand through 17 separate bullet points, the request is sufficiently precise in identifying the specific measures at issue with respect to those 17 items, pursuant to Article 6.2 of the DSU.

On the other hand, given the length and complexity of Australia's *FIRA*, the Panel finds that the broad reference in New Zealand's panel request to the 'measures specified in and required by Australia pursuant to the [*FIRA*]' fails to satisfy the requirement of sufficient clarity in the identification of the specific measures at issue set forth in Article 6.2 of the DSU. Accordingly, the Panel finds that its terms of reference are limited to the 17 measures specifically identified by New Zealand in its panel request and do not encompass other measures that may be contained in Australia's *FIRA*, but which were not identified with sufficient precision in the panel request."³²⁹⁰

7.1450 The Panel's preliminary ruling concluded that:

- "(a) With respect to the 17 items contained in Australia's *Final import risk analysis report for apples from New Zealand (FIRA)* and identified by bullet points in New Zealand's request for the establishment of this Panel, dated 7 December 2007, the specific measures at issue have been properly identified;
- (b) New Zealand's panel request does not identify with sufficient precision any measures contained in Australia's *FIRA*, other than the 17 specific items identified through bullet points. Accordingly, any such other measures are not part of this Panel's terms of reference; and,
- (c) New Zealand's panel request contains sufficient information regarding the legal basis of the complaint to present the problem clearly with respect to the 17 identified items."³²⁹¹

7.1451 It is clear from the preliminary ruling that the Panel effectively limited the measures at issue in this dispute to the 17 specific requirements in the IRA identified in the 17 bullet point items contained in New Zealand's panel request. The preliminary ruling explicitly excluded from the Panel's terms of reference any other requirements contained in the IRA that New Zealand had not identified in the 17 bullet points. Consequently, Australia is correct in arguing that the IRA as a whole cannot constitute a measure at issue in this dispute.

7.1452 In any event, even absent the clarification of the Panel's terms of reference resulting from the Panel's preliminary ruling, the IRA as a whole would not be within this Panel's terms of reference. New Zealand's panel request does not identify the IRA as a whole as a measure at issue in this dispute. It refers to "the measures specified in and required by Australia pursuant to [the IRA]", and it identifies 17 specific requirements. The IRA is a long, complex document that specifies a large number of requirements in relation to many different pests. For this reason, the Panel held in its

³²⁹⁰ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, p. 3, paras. 8-9.

³²⁹¹ *Australia – Apples*, Communication From the Chairman of the Panel: Preliminary Ruling by the Panel (WT/DS367/7), 23 June 2008, attached as Annex A-2 to this report, p. 4, para. 13.

preliminary ruling that the broad reference to the "measures specified in and required by Australia pursuant to [the IRA]" was not sufficiently precise in identifying the measures at issue. However, even if this portion of the panel request remained part of the Panel's terms of reference, it does not identify the IRA itself as a measure at issue and, as such, the IRA taken as a whole would not form part of this Panel's terms of reference.

7.1453 Accordingly, only the requirements described in the 17 bullet points in New Zealand's panel request identify the measures at issue with sufficient precision. The question before the Panel is then whether the 17 specific requirements at issue can violate Annex C(1)(a) of the SPS Agreement, or alternatively, whether the measure that could allegedly infringe Annex C(1)(a) is different from these 17 specific requirements, and hence not properly identified in New Zealand's panel request. This calls for a closer look at Annex C(1)(a).

7.1454 Annex C(1)(a) of the SPS Agreement provides in relevant part:

"1. Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary and phytosanitary measures, that:

(a) such procedures are undertaken and completed without undue delay
..."

7.1455 As Australia suggests³²⁹², an ordinary reading of this provision – according to its structure and wording, in particular the use of the word "such" – allows it to be rephrased as follows: *Members shall ensure that any procedure to check and ensure the fulfilment of sanitary and phytosanitary measures is undertaken and completed without undue delay.*

7.1456 All obligations in the WTO covered agreements relate to measures. In fact, only one or more measures, i.e. an "act or omission attributable to a WTO Member"³²⁹³, can be said to violate an obligation contained in a covered agreement. This applies also to Annex C(1)(a) of the SPS Agreement.

7.1457 To bring a specific measure within the scope of WTO dispute settlement, the complainant needs to identify it in the panel request. Article 6.2 of the DSU provides that "[t]he request for the establishment of a panel ... shall ... identify the specific measures at issue and provide a brief summary of the legal basis of the complaint sufficient to present the problem clearly." As Australia points out³²⁹⁴, in *EC – Selected Customs Matters* the Appellate Body held on the first of these requirements under Article 6.2 that "[t]he 'specific measure' to be identified in a panel request is the object of the challenge, namely, the measure that is alleged to be causing the violation of an obligation contained in a covered agreement. In other words, the measure at issue is *what* is being challenged by the complaining Member."³²⁹⁵

7.1458 The Appellate Body continued, distinguishing the other requirement under Article 6.2 of the DSU as follows:

"In contrast, the legal basis of the complaint, namely, the 'claim' pertains to the specific provision of the covered agreement that contains the obligation alleged to be violated. A brief summary of the legal basis of the complaint required by Article 6.2

³²⁹² Australia's reply to Panel question 144 after the first substantive meeting and Australia's second written submission, para. 191.

³²⁹³ Appellate Body Report on *US – Corrosion-Resistant Steel Sunset Review*, para. 81.

³²⁹⁴ Australia's second written submission, para. 199. See also, Australia's second written submission, para. 201.

³²⁹⁵ Appellate Body Report on *EC – Selected Customs Matters*, para. 130 (original emphasis).

of the DSU aims to explain succinctly *how* or *why* the measure at issue is considered by the complaining Member to be violating the WTO obligation in question. This brief summary must be sufficient to present the problem clearly. Taken together, these different aspects of a panel request serve not only to define the scope of a dispute, but also to meet the due process requirements."³²⁹⁶

7.1459 As to the specific measure that New Zealand was supposed to identify in its panel request, *what* does New Zealand challenge under Annex C(1)(a)? *What*, according to New Zealand, causes the violation of Annex C(1)(a)? In New Zealand's own words, that "the 17 measures ... at issue ... were not developed and adopted without undue delay."³²⁹⁷ In other words, New Zealand contests what it sees as the unjustifiably delayed development and adoption of the 17 SPS measures at issue. In order to cover that, Annex C(1)(a) needs to relate to the development and approval of SPS measures. Invoking Article 1.1 of the SPS Agreement, New Zealand argues that that is the case.³²⁹⁸

7.1460 In the part of the SPS Agreement entitled "General Provisions", Article 1.1 provides that:

"This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement."

7.1461 Based on the second sentence of Article 1.1, undoubtedly, the SPS Agreement establishes obligations regarding the development and application of SPS measures that may affect international trade. Based on the same sentence, however, the SPS Agreement covers the development and application of SPS measures "in accordance with [its] provisions", i.e. only to the extent that the specific provisions of the Agreement relate to the development or application of SPS measures.

7.1462 Therefore, the question is whether Annex C(1)(a) of the SPS Agreement can be interpreted as applying to the development of SPS measures – in particular, the development of the 17 measures at issue in this dispute. Australia disagrees, arguing that Annex C(1)(a) applies to "procedures to check and ensure the fulfilment of SPS measures", and that such procedures can necessarily only follow in time the SPS measures that they check and ensure.³²⁹⁹

7.1463 The Panel has a more nuanced reading of Annex C(1)(a) of the SPS Agreement in that regard. The text of Annex C(1)(a) relates to "procedures to *check and ensure* the fulfilment of SPS measures", not to *develop* SPS measures (emphasis added). However, under the definition of Annex A(1) of the SPS Agreement, SPS measures include both substantive requirements and procedures. Therefore, the "SPS measure" referenced in the language of Annex C(1)(a) may be a requirement to conduct an import risk assessment prior to allowing for the importation of goods that might pose sanitary or phytosanitary risks. In that case, the actual import risk assessment conducted for a specific good might constitute the procedure to check and ensure the fulfilment of this "SPS measure".

7.1464 Indeed, in *EC – Approval and Marketing of Biotech Products* the panel found that:

"[T]he term 'requirements' as it appears in the second paragraph of Annex A(1) is unqualified and thus is applicable both to requirements which are generally applicable

³²⁹⁶ Appellate Body Report on *EC – Selected Customs Matters*, para. 130 (original emphasis).

³²⁹⁷ New Zealand's reply to Panel question 143 after the first substantive meeting, para. 298.

³²⁹⁸ New Zealand's opening oral statement at the first substantive meeting of the Panel with the Parties, para. 130.

