Australian Government

Biosecurity Australia

Final Import Risk Analysis Report for Apples from New Zealand

Part A

November 2006

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Cover image: Apple orchard in New Zealand.

Foreword

This IRA is issued in three parts:

- Part A contains a summary of the import risk analysis
- Part B contains the full detail of the analysis
- Part C contains technical details on the full range of pests[1] considered.

This document is Part A

It contains a brief background on risk analysis, a summary of the methodology used and the results and conclusions of the analysis. Part A is intended to assist stakeholders understanding but it does not contain the full details of the analysis. Although care has been taken in preparing Part A, it should not be relied upon as a complete and accurate representation of the risk analysis or the results of this process.

This final IRA report has been issued by the Chief Executive of Biosecurity Australia.

Under normal circumstances stakeholders have 30 days from the publication of this report to lodge an appeal. However, due to seasonal holidays falling within this 30 day period, the appeal period is being extended. The final due date for lodging an appeal will be Friday 12 January 2007.

Appeals must be lodged in writing with the Import Risk Analysis Appeals Panel – a body independent of Biosecurity Australia – on one or both of the following grounds:

- there was a significant deviation from the process set out in the *Import Risk Analysis Handbook* (2003) that adversely affected the interests of a stakeholder
- a significant body of scientific information relevant to the outcome of the IRA was not considered.

In lodging appeals, stakeholders must provide a statement of reasons, including relevant material to support the appeal.

The Appeals Panel normally has up to 45 days to consider its findings and report to Australia's Director of Quarantine. If there is no appeal, or once any appeals are resolved, the process is complete and the recommended policy will be submitted to the Director of Quarantine for determination.

Appeals should be submitted to:

IRAAP Secretariat
Corporate Policy Division
Department of Agriculture, Fisheries and Forestry
GPO Box 858
CANBERRA ACT 2601

Facsimile: (02) 6272 4506
E-mail: IRAAP@daff.gov.au

Further details of the appeal process are provided in the Handbook.

[1] The term 'pest' used throughout this report is 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 or plant products'.

Contents

Summary

This final import risk analysis report assesses the quarantine risks to Australia through the proposed importation of apples from NZ and recommends risk management options to reduce the risks to a very low level, consistent with Australia's appropriate level of protection.

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.
- Orchard inspections undertaken for fire blight 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 and 7 weeks after flowering when conditions for fire blight disease development are likely to be optimal. Orchards with any visual symptoms of fire blight would be disqualified from export.
- Use of disinfection treatment (e.g. chlorine) in the packing house to prevent contamination of apples with fire blight bacteria.
- Inspection of all host trees in export orchards after leaf fall, during winter, for freedom from European canker disease. Orchards with any symptoms of European canker would be disqualified from export.
- Inspection in New Zealand of a random sample of 3000 fruit from each lot for freedom from apple leaf curling midge. Detection of apple leaf curling midge would result in rejection of the lot or treatment. Alternatively, a treatment such as fumigation could be used for all export lots.
- Inspection for all other quarantine pests with remedial action taken (treatment or withdrawal of the lot) if any are detected.
- No satisfactory risk management procedures could be identified for apple scab disease. Therefore, it is proposed that imports of New Zealand apples into Western Australia not be permitted.

Full details of the analysis and the conclusions reached are provided in Part B of this final import risk analysis report.

Introduction

Australia's biosecurity policies aim to protect Australia against the risks that may arise from exotic pests entering, establishing and spreading in Australia, thereby threatening Australia's unique flora and fauna, as well as those agricultural industries that are relatively free from serious pests.

The 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. If the risks are found to be above Australia's appropriate level of protection (ALOP), risk management measures are proposed to reduce the risks to an acceptable level. But, if it is not possible to reduce the risks to an acceptable level, then no trade will be allowed.

Successive Australian Governments have maintained a conservative, but not a zero-risk, approach to the management of biosecurity risks. This approach is expressed in terms of Australia's ALOP, which reflects community expectations through government policy and is currently described as providing a high level of protection aimed at reducing risk to a very low level, but not to zero.

