FINAL IMPORT RISK ANALYSIS OF THE IMPORTATION OF FRUIT OF FUJI APPLE (*Malus pumila* Miller var. *domestica* Schneider) FROM AOMORI PREFECTURE IN JAPAN

DECEMBER 1998

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It is my determination that the importation of fruit of Fuji apple (*Malus pumila* Miller var. *domestica* Schneider) from Aomori Prefecture in Japan will be permitted subject to the application of phytosanitary requirements as specified in Section 6 of this final import risk analysis paper. These requirements maintain Australia's appropriate level of protection and accord with Australia's international rights and obligations under the Agreement on Application of Sanitary and Phytosanitary Measures.

Paul Hickey
Executive Director

December 1998

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1. AQIS'S POSITION

Subject to the application of the appropriate phytosanitary requirements (given in full in Section 6 of this document) the Australian Quarantine and Inspection Service (AQIS) approves the importation of fruit of Fuji apple (*Malus pumila* Miller var. *domestica* Schneider) from Aomori Prefecture in Japan.

2. EXECUTIVE SUMMARY

AQIS received an application to import fruit of Fuji apple from Aomori Prefecture in Japan prior to June 1989. The application was subjected to an import risk analysis (IRA), based on the relevant International Standards for Phytosanitary Measures (ISPM) and other standards developed by the Secretariat of the International Plant Protection Convention (IPPC) of the Food and Agriculture Organization (FAO) of the United Nations.

Risk Identification

The import risk analysis process took into account factors such as the biology, host range, distribution, entry potential, establishment potential, spread potential and economic damage potential of the pests and diseases that may be associated with Fuji apple fruit. The risk analysis (AQIS, 1997a) identified 28 quarantine pests and diseases of concern to Australia that have a significant risk of being associated with Fuji apple fruit. The 28 quarantine pests and diseases were identified as either not present in Australia or present but under official control. The risk analysis identified management procedures which could reliably reduce the risk of these pests and diseases being associated with Fuji apple fruit imported into Australia to a negligibly low level.

One additional disease, *Erwinia amylovora* (Bacterial Shoot Blight of Pear) was identified as being of concern to Australia if this disease affects apple fruit in Japan.
The Ministry of Agriculture, Forestry and Fisheries (MAFF) in Japan had earlier indicated that Bacterial Shoot Blight (BSB) only affects pear and not apple in Japan. However, MAFF has recently confirmed that the pathogen isolated from pear in Japan has also caused infection on apple in artificial inoculation experiments carried out in the USA. A comprehensive study has been undertaken by MAFF in Japan but the results have not yet been published. *Erwinia amylovora* was detected in the Melbourne Royal Botanic Gardens, Australia in 1997 and is now considered eradicated. The risk analysis identified management procedures which could reduce the risk of this disease being associated with Fuji apple fruit imported into Australia to a negligibly low level.

After consideration of these 29 pests and diseases, and stakeholder consultation, AQIS has concluded that the risk posed by these pests and diseases could be managed with appropriate phytosanitary requirements. The measures proposed to address the risk posed by these pests and diseases are set out below.

Risk Management

The following risk management procedures are determined to be appropriate to reduce the likelihood of the quarantine pests and diseases being associated with Fuji apple fruit to negligible levels.

Twenty one of the identified quarantine pests and diseases can be managed through routine phytosanitary procedures, orchard control measures and inspection methods. The risks posed by the pests and diseases listed below must be managed with the following procedures, or equivalent measures: orchard registration, pest surveillance and management programs, bagging of fruit, joint pre-clearance inspection and phytosanitary certification (see Phytosanitary Requirements). These pests and diseases are: *Cydia inopinata* (Manchurian fruit moth), *Homona magnanima* (Oriental tea tortrix), *Stathmopoda auriferella* (apple heliodinid), *Spulerina astaurota* (pear barkminer), *Spilonota albicana* (white fruit moth), *Argyresthia conjugella* (apple fruit moth), *Rhynchites heros* (peach curculio), *Panonychus ulmi* (European red mite), *Pseudococcus comstocki* (Comstock mealybug), *Phenacoccus pergandei* (mealybug), *Dysmicoccus wistariae* (pear mealybug), *Coccura suwakoensis* (quince cottony scale), *Lepidosaphes conchiformioides* (pear oystershell scale), *Pseudaonidia duplex* (camphor scale), *Grapholita molesta* (=*Cydia molesta*) (Oriental fruit moth), *Alternaria mali* (alternaria blotch), *Diplocarpon mali* (marssonina blotch), *Phyllosticta solitaria* (apple blotch), *Botryosphaeria berengeriana* f.sp. *piricola* (physalospora canker), *Monilinia mali* (monilia leaf blight), dapple apple viroid and apple scar skin viroid.

The remaining eight quarantine pests and diseases are: *Carposina sasakii* (peach fruit moth), *Adoxophyes* spp. (tortrix*), Tetranychus kanzawai* (tea red spider mite), *Tetranychus viennensis* (hawthorn red spider mite), *Gymnosporangium yamadae* (Japanese apple rust), *Nectria galligena* (European canker), *Monilinia fructigena* (brown rot) and *Erwinia amylovora* (bacterial shoot blight of pear). These require additional specific management strategies and phytosanitary requirements due to their biological properties, including pathogenicity, extent of host range, potential impact and difficulty of detection. The additional management strategies include monitoring and detection surveys, area/orchard freedom, disinfestation treatments and latent disease testing (shown in the following table).

Pest or Disease	Detection/ Monitoring Survey	Area/Orchard Freedom	Disinfestation Treatments	Disease Latency Tests
peach fruit moth			√	
summer fruit tortrix			√	
tea red spider mite			√	
hawthorn red spider mite			√	
brown rot	√	√		√
European canker	√	√		√
Japanese apple rust	√	√		√
bacterial shoot blight of pear	√	√		

An Australian plant pathologist with extensive experience with these diseases will visit the export areas at pre-harvest in the first year of trade. The purpose of this visit is to survey the orchards for disease, audit disease survey results and initiate latency tests. If in subsequent years fruit is to be exported from new areas, a similar visit will be required. An AQIS officer will also visit the export orchards in Japan prior to harvest in the first year to inspect MAFF's procedures for control of pests and diseases.

Additionally, an AQIS inspector will visit Japan each year of trade for pre-clearance inspection of fruit prior to export. In the event of quarantine pests or diseases being detected in any export 'lot' at pre-clearance inspection, all fruit from orchards comprising that 'lot' must be rejected. If any pests or diseases subject to an area freedom requirement are detected, imports must cease immediately pending the outcome of an investigation. There will be no provision for re-sorting of fruit.

AQIS is satisfied that importation of Fuji apple under the specified conditions will present negligible risk to the environment and accordingly that the obligations arising from the Administrative Procedures made under the Environment Protection (Impact of Proposals) Act 1974 have been met.

Implementation

AQIS will develop an arrangement with MAFF based on these conditions and outline the phytosanitary requirements for the importation of Japanese Fuji apples. AQIS's Animal and Plant Programs Branch (APPB) together with AQIS's Plant Quarantine Policy Branch (PQPB) will develop a checklist and document an inspection procedure for field, packing house, disinfestation treatment and pre-clearance inspection. APPB will ensure implementation of import conditions, audit the program and (jointly with PQPB) monitor field controls of pests of quarantine concern, trapping data, test data and inspector's visit reports. Phytosanitary requirements for the importation of Fuji apple from Japan must be reviewed at the end of the first year of trade.

3. BACKGROUND

The importation of fruit of Fuji apple **(***Malus pumila* Miller var. *domestica* Schneider) was initially proposed by MAFF prior to June 1989. AQIS commenced a risk analysis in 1996 in accordance with the relevant ISPM (ie. *Reference Standard, Principles of Plant Quarantine as Related to International Trade ISPM No. 1 FAO, 1995*; *Part 1-Import Regulations, Guidelines for Pest Risk Analysis ISPM No. 2 FAO, 1996*) and other standards being developed by the Secretariat of the IPPC of the FAO.

Pests and diseases of quarantine concern and proposed management options were identified in the IRA document, *Pest Risk Analysis of the Importation of Fruit of Fuji Apple (Malus pumila* var. *domestica) from Japan* (AQIS, 1997a). At the time the IRA was undertaken, export was being considered from all parts of Japan. Since then MAFF has specified that Fuji apples will be exported from the production area within Aomori Prefecture. Consequently details of pest control programs supplied by MAFF relate only to this prefecture and so the analysis from this point on was restricted to the importation of Fuji apples from Aomori Prefecture only.

AQIS developed a draft IRA entitled *Discussion Paper and Phytosanitary Requirements on Pest Risk Analysis of the Importation of Fuji Apple Fruit from Aomori Prefecture in Japan* (AQIS, 1997b), summarising the pests identified in the IRA requiring specific management and inspection procedures. This document (later called draft IRA) was circulated for stakeholder consultation on 31 July 1997. At the same time draft IRAs for the importation of Korean pear fruit from the Republic of Korea and ya pear fruit from Hebei Province in the People's Republic of China were circulated. Comments were requested by 15 September 1997 and the date was later extended to 31 October 1997 at the request of several stakeholders. Notification of AQIS's consideration of the proposed importation was provided to the World Trade Organization (WTO) as part of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

In this document the term Import Risk Analysis is synonymous with the term Pest Risk Analysis defined in the ISPM No 5, *Glossary of Phytosanitary Terms* (FAO, 1997).

4. STAKEHOLDER CONSULTATION

AQIS sent the draft IRA to 70 stakeholders and received 23 written comments (Section 10 - List of Respondents). These comprised 10 from industry groups representing growers, 7 from Australian State Departments, 2 from Commonwealth Departments, 3 from research organisations and 1 from MAFF.

In summary:

- Seventeen respondents either supported or did not oppose the importation; however many respondents suggested modifications to the import conditions proposed in the draft IRA. The matters raised by respondents are discussed in Section 9 - Issues Raised by Stakeholders in Response to AQIS's Draft IRA.

- Six respondents opposed the importation on the grounds that the risk of exotic pests and diseases entering Australia and causing economic and environmental damage would be too great.

- No pests additional to those listed in the draft IRA were identified by the respondents. On the basis of information provided in one response, the status of one pest was amended from quarantine to non-quarantine (Section 9 - Issues Raised by Stakeholders in Response to AQIS's Draft IRA, Issue 7).