³²⁹⁹ Australia's reply to Panel question 144 after the first substantive meeting and Australia's second written submission, paras 195-196.

and to requirements which have been imposed on specific products.³³⁰⁰ In our view, the application of a generally applicable SPS 'requirement' (e.g., a pre-marketing approval requirement for biotech products) to a specific product may result in a different, product-specific SPS 'requirement' (e.g., a ban on the marketing of a specific biotech product). In other words, there may be cases where the application of an SPS 'requirement' and, hence, of an SPS measure, may give rise to a new SPS requirement and, hence, a new SPS measure."³³⁰¹

7.1465 In other words, if unduly delayed, an SPS approval procedure like the IRA process might infringe Annex C(1)(a) of the SPS Agreement. The Panel finds support for this interpretation in the context of Annex C(1)(a). As indicated in its title, Annex C applies to "[c]ontrol, inspection and approval procedures". Also, Article 8 prescribes Members' compliance with Annex C "in the operation of control, inspection and approval procedures, including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs." In *EC – Approval and Marketing of Biotech Products* the panel interpreted the language "procedures to check and ensure the fulfilment of [SPS] measures" in Annex C(1)(a) to apply to approval procedures, by interpreting the first clause of Annex C(1)(a) "essentially as a good faith obligation requiring Members to proceed with their approval procedures as promptly as possible, taking account of the need to check and ensure the fulfilment of their relevant SPS requirements."³³⁰²

7.1466 Finding that under specific circumstances Annex C(1)(a) of the SPS Agreement might apply to an approval process leading to the development of substantive SPS measures is only half of the analysis the Panel needs to conduct here. The other half is whether New Zealand has properly called this into question in this dispute. The answer to this latter question turns on whether in this case New Zealand should have identified in its panel request an additional measure separate from the 17 specific requirements.

7.1467 The Panel recalls the words of the Appellate Body in *EC – Selected Customs Matters*, according to which "[t]he 'specific measure' to be identified in a panel request is the object of the challenge, namely, the measure that is alleged to be causing the violation of an obligation contained in a covered agreement. In other words, the measure at issue is *what* is being challenged by the complaining Member."³³⁰³

7.1468 Reading this and keeping the specific context of the present dispute in mind, it is clear that under its Annex C(1)(a) claim New Zealand is not challenging the content of the 17 requirements as such. Rather, it is the procedure leading to the adoption of these 17 requirements, and more precisely the alleged delay in this procedure that in New Zealand's view violates Annex C(1)(a). Or, in New Zealand's words, the "development" of these 17 measures.

7.1469 As noted above, the development of the 17 measures, and particularly any alleged delays involved, might be covered by Annex C(1)(a) of the SPS Agreement. From the viewpoint of identifying the measure that infringes that provision, however, the 17 requirements and their development are separate measures. Accordingly, in the context of its Article 8 and Annex C(1)(a) claim, New Zealand should have done more in its panel request than merely identify the 17 requirements set out in the IRA.

³³⁰⁰ (footnote original) We note in this respect that the footnote to Annex B(1) defines "[SPS] regulations" as "[SPS] measures ... which are applicable generally". It follows, *a contrario*, that there can be SPS measures which are not applicable generally.

³³⁰¹ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1336.

³³⁰² Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1498.

³³⁰³ Appellate Body Report on *EC – Selected Customs Matters*, para. 130 (original emphasis).

7.1470 Annex C(1)(a) applies to procedures. This is clear from both subparagraph (a) ("such procedures") and from the *chapeau* of Annex C(1) ("procedures to check and ensure ..."). Further, as mentioned above, Annex C and Article 8 also apply to procedures, namely "control, inspection and approval procedures". These procedures might be measures in their own right; they may even qualify as SPS measures. Indeed, the definition of SPS measures in Annex A(1) of the SPS Agreement provides that "[s]anitary or phytosanitary measures include all relevant ... procedures, including *inter alia* ... testing, inspection, certification and approval procedures, [and] sampling procedures." Likewise, the footnote to the title of Annex C provides that "[c]ontrol inspection and approval procedures include, *inter alia*, procedures for sampling, testing and certification." As the panel in *EC – Approval and Marketing of Biotech Products* held, "Annex C(1)(a), first clause, establishes disciplines concerning the 'enforcement' of SPS measures, namely, approval procedures."³³⁰⁴

7.1471 As the Panel recognized above, each of the 16 measures at issue in this dispute might also involve a procedure.³³⁰⁵ New Zealand, however, does not argue that these procedures infringe Annex C(1)(a) or Article 8. Rather, New Zealand contests the way in which the 17 requirements were developed.

7.1472 It is perfectly plausible that an unduly delayed specific approval process is found inconsistent with Annex C(1)(a) (and consequently Article 8) of the SPS Agreement, even if that process does not lead to the adoption of substantive SPS requirements. To a certain extent, this is what happened in the *EC – Approval and Marketing of Biotech Products* dispute. As Australia points out³³⁰⁶, the IRA process was not necessarily supposed to lead to substantive SPS requirements concerning the pests at issue in the current dispute, and it would not have been appropriate for Australia to conduct its IRA process with preconceived measures in mind. Accordingly, the Panel can imagine situations where an approval process simply takes too long for the complainant, especially if the complainant is prevented from exporting the goods in question during that period. In such circumstances, it would be inappropriate if the complainant were prevented from initiating a WTO dispute merely because the lengthy approval process did not lead to substantive SPS requirements. A different interpretation would empty out the procedural requirement contained in the first clause of Annex C(1)(a) of the SPS Agreement.

7.1473 In its preliminary ruling, the Panel limited this dispute to the 17 specific requirements identified in bullet points in New Zealand's panel request. Subsequently, in an earlier section of this report, the Panel has found that each of the 16 out of the 17 requirements that remain within the purview of this dispute following the Parties' agreed understanding on Measure 12 not being imposed by Australia, constitutes an SPS measure on its own.³³⁰⁷ In the light of the text of New Zealand's panel request, however, these findings are necessarily limited to the requirements in question as they are contained in the IRA. The findings do not cover the separate issue of the procedure through which the requirements were developed in the IRA process.

7.1474 Accordingly, the Panel agrees with Australia that New Zealand has not properly identified the measure at issue in its panel request in the context of its Annex C(1)(a) and Article 8 claim. In fact, in its panel request New Zealand identified the 17 substantive requirements contained in the IRA. New Zealand did not identify any aspects of *what* exactly might have caused the infringement of Annex C(1)(a) (and consequently Article 8), nor did it provide a brief summary of *why* and *how* these provisions could be infringed by the 17 specific requirements at issue.

³³⁰⁴ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1499.

³³⁰⁵ See para. 7.163 above.

³³⁰⁶ Australia's second written submission, para. 209.

³³⁰⁷ See para. 7.172 above.

7.1475 It is difficult to tell in the abstract what kind of precise language would have been appropriate for New Zealand to use. The Panel sees various possible approaches, although in the absence of specific language it is difficult to say with certainty whether these would eventually satisfy the requirements of Article 6.2 of the DSU. Indeed, the sufficiency of a panel request in the context of Article 6.2 requires a case-by-case analysis, "consider[ing] the panel request as a whole, and in the light of attendant circumstances."³³⁰⁸ In any event, in general the Panel could have imagined New Zealand's panel request adopting one of the following alternative approaches. New Zealand could have referred to the development of the 17 measures (the IRA process) and could have claimed that that process violated Annex C(1)(a) and Article 8 because of undue delays. Or New Zealand could have referred to the delays in the IRA process claiming that these have violated Annex C(1)(a) and Article 8. Or, to use the language of Annex C(1)(a), New Zealand could have claimed that undue delays in completing the IRA process infringed Annex C(1)(a) and Article 8. Alternatively, New Zealand could have identified specific acts or omissions attributable to Australia that resulted in undue delay in the IRA process, and claim that these acts or omissions violated Annex C(1)(a) and Article 8.

7.1476 New Zealand's panel request offered none of these explanations. As Australia points out³³⁰⁹, this is in stark contrast with the panel requests in the *EC – Approval and Marketing of Biotech Products* dispute, which explicitly referenced the legislative instruments containing the EC's general approval regime, and identified as the measures at issue (i) the suspension of the consideration of, and the failure to consider or approve, various applications for approval of agricultural biotechnology products; and (ii) the general suspension of such considerations or undue delays in finalizing such considerations under the EC's general approval regime.³³¹⁰

7.1477 In the light of the above, New Zealand's Annex C(1)(a) claim and its consequential claim under Article 8 of the SPS Agreement are outside of the Panel's terms of reference in this dispute. The Panel will therefore refrain from assessing the substance of New Zealand's claims under these provisions.

7.1478 Before concluding its analysis under these provisions, the Panel will address the issue of whether New Zealand could have challenged the IRA process, and the delays in that process, following the completion of the IRA process, i.e. even if that process had ceased to exist before the Panel's establishment. Both Parties have raised this issue. It is important to address it because the Panel's consideration of the arguments relating to Annex C(1)(a) and Article 8 is predicated on the view that this would have been possible – for the following reasons.