Australia's IRAs are undertaken by Biosecurity Australia (BA) using teams of technical and scientific experts in relevant fields, and involving consultation with stakeholders at various stages during the process. The recommendations from BA are provided to the Director of Animal and Plant Quarantine (the Secretary of the Australian Department of Agriculture, Fisheries and Forestry), who is responsible for making the formal decision as to whether or not trade will occur, and under what conditions. The Australian Quarantine and Inspection Service (AQIS) is responsible for implementing the import protocol, including any risk management measures.

Full details of the processes used by BA are given in Part B of this report, and in the *Import Risk Analysis Handbook* (BA, 2003).

Scope of this IRA

This IRA focuses on the importation of mature apple fruit free of trash, either packed or sorted, and graded bulk fruit from New Zealand. It has been prepared in response to an application made by New Zealand in January 1999, seeking access for its apples to Australia.

This final report has been prepared as part of the IRA process as set out in the *Import Risk Analysis Handbook* (BA, 2003). The report contains details of the quarantine pests associated with New Zealand apples. It takes into account technical comments from stakeholders on the *Revised draft import risk analysis report for apples from New Zealand* (BA, 2005b) released in December 2005. In addition, it contains recommendations on risk management measures proposed to manage any pests for which the risk has been assessed as being higher than is acceptable for Australia.

What is risk?

There are many concepts and definitions of risk and what constitutes risk. However, in the context of an IRA, risk is considered to consist of two major components: the likelihood of a pest entering, establishing and spreading in Australia from imports; and the consequences or impact of this. These two components are combined to give an overall estimate of the risk.

Import risk analysis – an overview

An IRA for plants or plant commodities has three key stages:

- **pest categorisation** (identifying what pests might be associated with the commodity in question)
- **risk assessment** (assessing the likelihood that the identified pests would enter, establish and spread, as well as the types and likely magnitude of consequences that this would have)
- **risk management** (assessing what measures could be used to mitigate the assessed risks, if possible).

Pest categorisation

Pest categorisation is the initial step to identify pests that require a risk assessment. It identifies pests that:

- are known to be associated with apples in New Zealand
- are absent, or whose presence in Australia is uncertain or are present but under official control
- have the potential for being on the pathway (see below)
- have the potential for entry, establishment and spread
- have the potential for consequences.

Risk assessment

Estimating the likelihood of entry, establishment and spread

Pathways for pests

The entry, establishment and spread of a new pest in Australia as a result of trade in fruit requires an unbroken chain of events from the exporting country to suitable host plants in Australia. Typically, this requires that the pest is present in the orchard; that it remains on or in the fruit at harvest; that it survives packing, storage and transport to Australia; that it is not detected at on-arrival inspection; that it ends up close to and is exposed to suitable host plants; that infestation or infection occurs; and that the pest population becomes self-perpetuating.

The pathways and the likelihoods for specific events occurring may vary with different pests. For example, a flying insect may be able to escape from an apple at many stages in the pathway but bacteria may remain adhering to the surface of an apple through to consumption by a consumer. Differences such as these have been examined and incorporated into the relevant analyses.

Exporting country analysis

One part of the analysis is concerned with activities in the exporting country. The starting point for this is the orchard where the fruit is being grown. In some cases, pests may be completely absent from some orchards and apples coming from these orchards will therefore be free of those pests, assuming contamination with pests does not occur through the packing and transport chain. For example, for a pest known to be absent from orchards on the North Island of New Zealand, the overall probability of it being present on apples from the whole of New Zealand is lower than if it were widely distributed, assuming apples are also sourced from the South Island. However, the analysis also considers the possibility of apples arriving from an area of New Zealand where a specific pest may be concentrated.

The next step considers the likelihood that the pest will be present on the apples that are picked for export. Note that the pest categorisation stage of the risk analysis eliminates pests that have such a small likelihood of being present on or in apple fruit that they do not constitute a threat to Australia. Very few of the pests of concern for New Zealand apples are primarily pests of apple fruit, (for example, they may be root pathogens or only attack leaves of apple trees), but they may require further consideration because they may become associated with apple fruit. This has been further discussed in a section of the report dealing with contaminants.