5. SUMMARY OF IMPORT CONDITIONS

The following conditions are required for importation of Fuji apple fruit from Japan.

- registration of export orchards
- pest surveillance and management programs in the production areas
- fruit fly monitoring
- area freedom from brown rot, European canker, Japanese apple rust, bacterial shoot blight of pear and fruit flies
- inspection at blossoming (petal tests)
- bagging of fruit
- pre-harvest inspection of orchards and packing houses by AQIS officer in the first season
- pre-harvest visit by an Australian plant pathologist in the first season
- disinfestation treatments (cold storage and methyl bromide fumigation)
- audit of available disease survey data
- disease latency infection tests
- pre-clearance inspection
- phytosanitary certification
- verification of certification of consignment in Australia

Fruit must not be permitted into Western Australia as apples and pears from any source are currently prohibited entry under WA State legislation. However, there will be no restrictions imposed by AQIS on other ports of entry.

AQIS has amended several conditions which were referred to in the draft IRA. The principal changes are:

- confirmation of pest free area status for fruit flies; fruit fly monitoring must be maintained with sentinel trapping

- testing for the development of latent disease infection

- *Ectomyelois pyrivorella* (=*Numonia pirivorella*) has been removed from the list of quarantine pests (see Issue 7 of Section 9.2.2 for discussion)

- fruit will be fumigated with methyl bromide after it has been cold treated at 1°C or below for at least 40 days

- removal of requirement for on-arrival inspection of fruit.

The revised phytosanitary requirements for the importation of Fuji apple fruit are given in Section 6 - Phytosanitary Requirements.

6. PHYTOSANITARY REQUIREMENTS

The following requirements are to be implemented for the first year of trade. The conditions are to be reviewed at the end of the first season of export of Fuji apple fruit to Australia.

An Australian plant pathologist with extensive experience will visit the export areas prior to harvest in the first year of trade to conduct a technical study of the apple orchards, audit disease surveys and initiate disease latency tests. An AQIS officer will also visit the export orchards in Japan prior to harvest in the first year to inspect MAFF's procedures for control of pests and diseases. Additionally, an AQIS inspector will visit Japan each year of trade for pre-clearance inspection.

The diagram on page 18 of this document outlines the procedures for export of Fuji apple fruit from Japan.

Item 1 Registration and submission of information

Fuji apple fruit for export to Australia must be sourced from MAFF registered export orchards and be packed in MAFF registered export packing houses in the designated export area. MAFF must register all export orchards and export packing houses within Aomori Prefecture. All individual export orchards within the designated export areas must be identifiable by the registered orchard number to enable traceback in the case of non-compliance. Maps showing the location and registration number of each export orchard and packing house are to be provided to AQIS by MAFF when petal testing results for brown rot are sent before commencement of trade.

Item 2 Pest management program and general surveillance

MAFF must ensure that export orchards are subject to adequate field sanitation and control measures against quarantine pests given in List 1 of Section 8- Revised Summary of Quarantine Pests with High Risk Potential for Australia. These controls must provide regulatory assurance that export orchards are essentially free of or have low levels of pests of quarantine concern to Australia. Details of the pest control program must be provided to AQIS before commencement of trade. MAFF must provide a revised copy at pre-clearance inspection to the AQIS inspector if there is any change to the pest control program.

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 AQIS. The standardised reporting format is to be determined by MAFF. These diseases must include brown rot (*Monilinia fructigena*), bacterial shoot blight of pear (*Erwinia amylovora*) or related species, European canker (*Nectria galligena*) and Japanese apple rust (*Gymnosporangium yamadae*) and the designated export areas must be free of these diseases. If any specified pest or disease or other exotic pest or disease of quarantine concern to Australia is detected at detection/monitoring surveys or joint inspection of orchards then AQIS must be notified immediately for appropriate action to be taken.

Item 3 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 AQIS. 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.

Item 4 Fruit fly pest free area status

Pest free area status for fruit flies (*Bactrocera* spp.) has been verified for Aomori Prefecture. MAFF must continue the current sentinel fruit fly (Tephritidae) monitoring program already being carried out in Japan ie. monitoring airports, seaports, fruit production areas and markets for imported fruits. Information including data on trap catches and species caught must be provided to the AQIS pre-clearance inspector for audit at pre-clearance. If any fruit fly species of economic concern to Australia are detected, MAFF must inform AQIS immediately. If fruit flies are detected trade will cease immediately pending the outcome of an investigation.

Item 5 Inspection at blossoming

MAFF must inspect all registered export orchards and the closest non-export orchard at blossom time for bacterial shoot blight of pear (*Erwinia amylovora*) or related species, conduct petal tests for brown rot (*Monilinia fructigena*) and monitor the levels of pests of concern. MAFF must also ensure that all export orchards and the closest non-export orchard are inspected for symptoms of Japanese apple rust (*Gymnosporangium yamadae*).

The designated export area must be certified free from brown rot (*Monilinia fructigena*) and such certification will be required annually soon after tests are completed. If brown rot is found in any registered export orchard in a designated export area, fruit from orchards in that export area will not be permitted.

Petal testing will be conducted as follows: sample 10 flowers at random from each orchard as specified above just before full bloom, incubate in air-tight containers at 23°C for 3 days and record the percentage of petal infection. If brown rot is detected by petal testing in any registered export orchard in a designated export area, export of fruit from orchards in that export area will not be permitted. The results of petal testing must be provided to AQIS by MAFF as soon as they are available.

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 AQIS immediately if it is detected in the designated export areas. If bacterial shoot blight of pear (*Erwinia amylovora*) or related species is found, imports will be suspended pending an investigation.

Item 6 Bagging of fruit and storage

Fruit must be bagged to minimise the risk of exposure to disease and arthropods. Double bags must be placed over fruit when the fruit is no more than 4 cm in diameter. The bagging process also culls lower quality fruitlets. This procedure is adopted by other countries trading with Australia. Export fruit must be clearly identifiable from domestic fruit. Only fruit that has been bagged until about a month before harvest is to be harvested for export to Australia. Fruit for export to Australia must not be mixed or stored with fruit for the domestic market. No fallen fruit is to be collected for export.

Item 7 Pre-harvest inspection and latent disease infection testing

Joint inspection by MAFF and AQIS officers before harvest will ensure that field control measures have been effective. A random sample of fruit from designated trees will be inspected thoroughly for signs of pests and diseases. The AQIS officer will also ensure that packing houses have an appropriate level of cleanliness and check that inspection and sampling facilities are satisfactory.

An Australian plant pathologist will also visit in the first year to conduct a technical study of the prevalence of diseases in the apple orchards prior to harvest and initiate latency testing as discussed below.

Initially, during the first year of exports, MAFF will carry out testing for latent disease infections on fruit to validate the effectiveness of the arrangement. The Australian plant pathologist present at pre-harvest will initiate the testing, to test for the presence of latent diseases. The tests will be conducted in the following manner: (1) Randomly select 5 Fuji apple fruit which are not bagged to be used as controls. This fruit is to be put into cold storage. (2) Randomly select 10 export quality Fuji apple fruit at harvest from each export orchard. Place the fruit on a raised platform in a clean container (perspex or glass) and cover with a lid. Label each container with the registered orchard number. The identity and security of each container must be maintained until the conclusion of the experiment. (3) Add water to the container to maintain high humidity. Ensure that fruit is not in direct contact with water. Place the containers in an incubator or in an air-conditioned room maintained at 25±2°C for 21 days. (4) Inspect fruit during the incubation period for disease symptoms and record the number of fruit infected and the export orchard number. Isolate the pathogens from fruit showing disease symptoms and confirm the identity.

AQIS must be advised immediately if any disease of quarantine concern is found. If no diseases of quarantine concern are found, survey results will be retained by MAFF for presentation to the AQIS inspector at pre-clearance. This requirement of testing for latent infection will be reviewed after the first year.

Item 8 Disinfestation

A combined cold treatment and methyl bromide fumigation must be used for the control of *Carposina sasakii, Adoxophyes orana fasciata, Tetranychus kanzawai* and *T. viennensis*. Cold treatment will precede fumigation. Fruit which meets the export conditions, set out in Items 1-7, will be transported to the cold treatment facility. During the Fuji apple export season to Australia, fruit for the domestic market and fruit which does

not meet the export conditions will not be transported to the cold treatment facility. Fruit will be cold treated at 1°C or below for at least 40 days. On completion of the required cold treatment fruit will then be transported to the adjoining packing facility (within the same building) and sorted and packed into plastic cartons. The packing area must be well lit. Each plastic carton will be numbered with the registered export orchard number and can be identified by this.

The AQIS inspector will ensure that only mature, unblemished fruit will be selected for export. Culled fruit will be removed from the packing house at the end of each day. A sample of culled fruit will be visually examined by an AQIS inspector as a part of general verification of the efficacy of field control measures. A random selection of culled fruit will be inspected by the AQIS inspector for internal feeders. Any fruit suspected of being infested by pests will be cut for inspection. AQIS or MAFF may wish, if necessary, to further examine culled fruit for pests. MAFF must
use new plastic cartons and no packing material of unprocessed plant origin is to be used.

All packed and sealed cartons must be marked "For Australia", labelled with orchard registration number, packing dates, and packing house number. Alternatively, for palletised "integral" consignments which have been strapped and secured the information marked on the cartons must be provided in a pallet card. Export fruit may be transferred to a separate facility for fumigation treatment. In order to prevent infestation by other pests, the fruit must be securely covered during transportation.

Fruit will be fumigated with methyl bromide for two hours at a rate of 48 g/m^3 at or above 10°C and less than 15°C (or 38g/m^3 at 15°C or more) in plastic cartons for export with a loading ratio of 40% or less. The fruit will be sampled after fumigation in accordance with the agreed sampling plan, for visual joint inspection by MAFF and AQIS inspectors with the AQIS inspector determining the acceptance or rejection of fruit. The AQIS inspector will ensure that the inspection and disinfestation treatment procedures result in fruit free from live arthropods and diseases of quarantine concern to Australia, leaves, twigs and soil.

A joint inspection of cold treatment and fumigation procedures will be made. The AQIS inspector will be present at the completion of the cold disinfestation treatment and will verify that the cold disinfestation treatment as determined by temperature recording charts has been satisfactorily completed and with MAFF will undertake calibration of all probes before verifying that the treatment meets Australian requirements. The AQIS inspector on opening the cold storage rooms will verify that the loading of the chamber is correct with the loading plans given and that the coldroom is in a clean and sanitary condition. AQIS and MAFF will jointly supervise all fumigation treatments. Supervision will include monitoring the entry of fumigant, temperature of product and percentage of fumigant retained at the completion of each treatment.

