

CHAPTER SIXTEEN

CONCLUSIONS AND RECOMMENDATIONS

Introduction

16.1 As stated in the executive summary, this report is an interim report. The Committee may revisit matters dealt with in this report following publication of the final IRA.

16.2 In accordance with the body of this report, the Committee raises the following matters in its conclusions and recommendations below:

- a) the draft IRA development;
- b) the draft IRA methodology;
- c) the draft IRA science; and
- d) the final IRA.

16.3 The Committee notes that BA is currently undertaking a review of the IRA process. This review was foreshadowed following two to three years of experience with the IRA process.

The Draft Import Risk Analysis Development

16.4 In January 1999, MAFNZ submitted a new application for access to the Australian apple market for New Zealand apple growers. The request was that:

AQIS review available risk management options with a view to establishing phytosanitary measures that are the least restrictive in respect of New Zealand apple exports while ensuring the level of protection deemed appropriate by Australia.

16.5 AQIS treated this new request by MAFNZ as a high priority, and commenced preparation of the draft IRA using the routine process, as outlined in the *IRA Handbook*. On 6 October 2000, changes to the internal structure of AFFA resulted in responsibility for the development of the draft IRA being transferred to the newly formed BA.

16.6 BA released the draft IRA on 11 October 2000. In accordance with the requirements of the *IRA Handbook*, BA provided a 60-day period for public comment on the draft IRA, although this 60-day period was later extended due to the large number of submissions received.

16.7 The provisional findings of the draft IRA met with considerable criticism from a broad range of parties. Accordingly, on 2 November 2000, the Senate referred the importation of fresh apple fruit from New Zealand to this Committee for inquiry and report.

16.8 On 6 March 2001, the Secretary of AFFA, Mr Michael Taylor, announced a major extension to the public consultation process ahead of the preparation of the final IRA. The revised consultation process incorporates a number of elements:

- a) First, BA released on 2 July 2001 an inventory of the issues arising from submissions received during the extended 60-day public comment process (see Plant Quarantine Policy Memorandum 2001/13).
- b) Secondly, following receipt of responses to the inventory of issues, BA is proposing to develop a scientific review paper for comment, based on the issues in the inventory.
- c) Thirdly, BA is proposing to conduct a series of open workshops with industry representatives, scientists, state government representatives and other interested parties to consider the scientific review paper.
- d) Fourthly, BA is proposing an external review by scientists of the final IRA when it is close to completion.

16.9 Only following the conduct of these steps will BA release the final IRA on the importation of fresh apple fruit from New Zealand, setting out whether New Zealand apples should be imported into Australia, and if so, under what conditions.

16.10 The Committee welcomes these revised measures for the further conduct of the IRA, although it notes that there is no timetable for the process. That said, the Committee makes a number of comments and recommendations in relation to the development of the draft IRA to date.

The Decision to Undertake a New Import Risk Analysis

16.11 During the inquiry, various parties questioned whether the MAFNZ request that Australia should determine the 'least restrictive' quarantine measures for importation of New Zealand apples was appropriate. The Committee notes however that the request for access was consistent with WTO guidelines and international practice.

16.12 Nevertheless, the Committee acknowledges industry concerns that the final 1998 IRA was released on 11 December 1998, but that almost within a month (13 January 1999), BA had accepted a new application from MAFNZ for access to the Australian market.

The Decision to Undertake a Routine Import Risk Analysis

16.13 During the inquiry, various parties argued that the decision of AQIS to undertake a routine IRA, as opposed to a non-routine IRA, did not reflect stakeholder views, and was inconsistent with the requirements of the *IRA Handbook* that ‘technically complex’ matters be subject to non-routine assessment.

16.14 The Committee shares these concerns. Rightly or wrongly, the decision to conduct a routine IRA led to the impression that BA was attempting to deflect industry scrutiny of the conduct and findings of the IRA. Fundamentally, given the sensitivity of the issues involved, a non-routine IRA was more appropriate in the circumstances.

16.15 Given this, the Committee endorses the recommendation of the Queensland Government in its written submission that a decision to adopt a routine IRA process by BA should be open to appeal.

Recommendation 1

The Committee recommends that Biosecurity Australia, as part of its current review into the future conduct of the IRA process, develop procedures to allow a decision to adopt a routine IRA to be appealed to the Administrative Appeals Tribunal.

16.16 The Committee also notes the findings of the recent ANAO report *Managing for Quarantine Effectiveness*. The ANAO argued that when deciding to follow a routine or non-routine IRA process, BA should consider the likely consequence of the incursion of a particular pest. Presently, BA only considers whether the IRA is likely to be large and technically complex.