During picking and transfer to the packing house, apples that are not carrying pests may be contaminated by, for example, pests on pickers' hands, picking bags and field boxes. The analysis allows for this possibility.

At the packing house, apples would be subjected to several operations, such as being dumped into water, carried on conveyer systems, and brushed and graded. These operations may reduce the number of pests present or the number of apples carrying a particular pest, but this will depend on the pest. A specific step in the analysis assesses the likelihood of this happening. In other cases, the processes in the packing house may increase the number of apples carrying a pest or the numbers of pests on individual apples. For example, a water dump that is contaminated with bacteria may result in clean apples being contaminated with the pest. The analysis allows for a possible increased rate of infection of pest-free apples in the packing process.

At the end of the packing line, apples would be subjected to various operations related to their export and transport to Australia. This could include quality inspection, palletisation, containerisation and transportation. Apples may also be stored for some time at this stage. Depending on the pest, some of these operations may reduce the number of apples carrying pests or the number of pests present on individual apples, and the analysis allows this to be considered. Conversely, some of these operations could result in an increase in the number of apples carrying pests, and this is also allowed for in the analysis.

On-arrival procedures constitute the last step in the export process that may affect the number of apples carrying pests. For example, if live insects are detected when a container is opened to check that the contents comply with the documentation, then action may be taken (such as treatment) that results in a reduction in the number of infested apples. The analysis specifically allows for this possibility.

On-shore analysis

The on-shore analysis takes the estimate for the likelihood of pest entry from the exporting country, and continues the analysis to estimate where pests may end up after entering Australia, as well as the likelihood of a pest establishing and spreading at these locations.

The important elements for the on-shore analysis are the distribution pattern for apples, the availability of suitable hosts for these pests, and the probability that a pest being carried on (or in) an apple will start a pest population.

The on-shore analysis starts by looking at the distribution pattern for apples. Allowance is made for apples going along various pathways to the end use. For example, one pathway allows for apples to be imported in bulk to a packing house located in a fruit-growing area, being packed into retail boxes and then distributed to major supermarkets. Other pathways allow for imports packed in boxes, for packing in urban areas and for use in the food service industries. At appropriate stages, allowance is made for discarding spoilt or waste apples. For example, there will always be some wastage at a packing house, and this may be disposed of on-site, close to host plants for some of the pests.

The next important element considered is the availability of suitable hosts for the pests. Different pests have different host ranges, so this part of the analysis needs to be specific for each pest. For example, fire blight has a narrow host range, only infecting a group of plants in the family Rosaceae, whereas other pests are polyphagous, that is, they can feed (and therefore establish on) a very wide range of plant species. The analysis considers susceptible host plants in four groups, classified according to the potential locations of these plants. These are:

- commercial fruit crops
- nursery plants
- household and garden plants
- wild and amenity plants.

Of course, these groups are not exclusive and the analysis allows for this. For example, while apple trees are commercial fruit crops, they may be present in nurseries and may be grown in gardens, and are also found as wild or feral plants in various locations.

In assessing each pest, the IRA team considered, at appropriate steps in the assessment, the presence of any Australian native plants within the latter three host groups that are likely to be susceptible to that pest.

The third important element considered is the probability that a pest being carried on (or in) an apple will start a new pest population in cases where a pest ends up near a suitable host plant. Many factors need to be considered at this stage.

For example, with an insect pest being carried as a larva in a fruit, the larva must emerge, mature into an adult, find a mate and lay eggs. The eggs must then hatch successfully and result in the establishment of a population of the pest. Such a chain must be continuous to result in pest establishment, and there are many potential breaks in the chain. For example, pest establishment may be possible only during relatively short periods, depending on climate and host plant development. There also may be only a short time for a mature insect to find a mate. Pests that emerge on different days may have little chance of finding a mate. In addition, many insects have a dispersal phase when they are searching for and selecting host plants before mating. If there are only a few insects emerging at one time, there is a strong chance that they will disperse and will not find a mate; although this will be influenced by environmental conditions (e.g. wind) and biological factors such as pheromones.