Item 9 Pre-clearance

Each fumigation treatment will become an inspection 'lot'. Six hundred units per inspection 'lot' will be jointly inspected by AQIS and MAFF. Action will be taken on all live quarantine pests that are detected and all live pests detected will be identified to species

level by MAFF technical specialists and this information formally provided to the AQIS inspector for inclusion in the inspection report. Exports will not be permitted until the identification is completed. Fruit found to be infested or infected with pests of quarantine concern will be rejected, isolated and not accepted for export. If a 'lot' is determined to have failed then all fruits in that 'lot' fail. If quarantine pests other than those that require area freedom are detected, fruit from that 'lot' will be rejected at pre-clearance inspection. A registered orchard from which fruit is rejected will be permitted to resubmit further 'lots' for the current export season, however will be suspended for the remainder of the season if a second 'lot' is rejected. If quarantine pests requiring area freedom are detected, area freedom will be suspended and trade will cease pending the outcome of an investigation.

Cleared fruit for export to Australia must be stored under security and segregated from all other fruit in a cold store maintained at 1-3°C until loaded into shipping containers which will be sealed. MAFF must ensure that records are properly kept to facilitate auditing of fruit during or after storage and that container doors are sealed after loading.

The AQIS inspector will also check fruit fly trapping records for the current season and traps if appropriate. If at pre-clearance inspection, *Erwinia amylovora*, *Gymnosporangium yamadae*, C*arposina sasakii*, C*ydia inopinata, Grapholita molesta, Spulerina astaurota, Argyresthia conjugella, Adoxophyes* spp., *Stathmopoda auriferella*, *Spilonota albicana*, *Homona magnanima*, *Rhynchites heros* or fruit flies are found, AQIS will inform MAFF of suspension of the total importation of apple fruit from Japan pending the outcome of an investigation.

If *Panonychus ulmi, Pseudococcus comstocki, Phenacoccus pergandei, Dysmicoccus wistariae, Coccura suwakoensis, Lepidosaphes conchiformioides, Pseudaonidia duplex* (occurring on fruit other than apple), *Alternaria mali*; *Botryosphaeria berengeriana* f.sp. *piricola*, *Diplocarpon mali*, *Monilinia mali*, *Phyllosticta solitaria* or dapple apple viroid and apple scar skin viroid are found AQIS will require details of the relevant non complying growers and will inform MAFF of the suspension of importation of apple from the relevant orchards until causes of detections can be ascertained and appropriate remedial measures taken.

If brown rot (*Monilinia fructigena*) is found in any registered export orchard in a designated export area, fruit from orchards in that export area will not be permitted. If European canker (*Nectria galligena*) is detected in the designated export area, fruit will not be imported from orchards in that area and trade will cease immediately, pending the outcome of an investigation.

If any live quarantine pests, leaves, twigs or soil are found appropriate action will be taken. AQIS will inform MAFF of action including any intention to suspend importation.

Item 10 Phytosanitary certification

Upon completion of fruit sampling and inspection, AQIS/MAFF will prepare a Master Phytosanitary Certificate. If shipment is not to be undertaken immediately, the AQIS inspector will supervise the loading of fruit into cold storage facilities and will seal the

chambers so used. The AQIS inspector will return to Australia and MAFF will be responsible for ensuring security of the passed product whilst awaiting shipment.

If only one shipment is made in a season then the Master Phytosanitary Certificate will be the only phytosanitary certificate issued. The words "MASTER PHYTOSANITARY CERTIFICATE" are to be typed across the top. The Master Phytosanitary Certificate will bear the appropriate "lot" numbers, registered orchard numbers, packing dates, number of cartons per "lot", container and seal number and details of the fumigation inserted in the treatment section of the Master Phytosanitary Certificate. Details of the cold treatment must also be attached as an Additional Declaration. This document must be counter-signed and dated by the AQIS inspector.

If more than one shipment is made, MAFF will issue a separate phytosanitary certificate, with reference to the Master Phytosanitary Certificate, for each consignment forwarded to Australia. Each phytosanitary certificate will specify the 'lots' covered by it, cartons per 'lot' and the container and seal number, with, attached to it, a copy of the Master Phytosanitary Certificate which was signed by MAFF and counter-signed by the AQIS inspector during pre-clearance.

The Master Phytosanitary Certificate and any additional phytosanitary certificates are to bear the endorsement "Produced and inspected under the Fuji apple arrangement between MAFF and AQIS".

Item 11 Verification of consignment in Australia

At the port of arrival in Australia, AQIS will examine relevant certification and seals. If certification does not conform or the seals on the containers are damaged in any way, AQIS reserves the right to inspect apple fruit for pests of quarantine concern. Depending on the outcome of this inspection, AQIS may order the Fuji apple fruit be either returned to Japan, re-exported or destroyed. AQIS will inform MAFF of any such action, including any intention to suspend importation.

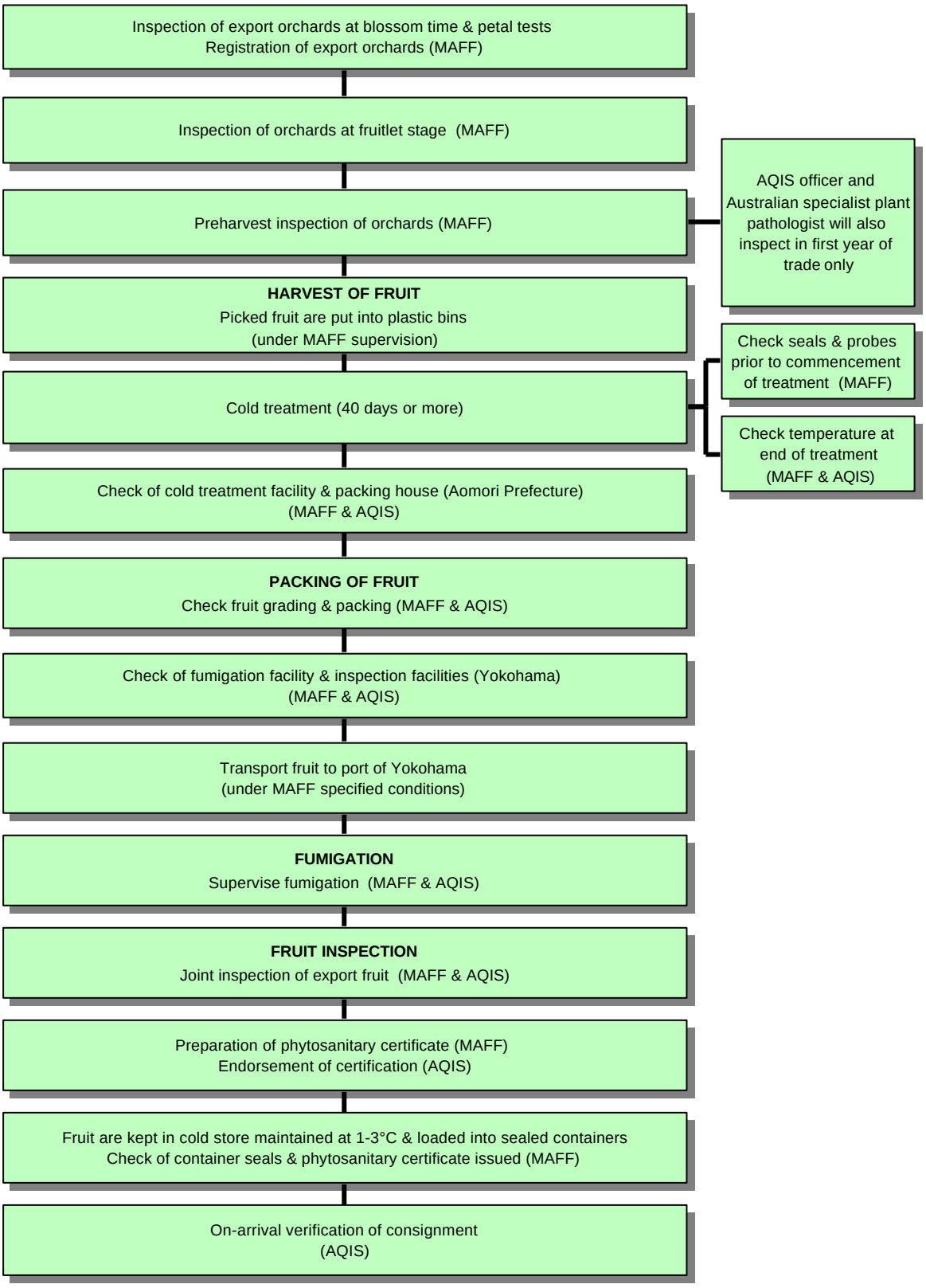
Item 12 Visit expenses

Expenses for the AQIS inspector's visit to Japan for pre-clearance inspection will be paid by the Japanese side. The expenses incurred for the visit of an Australian specialist plant pathologist and an AQIS officer prior to harvest to conduct a technical study of apple orchards and initiate latency tests prior to harvest will be borne by AQIS.

Item 13 Review of arrangement

The arrangement will be reviewed at the end of the first season of export of Fuji apple fruit to Australia.

OUTLINE OF PROCEDURES FOR EXPORT OF FUJI APPLE FRUIT FROM JAPAN TO AUSTRALIA



7. PESTS ASSOCIATED WITH FUJI APPLE IN JAPAN

Table 1. Risk Potential for Pests Associated with Fuji Apple in Japan

The species listed in the following table were identified during the risk analysis (AQIS, 1997a) as pests and diseases associated with Fuji apple in Japan. The distribution, quarantine status, assessment of risk potential and management options are shown.