16.17 The Committee endorses this argument. It notes that considering the consequence of an incursion would improve stakeholder confidence in the final decision whether to use a routine or non-routine IRA.

Recommendation 2

The Committee recommends that Biosecurity Australia, as part of its current review into the future conduct of the IRA process, develop procedures to allow for consideration of the likely consequences of the incursion of a particular pest when deciding whether to use a routine or non-routine IRA.

The Decision to Extend the 60-day Public Comment Period

16.18 The Committee endorses the decision to extend the 60-day consultation process, in the interests of allowing all parties opportunity to comment on the draft IRA. However, it is clear that the decision to extend the consultation period should have been made well before the deadline for close of submissions, rather than retrospectively.

The Decision to Reject the Apple Industry's Application for Research Funding

16.19 The Committee notes that the AAPGA applied to the former HRDC for research funding to respond to the draft IRA, and that this application was initially approved. However, that approval was subsequently withdrawn over a month later by the full Board of the HRDC.

16.20 The Committee raised in estimates the reason why the application was initially approved, only for that decision to be subsequently reversed. The explanation the Committee received was that the HRDC Board considered the project to be agri-political, and that previous funding for the 1998 IRA was used in an agri-political manner.

16.21 The Committee acknowledges this argument, but notes that the process was very poorly handled by the former HRDC. As a result of the withdrawal of HRDC funding, the Australian apple and pear industry has funded privately its response to the draft IRA.

The Consultation Process with the Industry

16.22 During the inquiry, various industry stakeholders expressed concern that they were only consulted by BA following the completion of the draft IRA, at the so-called 'back end' of the process, and that effectively 'the deals had already been done.'

16.23 In response, BA argued that the draft IRA is designed to draw out additional information and comment, and that consultation 'typically starts after the release of the draft IRA.'

16.24 The Committee acknowledges this argument, but is of the firm view that during the preparation of a draft IRA, there should have been scope for involving industry representatives and their scientific advisers alongside representatives of the state agriculture departments.

16.25 In this regard, the Committee notes the findings of the recent ANAO report, *Managing for Quarantine Effectiveness*. The ANAO noted that the *IRA Handbook* provides little guidance on the role or purpose of consultation. Accordingly, the ANAO recommended clearer guidance for staff and stakeholders on the aims of the various parts of the consultation process to reduce the likelihood of misunderstandings and controversy.

16.26 The Committee endorses this finding, and reiterated the ANAO's recommendation.

Recommendation 3

The Committee recommends that Biosecurity Australia, as part of its current review into the future conduct of the IRA process, develop and publish widely guidelines on the purpose and the method of consultation in the IRA process.

16.27 Industry stakeholders were particularly critical of AQIS's lack of consultation with the communications reference group, which met only twice during the development of the draft IRA. In particular, at the second meeting of the communication reference group on 25 July 2001, AQIS did not provide members of the group with a copy of the draft IRA working paper, despite its provision to representatives of the State agriculture departments on 20-21 July.

16.28 The Committee believes that AQIS should have provided the communications reference group with a copy of the draft IRA working paper. Mr Armour, Mr Corbey and Mr Shield could have been expected to have extended the same guarantee of confidentiality as was extended by the state Government representatives.

16.29 That said, the Committee wishes to stress its belief, that the consultation process should not be a public process, and that BA is justified in restricting access to early drafts of an IRA.

16.30 The Committee notes Recommendation 4 in its earlier report *An Appropriate Level of Protection* (the Salmon report) regarding the adoption of a Risk Assessment Committee for each IRA. The Committee strongly reiterates this recommendation:

Recommendation 4

The Committee recommends that Biosecurity Australia, as part of its current review into the future conduct of the IRA process, establish a Risk Assessment Committee to allow for the direct involvement of domestic stakeholders during the conduct of IRAs.

The Consultation Process with the State Agriculture Departments

16.31 The Committee notes that the level of expertise within state agriculture departments on quarantine matters is considerable, and that that expertise should be incorporated where possible in the draft IRA. In this regard, some departments expressed a view against commenting on the draft IRA working paper, preferring to 'keep their powder dry' until release of the draft IRA. However, the Committee notes that where state departments (notable Agriculture WA) did provide additional advice and information to BA, it was not necessarily incorporated in the draft IRA.

16.32 The Committee also raised with representatives of the state departments the fact that the draft IRA working paper was kept confidential to them, and was not available to the communications reference group.

16.33 In response, department representatives indicated that they did not find it unusual that BA requested that the draft IRA working paper be kept confidential. At the same time however, they also indicated that they assumed that BA was consulting with industry separately in an appropriate manner.