Other pests, such as the fire blight bacterium, *Erwinia amylovora*, do not have a mobile stage that would allow them to seek out a host plant. Initiation of the disease would require mechanical transmission of bacteria from, for example the calyx of an infested apple to the stigma of a flower that was in the correct state for infection. It has been suggested that the most likely agents for mechanical transmission would be crawling or flying insects that visit the calyces of apple fruit and then visit the stigmas of flowers. The opportunity for this step to be completed would be limited by several factors, such as short time limits for flowering of suitable hosts, the numbers of insects present that could enter calyces of discarded apples and

then flowers, and the limited survival rate of fire blight bacteria on discarded and decaying apples as the fruit dries out and/or becomes colonised by rotting organisms that compete for nutrients**.**

It is also worthwhile examining the record of plant pest incursions in Australia. Although it is always very difficult to draw firm conclusions about the pathway of entry, most incursions appear to be associated with the movement (often illegal) of planting material (for example, cuttings and plants) or with natural movement particularly into northern Australia. There is little evidence that the regulated importation of agricultural commodities (e.g. kiwi fruit, cherries, citrus) is a significant pathway for pest entry.

There is, however, one case where it is suspected that unregulated importation of fruit resulted in a new pest becoming established in Australia. Papaya fruit fly became established in north Queensland in 1995, and it is thought that this resulted from the illegal importation of infested tropical fruit. This example illustrates that pest establishment from fruit is not impossible, and emphasises the need to rigorously analyse proposals to import fruit.

Probability of entry, establishment and spread

The results of the exporting country analysis and the on-shore analysis are combined to provide an overall estimate of the probability of entry, establishment and spread for each pest.

Consequences

The other component of the risk assessment is an estimate of the potential consequences or impact of the pest establishing in Australia. The consequences are considered under four headings – local, district, regional and national – to determine an overall estimate of the consequences. The approach used allows for consideration of direct pest effects such as potential production losses, costs of control and loss of quality. Indirect consequences such as eradication costs, effects on domestic and international trade, impacts on the environment and impacts on communities are also assessed.

Scores for these impacts range from ‘unlikely to be discernable’ through to ‘highly significant’, and are applied to direct and indirect criteria. The scores are then combined using a series of rules to provide an overall assessment of the consequences for each pest, ranging from ‘negligible’ to ‘extreme’.

Unrestricted risk

The estimate of the likelihood of entry, establishment and spread is combined with the estimate of the consequences according to the matrix shown in Table 1 to provide an estimate of the unrestricted annual risk for each pest. Unrestricted means the estimated risk if apples were to be imported with no risk management measures in place. The reference to ‘annual’ indicates that the likelihood estimate is based on one year of trade. One year of trade is a convenient timescale to estimate the likely volume of trade and the risk analysis system is based on using this volume. However, it does not mean that that the quarantine protection only applies to one year. Clearly the consequences of pest entry, establishment and spread will normally extend beyond a year, and the assessment of consequences is not restricted to a particular time period. In addition, it is always possible to modify the quarantine measures in response to changes in pest status, scientific knowledge and new treatments.

Risk estimates of ‘low’, ‘moderate’, ‘high’ or ‘extreme’ are considered to exceed the level of risk that is acceptable to Australia. Estimates of ‘very low’ or ‘negligible’ are considered to be acceptable. If the unrestricted risk estimate for a pest exceeds ‘very low’ then risk management measures are required.