7.1479 The first clause of Annex C(1)(a) provides that "such procedures are *undertaken and completed* without undue delay" (emphasis added). In *EC – Approval and Marketing of Biotech Products* the panel attached equal importance to both the words "undertaken" and "completed" within that phrase:

"The verb 'undertake' makes clear that Members are required to begin, or start, approval procedures after receiving an application for approval."³³¹¹ The verb

³³⁰⁸ Appellate Body Report on *US – Carbon Steel*, para. 127.

³³⁰⁹ Australia's second written submission, para. 206.

³³¹⁰ See, *EC – Approval and Marketing of Biotech Products*, Request for the Establishment of a Panel by the United States (WT/DS291/23), 8 August 2003; *EC – Approval and Marketing of Biotech Products*, Request for the Establishment of a Panel by Canada, (WT/DS292/17), 8 August 2003; *EC – Approval and Marketing of Biotech Products*, Request for the Establishment of a Panel by Argentina (WT/DS293/17), 8 August 2003.

³³¹¹ (*footnote original*) The dictionary meanings of the verb "undertake" include "[t]ake on (an obligation, duty, task, etc.); commit oneself to perform; begin (an undertaking, enterprise, etc.)". The *New Shorter Oxford English Dictionary*, L. Brown (ed.) (Clarendon Press, 1993), Vol. II, p. 3476. The French and

'complete', on the other hand, indicates that approval procedures are not only to be undertaken, but are also to be finished, or concluded.³³¹² Thus, in our view, the phrase 'undertake and complete' covers all stages of approval procedures and should be taken as meaning that, once an application has been received, approval procedures must be started and then carried out from beginning to end."³³¹³

7.1480 Australia argues³³¹⁴, and New Zealand does not contest, that the IRA process could have been challenged under Annex C(1)(a) and Article 8 before it was concluded. The Panel agrees with that in principle. A relevant measure that is in force at the time of panel establishment might be challenged in WTO dispute settlement. As the *EC – Approval and Marketing of Biotech Products* dispute showed, an ongoing – although delayed, because suspended – SPS approval process is no exception.

7.1481 But, as the panel in the same dispute explained, Annex C(1)(a) applies to all stages of an approval process, from beginning to end. In particular, Annex C(1)(a) applies not only to the "undertak[ing]" but also to the "complet[ion]" of approval processes.

7.1482 Common sense dictates that the completion of an approval process shall be open to challenge under WTO dispute settlement after the completion has taken place. In fact, a potential complainant might have indications of an approval process not being undertaken without undue delay already in the course of the approval process. However, the full picture on the approval process not being completed without undue delay becomes clear for the complainant only after the approval process has been effectively completed.

7.1483 Not allowing completion of an approval process to be challenged under Annex C(1)(a) precisely because the process has "ceased to exist" when it was completed would read the term "complete" out of Annex C(1)(a). Also, it would defeat basic objectives of WTO dispute settlement under the DSU: the preservation of the rights and obligations of Members under the covered agreements³³¹⁵, and the effective resolution of disputes.³³¹⁶

7.1484 This applies in particular when a potential complainant considers challenging not only the approval process but also any substantive SPS requirements resulting from such process. Of course, a Member could initiate two disputes: one against the approval process during the course of that process, and another one against the resulting SPS requirements. Alternatively, a complainant may raise these matters in one single dispute. This is the case in particular when the complainant has a potentially more pressing concern with the SPS requirements resulting from the approval process than with the undue delay in the approval process. By definition, such a dispute can be launched only when the resulting SPS requirements are in place, and the approval process leading to those requirements has been already completed.

Spanish versions of Annex C(1)(a), first clause, also support this reading. The French version uses the verb "engager", the Spanish version the verb "iniciar". We also note that Annex C(1)(b) requires Members to ensure, *inter alia*, that "when receiving an application, the competent body promptly examines the completeness of the documentation and informs the applicant in a precise and complete manner of all deficiencies". Thus, it is clear that approval procedures are "undertaken" upon receipt of an application from an applicant.

³³¹² (*footnote original*) The dictionary meanings of the verb "complete" include "[b]ring to an end, finish, conclude". The *New Shorter Oxford English Dictionary*, L. Brown (ed.) (Clarendon Press, 1993), Vol. I, p. 460. The French and Spanish versions of Annex C(1)(a), first clause, also support this reading. The French version uses the verb "achever", the Spanish version the verb "ultimar".

³³¹³ Panel Report on *EC – Approval and Marketing of Biotech Products*, para. 7.1494.

³³¹⁴ Australia's reply to Panel question 129 after the second substantive meeting, paras. 546-550.

³³¹⁵ See Article 3.2 of the DSU.

³³¹⁶ See Article 21.1 of the DSU.

7.1485 The Panel finds support in previous jurisprudence for the possibility of a complainant filing a single complaint. In general, a WTO dispute settlement procedure starts with the complainant filing a request for consultations. The Appellate Body held in *US – Upland Cotton* that consultations "must pertain to 'measures affecting the operation of any covered agreement'"³³¹⁷, i.e. measures "whose effects are alleged to be impairing the benefits accruing to the requesting Member under a covered agreement"³³¹⁸ at present. The Appellate Body explicitly found that "[w]hether or not a measure is still in force is not dispositive of whether that measure is currently affecting the operation of any covered agreement."³³¹⁹

7.1486 Using the same logic, an alleged undue delay in a completed approval process that might continue to impair benefits accruing to the complainant under Annex C(1)(a) of the SPS Agreement should not be excluded from WTO dispute settlement merely because the process has been completed. This is particularly the case when the complainant was prevented from exporting the goods subject to the approval process during that time, and the complainant continues to feel jeopardized from starting its exports in the light of the SPS requirements resulting from the approval process.

7.1487 The Panel notes that in *US – Upland Cotton* the Appellate Body found contextual support in Article 3.3 of the DSU for its above-cited arguments:

"Article 3.3 focuses not upon 'existing' measures, or measures that are 'currently in force' but, rather, upon 'measures taken' by a Member, which includes measures taken in the past. We also observe that Article 3.3 envisages that disputes arise when a Member 'considers' that benefits accruing to it are being impaired by measures taken by another Member. By using the word 'considers', Article 3.3 focuses on the perception or understanding of an aggrieved Member. This does not exclude the possibility that a Member requesting consultations may have reason to believe that a measure is still impairing benefits even though its legislative basis has expired."³³²⁰

7.1488 The Panel is cognizant that in *EC – Chicken Cuts* the Appellate Body found in regard to requests for panel establishment that "[t]he term 'specific measures at issue' in Article 6.2 suggests that, as a general rule, the measures included in a panel's terms of reference must be measures that are in existence at the time of the establishment of the panel."³³²¹³³²² As Australia argues³³²³, however, the Appellate Body introduced its statement with the words "as a general rule", suggesting that there might be exceptions to this general rule. Subsequently, in *EC – Selected Customs Matters* the Appellate Body interpreted its statement in *EC – Chicken Cuts* as a "general rule ... qualified by at least two exceptions."³³²⁴ This not only confirmed that there are exceptions to the general rule, but implied that the exceptions are not necessarily limited to the two identified by the Appellate Body in its earlier jurisprudence. In fact, in the same paragraph of its report in *EC – Selected Customs Matters*³³²⁵ the Appellate Body also upheld the following finding by the panel:

³³¹⁷ Appellate Body Report on *US – Upland Cotton*, para. 260.

³³¹⁸ Appellate Body Report on *US – Upland Cotton*, para. 263.

³³¹⁹ Appellate Body Report on *US – Upland Cotton*, para. 262.

³³²⁰ Appellate Body Report on *US – Upland Cotton*, para. 264.

³³²¹ (*footnote original*) These measures should also have been the subject of consultations prior to the establishment of the panel, although the Appellate Body has held that there is no need for a "*precise and exact identity*" between the measures addressed in consultations and the measures identified in the panel request. (Appellate Body Report, *Brazil – Aircraft*, para. 132) (original emphasis)

³³²² Appellate Body Report on *EC – Chicken Cuts*, para. 156.

³³²³ Australia's reply to Panel question 129 after the second substantive meeting, paras. 546-550.

³³²⁴ Appellate Body Report on *EC – Selected Customs Matters*, para. 184 (emphasis added).

³³²⁵ *Ibid.*

"We understand that, as a general principle, a panel is competent to make findings and recommendations on measures in existence at the time of establishment of the panel, assuming that the request for establishment of a panel covers those measures. Nevertheless, a panel may also be competent to make findings and make recommendations on measures that have expired or are not yet in existence at the time of establishment, assuming again that the request covers those measures. More specifically, we understand that, to the extent that expired measures affect the operation of a covered agreement at the time of establishment of a panel, they may properly be the subject of findings and recommendations by a panel, particularly if such findings and recommendations are necessary to secure a positive solution to the dispute."³³²⁶³³²⁷

7.1489 Accordingly, the Panel concludes that in the current dispute, in principle, New Zealand could have challenged the IRA process, and the alleged undue delays in that process, even though that process had already been completed by the time the Panel was established.