16.34 The Committee does not believe that the state authorities were complicit with BA in withholding information from the industry. Ultimately it was BA's responsibility to consult with all parties, including industry representatives.

16.35 Although discussed elsewhere in this report, the Committee notes that each of the six state agriculture departments opposed the findings and conclusions of the draft IRA. In particular, PIRSA and the Agriculture Western Australia presented extensive submissions dealing with a broad number of issues arising from the draft IRA.

The Consultation Process with Environment Australia

16.36 Environment Australia was not actively involved in the development of the draft IRA. This is because BA refused to refer the proposed importation of apples from New Zealand to the Minister for the Environment and Heritage under the terms of the *Quarantine Amendment Act 1999*, despite requests from Environment Australia that it do so. The Committee believes this to be an unsatisfactory situation.

16.37 Although discussed elsewhere in this report, the Committee notes that Environment Australia subsequently presented a submission to this inquiry highly critical of the draft IRA science and methodology. The Committee understands that there are no similar cases where a fellow Commonwealth Government agency has been so critical of an IRA prepared by AQIS/BA.

Recommendation 5

The Committee recommends that Biosecurity Australia, as part of its current review into the future conduct of the IRA process, clarify with Environment Australia the definition of pathogens which pose a significant risk of harm to the natural environment. Such pathogens must be referred to the Minister for the Environment for advice under the terms of the *Quarantine Amendment Act 1999*.

16.38 Following from this recommendation, if in the course of preparing a draft IRA, BA becomes aware of pathogen which would pose a significant risk of harm to Australian biodiversity, BA must request that Environment Australia prepare an assessment of the likely effect of that pathogen.

The Consultation Process with International Scientists

16.39 During the inquiry, the AAPGA was highly critical of the questionnaire sent by AQIS to international scientists, on the basis that it appeared to be designed to elicit a particular response in favour of the IRA. In addition, industry parties were also critical of the excessive citation of opinions (personal communication) from the questionnaire in the draft IRA, rather than published, readily available references.

16.40 In response, the Committee notes that the responses to the questionnaire do not underpin the conclusions of the draft IRA, and that the draft IRA includes a thorough review of the scientific literature on fire blight. Nevertheless, from its own survey of the literature, the Committee found reference to evidence based on "pers comm" to be highly unsatisfactory.

16.41 The Committee also observes that various parties were critical of BA's use in the draft IRA of evidence provided by Dr Pusey and Prof Aldwinckle. The Committee completely rejects these criticisms of the objectivity of Dr Pusey and Prof Aldwinckle, and notes that it received valuable evidence from Prof Aldwinckle during the conduct of this inquiry.

The Draft Import Risk Analysis Methodology

16.42 The risk assessment in the draft IRA follows three steps, in accordance with ISPM No 2:

- a) pest categorisation;
- b) an assessment of the probability of entry, establishment and spread of a pest; and
- c) estimation of the economic consequences (including environmental impact) arising from the entry, establishment and spread of that pest.

16.43 The Committee notes below a number of criticisms of the risk assessment methodology used in the draft IRA in assessing the probability of entry, establishment and spread of *Erwinia amylovora*.

Qualitative v Quantitative Risk Evaluation

16.44 In its written submission to this inquiry, BA noted that it used a qualitative risk evaluation matrix in the draft IRA similar to that used in the IRA on Non-viable Salmonoids and Non-salmonoid Marine Finfish (the Salmon IRA). That qualitative risk evaluation matrix was subsequently proved to be defensible to scrutiny by the WTO Appellate Body.

16.45 Nevertheless, the Committee is highly critical of the decision by BA to utilise a qualitative risk assessment in the draft IRA, as opposed to a quantitative risk assessment. Fundamentally, this is because of the complexity of the risk evaluation task, the scarcity of the data on some issues, the lack of knowledge in certain areas and the need for transparency in the risk assessment. As the Committee set out in some detail, these are precisely the reasons for favouring a quantitative numerical analysis over a qualitative analysis.

16.46 Fundamentally, a quantitative analysis would significantly increase transparency of the risk assessment process, especially when measured against Australia's ALOP. In particular, qualitative analysis allows for the estimation not only of the level of risk, but also the level of uncertainty surrounding that estimation of risk.

16.47 By contrast, multiplication of words, as is currently done in the draft IRA, simply cannot achieve this. For example, it is difficult to see how the product of two "moderate" probabilities can be a "low" probability, or how the product of two of

“moderate” and a “low” probability can be a “very low” probability (and therefore acceptable) without meaningful qualification.

16.48 The Committee notes in this regard Recommendation 8 of its earlier report *An Appropriate Level of Protection* (the Salmon report) that ‘wherever possible, AQIS support their qualitative analysis with quantitative risk assessment techniques’.