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
ARTHROPODS						
Acanthosoma denticauda	stink bug	yes	no	Quarantine	no	
Acleris boscana ulmicola	Japanese elm leafroller	yes	no	Quarantine	yes?	inspection
Acleris cristana	leafroller, budworm	yes	no	Quarantine	no	
Acria ceramitis	leafroller	yes	no	Quarantine	yes?	inspection
Acrobasis tokiella	apple leaf casebearer	yes	no	Quarantine	no	
Acronicta intermedia (=*Triaena intermedia*)[3]	apple dagger moth, raspberry budmoth	yes	no	Quarantine	yes?	inspection
Actias artemis	large greenish silk moth, long-tailed silk moth	yes	no	Quarantine	no	
Aculus schlechtendali	apple rust mite	yes	yes	Non quarantine		
Adoretus tenuimaculatus	flower beetle	yes	no	Quarantine	no	
Adoxophyes orana	summer fruit tortrix	yes	no	Quarantine	yes (high)	inspection and management
Adoxophyes orana fasciata	summer fruit tortrix	yes	no	Quarantine	yes (high)	inspection and management
Adris tyrannus	fruit-piercing moth	yes	no	Quarantine	yes	inspection
Agelastica coerulea	alder leaf beetle	yes	no	Quarantine	no	
Alsophila japonensis	pear fall cankerworm	yes	no	Quarantine	no	
Ampelophaga rubiginosa	grape hornworm	yes	no	Quarantine	no	

[1] Risk potential was determined from the risk analysis (AQIS, 1997a). The rating of low, medium or high was assigned on the basis of assessment of both the entry potential and the potential impact of entry of the organism.

[2] Pests and diseases with low and medium ratings are addressed by routine inspection procedures with the exception of a small number of pests of medium risk that require management procedures. These exceptions and pests and diseases with a high rating cannot be addressed by inspection alone because of their biological properties (including pathogenicity, extent of host range, potential impact and difficulty of detection). These species are listed in List 1 - Quarantine Pests with High Risk Potential for Australia (see Section 8). The risk posed by these pests and diseases is reduced to negligibly low levels with a combination of inspection and management strategies which are outlined in other parts of this document.

[3] junior synonym

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Amphipyra pyramidea	leafroller	yes	no	Quarantine	no	
Andaspis hawaiiensis	armoured scale	yes	no	Quarantine	no	
Anomala albopilosa	green chafer	yes	no	Quarantine	no	
Anomala cuprea	cupreous chafer	yes	no	Quarantine	no	
Anomala daimiana	cherry chafer	yes	no	Quarantine	no	
Anomala geniculata	smaller cherry chafer	yes	no	Quarantine	no	
Anomis commoda	hibiscus leaf caterpillar	yes	no	Quarantine	yes?	inspection
Anomis mesogona	hibiscus looper	yes	no	Quarantine	yes?	inspection
Anoplophora malasiaca	whitespotted longicorn beetle	yes	no	Quarantine	no	
Anthonomus pomorum	apple blossom weevil	yes	no	Quarantine	no	
Antivaleria viridimacula	noctuid moth	yes	no	Quarantine	no	
Aphidounguis mali	root aphid	yes	no	Quarantine	no	
Aphis spiraecola (= *A. citricola*)	apple aphid	yes	yes	Non quarantine		
Aphrophora intermedia	common spittlebug	yes	no	Quarantine	no	
Apocheima juglansiaria	looper caterpillar	yes	no	Quarantine	no	
Aporia crataegi	blackveined white butterfly	yes	no	Quarantine	no	
Aporia crataegi adherbal	blackveined white butterfly	yes	no	Quarantine	no	
Apriona japonica	mulberry borer	yes	no	Quarantine	no	
Arboridia apicalis	grape leafhopper	yes	no	Quarantine	no	
Arboridia suzukii	leafhopper	yes	no	Quarantine	no	
Archips breviplicanus	Asiatic leafroller	yes	no	Quarantine	yes	inspection
Archips endoi	leafroller	yes	no	Quarantine	yes?	inspection
Archips fuscocupreanus	apple tortrix	yes	no	Quarantine	yes (low)	inspection
Archips ingentanus (=*Archippus ingentanus*)	leafroller	yes	no	Quarantine	yes?	inspection
Archips nigricaudanus	leafroller	yes	no	Quarantine	yes?	inspection
Archips xylosteanus	apple leafroller	yes	no	Quarantine	yes?	inspection
Arge mali	apple argid sawfly	yes	no	Quarantine	no	
Argyresthia conjugella	apple fruit miner	yes	no	Quarantine	yes (high)	inspection and management
Ascotis selenaria	mugwort looper	yes	no	Quarantine	no	
Austrapoda dentata	cochlid?	yes	no	Quarantine	no	
Autographa nigrisigna	beet semi-looper	yes	no	Quarantine	no	
Bacchisa fortunei	pear borer	yes	no	Quarantine	no	
Balsa malana	many-dotted appleworm moth	yes	no	Quarantine	no	
Bambalina sp.	mulberry bagworm?	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Basilepta fulvipes	golden-green minute leaf beetle	yes	no	Quarantine	no	
Biston robustus	giant geometer	yes	no	Quarantine	no	
Bryobia praetiosa	clover mite	yes	yes	Non quarantine		
Bryobia rubrioculus	bryobia mite	yes	yes	Non quarantine		
Bucculatrix pyrivorella	pear leafminer	yes	no	Quarantine	no	
Cacopsylla pyrisuga (= *Psylla pyrisuga*)	pear sucker	yes	no	Quarantine	no	
Calguia defiguralis	pyralid caterpillar	yes	no	Quarantine	yes?	inspection
Caligula japonica (=*Dictyoploca japonica*)	giant silk moth, wild silk moth	yes	no	Quarantine	no	
Caligula jonasii	silk moth	yes	no	Quarantine	no	
Calliteara pseudabietis	yellow tussock moth	yes	no	Quarantine	no	
Calliteara pudibunda	yellow tussock moth	yes	no	Quarantine	no	
Caloptilia zachrysa	azalea leafminer	yes	no	Quarantine	no	
Calyptra gruesa	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Calyptra lata	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Calyptra thalictri	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Carposina sasakii (misidentified as *Carposina niponensis*)	peach fruit moth	yes	no	Quarantine	yes (high)	inspection and management
Cassida versicolor	beet tortoise beetle	yes	no	Quarantine	no	
Catocala fulminea xarippe	ring-marked yellow-hindwinged noctuid	yes	no	Quarantine	no	
Ceroplastes ceriferus	Japanese wax scale	yes	yes	Non quarantine		
Ceroplastes floridensis	Florida wax scale	yes	yes	Non quarantine		
Ceroplastes japonicus	Japanese wax scale	yes	no	Quarantine	no	
Chelidonium quadricolle	green longicorn beetle	yes	no	Quarantine	no	
Chloroclystis rectangulata	green pug moth	yes	no	Quarantine	no	
Chlorophanus grandis	larger green weevil	yes	no	Quarantine	no	
Chlorophorus annularis	bamboo longicorn beetle	yes	no	Quarantine	no	
Chlorophorus diadema	Kokeshi longicorn beetle	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Choreutis vinosa descolor	apple leaf skeletonizer	yes	no	Quarantine	no	
Cicadella viridis	green leafhopper	yes	no	Quarantine	no	
Cifuna locuples	bean tussock moth	yes	no	Quarantine	no	
Cifuna locuples confusa	bean tussock moth	yes	no	Quarantine	no	
Clavipalpula aurariae	noctuid moth	yes	no	Quarantine	no	
Cleoporus variabilis	variable leaf beetle	yes	no	Quarantine	no	
Cleora insolita	looper caterpillar	yes	no	Quarantine	no	
Clostera anatomosis	black-back prominent	yes	no	Quarantine	no	
Cnethodonta japonica	prominent caterpillar	yes	no	Quarantine	no	
Coccura suwakoensis	quince cottony scale	yes	no	Quarantine	yes? (medium)	inspection
Coccus discrepans	soft scale	yes	no	Quarantine	no	
Coccus viridis	green coffee scale	yes	yes	Non quarantine		
Coleophora cerasivorella	apple casebearer	yes	no	Quarantine	no	
Coleophora ringoniella	apple pistol casebearer	yes	no	Quarantine	no	
Colotois pennaria ussuriensis	November moth	yes	no	Quarantine	no	
Conistra albipuncta	noctuid moth	yes	no	Quarantine	yes?	inspection
Conistra grisescens	noctuid moth	yes	no	Quarantine	yes?	inspection
Conogethes punctiferalis	yellow peach moth	yes	yes	Non quarantine		
Contarinia mali	apple blossom midge	yes	no	Quarantine	no	
Cosmia exigua	maple cutworm	yes	no	Quarantine	no	
Cossus jezoensis	oriental carpenter moth	yes	no	Quarantine	no	
Cusiara stipitaria	looper caterpillar	yes	no	Quarantine	no	
Cyclophragma undans	quercus lasiocampid	yes	no	Quarantine	no	
Cydia inopinata (=*Grapholita inopinata*)	Manchurian fruit moth	yes	no	Quarantine	yes (high)	inspection and management
Cystidia couaggaria	plum cankerworm	yes	no	Quarantine	no	
Dictyoploca japonica	giant silk moth	yes	no	Quarantine	no	
Drosicha corpulenta	giant mealybug	yes	no	Quarantine	no	
Dyscerus shikokuensis	weevil	yes	no	Quarantine	no	
Dysmicoccus wistariae	pear mealybug	yes	no	Quarantine	yes? (medium)	inspection
Ectropis excellens	large brown-striped geometrid	yes	no	Quarantine	no	
Ectropis obliqua	apple geometrid	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Edwardsiana flavescens	small green leafhopper	yes	no	Quarantine	no	
Edwardsiana ishidai	leafhopper	yes	no	Quarantine	no	
Elcysma westwoodii	tailed zygaenid moth	yes	no	Quarantine	no	
Endoclyta excrescens	swift moth	yes	no	Quarantine	no	
Erannis golda	looper	yes	no	Quarantine	no	
Ercheia umbrosa	noctuid moth	yes	no	Quarantine	yes?	inspection
Eriococcus tokaedae	acer scale	yes	no	Quarantine	no	
Eriosoma lanigerum	woolly aphid	yes	yes	Non quarantine		
Eucetonia pilifera	flower beetle	yes	no	Quarantine	no	
Eulecanium cerasorum	calico scale	yes	no	Quarantine	no	
Eulecanium kunoensis (=*Lecanium kunoensis*)	globular peach scale	yes	no	Quarantine	no	
Eumeta minuscula	tea bagworm	yes	no	Quarantine	no	
Euproctis piperita	tussock moth	yes	no	Quarantine	no	
Euproctis pulverea	black-dotted yellow tussock moth	yes	no	Quarantine	no	
Euproctis similis	browntail moth, yellowtail moth	yes	no	Quarantine	no	
Euproctis subflava	oriental tussock moth	yes	no	Quarantine	no	
Euzophera batangensis	persimmon bark borer	yes	yes	Non quarantine		
Fleutiauxia armata	leaf beetle	yes	no	Quarantine	no	
Geisha distinctissima	green flatid	yes	no	Quarantine	no	
Grapholita molesta (=*Cydia molesta*)	oriental fruit moth	yes	yes (but under official control in WA)	Quarantine	yes	inspection and management
Graptopsaltria nigrofuscata	cicada	yes	no	Quarantine	no	
Halyomorpha halys (=*Halyomorpha mista*)	brown marmorated stink bug	yes	no	Quarantine	yes (medium)	inspection
Hedya ignara	leafroller	yes	no	Quarantine	no	
Hemiberlesia lataniae	latania scale	yes	yes	Non quarantine		
Hemithea aestivaria	European geometrid	yes	no	Quarantine	no	
Heptophylla picea	chafer beetle	yes	no	Quarantine	no	
Heterocordylus flavipes	apple leaf bug	yes	no	Quarantine	no	
Homalogonia obtusa	four-spotted stink-bug	yes	no	Quarantine	yes (medium)	inspection
Homoeocerus unipunctatus	coreid bug	yes	no	Quarantine	yes?	inspection