7.1490 However, this remains a mere possibility in this dispute. As explained above, since New Zealand has not effectively identified the measure at issue in the context of its Annex C(1)(a) and Article 8 claims, these measures and the claims to which they relate are outside the scope of this dispute. As the Appellate Body noted in *Dominican Republic – Import and Sale of Cigarettes*, "[t]he Appellate Body has consistently maintained that, where a panel request fails to identify adequately particular measures or fails to specify a particular claim, then such measures or claims will not form part of the matter covered by the panel's terms of reference."³³²⁸

VIII. CONCLUSIONS AND RECOMMENDATION

8.1 For the reasons indicated in this report, the Panel has found that:

- (a) There is no evidence that the process of selection and consultation of experts was conducted improperly, that due process in the expert consultation phase of these proceedings was compromised, nor that Australia's procedural rights were in any manner negatively affected in this regard;
- (b) The 16 measures at issue in the current dispute, both as a whole and individually, constitute SPS measures within the meaning of Annex A(1) and are covered by the SPS Agreement;
- (c) Australia's measures at issue regarding fire blight, European canker and ALCM, as well as the requirements identified by New Zealand as "general" measures that are linked to all three pests at issue in the present dispute, are inconsistent with Articles 5.1 and 5.2 of the SPS Agreement and, by implication, these requirements are also inconsistent with Article 2.2 of the SPS Agreement;
- (d) New Zealand has failed to demonstrate that the measures at issue in the current dispute are inconsistent with Article 5.5 of the SPS Agreement and, consequentially, has also failed to demonstrate that these measures are inconsistent with Article 2.3 of the SPS Agreement;

³³²⁶ (footnote original) See, Appellate Body Report, *US – Upland Cotton*, para. 261; Appellate Body Report, *Chile – Price Band System*, paras. 126-144; Appellate Body Report, *EC – Chicken Cuts*, para. 156.

³³²⁷ Panel Report on *EC – Selected Customs Matters*, para. 7.36.

³³²⁸ Appellate Body Report on *Dominican Republic – Import and Sale of Cigarettes*, para. 120.

- (e) Australia's measures at issue regarding fire blight, European canker and ALCM, are inconsistent with Article 5.6 of the SPS Agreement; New Zealand has failed to demonstrate, however, that the requirements identified by New Zealand as "general" measures that are linked to all three pests at issue in the present dispute, are inconsistent with Article 5.6 of the SPS Agreement; and,
- (f) New Zealand's claim under Annex C(1)(a) claim and its consequential claim under Article 8 of the SPS Agreement are outside of the Panel's terms of reference in this dispute.

8.2 Under Article 3.8 of the DSU, in cases where there is an infringement of the obligations assumed under a covered agreement, the action is considered *prima facie* to constitute a case of nullification or impairment. The Panel concludes that, to the extent that Australia's measures at issue regarding fire blight, European canker and ALCM, as well as the requirements identified by New Zealand as "general" measures that are linked to all three pests at issue in the present dispute, are inconsistent with the SPS Agreement, they have nullified or impaired benefits accruing to New Zealand under the WTO Agreements.

8.3 The Panel recommends that the Dispute Settlement Body request Australia to bring the inconsistent measures as listed above into conformity with its obligations under the SPS Agreement.

ANNEX A

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ANNEX A-1

**WORLD TRADE
ORGANIZATION**

WT/DS367/5
7 December 2007

(07-5456)

Original: English

**AUSTRALIA – MEASURES AFFECTING THE IMPORTATION OF APPLES
FROM NEW ZEALAND**

Request for the Establishment of a Panel by New Zealand

The following communication, dated 6 December 2007, from the delegation of New Zealand to the Chairman of the Dispute Settlement Body, is circulated pursuant to Article 6.2 of the DSU.

On 27 March 2007, the Australian Director of Animal and Plant Quarantine determined a policy for the importation of apples from New Zealand: "Importation of apples can be permitted subject to the *Quarantine Act 1908*, and the application of phytosanitary measures as specified in the *Final import risk analysis report for apples from New Zealand*, November 2006".¹

New Zealand considers that the measures specified in and required by Australia pursuant to the *Final import risk analysis report for apples from New Zealand* are inconsistent with the obligations of Australia under the *Agreement on the Application of Sanitary and Phytosanitary Measures* ("SPS Agreement").

In particular, New Zealand considers that the following measures are, both individually and as a whole, inconsistent with the obligations of Australia under the SPS Agreement:

Fire blight

- The requirement that apples be sourced from areas free from fire blight disease symptoms.
- The requirement that orchards/blocks be inspected for fire blight disease symptoms, including that they be inspected at an inspection intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees, and that such inspections take place between 4 to 7 weeks after flowering.
- The requirement that an orchard/block inspection methodology be developed and approved that addresses issues such as visibility of symptoms in the tops of trees, the

¹ Biosecurity Australia Policy Memorandum 2007/07, 27 March 2007.

inspection time needed and the number of trees to be inspected to meet the efficacy level, and training and certification of inspectors.

- The requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of fire blight.
- The requirement that an orchard/block be suspended for the season on the basis of detection of any visual symptoms of fire blight.
- The requirement that apples be subject to disinfection treatment in the packing house.
- The requirement that all grading and packing equipment that comes in direct contact with apples be cleaned and disinfected (using an approved disinfectant) immediately before each Australian packing run.
- The requirement that packing houses registered for export of apples process only fruit sourced from registered orchards.

European canker

- The requirement that apples be sourced from export orchards/blocks free of European canker (pest free places of production).
- The requirement that all trees in export orchards/blocks be inspected for symptoms of European canker, including that orchards/blocks in areas less conducive for disease are inspected for symptoms by walking down every row and visually examining all trees on both sides of each row, and that areas more conducive to the disease are inspected using the same procedure combined with inspection of the upper limbs of each tree using ladders (if needed), and that such inspections take place after leaf fall and before winter pruning.
- The requirement that all new planting stock be intensively examined and treated for European canker.
- The requirement that an orchard/block be suspended for the season on the basis that any evidence of pruning or other activities carried out before the inspection could constitute an attempt to remove or hide symptoms of European canker.
- The requirement that exports from an orchard/block be suspended for the coming season on the basis of detection of European canker and that reinstatement would require eradication of the disease, confirmed by inspection.

Apple leafcurling midge

- The requirements of inspection and treatment for apple leafcurling midge, including:

the option of inspection of each lot on the basis of a 3000 unit sample selected at random across the whole lot for apple leafcurling midge, symptoms of quarantineable diseases, quarantineable pests, arthropods, trash and weed seeds, with detection of any live quarantineable arthropod resulting in appropriate treatment or rejection for export;

the option of inspection of each lot on the basis of a 600 unit sample selected at random across the whole lot for symptoms of quarantineable diseases, trash and weed seeds, plus mandatory appropriate treatment of all lots.

General

- The requirement that Australian Quarantine and Inspection Service officers be involved in orchard inspections for European canker and fire blight, in direct verification of packing house procedures, and in fruit inspection and treatment.
- The requirement that New Zealand ensure that all orchards registered for export to Australia operate under standard commercial practices.
- The requirement that packing houses provide details of the layout of premises.

New Zealand considers that the above measures are inconsistent with the obligations of Australia under Articles 2.2, 2.3 (both sentences), 5.1, 5.2, 5.5 (first sentence), 5.6 and 8 (in relation to Annex C) and Annex C(1)(a) of the SPS Agreement.

On 31 August 2007, New Zealand requested consultations with Australia regarding the above measures pursuant to Article XXII of the *General Agreement on Tariffs and Trade 1994*, Article 4 of the *Understanding on Rules and Procedures Governing the Settlement of Disputes* ("DSU"), and Article 11 of the SPS Agreement. In accordance with Article 4 of the DSU the request was notified to the Dispute Settlement Body ("DSB"), the Council for Trade in Goods, and the Committee on Sanitary and Phytosanitary Measures. The request was circulated to members of the World Trade Organization on 4 September 2007 (WT/DS367/1). Australia accepted New Zealand's request and consultations were held on 4 October 2007 in Geneva. However, the consultations have failed to resolve the matter.

Accordingly, New Zealand respectfully requests the DSB to establish a panel pursuant to Article 6 of the DSU, with standard terms of reference as set out in Article 7.1 of the DSU.

I would be grateful if you would place this item on the agenda for the next DSB meeting on 17 December 2007 and circulate this request to Members.

ANNEX A-2

**WORLD TRADE
ORGANIZATION**

WT/DS367/7

23 June 2008

(08-2984)

Original: English

**AUSTRALIA – MEASURES AFFECTING THE IMPORTATION OF APPLES
FROM NEW ZEALAND**

Communication from the Chairman of the Panel

Preliminary Ruling by the Panel

The following communication, dated 19 June 2008, from the Chairman of the Panel to the Chairman of the Dispute Settlement Body, is circulated to Members for their information.