16.49 The Committee strongly reiterates this recommendation. The draft IRA methodology does not reflect current international best practice in risk assessment, it is not particularly transparent, and makes implicit and simplifying assumptions for which there is no basis.

Recommendation 6

The Committee recommends that Biosecurity Australia incorporate a full quantitative risk evaluation in the final IRA on the possible importation of New Zealand apples, in preference to the current unsatisfactory qualitative risk evaluation used in the draft IRA.

16.50 The Committee notes in regard to this recommendation that BA may well need to seek professional statistical advice from risk consultants with expertise in this field.

The Events in the Entry, Establishment and Spread Pathway

16.51 During the conduct of the inquiry, various parties also questioned BA’s assessment of the prospect of the successful transfer of *Erwinia amylovora* to Australia according to the entry, establishment and spread pathway. As noted in this report, the probability of entry was in turn divided into eight steps – four each in the importation and distribution pathways.

16.52 The New Zealand Government argued that the ‘splitting of events’ in the entry, establishment and spread pathway has not been consistently applied. In particular, while the probability of entry is broken down into importation (4 steps) and distribution (4 steps), an assessment of risk (ie “high”, “low” etc) is not made at every point. Rather, an overall assessment is made for all 4 steps, and then combined to give the probability of entry.

16.53 By contrast, Dr Wimalajeewa argued that BA inappropriately categorised the events in the entry, establishment and spread pathway in the draft IRA. In particular, he argued that the last three steps in the “entry” component – “discarded waste”, “exposure to the environment” and “vectors and other means of transfer” – should not have been considered under the “entry” component. Rather, they should have been considered under the “establishment” component.

16.54 In response to these arguments, the Committee believes that BA should reassess and rationalise the components of the entry, establishment and spread pathway. In particular, the possible transfer of *Erwinia amylovora* to a suitable host in

sufficient numbers to initiate an infection should form part of the establishment pathway, rather than the entry pathway. In addition, as suggested by the New Zealand Government, each component of the entry, establishment and spread pathway should be assessed independently.

Recommendation 7

The Committee recommends that Biosecurity Australia revise the combined events in the entry, establishment and spread pathways in the final IRA on the possible importation of New Zealand apples. This is to measure more accurately and transparently the unrestricted risk associated with *Erwinia amylovora* and other pests.

16.55 The Committee notes in regard to this recommendation that BA should consult further with Dr Wimalajeewa.

The Appropriate Level of Protection

16.56 The Committee notes that BA has previously been criticised by the Committee, amongst others, for failing to effectively communicate the concept, definition and application of Australia's ALOP. BA conservatively assigns a "very low" risk categorisation as fulfilling Australia's ALOP.

16.57 In the context of this inquiry, the Committee believes that it is difficult to qualitatively define what constitutes a "very low" risk, and whether a "very low" risk in fact meets Australia's ALOP.

16.58 The Committee notes in this regard that the final IRA, conducted using a full quantitative analysis, will require BA to more accurately identify and define a "very low" risk, and express it in numerical terms.

Recommendation 8

The Committee recommends that Biosecurity Australia develop a quantitative measure of what constitutes a "very low" risk in the final IRA on the possible importation of New Zealand apples, based on a full quantitative risk assessment.

The Draft Import Risk Analysis Science

The Draft Pest Categorisation

16.59 BA initially identified in the draft IRA 26 quarantine pests (16 insects, one mite, one bacterium and eight fungi) associated with pome fruit and present in New Zealand, but either absent from Australia, or present but not widely distributed and under official control.

16.60 Subsequently, BA narrowed those 26 identified pests to 17 pests (14 insects, one mite, one bacterium and one fungus) of potential quarantine concern to Australia.

That is to say, it is ‘feasible’ that those 17 pests could become established in Australia, and the economic consequences of that happening would be ‘significant’.

16.61 Of those 17 pests, the most significant and destructive is *Erwinia amylovora*, the causal bacterium of fire blight. The disease is so named because during an outbreak, infected leaves will turn brown or black, appearing as though they have been scorched by fire.

16.62 Since its discovery in North America around 1780, *Erwinia amylovora* has spread to Canada, New Zealand, England, mainland Europe, the Scandinavian countries, eastern Europe and the Middle East. The bacterium is notably absent from Australia, South Africa and South America.

16.63 In April 1997, *Erwinia amylovora* was confirmed in the Royal Botanic Gardens in Melbourne. AQIS subsequently implemented a successful program to eliminate the disease. Fire blight symptoms were also reported in the Adelaide Botanic Gardens, although subsequent research indicated they were not caused by the *Erwinia amylovora* bacterium.