Table 1 Risk estimation matrix

Likelihood of entry, establishment and spread						
High	Negligible risk	**Very low risk**	Low risk	Moderate risk	High risk	Extreme risk
Moderate	Negligible risk	**Very low risk**	Low risk	Moderate risk	High risk	Extreme risk
Low	Negligible risk	Negligible risk	**Very low risk**	Low risk	Moderate risk	High risk
Very low	Negligible risk	Negligible risk	Negligible risk	**Very low risk**	Low risk	Moderate risk
Extremely low	Negligible risk	Negligible risk	Negligible risk	Negligible risk	**Very low risk**	Low risk
Negligible	Negligible risk	Negligible risk	Negligible risk	Negligible risk	Negligible risk	**Very low risk**
	Negligible	*Very low*	*Low*	*Moderate*	*High*	*Extreme*

Consequences of entry, establishment and spread

Risk management measures and restricted risk

Where the unrestricted annual risk estimate for an individual pest is unacceptable (that is, above 'very low') appropriate risk management measures will be needed to reduce the risk estimate to an acceptable level. The effectiveness of the proposed measures is evaluated by repeating the analysis after the effects of a proposed risk management measure have been included to give a 'restricted annual risk'. This is repeated for each proposed measure and/or proposed combination of measures. This value is then checked against the matrix to determine whether the proposed measure reduces the risk to a 'very low' or 'negligible' level.

Depending on the biology of individual pests, various risk management measures may be available. Some examples of risk management measures that could be applied up to the point of import include sourcing the fruit from areas free of a pest or areas where the pest is at a low level, and applying a treatment followed by inspection and rejection if pests are detected.

Risk management measures that can be applied at or after importation of the fruit tend to be limited. However, some possibilities that could be considered include inspection and rejection if pests are found, treatments such as fumigation, and restrictions on movement of fruit to certain areas. Restrictions on fruit movement may be particularly relevant for Western Australia. Several pests of apples that are present in eastern Australia are absent in Western Australia. Western Australia already has controls on the importation of apples from eastern Australia, and these may be relevant to risk management for apples from New Zealand.

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 level of risk reduction. This is referred to as a 'systems' approach to risk management.

In developing final recommendations on risk management measures, consideration is given to the potential impact of the measures on potential trade. Where there are alternative and equivalent risk management measures that achieve the required degree of risk reduction, the final recommendations need to take account of Australia's international obligations and propose the least trade-restrictive risk management measures available.

Pest categorisation

During the IRA process, 443 potential pests of apples were categorised according to their presence or absence in Australia, including regulatory status where applicable, their potential for being on the pathway (association with apple fruit), their potential for establishment or spread in Australia, and the potential consequences of establishment or spread. Table 2 summarises the findings of the categorisation process. Details of the categorisation are given in Part C.

Table 2 Outcome of the pest categorisation process

Groups	Associated with apples in New Zealand	Not in Australia, uncertain or of regional concern	Potential for being on pathway (Likely)	Potential for establishment or spread (Feasible)	Potential for consequences (Significant)	No. of species to be considered further
Insects	284	162	19	19	13	13
Mites	35	18	4	4	0	0
Snails	3	2	0	0	0	0
Spiders	4	2	0	0	0	0
Bacteria	3	1	1	1	1	1
Fungi	94	26	14	14	2	2
Nematodes	8	0	0	0	0	0
Viruses	9	0	0	0	0	0
Diseases of unknown etiology	3	2	0	0	0	0
Total	443	213	38	38	16	16

After all the pests were considered, 16 quarantine pest species were identified as requiring further consideration in a detailed risk assessment, because of their likely potential for being on the pathway of entry, because of the potential to establish or spread, and because the potential consequences for Australia were judged to be significant. These were eight species of insects, one bacterium and one fungus to be considered for the whole of Australia (Table 3), and five insects and one fungus for Western Australia only (Table 4).