On 13 March 2008, Australia, the respondent in the above-mentioned dispute, raised a preliminary procedural question concerning the consistency of New Zealand's request for the establishment of the Panel (WT/DS367/5) with Article 6.2 of the Dispute Settlement Understanding.

Over the past months, the Panel has received written submissions on this preliminary issue from both parties as well as from two third parties. On 6 June 2008, the Panel issued the enclosed preliminary ruling on the procedural question raised by Australia, reserving its right to further develop the reasons for its preliminary ruling later in the proceedings or to include them in its report, as appropriate.

After having consulted the parties to the dispute, the Panel has decided to inform the Dispute Settlement Body of the content of its preliminary ruling. Therefore, I would be grateful if you could circulate the body of this letter and the enclosed preliminary ruling as a WT/DS367 document in all three official languages of the WTO at the same time.

Circulation of the preliminary ruling as a separate document in the WT/DS series was decided because of the specific circumstances of the case before this Panel and in the light of the outcome of the preliminary ruling. Accordingly, it should not be seen as establishing a practice or setting a precedent for the circulation of preliminary rulings in any other dispute.

PRELIMINARY RULING OF THE PANEL

6 June 2008

I. INTRODUCTION

1. On 13 March 2008, Australia filed a request before this Panel for a preliminary procedural ruling. Australia asserted that New Zealand's request for the establishment of this Panel, dated 7 December 2007, is inconsistent with Article 6.2 of the Dispute Settlement Understanding (DSU), because the panel request fails to identify the specific measures at issue and fails to provide a brief summary of the legal basis of New Zealand's complaint sufficient to present the problem clearly. Australia asked the Panel to find that New Zealand's panel request fails to fulfil the requirements of Article 6.2 of the DSU, and therefore to refrain from considering the substance of New Zealand's claims in this dispute.¹

2. The Panel has examined Australia's preliminary request, as well as the arguments presented subsequently by Australia and New Zealand, and by Chile and the European Communities as third parties to the dispute. In considering Australia's request, the Panel has looked at New Zealand's request for the establishment of the Panel as a whole and on its face, as well as the attendant circumstances of the present case. The Panel assessed the sufficiency of this panel request in the light of the terms used in Article 6.2 of the DSU in their context and in the light of the object and purpose of this provision.

3. In the interest of due process, and especially in order to allow parties and third parties sufficient time to prepare their first written submissions, the Panel has decided to issue an early preliminary ruling. This is consistent with Australia's request that the Panel issue its preliminary ruling prior to the due dates of the parties' first written submissions.² The Panel reserves its right to further develop the reasons for its ruling later in the proceedings, or to include them in its report.

4. The Panel begins by recalling the requirements contained in Article 6.2 of the DSU. These requirements are as follows:

"The request for the establishment of a panel shall be made in writing. It shall indicate whether consultations were held, identify the specific measures at issue and provide a brief summary of the legal basis of the complaint sufficient to present the problem clearly. In case the applicant requests the establishment of a panel with other than standard terms of reference, the written request shall include the proposed text of special terms of reference."

5. The Panel notes that New Zealand's panel request clearly satisfies the first two requirements contained in Article 6.2 of the DSU. In this regard, the panel request was made in writing and indicates that "consultations [between the parties] were held on 4 October 2007 in Geneva ... [but they] failed to resolve the matter".³ Indeed, neither Australia nor the third parties have raised any issue with regard to these particular two requirements. The Panel will now turn to whether New Zealand's panel request satisfies the other requirements of Article 6.2.

¹ Australia's letter dated 13 March 2008.

² Australia's letter dated 17 March 2008.

³ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, p. 3.

II. ON THE IDENTIFICATION OF THE SPECIFIC MEASURES AT ISSUE

6. As to whether New Zealand's panel request identifies the specific measures at issue in a manner consistent with the requirements of Article 6.2 of the DSU, the Panel has reached the conclusions set forth below.

7. In its panel request, New Zealand has referred to both "measures specified in and required by Australia pursuant to the *Final import risk analysis report for apples from New Zealand*" (*FIRA*) and, "in particular" to a list of 17 requirements spelt out in the *FIRA* and identified in the panel request through bullet points.

8. Looking at the text of New Zealand's panel request, the Panel finds that, with respect to the 17 items identified by New Zealand through 17 separate bullet points, the request is sufficiently precise in identifying the specific measures at issue with respect to those 17 items, pursuant to Article 6.2 of the DSU.

9. On the other hand, given the length and complexity of Australia's *FIRA*, the Panel finds that the broad reference in New Zealand's panel request to the "measures specified in and required by Australia pursuant to the [*FIRA*]" fails to satisfy the requirement of sufficient clarity in the identification of the specific measures at issue set forth in Article 6.2 of the DSU. Accordingly, the Panel finds that its terms of reference are limited to the 17 measures specifically identified by New Zealand in its panel request and do not encompass other measures that may be contained in Australia's *FIRA*, but which were not identified with sufficient precision in the panel request.

III. THE SUMMARY OF THE LEGAL BASIS OF THE COMPLAINT

10. In its panel request, New Zealand has listed a number of provisions of the covered agreements, which it alleges are breached by the measures adopted by Australia. New Zealand has not drawn an explicit and detailed connection between the specific measures challenged and the provisions invoked. New Zealand has only stated in general terms that "the above measures are inconsistent with the obligations of Australia under [nine provisions of the Agreement on the Application of Sanitary and Phytosanitary Measures, (SPS Agreement)]".⁴ Having carefully considered the language used in the panel request and the specific content of the provisions of the SPS Agreement cited therein, the Panel understands that New Zealand has claimed that "every measure ... [identified] in its panel request is inconsistent with each of the [nine] provisions referred to [in the panel request]."⁵ In the Panel's view, this satisfies the requirement that the panel request lays out a connection between the various measures challenged and the specific provisions invoked.⁶

11. The Panel now turns to the issue of whether New Zealand's panel request provides a brief summary of the legal basis of the complaint, which is sufficient to present the problem clearly, as required by Article 6.2 of the DSU. The Panel would ideally have preferred a more explicit explanation of *how* or *why* the measures at issue are considered by New Zealand to be violating the identified provisions of the SPS Agreement. However, considering the language used in the panel request and the specific content of the provisions of the SPS Agreement cited therein, the Panel concludes that New Zealand's panel request contains enough information to adequately inform the

⁴ *Australia – Apples*, Request for the Establishment of a Panel by New Zealand (WT/DS367/5), 7 December 2007, p. 3.

⁵ *Australia – Apples*, Written Submission by New Zealand on Australia's Request for a Preliminary Procedural Ruling in Relation to the Consistency of New Zealand's Panel Request with Article 6.2 of the DSU, 7 April 2008, para. 2.51.

⁶ See Appellate Body Report on *US – Oil Country Tubular Goods Sunset Review*, para. 162.

responding party and other WTO Members on the nature of the complaint⁷ and to allow the responding party to begin preparing its defence.⁸ The Panel recalls in this regard that the complaining party is under no obligation to develop its arguments in its panel request.⁹ Furthermore, the Panel's conclusion in this case is supported by practice followed by WTO Members in some previous panel requests (including that of New Zealand and Australia), as well as by rulings such as that adopted by the panel in *EC – Approval and Marketing of Biotech Products*. Finally, the Panel notes that it is not convinced by Australia's arguments that the lack of a more detailed explanation as to how or why the 17 specifically listed measures at issue are considered by New Zealand to be violating the provisions invoked has prejudiced or will prejudice Australia's ability to defend itself in the course of the Panel's proceedings.

12. Accordingly, the Panel finds that New Zealand's panel request does not fail to provide a brief summary of the legal basis of its complaint, which is sufficient to present the problem clearly, as required by Article 6.2 of the DSU.

IV. CONCLUSION

13. In light of the foregoing, the Panel finds:

- (a) With respect to the 17 items contained in Australia's *Final import risk analysis report for apples from New Zealand (FIRA)* and identified by bullet points in New Zealand's request for the establishment of this Panel, dated 7 December 2007, the specific measures at issue have been properly identified;
- (b) New Zealand's panel request does not identify with sufficient precision any measures contained in Australia's *FIRA*, other than the 17 specific items identified through bullet points. Accordingly, any such other measures are not part of this Panel's terms of reference; and,
- (c) New Zealand's panel request contains sufficient information regarding the legal basis of the complaint to present the problem clearly with respect to the 17 identified items.

14. In light of the findings above, the Panel will allow this proceeding to continue with respect to the 17 measures specifically identified in New Zealand's panel request and to the alleged inconsistency of such measures with the provisions of the SPS Agreement cited therein.