16.64 The Committee notes some confusion as to the fragility of the *Erwinia amylovora* bacterium. It is generally accepted that the individual bacterial cells are, like most other bacteria cells, vulnerable to desiccation, heat competition, solar radiation and competition from other micro-organisms.

16.65 However, the disease itself can be robust and persistent, due to the ability of individual cells to overwinter in protected environments, notably the margins of cankers formed during previous seasons on the trunk and main branches of trees.

16.66 Special note should be made of the distinction between infested and infected apples. Infestation describes the ‘epiphytic’ colonisation of the surface, calyx and stem-end of apple fruit, although the fruit and plant is unlikely to display disease symptoms. Infection describes the internal ‘endophytic’ colonisation of the core of an apple or the plant itself, and is generally associated with the development of disease symptoms (which are readily identifiable).

The Unrestricted Risk Posed by Erwinia amylovora

16.67 In the draft IRA, BA assessed the probability of entry of *Erwinia amylovora* into Australia on apples from New Zealand as “low”, the probability of establishment as “high” and the probability of spread as “high”. Accordingly, BA assessed the overall probability of entry, establishment and spread as “low”. In turn, BA assessed the economic consequences of the entry, establishment and spread of *Erwinia amylovora* as “extreme”. Combining these two assessments, BA assessed the unrestricted risk associated with *Erwinia amylovora* as “moderate”. This is shown below.

Table 16.1: BA's Unrestricted Risk Assessment of *Erwinia amylovora*

Probability of: Entry (P1)	Establishment (P2)	Spread (P3)	Probability of entry, establishment and spread (P = P1xP2xP3)	Economic Consequence (C)	Unrestricted Risk (R=PxC)
Low	High	High	Low	Extreme	Moderate

16.68 By contrast, the New Zealand Government assessed the unrestricted risk associated with *Erwinia amylovora* as “negligible”, based on a “negligible” probability of entry, establishment and spread, and a “moderate” economic consequence. This is shown below.

Table 16.2: New Zealand Government's Unrestricted Risk Assessment of *Erwinia amylovora*

Probability of: Entry (P1)	Establishment (P2)	Spread (P3)	Probability of entry, establishment and spread (P = P1xP2xP3)	Economic Consequence (C)	Unrestricted Risk (R=PxC)
Negligible	Moderate	Moderate	Negligible	Moderate	Negligible

16.69 As before, the Committee does not believe that the components of the entry, establishment and spread pathway are correctly categorised. Noting this, the Committee nevertheless makes a number of observations in regard to the “entry” pathway as currently described in the draft IRA:

- a) Infested apples with *Erwinia amylovora* in the calyx are more likely to carry the bacteria into Australia than infected apples with the bacteria in the core. In particular, infected apples generally abort on the tree well before reaching maturity. Although it is possible for a few cells of *Erwinia amylovora* to exist in the core of externally healthy looking apples without multiplying and expressing disease symptoms, they would be extremely unlikely to exist in sufficient numbers to initiate an infection.
- b) It is estimated that New Zealand could export a total of 200 million apples to Australia in any one year. Without implementing any protocols, up to 5 per cent of infested apples from New Zealand (ie up to 10 million) may harbour *Erwinia amylovora*. Studies by Hale *et al* (1987), Sholberg *et al* (1988), van der Zwet *et al* (1990), Clark *et al* (1993) and McManus and Jones (1995) all suggest that *Erwinia amylovora* levels decline as apples mature, although the bacterium

may be recovered from mature apples in blighted orchards which are near (ie within one metre) to infected plant tissue.

- c) The estimation that the probability of apples from New Zealand harbouring *Erwinia amylovora* in the calyx is less than 5 per cent does not allow for differences between regions of New Zealand. Fire blight is relatively uncommon in the Otago region, whereas it is much more prevalent in Hawke's Bay due to the warmer spring climate.
- d) Studies show that cold storage during transport to Australia may significantly reduce the number of viable *Erwinia amylovora* in the 10 million apples referred to above. Hale and Taylor (1999) and Sholberg *et al* (1988) report a reduction in the population of *Erwinia amylovora* during cold storage.
- e) There are presently no studies on the likelihood of apples from New Zealand being discarded into the environment in Australia in a situation to create an infection/infestation. The New Zealand Government cites a study by Roberts *et al* (1998) in Japan which found that the probability of apple fruit being discarded near a suitable host was 0.25 per cent.
- f) The BA and New Zealand analyses focused on discarded apples as the main avenue for transfer of *Erwinia amylovora* to a suitable host in Australia. Another possible pathway which the IRA does not consider is the repacking of apples in Australia in apple growing regions, or the discarding of damaged fruit as stock feed on farms.
- g) The likelihood that an insect will visit a discarded apple, pick up the *Erwinia amylovora* bacterium, and transmit it to a suitable host is estimated by BA at between 1 in 1000 and 1 in 10,000. In particular, bees, which are the most likely insects in the transfer of *Erwinia amylovora*, are unlikely to visit discarded apple cores.
- h) Should an insect visit a discarded apple core and subsequently a suitable host, it is theoretically possible for just one bacteria cell to initiate an infection. However, the scientific evidence is that successful distribution of *Erwinia amylovora* under appropriate climatic conditions requires as a minimum approximately 10,000 colony forming units. It is suggested that at harvest, infested mature apples may contain at most 10 to 100 colony forming units.