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Homona magnanima	oriental tea tortrix	yes	no	Quarantine	yes (high)	inspection and management
Homonopsis foederatana	leafroller	yes	no	Quarantine	no	
Homonopsis illotana	leafroller	yes	no	Quarantine	no	
Hoshinoa adumbratana	leafroller	yes	no	Quarantine	no	
Hoshinoa longicellana	common apple leafroller	yes	no	Quarantine	no	
Hyboma adauctum	cherry dagger moth	yes	no	Quarantine	no	
Hyphantria cunea	American white moth, fall webworm	yes	no	Quarantine	no	
Hypomecis punctinalis	looper	yes	no	Quarantine	no	
Hypomecis roboraria	looper	yes	no	Quarantine	no	
Illiberis pruni	green cochlid, pear spotted caterpillar	yes	no	Quarantine	no	
Inurois fletcheri	apple fall cankerworm	yes	no	Quarantine	no	
Inurois tenuis	looper	yes	no	Quarantine	no	
Ischnaspis longirostris	black thread scale	yes	yes	Non quarantine		
Kilifia acuminata	acuminate scale	yes	no	Quarantine	no	
Lagoptera juno	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Lamprocabera candidaria	looper	yes	no	Quarantine	no	
Ledra auditura	auricled leafhopper	yes	no	Quarantine	no	
Leguminivora glycinivorella	soybean podborer	yes	no	Quarantine	yes (low)	inspection
Lepidosaphes conchiformioides	pear oystershell scale	yes	no	Quarantine	yes (high)	inspection and management
Lepidosaphes tubulorum	dark oystershell scale	yes	no	Quarantine	no	
Lepidosaphes ulmi	apple mussel scale	yes	yes	Non quarantine		
Leucoma candida	satin moth	yes	no	Quarantine	no	
Lopholeucaspis japonica	Japanese baton shaped scale	yes	no	Quarantine	yes (medium)	inspection
Lymantria dispar	gypsy moth, Asian gypsy moth	yes	no	Quarantine	no	
Lymantria mathura	pink gypsy moth	yes	no	Quarantine	no	
Lymantria mathura aurora	oak tussock moth	yes	no	Quarantine	no	
Lymantria monacha	nun moth	yes	no	Quarantine	no	
Lyonetia clerkella	peach leafminer	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Lyonetia prunifoliella malinella	leafminer	yes	no	Quarantine	no	
Lypesthes ater	apple frosted leaf beetle	yes	no	Quarantine	no	
Mahasena aurea	case moth	yes	no	Quarantine	no	
Malacosoma neustria	tent caterpillar	yes	no	Quarantine	no	
Malacosoma neustria testacea	tent caterpillar	yes	no	Quarantine	no	
Maladera japonica	velvety chafer	yes	no	Quarantine	no	
Maladera orientalis	smaller velvety chafer	yes	no	Quarantine	no	
Mamestra brassicae	cabbage moth	yes	no	Quarantine	no	
Marumba gaschkewitschii	peach hornworm				no	
Marumba gaschkewitschii echephron	peach hornworm	yes	no	Quarantine	no	
Megacopta punctatissimum (= *Coptosoma punctatissimum*)	bean pentatomid, globular stink bug	yes	no	Quarantine	yes (low)	inspection
Megopis sinica	thin-winged longicorn beetle	yes	no	Quarantine	no	
Melanotus legatus	pectinate-horned click beetle	yes	no	Quarantine	no	
Melolontha japonica	Japanese cockchafer	yes	no	Quarantine	no	
Menida violacea	stink bug	yes	no	Quarantine	yes?	inspection
Menophra atrilineata	mulberry looper	yes	no	Quarantine	no	
Microleon longipalpis	long-palpi cochlid	yes	no	Quarantine	no	
Mimerastria mandschuriana	apple roeselia	yes	no	Quarantine	no	
Monema flavescens	oriental moth	yes	no	Quarantine	no	
Myzus persicae	green peach aphid	yes	yes	Non quarantine		
Naenia contaminata	rumex black cutworm	yes	no	Quarantine	no	
Naratettix zonatus	banded leafhopper	yes	no	Quarantine	no	
Narosoideus flavidorsalis	pear stinging caterpillar	yes	no	Quarantine	no	
Neocoenorrhinus assimilis	evergreen oak leaf-cut weevil	yes	no	Quarantine	yes?	inspection
Nezara antennata	green stink bug	yes	no	Quarantine	yes (medium)	inspection
Nippolachnus piri	pear green aphid	yes	no	Quarantine	no	
Notocelia rosaecolana	rose eucosmid	yes	no	Quarantine	no	
Nysius plebejus	seed bug	yes	no	Quarantine	no	
Oberea japonica	apple longicorn beetle	yes	no	Quarantine	no	
Odites issikii	tube caterpillar	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Odites leucostola	tube caterpillar	yes	no	Quarantine	no	
Odites lividula	tube caterpillar	yes	no	Quarantine	no	
Odonestis pruni	apple caterpillar	yes	no	Quarantine	no	
Odonestis pruni japonensis	apple caterpillar	yes	no	Quarantine	no	
Olethreutes mori	mulberry leafroller	yes	no	Quarantine	no	
Oncopsis mali	leafhopper	yes	no	Quarantine	no	
Oncotympana maculaticollis	cicada	yes	no	Quarantine	no	
Operophtera brumata	winter moth	yes	no	Quarantine	no	
Operophtera rectipostmediana	looper	yes	no	Quarantine	no	
Operophtera relegata	looper	yes	no	Quarantine	no	
Oraesia emarginata	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Oraesia excavata	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Orgyia recens	rusty tussock moth?	yes	no	Quarantine	no	
Orgyia recens approximans	tussock moth	yes	no	Quarantine	no	
Orgyia thyellina	Japanese tussock moth	yes	no	Quarantine	no	
Orientus ishidai	apple leafhopper	yes	no	Quarantine	no	
Orthosia angustipennis	noctuid moth (drabs)	yes	no	Quarantine	no	
Orthosia carnipennis	cherry leaf worm	yes	no	Quarantine	no	
Orthosia ella	noctuid moth (drabs)	yes	no	Quarantine	no	
Orthosia evanida	noctuid moth (drabs)	yes	no	Quarantine	no	
Orthosia gothica askoldensis	noctuid moth (drabs)	yes	no	Quarantine	yes (medium)	inspection
Orthosia ijimai	noctuid moth (drabs)	yes	no	Quarantine	no	
Orthosia limbata	noctuid moth (drabs)	yes	no	Quarantine	no	
Orthosia lizetta	noctuid moth (drabs)	yes	no	Quarantine	no	
Orthosia munda	plum leaf moth	yes	no	Quarantine	no	
Orthosia odiosa	noctuid (drabs)	yes	no	Quarantine	no	
Orthosia paromoea	noctuid (drabs)	yes	no	Quarantine	no	
Ovatus malisuctus (=*Myzus malisuctus*)	apple gall aphid	yes	no	Quarantine	no	
Oxycetonia jucunda	citrus flower chafer	yes	no	Quarantine	no	
Palimna liturata	blackspotted beech longicorn	yes	no	Quarantine	no	
Palomena angulosa	shield bug	yes	no	Quarantine	yes?	inspection
Pandemis cerasana (= *P. ribeana*)	barred fruit-tree tortrix	yes	no	Quarantine	yes	inspection

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Pandemis chlorograpta	fruit-tree tortrix	yes	no	Quarantine	no	
Pandemis cinnamomeana	fruit-tree tortrix	yes	no	Quarantine	no	
Pandemis heparana	apple brown tortrix, dark fruit-tree tortrix	yes	no	Quarantine	yes	inspection
Pangrapta obscurata	apple blunt-tipped moth	yes	no	Quarantine	no	
Panonychus ulmi	European red mite	yes	yes (under official control in Western Australia & Northern Territory)	Quarantine	yes (high)	inspection and management
Paracentrocorynus nigricollis	leafroller weevil?	yes	no	Quarantine	yes?	inspection
Paracercopis assimilis	root spittlebug	yes	no	Quarantine	no	
Parallelia maturata	purplish thick-legged moth	yes	no	Quarantine	no	
Parapleurus alliaceus	false rice grasshopper	yes	no	Quarantine	no	
Parasa consocia (=*Latoia consocia*)	green urticating caterpillar	yes	no	Quarantine	no	
Parasa sinica (=*Latoia sinica*)	Chinese cochlid	yes	no	Quarantine	no	
Parasaissetia nigra	nigra scale	yes	yes	Non quarantine		
Parlatoria theae	tea black scale	yes	no	Quarantine	no	
Parthenolecanium glandi	grand Lecanium?	yes	no	Quarantine	no	
Pentatoma japonica	Japanese stink-bug	yes	no	Quarantine	yes?	inspection
Phalera flavescens	cherry caterpillar	yes	no	Quarantine	no	
Phenacoccus pergandei	mealybug	yes	no	Quarantine	yes? (medium)	inspection
Phigalia sinuosaria	fruit-tree looper	yes	no	Quarantine	no	
Phrixolepia sericea	tea cochlid	yes	no	Quarantine	no	
Phthonesema tendinosaria	apple horned looper	yes	no	Quarantine	no	
Phyllobius armatus	common leaf weevil	yes	no	Quarantine	no	
Phyllonorycter ringoniella	apple leafminer	yes	no	Quarantine	no	
Phymatodes albicinctus	whitebanded longicorn beetle	yes	no	Quarantine	no	
Physopelta cincticollis	largid bug	yes	no	Quarantine	yes?	inspection
Platypleura kaempferi	kaempfer cicada	yes	no	Quarantine	no	
Plautia stali	brownwinged green bug	yes	no	Quarantine	yes (medium)	inspection