⁷ Appellate Body Report on *EC – Bananas III*, para. 142.

⁸ Appellate Body Report on *Thailand – H-Beams*, para. 88.

⁹ Appellate Body Report on *EC – Bananas III*, para. 143.

ANNEX A-3

**AUSTRALIA – MEASURES AFFECTING THE IMPORTATION OF APPLES
FROM NEW ZEALAND
(WT/DS367)**

Working Procedures for the Panel

1. In its proceedings the Panel shall follow the relevant provisions of the Dispute Settlement Understanding (DSU). In addition, the following Working Procedures shall apply.
2. The Panel will provide the Parties¹ and Third Parties² with a timetable for its proceedings. The timetable may be modified by the Panel as appropriate, after having consulted the Parties.
3. The Panel shall conduct its internal deliberations in closed session. The Parties and interested Third Parties shall be present at the meetings only when invited by the Panel to appear before it. The Panel may open its substantive meeting with the Parties to the public, subject to appropriate procedures to be adopted by the Panel after consulting the Parties.
4. The deliberations of the Panel and the documents submitted to it shall be kept confidential. Nothing in the DSU, nor in these Working Procedures, precludes a Party or a Third Party from disclosing statements of its own positions to the public. Members shall treat as confidential information submitted by any other Member to the Panel which that Member has designated as confidential. As provided in Article 18.2 of the DSU, where a Party or a Third Party submits a confidential version of its written submissions to the Panel, it shall also, upon request of any other Party or Third Party, provide a non-confidential summary of the information contained in its submissions that could be disclosed to the public. Non-confidential summaries shall be normally submitted no later than one week after the written submission is presented to the Panel, unless a different deadline is granted by the Panel upon a showing of good cause.
5. Before the substantive meeting of the Panel with the Parties, and in accordance with the timetable approved by the Panel, the Parties shall transmit to the Panel written submissions and subsequently written rebuttals in which they present the facts of the case, their arguments and their counter-arguments, respectively. Third Parties may transmit to the Panel written submissions after the first submissions of the parties have been filed, and in accordance with the timetable approved by the Panel.
6. At its first substantive meeting with the Parties, the Panel shall ask New Zealand to present its case first. Subsequently, and still at the same meeting, Australia will be asked to present its point of view. Parties will then be allowed an opportunity for final statements, with New Zealand presenting its statement first.
7. Third Parties shall be invited to present their views during a separate session of the first substantive meeting of the Panel set aside for that purpose. Third Parties may be present during the entirety of this session.

¹ Throughout this document, the term "Party" refers to either New Zealand or Australia, as appropriate. The term "Parties" refers to both New Zealand and Australia.

² Throughout the document, the term "Third Parties" refers to Chile, the European Communities, Japan, Pakistan, Chinese Taipei and the United States.

8. Formal rebuttals shall be made at a second substantive meeting of the Panel. At this meeting, Australia shall have the right to take the floor first to be followed by New Zealand. Parties shall submit, prior to that meeting, and in accordance with the timetable approved by the Panel, written rebuttals to the Panel.

9. The Panel may at any time put questions to the Parties and to the Third Parties and ask them for explanations either in the course of the substantive meetings or in writing. Replies to questions shall be submitted in writing by the date specified by the Panel. In addition, the Parties shall be permitted to ask questions to each other and to Third Parties. Replies of the Parties and Third Parties to questions, and Parties' comments on each other's replies to questions, will not be attached to the Panel report as annexes. They will be reflected in the findings section of the Panel report where relevant.

10. Each Party shall make available to the Panel and to the other Party a written version of its oral statements, preferably at the end of the meeting with the Panel, and in any event no later than the working day following the presentation. Any Third Party that wishes to present its views shall similarly make available to the Panel and to the Parties and other Third Parties a written version of its oral statements, preferably at the end of the meeting with the Panel, and in any event no later than the working day following the presentation. Parties and Third Parties shall provide the Panel and other participants at the respective session with a provisional written version of their oral statements before these statements are made.

11. In the interest of full transparency, oral presentations shall be made in the presence of the Parties. Moreover, each Party's written submissions, including replies to questions put by the Panel, shall be made available to the other Party. Third Parties shall receive copies of the Parties' first written submissions and rebuttals. Parties shall submit all factual evidence to the Panel as early as possible and no later than during the first substantive meeting, except with respect to evidence necessary for purposes of rebuttals or answers to questions. Exceptions may be granted by the Panel upon a showing of good cause. In such cases, the other Party shall be accorded a period of time for commenting, as appropriate.

12. Within seven (7) calendar days following the submission of a written submission or presentation of an oral statement to the Panel, each Party and Third Party shall provide the Panel with an executive summary of the respective submission or statement. These executive summaries will be used by the Panel only for the purpose of drafting a concise factual and arguments section of the Panel report so as to facilitate timely translation and circulation of the Panel report to the Members. Executive summaries shall not serve in any way as a substitute for the submissions of the Parties. Executive summaries to be provided by Parties shall each not exceed ten (10) pages in length. Third Parties' executive summaries shall not exceed three (3) pages in length. The Panel may, in light of further developments, allow the Parties and Third Parties to submit longer summaries.

13. To facilitate the maintenance of the record of the dispute, and to maximize the clarity of submissions, in particular the references to exhibits submitted by Parties, Parties shall sequentially number their exhibits throughout the course of the dispute. For example, exhibits submitted by New Zealand should be numbered NZ-1, NZ-2, etc. If the last exhibit in connection with the first submission was numbered NZ-5, the first exhibit of the next submission thus would be numbered NZ-6. Exhibits submitted by Australia should be numbered AUS-1, AUS-2, etc.

14. Following the issuance of the interim report, Parties shall have two weeks to submit written requests to review precise aspects of the interim report. Following receipt of any written requests for review, and unless any Party requests the Panel to hold an interim review meeting with the Parties, each Party shall have one week to submit written comments on the other Party's written request for

review. Comments shall be strictly limited to commenting on the other Party's written request for review.

15. The Parties and Third Parties have the right to determine the composition of their own delegations. Delegations may include, as representatives of the government concerned, private counsel and advisers. The Parties and Third Parties shall have responsibility for all members of their delegations and shall ensure that all members of their delegations, as well as any other advisors consulted by a Party or Third Party, act in accordance with the rules of the DSU and the Working Procedures of this Panel, particularly in regard to confidentiality of the proceedings. Parties shall provide a list of the participants of their delegation to the Secretary of the Panel and to each other no later than 5.00 pm, local Geneva time, the working day before any meeting with the Panel.

16. Any request for a preliminary ruling (including rulings on jurisdictional issues) to be made by the Panel shall be submitted no later than in a Party's first written submission. Unless provided otherwise by the Panel, if New Zealand requests any such ruling, Australia shall submit its response to such a request in its first written submission. Likewise, and unless provided otherwise by the Panel, if Australia requests any such ruling, New Zealand shall submit its response to such a request in its rebuttal submission. Exceptions to this procedure may be granted by the Panel upon a showing of good cause. The Panel shall inform the Parties promptly of any preliminary rulings it might make in the course of the proceedings. In addition, the Panel may also choose to inform Third Parties of such preliminary rulings, if appropriate.

17. In the course of the proceedings, the Panel will determine if there is the need to seek expert advice. In such case, the following procedures shall apply:

- (a) The Panel may seek expert advice from individual experts and from international organizations, as appropriate.
- (b) The Panel may ask the Secretariat of the International Plant Protection Convention (IPPC), as well as the Parties, for suggestions of possible experts. Parties shall not engage in direct contacts with individuals suggested.
- (c) The Panel will provide the Parties with a list of possible experts, including information from their *curricula vitae* and declarations of potential conflicts of interest. Parties will have the opportunity to comment and to make known any compelling objections to any particular expert.
- (d) The Panel will select the experts on the basis of their qualifications and the need for specialized scientific expertise. The Panel will decide the number of experts in light of the number and type of issues on which advice will be sought, as well as of the different areas on which each expert can provide expertise.
- (e) The Panel will inform the Parties of the experts it has selected. Individual experts shall act in their personal capacities and not as representatives of any entity. They shall be subject to the DSB's *Rules of Conduct for the Understanding on Rules and Procedures Governing the Settlement of Disputes* (WT/DSB/RC/1).
- (f) The Panel will prepare written questions for the experts. Parties will have the opportunity to comment on the proposed questions, or suggest additional ones, before the Panel decides on the final questions to be sent to the experts. The Panel may provide the experts, on a confidential basis, with relevant parts of the Parties' submissions, including exhibits, as well as with any additional information deemed necessary.