16.70 While noting the above considerations, the Committee is of the opinion that should *Erwinia amylovora* become established and spread throughout the apple growing regions of Australia, its effect on the industry could be greater than the effect of *Erwinia amylovora* in New Zealand. This is based on two important considerations, the warmer (and possibly wetter) climate in Australia, and the widespread use of M9 and M26 rootstocks in Australia.

16.71 The Committee also notes that the majority of scientific experts on fire blight state that apples are not a vector for *Erwinia amylovora*. In this regard, Mr Ivess from MAFNZ argued that while there are some scientists who do not support this position, this is the case in any field of research, and that such scientists tend to be ‘at the end of the continuum’ of scientific research.

16.72 At the same time however, the Committee notes that most international research on fire blight is conducted in countries where *Erwinia amylovora* is endemic. In such countries, infested apples are a relatively insignificant source of inoculum. Rather, the disease is far more likely to spread via other avenues, making the study of the spread of *Erwinia amylovora* via trade in apple fruit irrelevant. However, for countries such as Australia which do not have *Erwinia amylovora*, trade in apple fruit is the only source of inoculum.

Recommendation 9

The Committee recommends that Biosecurity Australia immediately commission research by the CSIRO, the NZ Horticulture and Food Research Institute or independent authorities into whether export-ready apples from New Zealand can carry viable colonies of *Erwinia amylovora* in their core, calyx or flesh.

The Unrestricted Risk Posed by Other Pests

16.73 During the inquiry, the Committee was presented with evidence that the draft IRA incorporates insufficient research on other pests and pathogens that may enter Australia should the importation of New Zealand apples proceed. In particular, it was argued that some other pests and pathogens associated with apples may be vectors for the transfer of *Erwinia amylovora*.

16.74 The insects and mites most likely to transmit *Erwinia amylovora* are those that live in the calyx but emerge at some stage in their life cycle. Such pests include *Carpophilus spp* (dried fruit beetle), *Dasineura mali* Kieffer (apple leaf curling midge), *Pseudococcidae* (Mealybug), *Thrips obscuratus* (Flower thrips) and *Eriophytes mali* (apple blister mite).

16.75 The Committee notes in particular the research of Gouk and Boyd (1999), which points to the role of the apple leaf-curling midge in the broadcast of *Erwinia amylovora*.

16.76 On the basis of the above concerns, the Committee believes that BA may underestimate the chance of mechanical transfer of *Erwinia amylovora* from a discarded apple core to a suitable host (estimate by BA at 1 in 1,000 to 1 in 10,000).

Recommendation 10

The Committee recommends that Biosecurity Australia incorporate in the final IRA further research into the role of other pests in the possible broadcast of *Erwinia amylovora* in Australia, notably the apple leaf-curling midge.

The Draft IRA Protocols

16.77 To reduce the risk posed by *Erwinia amylovora*, BA proposed in the draft IRA 11 protocols to reduce the probability of entry of *Erwinia amylovora* into Australia on apples from NZ from “low” to “negligible”. Doing so in turn reduces the probability of entry, establishment and spread of *Erwinia amylovora* to “negligible”, and the restricted risk posed by *Erwinia amylovora* to “very low”. This is shown below.

Table 16.3: BA’s Restricted Risk Assessment of Erwinia amylovora

Probability of: Entry (P1)	Establishment (P2)	Spread (P3)	Probability of entry, establishment and spread (P = P1xP2xP3)	Economic Consequence (C)	Unrestricted Risk (R=PxC)
Negligible	High	High	Negligible	Extreme	Very Low

16.78 It is important to note that the protocols target infection/infestation of apples with *Erwinia amylovora* differently. Importantly, BA specifically acknowledged in the draft IRA that the only 2 protocols aimed at preventing infestation of the calyx are protocol 1 (registered export blocks) and protocol 2 (50m detection zones) – not Protocol 4 (dipping in chlorine solution). That said, protocols 1 and 2 are the most controversial protocols, given the difficulty of detecting *Erwinia amylovora* in cankers in an orchard.