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Ponticulothrips diospyrosi	thrip	yes	no	Quarantine	yes	inspection
Popillia japonica	Japanese beetle	yes	no	Quarantine	no	
Prionus insularis	serrate longicorn	yes	no	Quarantine	no	
Prociphilus crataegicola	hawthorn leaf aphid	yes	no	Quarantine	no	
Prociphilus kuwanai	aphid	yes	no	Quarantine	no	
Protalcis concinnata	looper	yes	no	Quarantine	no	
Pseudaonidia duplex	camphor scale	yes	no	Quarantine	yes (high) Apple is not reported as a host in Japan	inspection and management
Pseudocneorhinus bifasciatus	gooseberry weevil	yes	no	Quarantine	no	
Pseudococcus comstocki	comstock mealybug	yes	no	Quarantine	yes (high)	inspection and management
Psylla mali	apple sucker	yes	no	Quarantine	no	
Psylla malivorella	black apple sucker	yes	no	Quarantine	no	
Ptycholoma imitator	network-marked leafroller	yes	no	Quarantine	no	
Ptycholoma lecheana circumclusana	leafroller	yes	no	Quarantine	no	
Pulvinaria horii (= *Lecanium horii*)	cottony maple scale	yes	no	Quarantine	no	
Pylargosceles steganioides	two-wavy-lined geometrid	yes	no	Quarantine	no	
Quadraspidiotus perniciosus (=*Comstockaspis perniciosus*)	San Jose scale	yes	yes	Non quarantine		
Rapala arata	tiger hairstreak	yes	no	Quarantine	yes	inspection
Rhamphus pulicarius	weevil	yes	no	Quarantine	no	
Rhomborrhina unicolor	green polished chafer	yes	no	Quarantine	no	
Rhopalosiphum padi	oat, wheat & cereal aphid	yes	yes	Non quarantine		
Rhopobota unipunctana (=*Rhopobota naevana*)	blackheaded fireworm	yes	no	Quarantine	no	
Rhynchites heros	peach curculio	yes	no	Quarantine	yes (high)	inspection and management
Sarcopolia illoba	mulberry caterpillar	yes	no	Quarantine	yes?	inspection
Scardamia aurantiacaria	looper	yes	no	Quarantine	no	
Scoliopteryx libatrix	fruit piercing moth	yes	no	Quarantine	yes (low)	inspection
Scolytoplatypus mikado	Mikado ambrosia beetle	yes	no	Quarantine	no	
Scolytus aratus	ume bark beetle	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Serrodes campana	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Smerinthus planus	cherry hornworm	yes	no	Quarantine	no	
Spilarctia seriatopunctata	ermine moth	yes	no	Quarantine	no	
Spilonota albicana (= *S. prognathana*)	white fruit moth	yes	no	Quarantine	yes (high)	inspection and management
Spilonota lechriaspis	apple fruit licker	yes	no	Quarantine	no	
Spilonota ocellana	eye-spotted bud moth, brown apple budworm	yes	no	Quarantine	yes (medium)	inspection
Spilosoma imparilis (junior synonym of *Lemyra imparilis*)	mulberry tiger moth	yes	no	Quarantine	no	
Spilosoma inaequalis	cherry tiger moth	yes	no	Quarantine	no	
Spilosoma lubricipedum (=*S. menthastri*)	white ermine moth	yes	no	Quarantine	no	
Spulerina astaurota	pear barkminer	yes	no	Quarantine	yes (high)	inspection and management
Stathmopoda auriferella	apple heliodinid	yes	no	Quarantine	yes (high)	inspection and management
Stauropus fagi persimilis	Japanese prominent	yes	no	Quarantine	no	
Stephanitis nashi	pear lace bug	yes	no	Quarantine	no	
Synanthedon hector	cherry tree borer	yes	no	Quarantine	no	
Sypnoides picta	fruit-piercing moth	yes	no	Quarantine	yes (low)	inspection
Takahashia japonica	string cottony scale	yes	no	Quarantine	no	
Telorta edentata	noctuid moth	yes	no	Quarantine	yes?	inspection
Tetranychus kanzawai	Kanzawa spider mite	yes	no (of limited distribution in NSW and Qld is a mite of doubtful synonymy with *T. kanzawai*)	Quarantine	yes (medium)	inspection and management
Tetranychus urticae	two-spotted spider mite	yes	yes	Non quarantine		
Tetranychus viennensis	hawthorn spider mite	yes	no	Quarantine	yes (medium)	inspection and management
Toxoptera odinae	udo aphid	yes	no	Quarantine	no	
Tricholochmaea semifulva	leaf beetle	yes	no	Quarantine	no	
Urochela luteovaria	pear stink bug	yes	no	Quarantine	yes	inspection
Vespa crabro	giant hornet	yes	no	Quarantine	no	
Viminia rumicis	sorrel cutworm	yes	no	Quarantine	no	
Wilemania nitobei	looper	yes	no	Quarantine	no	
Xestia c-nigrum	spotted cutworm	yes	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Xestia formosa (=*Xylena formosa*)	cutworm?	yes	no	Quarantine	no	
Xestia fumosa (=*Xylena fumosa*)	rape caterpillar	yes	no	Quarantine	no	
Xyleborus adumbratus	bark beetle	yes	no	Quarantine	no	
Xyleborus saxeseni	fruit-tree pinhole borer	yes	yes	Non quarantine		
Xylosandrus germanus	alnus ambrosia beetle	yes	no	Quarantine	no	
Xylotrechus chinensis	tiger longicorn beetle	yes	no	Quarantine	no	
Yponomeuta malinellus	apple ermine moth	yes	no	Quarantine	no	
Zethenia albonotaria	white-spotted truncate-tipped geometrid	yes	no	Quarantine	no	
BACTERIA						
Agrobacterium rhizogenes	hairy root	yes	yes	Non quarantine		
Agrobacterium tumefaciens	crown gall	yes	yes	Non quarantine		
Erwinia amylovora	bacterial shoot blight of pear	yes	no (organism detected in 1997 in Melbourne Royal Botanic Gardens, considered eradicated 1998)	Quarantine	yes (high)	inspection and management
FUNGI						
Alternaria mali	alternaria blotch	yes	no (previous record in Western Australia doubtful, not found at present)	Quarantine	yes (high)	inspection and management
Alternaria sp.	blotch	yes	yes	Non quarantine		
Armillaria luteobubalina (syn. *A. mellea, Armillariella mellea*)	armillaria root rot	yes	yes	Non quarantine		
Aspergillus glaucus	fruit rot, postharvest fruit rot	yes	yes	Non quarantine		
Aspergillus niger	fruit rot, postharvest fruit rot	yes	yes	Non quarantine		

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Aspergillus ochraceus	fruit rot, postharvest fruit rot	yes	yes	Non quarantine		
Aspergillus tomarii	fruit rot, postharvest fruit rot	yes	yes	Non quarantine		
Botryosphaeria berengeriana f.sp. ***piricola*** (syn. *Physalospora piricola;* anamorph *Macrophoma malorum*)	physalospora canker, apple ring rot, blister canker, wart bark	yes	no	Quarantine	yes (high)	inspection and management
Botryosphaeria obtusa (syn. *Physalospora obtusa;* anamorph *Sphaeropsis malorum*)	black rot, limb canker, black canker	yes	yes	Non quarantine		
Botryosphaeria ribis	limb canker, black rot, dieback	yes	yes	Non quarantine		
Cladosporium carpophilum	mouldy core	yes	yes	Non quarantine		
Cladosporium sp.	mouldy core	yes	yes	Non quarantine		
Corticium salmonicolor	pink disease	yes	yes	Non quarantine		
Corticium rolfsii (syn. *Sclerotium rolfsii;* teleomorph *Athelia rolfsii*)	collar rot, stem rot, fruit rot	yes	yes	Non quarantine		
Cristulariella moricola (syn. *C. pyramidalis*; teleomorph *Grovesinia pyramidalis*)	zonate leaf spot	yes	no	Quarantine	no	
Diaporthe perniciosa (syn. *D. eres*; anamorph *Phomopsis mali*)	phomopsis canker, rough bark, phomopsis fruit rot, phomopsis fruit decay	yes	yes	Non quarantine		
Diaporthe tanakae (anamorph *Phomopsis tanakae*)	diaporthe canker	yes	no	Quarantine	no	
Diplocarpon mali (syn. *M. mali*; anamorph *Marssonina coronaria*)	marssonina blotch	yes	no	Quarantine	yes (high)	inspection and management
Fabraea maculata (syn. *Diplocarpon mespili*; anamorph *Entomosporium maculatum*)	fabraea leaf spot, leaf spot, leaf scald	yes	yes	Non quarantine		

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Fusarium avenaceum	water rot, fruit rot, collar rot	yes	yes	Non quarantine		
Fusarium roseum (not a valid name)		yes	yes	Non quarantine		
Fusarium sp.		yes	yes	Non quarantine		
Gloeodes pomigena	sooty blotch	yes	yes	Non quarantine		
Glomerella cingulata (anamorph *Colletotrichum gloeosporioides*)	bitter rot	yes	yes	Non quarantine		
Gloeosporium sp.	fruit rot, postharvest fruit rot	yes	yes	Non quarantine		
Gymnosporangium yamadae	Japanese apple rust	yes	no	Quarantine	yes (high)	inspection and management
Helicobasidium mompa	violet root rot	yes	no	Quarantine	no	
Leptosphaeria mandshurica	leaf spot	yes	no	Quarantine	no	
Leptosphaeria yulan (syn. *Leptosphaeria pomona*)	leaf spot, *senko-byo* (Japanese)	yes	no	Quarantine	no	
Monilinia fructigena	brown rot	yes	no	Quarantine	yes (high)	inspection and management
Monilinia mali (syns. *Sclerotinia mali, S. malicora*)	monilia leaf blight	yes	no	Quarantine	yes (high)	inspection and management
Mycosphaerella pomi (anamorph *Cylindrosporium pomi*)	fruit spot	yes	yes	Non quarantine		
Nectria cinnabarina (anamorph *Tubercularia vulgaris*)	nectria twig blight	yes	yes	Non quarantine		
Nectria galligena (anamorph *Cylindrocarpon heteronemum*)	European canker, nectria canker, crotch canker	yes	no (previously present only in Tasmania, now eradicated)	Quarantine	yes (high)	inspection and management
Penicillium expansum	soft rot, blue mould, wet rot	yes	yes	Non quarantine		
Pestalotia breviseta	leaf spot	yes	no	Quarantine	no	
Pestalotia disseminata	leaf spot	yes	no	Quarantine	no	
Phaeosclerotinia nipponica	leaf spot	yes (reported about 80 years ago, since then no reports on apple)	no	Quarantine	no	