- (g) Experts will be requested to provide responses in writing within a time-period specified by the Panel. Copies of the responses will be provided by the Panel to the Parties. The Parties will have the opportunity to comment in writing on the responses from the experts.
- (h) The Panel may schedule a meeting with experts, prior to the second substantive meeting with the Parties. Prior to said meeting, the Panel will ensure that: (i) the Parties' comments on the experts' responses are provided to the experts; (ii) the experts are individually provided with the other experts' responses to the Panel's questions. During the meeting, experts will be invited to present their responses to questions and to complement these responses as necessary, and to respond to additional questions from the Panel and the Parties. The Panel may schedule additional meetings with experts if it deems it appropriate. The Secretariat will prepare a summary of the experts' written replies to questions, as well as a transcript of the meeting with the experts, for inclusion in the Panel's report. The experts will be given an opportunity to comment on the drafts of these texts before they are finalized.

18. The following procedures regarding service of documents shall apply:

- (a) Each Party shall serve its submissions directly on the other Party. Each Party shall, in addition, serve its first written submission on Third Parties. Each Third Party shall serve its submissions on the Parties and other Third Parties. Each Party and Third Party shall confirm in writing, at the time it provides the submission to the Secretariat, that copies have been served as required.
- (b) The Parties and Third Parties shall provide their written submissions to the Panel, through the Secretariat, by 5:00 p.m., local Geneva time, on the deadlines established by the Panel.
- (c) The Parties and Third Parties shall provide the Secretariat with seven (7) paper copies of all their submissions as well as an electronic copy on a CD-ROM, diskette or as an e-mail attachment, in a format compatible with the Secretariat's software. Paper copies shall be delivered to the Dispute Settlement Registrar, Mr. ***** (Room 2150). Electronic copies should be sent by e-mail to Mr. ***** at DSregistry@wto.org; Ms. ***** at *****@wto.org; Mr. ***** at *****@wto.org; and, Mr. ***** at *****@wto.org.
- (d) Parties and Third Parties shall provide the Secretariat with written copies of their oral statements no later than close of business on the day following the date of the presentation. Written replies to questions shall be submitted at the date decided by the Panel.
- (e) The Panel will provide Parties with an electronic version of the descriptive sections of its draft report, the interim report and the final report, as well as of other documents, as appropriate. When the Panel transmits to the Parties or Third Parties both paper and electronic versions of a document, the paper version shall constitute the official version for the purposes of the record of the dispute.

19. These Working Procedures may be modified by the Panel as appropriate, after having consulted the Parties.

ANNEX A-4

**Australia – Measures Affecting the Importation of Apples from New Zealand
(WT/DS367)**

Procedures for the Panel's First Substantive Meeting

2-3 September 2008

I. OPEN HEARINGS

1. As set out in the timetable for this dispute, the Panel will hold its first substantive meeting on Tuesday 2 and Wednesday 3 September 2008. Further to the parties' request, and after having consulted the Parties¹ and Third Parties² on possible options, the first substantive meeting will be held through open hearings according to the procedures set out below.

2. To respect the rules of confidentiality, in particular as regards the Exhibit identified by New Zealand as business confidential, no information designated as confidential by a party or a third party shall be addressed during these open hearings. The Panel reserves the right to call for a closed confidential session of the substantive meeting, if necessary, in order to address issues related to any confidential information. The Panel also reserves the right to suspend the open hearings at any time, on its own initiative or at the request of either Party, if there is any risk of breach of confidentiality or of disruption of the meeting. If the open hearings are suspended by the Panel for any reason, the Panel may decide to resume the meeting in a closed confidential session.

3. At the open hearings, the Panel will ask New Zealand and Australia, in that order, to make their respective opening statements. After Parties have made these opening statements, New Zealand and Australia will be given the opportunity to make comments on each other's statements and to pose questions. The Panel may also pose questions to the Parties. In a separate session of the open hearings, Third Parties will be given the opportunity to make their own statements, if they so wish.

4. Registered delegates of WTO Members and other registered individuals will be able to follow the open hearings by means of simultaneous broadcasting of the proceedings to a separate room. If, for logistical reasons, simultaneous broadcasting of the proceedings should turn out to be not feasible or convenient, registered persons may be invited to follow the open hearings by seating in the gallery of the room where the meeting is being held.

5. The proceedings of the substantive meeting, including those of the closed confidential session, may be tape-recorded by the Secretariat. Tape recordings of the meeting will be for the exclusive use of the Panel and of the WTO Secretariat staff assisting the Panel, and will be kept confidential.

¹ Throughout this document, the term "Party" refers to either New Zealand or Australia, as appropriate. The term "Parties" refers to both New Zealand and Australia.

² Throughout this document, the term "Third Parties" refers to Chile, the European Communities, Japan, Pakistan, Chinese Taipei and the United States.

II. THIRD PARTY SESSION

6. Unless otherwise provided by the Panel, the first substantive meeting will be reconvened on Wednesday, 3 September 2008, at 10 a.m., in the Centre William Rappard, for a Third Party session, at which Third Parties will be given the opportunity to make their statements, if they so wish.

7. After Third Parties have made their statements, New Zealand and Australia will be given the opportunity to pose questions to any Third Party or to make comments on the statements of Third Parties. The Panel may also pose questions to the Third Parties.

III. CLOSED CONFIDENTIAL SESSION

8. After having heard the statements of Parties and Third Parties, the Panel may decide to call for a closed confidential session of the substantive meeting, if necessary.

9. In the light of the nature of the information to be discussed and the content of the statements made by Parties and Third Parties, the Panel will decide whether Third Parties will be invited to participate in the closed confidential session.

10. At the closed confidential session, the Panel may invite New Zealand and Australia, as well as Third Parties if it were the case, to make further statements. The Panel may also pose questions to Parties and, if it were the case, to Third Parties.

IV. FURTHER RULES

11. After having consulted the Parties, the Panel may amend the procedures for the first substantive meeting or complement them with additional rules, as appropriate.

ANNEX 1 (TENTATIVE ORDER OF PROCEEDINGS)¹

Tuesday, 2 September 2008

10:00 – 13:00 Statements of Parties.
13:00 – 15:00 Break.
15:00 – 18:00 Statements of Parties (cont'd.). Questions and answers.

Wednesday, 3 September 2008

10:00 – 13:00 Statements of Third Parties. Questions and Answers.
13:00 – 15:00 Break.
15:00 – 16:00 Closed confidential session (if necessary).
16:00 – 18:00 Concluding statements of Parties.

¹ This is only indicative and will depend on the development of the proceedings.

ANNEX 2 (IMPORTANT DATES)¹

Wednesday, 23 July: Panel sends proposed procedures for substantive meeting to Parties for comments.

Tuesday, 29 July: Parties send comments on proposed procedures for substantive meeting to Panel.

Tuesday, 5 August: Panel sends approved procedures for substantive meeting to Parties and Third Parties.

Thursday, 7 August: Members are informed of open hearings for substantive meeting.

Monday, 11 August: Notice of open hearings for substantive meeting is published on the WTO website. Registration begins.

Friday, 29 August: End of registration for outside individuals (non delegates) wishing to attend open hearings for substantive meeting.

¹ These dates are only indicative and may be modified at any time.

ANNEX A-5

**Australia – Measures Affecting the Importation of Apples from New Zealand
(WT/DS367)**

**Procedures for the Panel's Meeting with the Experts and Parties
and the Panel's Second Substantive Meeting**

30 June 2009 and 1-2 July 2009

The current procedures shall apply to the meeting of the Panel with the designated experts and Parties¹, scheduled to take place on Tuesday 30 June 2009, as well as to the Panel's second substantive meeting with the Parties, scheduled to take place on Wednesday 1 and Thursday 2 July 2009. In case of any conflict, the current procedures take precedence over any conflicting provisions in the Working Procedures for the Panel adopted on 26 March 2008.

V. PANEL'S MEETING WITH THE EXPERTS AND PARTIES (30 JUNE 2009 AND, IF NECESSARY, 1 JULY)

1. As set out in the timetable for this dispute, the Panel will hold a meeting with the designated experts on Tuesday 30 June 2009. The Panel may decide to continue the meeting into the morning of Wednesday 1 July 2009, if necessary and after having consulted the Parties. Further to the Parties' request, and after having consulted the Parties on possible options, the meeting of the Panel with the designated experts will be held through an open session according to the procedures set out below. The meeting will be conducted in English only, without simultaneous interpretation.

2. To respect the rules of confidentiality, in particular as regards exhibits identified by any of the Parties as confidential, no information designated as confidential by a Party shall be addressed during this open session. The Panel reserves the right to call for a closed confidential session of the meeting with the designated experts, if necessary, in order to address issues related to any confidential information. The Panel also reserves the right to suspend the open session at any time, on its own initiative or at the request of either Party, if there is any risk of breach of confidentiality or of disruption of the meeting. If the open session is suspended by the Panel for any reason, the Panel may decide to resume the meeting in a closed confidential session.