Table 3 Pests of apple fruit considered further for the whole of Australia

Insects	
Apple leafcurling midge	*Dasineura mali* Keiffer (Diptera: Cecidomyiidae)
Garden featherfoot	*Stathmopoda horticola* Dugdale (Lepidoptera: Oecophoridae)
Grey-brown cutworm	*Graphania mutans* (Walker) (Lepidoptera: Noctuidae)
Brownheaded leafroller	*Ctenopseustis herana* (Felder & Rogenhofer) (Lepidoptera: Tortricidae)
Brownheaded leafroller	*Ctenopseustis obliquana* (Walker) (Lepidoptera: Tortricidae)
Greenheaded leafroller	*Planotortrix excessana* (Walker) (Lepidoptera: Tortricidae)
Greenheaded leafroller	*Planotortrix octo* Dugdale (Lepidoptera: Tortricidae)
Native leafroller	*Pyrgotis plagiatana* (Walker) (Lepidoptera: Tortricidae)
Pathogens	
Fire blight	*Erwinia amylovora* (Burrill 1882) Winslow et al.
European canker	*Neonectria galligena* (Bres.) Rossman & Samuels

Table 4 Pests of apple fruit considered further for Western Australia only

Insects	
Codling moth	*Cydia pomonella* (L) (Lepidoptera: Tortricidae)
Mealybug	*Planococcus mali* Ezzat & McConnell (Hemiptera: Pseudococcidae)
Citrophilus mealybug	*Pseudococcus calceolariae* (Maskell) (Hemiptera: Pseudococcidae)
Oriental fruit moth	*Grapholita molesta* Busck (Lepidoptera: Tortricidae)
Oystershell scale	*Diaspidiotus ostreaeformis* (Curtis) (Hemiptera: Diaspididae)
Pathogens	
Apple scab	*Venturia inaequalis* (Cooke) G. Winter

Four species of insects that are not quarantine pests specific to apple fruit but could potentially contaminate apple fruit were not considered further in this IRA (Table 5). Any risks associated with these contaminants would be managed under existing policies that already require inspection of imports and appropriate treatment.

Table 5 Potential contaminants of consignments of apple fruit

Insects	
Burnt pine longhorn beetle	*Arhopalus ferus* (Mulsant) (Coleoptera: Cerambycidae)
Click beetle	*Conoderus exsul* Sharp (Coleoptera: Elateridae)
New Zealand flower thrips	*Thrips obscuratus* (Crawford) (Thysanoptera: Thripidae)
Wheat bug	*Nysius huttoni* White (Hemiptera: Lygaeidae)

Risk assessment

Detailed risk assessments were conducted on all 16 quarantine pests that were identified as requiring further assessment in the pest categorisation stage. The results are summarised in Table 6. The unrestricted risk posed by fire blight, European canker, apple scab, apple leafcurling midge, leafrollers (five species), codling moth and mealybugs are above Australia's ALOP. Therefore, specific risk management measures for these pests are required to reduce the risks to a level consistent with Australia's ALOP. The unrestricted risk of the other pests assessed was below Australia's ALOP and therefore risk management measures are not required.

Table 6 Summary of the assessment of unrestricted risk of quarantine pests

Common name of pest	Annual probability of entry, establishment and spread (PEES)	Consequences	Unrestricted annual risk	Assessed for management measures: Yes or No
Pests of concern to the whole of Australia				
Fire blight	Very low	High	Low	Yes
European canker	Low	Moderate	Low	Yes
Apple leafcurling midge	High	Low	Low	Yes
Garden featherfoot	Very low	Low	Negligible**	No
Grey-brown cutworm	Low	Low	Very low**	No
Leafrollers	Low	Moderate	Low	Yes
Pests of concern to Western Australia*				
Apple scab	High	Moderate	Moderate	Yes
Codling moth	Low	Moderate	Low	Yes
Mealybugs	Moderate	Low	Low	Yes
Oriental fruit moth	Very low	Moderate	Very low**	No
Oystershell scale	Very low	Low	Negligible**	No

*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.

**at or below Australia's ALOP.

Management of quarantine risks

The proposed risk management measures for the pests that had an unrestricted risk above Australia's ALOP are summarised below.

Pests for all of Australia

Fire blight

The major entry, establishment and spread pathway identified for fire blight was the potential for fire blight bacteria to be present in the calyx of the fruit and for surface contamination to occur in picking and handling. Transfer of fire blight bacteria to host plants in Australia could occur by mechanical means or insect mediated transfer.