Species	Common name(s)	Present in Japan	Present in Australia	Quarantine pest status	Association with fruit (Risk potential[1])	Risk management measure[2]
Phyllosticta solitaria	apple blotch	yes	no	Quarantine	yes (high)	inspection and management
Phytophthora cactorum	fruit rot, root rot, collar rot, crown rot	yes	yes	Non quarantine		
Phytophthora cambivora	root rot, collar rot, crown rot	yes	yes	Non quarantine		
Plenodomus sp.	fruit rot	yes	yes	Non quarantine		
Pleospora herbarum (anamorph *Stemphylium herbarum*)	pleospora rot	yes	yes	Non quarantine		
Podosphaera leucotricha (anamorph *Oidium farinosum*)	powdery mildew	yes	yes	Non quarantine		
Rosellinia necatrix (anamorph *Dematophora necatrix*)	rosellinia root rot, white root rot	yes	yes	Non quarantine		
Schizophyllum commune	heart rot, heart-wood rot, wood rot	yes	yes	Non quarantine		
Schizothyrium pomi (anamorph *Zygophiala jamaicensis*)	flyspeck	yes	yes	Non quarantine		
Septobasidium bogoriense	felty fungus	yes	no	Quarantine	no	
Septobasidium tanakae	felt	yes	no	Quarantine	no	
Septoria sp.	leaf spot	yes	yes	Non quarantine		
Stereum purpureum (syn. *Chondrostereum purpureum*)	silver leaf	yes	yes	Non quarantine		
Trichothecium roseum (syn. *Cephalothecium roseum*)	pink rot, pink mould rot	yes	yes	Non quarantine		
Valsa ceratosperma (syn. *V. mali*; anamorph *Cytospora sacculus*)	valsa canker	yes	yes	Non quarantine		

8. QUARANTINE PESTS WITH HIGH RISK POTENTIAL FOR AUSTRALIA

The following list contains species of concern to Australia with a high entry potential and high potential impact rating or which require management procedures in addition to inspection. The list has been revised on the basis of information provided by respondents.

LIST 1. REVISED SUMMARY OF QUARANTINE PESTS WITH HIGH RISK POTENTIAL FOR AUSTRALIA

1. *Carposina sasakii* Matsumura, peach fruit moth
2. *Cydia inopinata,* (=*Grapholita inopinata*) (Heinrich), Manchurian fruit moth
3. *Homona magnanima* Diakonoff, Oriental tea tortrix
4. *Stathmopoda auriferella* (Walker), apple heliodinid
5. *Spulerina astaurota* (Meyrick), pear barkminer
6. *Spilonota albicana, (=S. progbathana)* Motschulsky, white fruit moth
7. *Argyresthia conjugella* Zeller, apple fruit miner
8. *Adoxophyes* spp., tortrix
9. *Rhynchites heros* Roelofs, peach curculio
10. *Tetranychus kanzawai* Kishida, tea red spider mite, Kanzawa spider mite
11. *Tetranychus viennensis* Zacher, hawthorn red spider mite
12. *Panonychus ulmi* (Koch), European red mite
13. *Pseudococcus comstocki* (Kuwana), Comstock mealybug
14. *Phenacoccus pergandei* Cockerell, mealybug
15. *Dysmicoccus wistariae* (Green), pear mealybug
16. *Coccura suwakoensis* (Kuwana & Toyoda), quince cottony scale (a mealybug)
17. *Lepidosaphes conchiformioides* Borchsenius, pear oystershell scale
18. *Pseudaonidia duplex* (Cockerell), camphor scale
19. *Grapholita molesta* (=*Cydia molesta*) (Busck), Oriental fruit moth
20. *Alternaria mali* Roberts, alternaria blotch
21. *Gymnosporangium yamadae* Miyabe ex Yamada, Japanese apple rust
22. *Botryosphaeria berengeriana* De Not. f.sp. *piricola* (Nose) Koganezawa & Sakuma, physalospora canker
23. *Nectria galligena* Bres., European canker
24. *Monilinia fructigena* Honey, brown rot
25. *Erwinia amylovora* (Burrill) Winslow *et al*., bacterial shoot blight of pear
26. *Diplocarpon mali* Harada & Sawamura, marssonina blotch
27. *Monilinia mali* (Takahashi) Whetzel, monilia leaf blight
28. *Phyllosticta solitaria* Ell. & Ev., apple blotch
29. Apple scar skin viroid and dapple apple viroid

9. ISSUES RAISED BY STAKEHOLDERS IN RESPONSE TO AQIS'S DRAFT IRA

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9.1. General Issues

9.1.1 IRA process

Issue 1 :
The basis of import risk analysis: is IRA based on risk of entry or risk of establishment?

AQIS's position:
AQIS conducts IRAs in accordance with the ISPM outlined in the introduction to this document. The *Part 1 - Import Regulations, Guidelines for Pest Risk Analysis ISPM No. 2 FAO (1996)* considers all risks (entry, establishment and spread) in assessing overall risk.

Issue 2:
Effect on native flora: no examinations have been made of the impact of these exotic pests on Australian native flora and fauna.

AQIS's position:
AQIS is satisfied that the importation of Fuji apple under the specified conditions will present negligible risk to the environment and accordingly that the obligations arising from the Administrative Procedures made under the Environment Protection (Impact of Proposals) Act 1974 have been met. In addition, Environment Australia, Biodiversity Group was consulted in regard to this IRA. That portfolio is supportive of the proposed importation provided that the proposed phytosanitary conditions are adopted.

9.1.2 Equivalence between Japanese, Chinese and Korean pome fruit

Issue 3:
As a result of the circulation of three pome fruit draft IRAs simultaneously many comments were received from respondents regarding the differences in conditions imposed for the importation of pome fruit from Japan, China and Korea. These comments specifically addressed issues such as pest surveillance/management requirements, area freedom, disinfestation treatments, and the number and timing of visits by AQIS staff.

AQIS's position:
The conditions for importation of pome fruit from Japan, China and Korea are not exactly the same as these countries have differing phytosanitary conditions. These conditions relate to differences in disease history, disease survey results, pest management strategies, and pest occurrence. For this reason AQIS has set conditions for each country after consideration of its phytosanitary status.

9.1.3 Risk to Australian industry

Issue 4 :
A number of respondents noted the need for protection of Australia's status as a producer of fruits in a relatively pest and disease free environment. Concerns were raised regarding the

wide host range of the listed pests and diseases and the greater risk of establishment this causes, and the difficulty of detection and eradication should pests become established. Rejecting the application for entry of Fuji apple from Japan was suggested as a solution. The issue of Japan's decision on the quarantine status and management conditions of Australian fruit with similar pests was raised.

AQIS's position:
The pests of quarantine concern identified in the draft IRA require specific management procedures. AQIS believes that the specified management procedures will minimise the risk of introduction of these pests of quarantine concern. Similar measures were adopted by AQIS for the importation of nashi pear fruit from Japan. The conditions for the importation of Fuji apple fruit require MAFF to abide by the agreed management procedures. Similar conditions have been accepted by other countries for importation of Fuji apple. Prohibition of importation of Fuji apple is not justified by the risk analysis since appropriate management procedures can reduce the risk to negligibly low levels.

9.2. Pest Risk Assessment

9.2.1 Quarantine pest list

Issue 5:
Numonia pirivorella should be listed as *Ectomyelois pyrivorella* and *Coccura suwakoensis* should be listed as *Rosanococcus suwakoensis*. Oriental fruit moth (*Grapholita molesta*) was incorrectly classified as a non-quarantine pest.

AQIS's position:
In the literature the taxonomic state of the names *Numonia pirivorella* (Matsumura, 1900) and *Ectomyelois pyrivorella* (Matsumura, 1899) has been confused. According to Inoue *et al.*, (1982), *N. pirivorella* is a junior synonym of *E. pyrivorella*. AQIS, however, has since removed *E. pyrivorella* from List 1 as discussed in Issue 7.

Ben-Dov (1994) lists the name *suwakoensis* Kuwana & Toyoda, 1915 in the genus *Coccura*. This reference is the latest catalogue dealing with the Pseudococcidae and is widely accepted. AQIS will continue to follow the taxonomic decision made by Ben-Dov and list the species as *Coccura suwakoensis* Kuwana & Toyoda, 1915.

G. molesta is not present in Western Australia. Western Australia has legislation in place to prevent the introduction of G. *molesta* into that State on pome fruit and this legislation is recognised by AQIS. *G. molesta* is therefore under official control in Western Australia and restriction of movement of fruit into WA is justified. The revised List 1 is included in Section 8.

9.2.2 Arthropod pest issues

Issue 6:

The list of 29 quarantine pests (List 1) in the draft IRA needs to include a number of additional pests and identify control measures. These are fruit flies (Tephritidae), common spittle bugs (*Aphrophora intermedia*), common leafrollers (*Archips* spp., *Hedya ignara, Homonopsis* spp., *Hoshinoa* spp.) and gypsy moth (*Lymantria dispar*).

AQIS's position:
List 1 refers to cryptic pests requiring management strategies in addition to inspection. Inspection is considered sufficient to manage the risk posed by leafrollers, spittle bugs and gypsy moth. These species will be considered as quarantine pests if found on fruit of Fuji apple and the fruit will be rejected. The proposed conditions for importation given in the draft IRA will remain as surveillance, chemical control, bagging, pre-harvest inspection and pre-clearance inspection. AQIS has specified in this document a requirement to survey for arthropod pests of concern.

No fruit flies of economic importance are reported as being associated with apple fruit in mainland Japan and trap surveys are conducted from April through November. Aomori Prefecture has heavy snow falls in winter and the average temperatures for the months December through March range from 1.5°C to -1.8°C. Due to these cold temperatures, fruit flies would not be active during this period.