16.79 Protocol 1 is reliant on visual inspection of orchards for fire blight symptoms. However, the Committee notes the concerns of various parties that fire blight can be present without visible symptoms. Alternatively, fire blight cankers can form on twigs as small as 4mm in diameter, making them very difficult to detect. In addition, it was suggested that the timing of the visual inspections is inappropriate.

16.80 In relation to protocol 2, the Committee observes the distinction which is not well appreciated between the 500m buffer zone (which contains no fire blight hosts) enforced by Japan, and the 50m detection zone being proposed by BA. BA proposed the 50m detection zone to target spread of *Erwinia amylovora* over short distances by wind and rain, not the spread of the bacterium by bees and other insects.

16.81 In this regard, BA argued in the draft IRA that bees and other insects will easily fly 4km or more, making a 500m buffer zone useless. At the same time however, the Committee notes the submission from the Victorian Apiarists’

Association and Crop Pollination Association which indicates that foraging bees, not surprisingly, will not travel any further than they have to, and that during spring this is likely to be a maximum of 150-200m.

16.82 Regardless, the Committee is of the opinion that buffer/detection zones are of little practical value, given evidence that *Erwinia amylovora* bacterium can spread throughout an orchard in just one day at optimum temperatures and humidity, and in conjunction with significant insect activity.

16.83 Protocol 4 proposes the use of a chlorine solution to disinfest the surface of fruit. Various parties were critical of this protocol on the basis that *Erwinia amylovora* infesting the calyx-end of some fruit may not be killed due to the formation of air pockets. The Committee noted that BA specifically acknowledged this possibility in the draft IRA, but argued that in accordance with protocols 1 and 2, apples sourced from New Zealand orchards would be unlikely to harbour *Erwinia amylovora* in their calyx.

Alternatives to the Draft IRA Protocols

16.84 The Committee wishes to highlight a possible alternative to the protocols outlined in the draft IRA:

- a) First, New Zealand apples earmarked in lots for the Australian market could be sampled at certified New Zealand packing houses using the new random drop sampling method. During the Committee's visit to New Zealand, the Committee visited Apollo Fruit in Hastings, which has implemented random drop sampling in an approved trial export program to the USA. Random drop sampling differs from normal sampling methods in that it samples apples destined for the USA at the point of packing, rather than the point of entry into the USA.
- b) Secondly, apples taken from a lot earmarked for export to Australia using the random drop sampling method could be tested for the presence of *Erwinia amylovora*. During the Committee's visit to Horticulture and Food Research Institute of New Zealand, Dr Hale outlined to the Committee a new apple DNA testing regime for the detection of *Erwinia amylovora* which could potentially reduce the cost of sampling 100 apples for *Erwinia amylovora* to around \$20 Australia per sample.
- c) Thirdly, where apples taken from a sample were found to have unacceptable levels of *Erwinia amylovora*, the entire lot would be refused for export to Australia. Otherwise, the lot would be accepted for export to Australia, subject to guarantees of product security and traceability.

16.85 The Committee notes that implementation of such a system would require BA to set a maximum permissible number of *Erwinia amylovora* colony forming units in

an individual New Zealand apple earmarked for the Australian market. The Committee believes that BA could determine this in consultation with the CSIRO and the NZ Horticulture and Food Research Institute. It would also require BA to determine the minimum number of apples to be taken for DNA testing from each lot.

Recommendation 11

The Committee recommends that Biosecurity Australia adopt as a better alternative to the protocols outlined in the draft IRA the following measures:

- **The use of random drop sampling at certified New Zealand packing houses for sampling of New Zealand apple lots earmarked for possible export to Australia;**
- **The DNA testing of apples taken during random drop sampling for the presence of *Erwinia amylovora*; and**
- **The acceptance or rejection of apple lots from New Zealand earmarked for export to the Australian market based on the results of the above DNA testing and other relevant testing.**

16.86 The Committee also notes from its visit to Apollo Fruits that the removal of trash from apples destined for Australia could be almost guaranteed, provided the appropriate staffing levels and processing speeds were adopted. Once again however, this would need to be determined by BA.

Recommendation 12

The Committee recommends that Biosecurity Australia themselves conduct tests with at least two major New Zealand export packing houses on the appropriate apple processing speed and staffing levels required to guarantee that apples destined for possible export to Australia would be completely trash free.

The Management of Fire Blight

16.87 Following from its visit to New Zealand, the Committee notes that fire blight is managed relatively easily in New Zealand through effective orchard management techniques. That said, it should be acknowledged that the Australia climate is more favourable to outbreaks of *Erwinia amylovora* than that of New Zealand.