3. The purpose of the Panel's meeting with the experts is for the Panel to obtain further clarification of some of the factual issues relevant for this case. In particular, the meeting should allow the experts to elaborate and clarify the written responses submitted to the questions that were posed by the Panel, and to respond to the comments made to those responses by the Parties, as well as allow the Panel and the Parties to pose questions to the experts in order to seek any elaboration or clarification on issues that are relevant to the case.

4. At the meeting, the Panel will introduce the experts. Subsequently, experts will be allowed the opportunity to make brief general comments on their responses, in light of the written comments made by the Parties. The Panel will then pose questions to the experts and allow New Zealand and Australia the opportunity to pose their own questions to experts. Parties shall pose direct factual questions and refrain from making statements, and argumentative or leading questions to the experts.

¹ Throughout this document, the term "Party" refers to either New Zealand or Australia, as appropriate. The term "Parties" refers to both New Zealand and Australia.

Experts should answer only those questions that they feel competent to answer. If necessary, and after having heard the Parties' opinions, the Panel will decide on the appropriateness of any question being posed to the experts. Parties will not pose questions to each other, except with the Panel's authorization. In the course of the Panel's second substantive meeting, Parties will have ample opportunities to develop their respective arguments including, if they so wish, to develop arguments on the experts' responses.

5. The focus of the meeting will be the science relied upon by Australia in its IRA regarding fire blight, European canker and apple leafcurling midge, as well as the risk assessment techniques used by Australia in its IRA. The Panel intends to group the discussion into six subject areas and to organize the discussion accordingly. The subject areas will be as follows: (a) General terms and definitions; (b) Risk assessment techniques; (c) Fire blight; (d) European canker; (e) Apple leafcurling midge; and, (f) Other. For each of these subject areas, the Panel will organize the discussion so that both Parties and the Panel have the opportunity to pose questions on the various issues. The Panel will normally allow New Zealand the opportunity to pose questions to the experts first, to be followed by Australia. Throughout the discussion of each issue, the Panel may pose questions before, during or after the Parties are given the opportunity to pose their own questions. The Panel may also allow the opportunity to Parties to come back with new questions or follow-up questions. Once the Panel has decided that a particular issue has been sufficiently explored, the Panel may invite the experts to make some concluding remarks on the specific issue, if they so wish. Throughout the meeting with the experts, the Panel will endeavour to ensure that sufficient time is devoted to the discussion of the different relevant issues. In order to achieve this objective, the Panel may decide at any point that there is a need to move on to a different issue. Experts will be asked to provide their responses individually and shall refrain from conferring during the course of the meeting.

6. Parties shall refrain from submitting any new factual evidence to the Panel in the course of the meeting with the experts. Upon a showing of good cause, the Panel may exceptionally allow the introduction of new evidence in the course of the meeting with the experts at the request of a Party, and after having heard the other Party, if such new evidence is necessary for the purpose of posing a question to an expert. The Panel may allow the submission by any expert of background material that is necessary to respond to a written comment made by any of the Parties or to respond to a question posed by the Panel or by any of the Parties.

7. Persons in possession of a valid WTO badge and individuals registered through the WTO Secretariat will be able to follow the open session of the Panel's meeting with the experts by means of simultaneous broadcasting of the proceedings to a separate room. If, for logistical reasons, simultaneous broadcasting of the proceedings should turn out to be infeasible or inconvenient, interested persons may be invited to follow the open hearings by seating in the gallery of the room where the meeting is being held.

8. The proceedings of the Panel's meeting with the experts, including those of the closed confidential session if such a session were to take place, will be tape-recorded by the WTO Secretariat. Tape recordings of the meeting will be for the exclusive use of the Panel and of the Secretariat staff assisting the Panel, and will be kept confidential. No recording or filming of the proceedings other than by the WTO Secretariat will be allowed.

9. The WTO Secretariat shall prepare a transcript of the proceedings of the Panel's meeting with the experts. For the purpose of reviewing the transcript's accuracy, the Panel will send a copy of the transcript to the experts and to the Parties. The transcript of the proceedings of the Panel's meeting with the experts and the compilations of written replies of the experts shall be referenced in the Panel's report. The Panel may quote from that transcript and from the compilation in the relevant sections of the Panel's report. Such transcript and compilation, however, will not be appended in full

to the Panel's report. In the interest of transparency, the Panel shall ask the Secretariat to make available the transcript of the proceedings of the Panel's meeting with the experts and the compilation of the experts' written replies on the WTO's website, in the section of that website that is related to the current dispute.

VI. PANEL'S SECOND SUBSTANTIVE MEETING (1-2 JULY 2009)

A. OPEN HEARINGS

10. As set out in the timetable for this dispute, the Panel will hold its second substantive meeting with the Parties on Wednesday 1 and Thursday 2 July 2009. Further to the Parties' request, and after having consulted the Parties on possible options, the second substantive meeting will be held through open hearings according to the procedures set out below. The meeting will be conducted in English only, without simultaneous interpretation.

11. To respect the rules of confidentiality, in particular as regards exhibits identified by any of the Parties as confidential, no information designated as confidential by a Party shall be addressed during these open hearings. The Panel reserves the right to call for a closed confidential session of the substantive meeting, if necessary, in order to address issues related to any confidential information. The Panel also reserves the right to suspend the open hearings at any time, on its own initiative or at the request of either Party, if there is any risk of breach of confidentiality or of disruption of the meeting. If the open hearings are suspended by the Panel for any reason, the Panel may decide to resume the meeting in a closed confidential session.

12. At the open hearings, the Panel will ask Australia and New Zealand, in that order, to make their respective opening statements. After Parties have made these opening statements, the Panel will grant Parties the opportunity to pose questions and to make comments on each other's statements. After Parties have made their opening statements, and throughout the meeting, the Panel may pose questions to the Parties. In order to facilitate the exchange of views and information, Parties are encouraged to provide preliminary oral replies to the questions posed by the other Party and by the Panel. At the end of the meeting, the Panel will ask New Zealand and Australia, in that order, to make their respective concluding statements.

13. Persons in possession of a valid WTO badge and individuals registered through the WTO Secretariat will be able to follow the open hearings by means of simultaneous broadcasting of the proceedings to a separate room. If, for logistical reasons, simultaneous broadcasting of the proceedings is infeasible or inconvenient, interested persons may be invited to follow the open hearings by seating in the gallery of the room where the meeting is being held.

14. The proceedings of the substantive meeting, including those of the closed confidential session, may be tape-recorded by the Secretariat. Tape recordings of the meeting will be for the exclusive use of the Panel and of the WTO Secretariat staff assisting the Panel, and will be kept confidential. No recording or filming of the proceedings other than by the WTO Secretariat will be allowed. There will be no transcript of the substantive meeting and only written versions of oral statements as well as written responses to questions will become part of the record.

B. CLOSED CONFIDENTIAL SESSION

15. After having heard the statements of the Parties, the Panel may decide to call for a closed confidential session of the substantive meeting, if necessary.

16. At the closed confidential session, the Panel may invite the Parties to make further statements. The Panel may also pose questions to the Parties.

VII. FURTHER RULES

17. After having consulted the Parties, the Panel may amend the procedures for the substantive meeting or for the Panel's meeting with the experts, or complement them with additional rules, as appropriate.

**ANNEX
(IMPORTANT UPCOMING DATES)¹**

Wednesday, 3 June: Panel sends proposed procedures for second substantive meeting and for the Panel's meeting with the experts to Parties for their comments.

Tuesday, 9 June: Parties send comments on proposed procedures for substantive meeting and for the meeting with the experts to Panel.

By Friday, 12 June: Panel sends approved procedures for second substantive meeting and for the Panel's meeting with the experts, to Parties and experts.

Monday, 15 June: Members are informed of open hearings for substantive meeting.

By Thursday, 18 June: Notice of open hearings for substantive meeting is published on the WTO website. Registration begins.

Thursday, 25 June: End of registration for outside individuals (persons not in possession of a valid WTO badge) wishing to attend substantive meeting or meeting of the Panel with the experts.

Thursday, 25 June: Parties provide a list of their respective delegations to the Secretary of the Panel and to each other.

Monday, 29 June: Secretary of the Panel provides Parties with a list of the individuals registered through the WTO Secretariat.

Tuesday, 30 June: Panel's meeting with the designated experts and the Parties.

Wednesday and Thursday, 1-2 July 2009: Panel's second substantive meeting with the Parties.

By Friday, 10 July: Panel sends written questions to Parties. Parties send written questions to each other, copying the Panel.

By Friday, 24 July: Parties submit replies to questions.

By Friday, 31 July: Parties may submit comments on each other's replies to questions.

¹ These dates are only indicative and may be modified by the Panel at any time, after having consulted the Parties.

ANNEX B

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ANNEX B-1

The List of replies from the scientific experts to questions posed by the Panel (document WT/DS367/11) will only be available electronically on the WTO website.

ANNEX B-2

The Transcript of the Panel's meeting with the scientific experts (document WT/DS367/12) will only be available electronically on the WTO website.