The proposed risk management measures for fire blight are:

- Orchards will be inspected at an intensity that would, at a 95% confidence level, detect visual symptoms if shown by 1% of the trees. This inspection will take place between 4 to 7 weeks after flowering when conditions for fire blight disease development are likely to be optimal. The detection of any visual symptoms of fire blight will result in the suspension of the orchard/block for the season. This measure is intended to significantly reduce the likelihood that apples will carry fire blight bacteria in the calyx.
- the use of disinfection treatment, for example chlorine, in the packing house to remove existing surface contamination with fire blight bacteria and prevent further contamination.

Apple leafcurling midge

The major entry, establishment and spread pathway identified with apple leafcurling midge is that insects would enter Australia in cocoons and emerge at major distribution points (urban and orchard based centres). The proposed risk management measure is to inspect, in New Zealand, a 3000-apple random sample of all export lots and reject or treat all lots where insects are found. This will reduce the prevalence of the insect in imported fruit sufficiently to meet Australia's ALOP. An alternative option is treatment such as fumigation for all export lots.

European canker

The major entry, establishment and spread pathway identified for European canker is that imported apples would be infected or contaminated with the fungus without showing any symptoms followed by spore release in Australia infecting host plants. The proposed risk management measure is to allow export only from pest free places of production. Pest freedom would require a winter inspection of orchards before pruning of trees to confirm freedom. Detection of European canker would result in suspension of exports in that orchard/block for the coming season. Reinstatement would require eradication of the disease, confirmed by inspection.

Leafrollers

The major entry, establishment and spread pathway identified with leafrollers is that the insects will be present in imported fruit as eggs or larvae. The proposed risk management measure if apples are to be imported is the inspection of a 600-fruit random sample for each lot. If leafrollers are found, then the lot must be withdrawn or treated to kill the insects.

Pests for Western Australia

Apple scab

The major entry, establishment and spread pathway identified for apple scab is that imported apples would be infected or contaminated with the fungus without showing any symptoms followed by fungal spore release in Australia infecting plants. Given that the disease is widespread in New Zealand, there is little prospect of using area freedom or pest free places of production as a risk management measure. The IRA team was unable to identify any practical risk management measure(s) that would reduce the risk below Australia's ALOP other than a prohibition on importation of New Zealand apples into Western Australia. This is consistent with the current practice for apples from eastern Australia where apple scab is present.

Codling moth

The major entry, establishment and spread pathway identified for codling moth is that insects will be present in imported fruit and emerge in Australia. A number of risk management options were considered but it is likely that low pest prevalence would be the most practical measure for management of the risks of codling moth if New Zealand apples were to be imported into Western Australia. MAFNZ currently administers an export phytosanitary certification program for the export of apples to Taiwan to manage the risk of codling moth. A similar program for production and export of NZ apples to Western Australia would be required to manage the risk posed by codling moth if apples were to be imported. Components of the program include:

- registration of grower designated production sites
- monitoring and trapping for codling moth
- specific codling moth control requirements
- specific requirements for submission of fruit to packing houses
- grower compliance agreement.

Mealybugs

The major entry, establishment and spread pathway identified is that mealybugs will be present in the stem- or calyx-end of the imported fruit and move off imported apples to infest host plants. The proposed risk management measure if apples are to be imported is the inspection of a 600-fruit random sample from each lot. If mealybugs are found then the lot must be withdrawn or treated to kill the insects.

Operational arrangements

The specific risk management measures outlined above would be supplemented by a range of operational arrangements for New Zealand apples entering Australia. These operational arrangements would ensure that the risk management measures effectively mitigate the risks

identified in the risk assessment. Some key features of the operational arrangements are summarised below. Full details of the operational arrangements are in Part B of this report.

Operating manual and work plan

It is a requirement that MAFNZ 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

Registration of export orchards or blocks and packing houses

All export orchards (entire orchard) or orchard blocks (an identified part of an orchard) supplying apples for export to Australia must be registered with MAFNZ for the purpose of providing 'traceback' and monitoring field controls.