16.88 There are a range of controls against *Erwinia amylovora* including the use of copper and antibiotic sprays, cultural controls, biological controls, and the use of particular fire blight resistant rootstocks. Antibiotic sprays are used in conjunction with a wide range of computer models which have been developed to predict outbreaks of fire blight.

16.89 The primary antibiotic used against *Erwinia amylovora* is streptomycin. The Committee notes however that *Erwinia amylovora* resistance to streptomycin has been reported in California in the USA, in Israel, and in parts Hawke's Bay in New

Zealand. In the US where *Erwinia amylovora* has developed resistance to streptomycin, terramycin is used as an alternative, although it is generally less effective than streptomycin.

16.90 The use of streptomycin or terramycin in Australia should *Erwinia amylovora* reach this country is problematic. At present, the NRA does not register either streptomycin or terramycin for spraying, and would be unlikely to do so. In addition, if *Erwinia amylovora* were to reach Australian orchards, the Committee notes that organic farmers would lose their organic status were they to use streptomycin, assuming its use were endorsed by the NRA.

Recommendation 13

The Committee recommends that Biosecurity Australia incorporate in the final IRA advice from the NRA as to the circumstances under which the NRA would permit the spraying of streptomycin or terramycin in Australia in response to an outbreak of *Erwinia amylovora*. This advice should be based on research by Biosecurity Australia on the number of applications of streptomycin or terramycin which would be required each season to contain an outbreak of *Erwinia amylovora* in the various apple growing regions of Australia.

16.91 The concern was also expressed by some parties that the use of streptomycin on apples imported from New Zealand for consumption in Australia would lead to increased human resistance to antibiotics. However, the Committee notes that the *New Zealand (Maximum Residue Limits for Agricultural Compounds) Mandatory Food Standards 1999* has a general “default” MRL of 0.1ppm, which is insignificant.

The Final Import Risk Analysis

16.92 The Committee wishes to reiterate that it does not seek to dictate whether the importation of apples into Australia from New Zealand should or should not proceed. The final quarantine decision on the importation of apples from New Zealand rests with the Director of Quarantine in Australia, Mr Taylor, who is obliged to make his decision based on the findings of the final IRA and in accordance with the principles enshrined in the WTO Agreement framework.

16.93 In this regard, the Committee is aware that BA is proposing an independent external review of the final IRA by international scientists as part of the revised public consultation process announced by Mr Taylor on 6 March 2000. The Committee is of the opinion that this review should be similar to that used in the non-routine pathway. As such, it should involve a committee/panel of three to five members, some with expertise in quarantine risk analysis, and others with recognised professional expertise in fire blight.

Recommendation 14

The Committee recommends the independent scientific review conducted as part of the revised public consultation process announced on 6 March 2000 by the Director of Quarantine, Mr Taylor, should be similar to that used in non-routine IRAs.

16.94 The Committee notes the position of the New Zealand Government that the continuation of the ban on importation of apples from New Zealand would be a disguised restriction on international trade, based ‘presumably on concerns about the relative competitiveness of the Australian industry’. New Zealand officials also noted that under WTO guidelines, Australia is obliged to adopt the least trade restrictive protocols possible.

16.95 The Committee acknowledges this position, but also re-affirms that Australia is entitled to implement its own conservative ALOP, provided that it is scientifically based, non-discriminatory and consistently applied. The Committee also notes that if judged necessary at the conclusion of the final IRA, Australia remains entitled to apply the precautionary principle and continue to prevent the importation of New Zealand apples, pending further research.

The Impact of the Possible Importation of New Zealand Apples

16.96 Given the competitiveness of the New Zealand apple industry, the Committee notes the suggestion that New Zealand growers would potentially bring apples into Australia that are cheaper than those currently available, and decrease the returns to Australian growers.

16.97 In response, the Committee wishes to reiterate that Australia’s WTO obligations are to facilitate free and open trade where possible. The impact of competition on the Australian industry is not in itself an argument against importation of apples from New Zealand.

16.98 The Committee also notes the concern that other countries, notably Japan, which currently accept Australian apples would revisit this situation if Australia were to accept importation of apples from New Zealand. Once again, this is not an argument to restrict trade. However, the Committee believes that BA should investigate this matter with Australia’s trading partners prior to release of the final IRA.

Recommendation 15

The Committee recommends that Biosecurity Australia contact countries to which Australia exports apples to clarify their position should Australia allow importation of apples from New Zealand. This is to avoid Australian apples being assessed as posing a risk by other countries should Australia accept apples from New Zealand.

**Senator Winston Crane
Chairman
July 2001**