Export orchards or orchard blocks must be registered in winter before the start of each apple season in time to allow the inspection for fire blight symptoms and European canker to take place for the production season**.**

MAFNZ will register all exporters and export packing houses before the start of harvest each season. Registered packing houses must have procedures in place to maintain quarantine integrity of the commodity, and provide for traceability of consignments should non-compliance with import conditions occur.

Requirement for pre-clearance

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

Under these arrangements AQIS officers would be involved in the orchard inspections for European canker and fire blight and direct verification of packing house procedures and 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 arrangements for handling export fruit in a secure manner.

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

The inspection of fruit would occur in New Zealand. Nevertheless, the detection of any quarantinable pests at on-arrival inspection would require that the consignment be treated, destroyed or re-exported under AQIS supervision.

General requirements

All suspected symptoms of quarantinable diseases are to be reported to AQIS immediately. Suspected symptoms are to be verified by a MAFNZ accredited plant pathologist for confirmation. All exports from the suspect orchard or orchard block will be suspended until the symptoms are formally identified.

The detection of apple fruit with fire blight or European canker will result in immediate suspension of all exports of apples to Australia. Re-instatement of the export program would be subject to the development of new risk management measures by Biosecurity Australia and AQIS

Detailed inspection records are to be maintained for audit by MAFNZ and AQIS.

Method for inspection for fire blight

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, 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.

Disinfection treatment in the packing house

Disinfection treatment of apples in the packing house is a mandatory requirement. The operational procedures shown in Part B of this document are based on the use of chlorine. However, other agents may be as effective as chlorine. New Zealand would need to submit supporting documentation on efficacy and maintenance of active concentrations for other agents for approval by AQIS.

All apples for export to Australia must have been subjected to complete immersion in a water solution containing a minimum 100 ppm available chlorine for a minimum of one minute.

Packing houses must have a documented system approved by MAFNZ for measuring the available chlorine and pH levels in the water and ensuring that the available chlorine levels do not fall below 100 ppm. This system is subject to audit by AQIS.

Freedom from trash

All apples for export must be free from trash, foreign matter and pests of quarantine concern to Australia. Freedom from trash will be confirmed by the inspection procedures.

Phytosanitary certification

MAFNZ is to issue a phytosanitary certificate for each consignment after completion of the pre-export inspection. Each phytosanitary certificate is to contain the following information:

- reference to the shipping container number and container seal number, or flight number
- full description of the consignment, including registered packing house number, and registered orchard/block number/s.

Additional declarations: ‘The apples in this consignment have been produced in New Zealand in accordance with the conditions governing the entry of fresh apple fruit from New Zealand to Australia.’

Audit

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 also 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.

Review of import conditions

AQIS may review operational procedures at any time and may, in consultation with MAFNZ, suspend the importation of apples, if deemed necessary because of phytosanitary considerations. A suspension would be reviewed following a joint AQIS, BA and MAFNZ investigation.

It is proposed 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.

Further steps in the import risk analysis process

The administrative process adopted requires that the following steps be undertaken:

- consideration of appeals, if any
- if there are no appeals or the appeals are rejected, the recommended policy will be submitted to the Director of Animal and Plant Quarantine for a policy determination
- if an appeal is allowed the IRA Appeal Panel may advise the Chief Executive of Biosecurity Australia on how to overcome the identified deficiencies. When this process is completed the recommended policy will be submitted to the Director of Animal and Plant Quarantine for a policy determination
- notification of the proponent/applicant, registered stakeholders, and the WTO of the policy determination.

Stakeholders will be advised of any significant variation to the process.

Acknowledgements

Biosecurity Australia wishes to acknowledge the extensive work of the import risk analysis team on this report. Others who deserve special acknowledgement are the many scientists, government personnel and apple industry people from Australia and overseas who have contributed in various ways, including collecting and providing technical information.

Reference List

BA (2003) Import risk analysis handbook. Agriculture, Fisheries and Forestry - Australia, Canberra. 45 pp.

BA (2005b) Revised draft import risk analysis report for apples from New Zealand, Part A, B & C. Biosecurity Australia, Canberra. 579 pp.