In addition, MAFF has been able to provide sufficient technical information to consider the exporting orchards in Aomori Prefecture as pest free production areas for fruit flies. *Bactrocera dorsalis* (oriental fruit fly) is considered to be eradicated from Japan following eradication in 1986 from islands off mainland Japan. *Bactrocera cucurbitae* (melon fly) is now eradicated from the whole of Japan (with its eradication from Yaeyama Islands (Okinawa) in October 1993). As a result, restrictions and prohibitions on the movement within Japan of host plants were abolished. None of the three fruit flies, *Bactrocera tsuneonis* (citrus fruit fly), *Bactrocera depressa* (squash fruit fly) or *Euphranta japonica* (Japanese cherry fruit fly) cause damage to apples. AQIS accepts that the pest risk from fruit flies is minimal as the cold disinfestation/fumigation treatment for *Carposina sasakii* would also kill fruit flies if they were present.

Issue 7 :
The inclusion of the following pests in List 1 in the draft IRA was questioned:
apple heliodinid (*Stathmopoda auriferella*), camphor scale (*Pseudaonidia duplex*), pear oystershell scale (*Lepidosaphes conchiformioides*), pear mealybug (*Dysmicoccus wistariae*), *Adoxophyes* spp. (tortrix) and pear fruit moth (*Ectomyelois pyrivorella*).

AQIS's position:
The pests listed above with the exception of *Ectomyelois pyrivorella* will remain on the summary list of quarantine pests with high risk of entry into Australia. These pests were included by MAFF on their list of pests recorded on apple (pest list sent by MAFF in 1989 and a second list for Fuji apple sent in July 1990). *Ectomyelois pyrivorella* has been recorded as a pest of pear in Japan, Korea and China and was not listed as a pest of Fuji apple on the MAFF list. AQIS has no evidence that the host range of this pest includes apples and therefore has removed the pest from List 1. It is difficult to distinguish

Adoxophyes orana sp., from *A. orana fasciata* by external characters (information on this pest sent by MAFF in relation to citrus and grape prior to 1995). Consequently, AQIS considers that the two species cannot be reliably identified and *Adoxophyes* spp., is therefore retained on the apple pest list.

9.2.3 Disease issues

Issue 8 :
Bacterial shoot blight of pear (*Erwinia amylovora*) in Japan: several respondents commented on the occurrence of *E. amylovora* in Hokkaido and stated the necessity of implementing a general surveillance program similar to that required in Victoria and South Australia.

AQIS's position:
Bacterial shoot blight of pear (BSBP) was reported from the island of Hokkaido in Japan. It is understood to be localised and under active eradication. The disease is considered to be caused by an organism indistinguishable from *Erwinia amylovora* (EPPO/CABI, Smith *et al*., 1997). MAFF indicated previously, that in Japan the pathogen affects only pear and not apple. However MAFF has recently confirmed that the pathogen isolated from pear in Japan has also caused infection on apple in artificial inoculation experiments carried out in the USA. A comprehensive study has been undertaken by MAFF in Japan but the results have not yet been published.

MAFF has indicated that designated export areas are free from bacterial shoot blight of pear. MAFF will monitor for this exotic disease of quarantine concern and notify AQIS immediately if it is detected in the designated export areas. If detection/monitoring surveys in each export orchard and the closest non-export orchard, during blossom, fruitlet and pre-harvest stages detect suspected symptoms of BSBP, MAFF is required to isolate this pathogen and confirm the identity. If the results of surveys and laboratory tests indicate the presence of BSBP, MAFF will report the results to AQIS promptly. AQIS will suspend trade pending a full investigation. However, if BSBP is not detected, a report will be made to the AQIS inspector upon his visit to Japan.

The procedures in Japan with regard to BSBP are similar to those that are in place in Victoria and South Australia. Similar procedures were adopted in Japan prior to export of nashi pear fruit to Australia in 1997. AQIS will be sending an Australian specialist plant pathologist to conduct a technical study of the apple orchards prior to harvest.

Issue 9 :
Brown rot (*Monilinia fructigena*): what is the size of the area freedom zone for brown rot? The sampling techniques for *Monilinia fructigena* appear inconsistent as no details are given concerning the size of the orchards. A detection level (as percentage of trees/flowers infected) should be decided upon with set confidence limits for all of the pathogens concerned. Full details of the visual examinations and the incubation tests conducted on blossom samples have not been provided.

AQIS's position:
AQIS requires MAFF to conduct detection/monitoring surveys and petal tests for brown rot by randomly sampling 10 flowers from each registered export orchard and the closest non-export orchard. AQIS is convinced that the epidemiology of this disease is such that a random sampling of 10 flowers per orchard will show whether or not brown rot is present in that particular orchard. The flowers must be incubated in air-tight containers at 23°C for 3 days and the percentage of petal infection recorded.

The designated export area must be free from brown rot. This designated export area refers to nominated districts within Aomori Prefecture. If brown rot is detected within a designated export area, exports of Fuji apples from that area will no longer be allowed. AQIS requires designated export areas within Aomori to be nominated at the time that petal test results are provided.

Issue 10:
The proposed conditions require testing for *Alternaria gaisen* and *Monilinia fructigena* on pear but not for similar pathogens *Alternaria mali* and *Monilinia mali* on apple. What is the biological reason for this difference?

AQIS's position:
Monilia leaf blight (*Monilinia mali*) is controlled in Japan by a combination of orchard sanitation and application of fungicides. Because no means of overwintering other than pseudosclerotia in infected mummies is known, diseased fruit should be removed and buried or burned. Diseased leaves are also removed to prevent the spread of conidia to fruit (Mizuno *et al*., 1990). Fruit infected by this disease usually rot and fall off. At the time of bagging, infected fruit is removed and fruit which are bagged, if infected, are discarded at harvest. This disease is rarely a problem of mature apple fruit.

Alternaria blotch (*Alternaria mali*) is controlled by sanitation measures and application of fungicides. Fruit infections are uncommon except in cv. Indo, which shows typical scab-like spots or a dry rot on apple fruit. Fruit rot in the field or storage is rare. However, damage caused to fruit predisposes them to infection, resulting in a soft rot or a dry rot in mature fruit (Sawamura, 1990). Therefore, infected fruit is readily detected and will be discarded at pre-clearance inspection. Damaged fruit which can harbour the pathogen is also discarded.

If symptoms of *Monilinia mali* or *Alternaria mali* are found at pre-clearance inspection all fruit from that 'lot' will be rejected. Offending growers will be permitted to submit fruit once more for the export season.

Issue 11:
Japanese apple rust (*Gymnosporangium yamadae*): what are the control measures for this disease?

AQIS's position:

In Japan telial hosts are not removed but application of fungicides to both apple and alternate hosts is carried out routinely. AQIS believes that detection surveys carried out in all export orchards, bagging of fruit, chemical control and pre-clearance inspection programs will minimise the chances of fruit infection. Testing will be done on fruit for symptoms that may develop from latent infections. This will occur at the time of harvest and will consequently negate the need for on-arrival inspection.

Issue 12:
European canker (*Nectria galligena*): why is there no monitoring for this disease?

AQIS's position:
N. galligena (European canker) was first reported in Japan in 1903. The disease has not been recorded in Japan since then but CMI Distribution Map 38 (1985) indicates that it is present in Japan. It is possible that European canker has been either eradicated or occurs at very low levels in Japan. During the visit of an AQIS consultant in 1995, there was no evidence of this disease in orchards.

However, MAFF is required to undertake detection/monitoring surveys during the growing season to demonstrate area freedom for this disease. MAFF is required to notify AQIS immediately if there is a detection of the disease. The field sanitation program, bagging of fruit for most of the growing season, a random inspection of orchards to check on the prevalence of quarantine diseases by an Australian specialist plant pathologist at joint AQIS/MAFF inspections before export of fruit to Australia, and pre-clearance inspection of fruit in the packing house, will provide adequate insurance against the potential introduction of this disease into Australia.

Issue 13 :
Physalospora canker (*Botryosphaeria berengeriana* f.sp. *piricola*): why is there no monitoring for *B. berengeriana* f.sp. *piricola*? It may occur on fruit, but it needs to be detected as early as possible.

AQIS's position:
Physalospora canker is a disease mainly affecting branches. During winter, early spring and summer cankered branches are removed therefore inoculum available for fruit infection is considerably reduced. Information obtained by the AQIS consultant indicated that this disease is rare in Aomori Prefecture, although more common in southern Japan. MAFF will target this disease in their detection/monitoring surveys and will take preventive and control measures. AQIS believes that bagging will also minimise the chance of fruit infection. This disease will also be targeted through disease latency testing initiated at harvest time. Export of fruit will not be permitted from export orchards which show fruit infection at pre-clearance inspection.

Issue 14:
Dapple apple viroid, apple scar skin: why are dapple apple viroid and apple scar skin included in List 1?

AQIS's position:
Dapple apple viroid and apple scar skin viroid are known to be seedborne (Hadidi *et al*., 1991) and hence their inclusion in List 1. There is potential for them to enter and establish from seed in symptomless fruit. However, the chances of apple seed establishing a seedling population in orchard areas in Australia are low. More recent information available to AQIS indicates that the viroid is seedborne but will not transmit the disease to seedlings. Fruit with symptoms of dapple apple viroid and apple scar skin viroid are unmarketable and will be discarded at pre-clearance inspection.

Issue 15:
Latent infection on fruit: where diseases are capable of producing a latent infection which would not be detected at pre-clearance inspection, entry risk must be regarded as significant. The survey of registered export orchards and surrounding orchards should be undertaken to guarantee freedom from these diseases.

AQIS's position:
The phytosanitary measures are designed to minimise the risk of fruit carrying latent infection. Over-mature or over-ripe fruit is not harvested. Spray programs and orchard sanitation, as well as bagging will adequately protect fruit from infection caused by diseases of concern. Any fruit infected before bagging are likely to be removed during thinning and those that develop disease symptoms within the bag will be rejected when bags are removed, or those showing incipient infections are likely to be detected at pre-clearance inspection.

In accordance with Australian Government policy of managing quarantine risks offshore where possible, MAFF during the first year of trade will conduct testing of samples of fruit (10 export quality apple fruit from each export orchard and an additional 5 fruit to be used as controls) for latent disease infections in Japan prior to the export of fruit to Australia. The Australian specialist plant pathologist visiting at pre-harvest will initiate the tests and MAFF will conclude the assessment. The AQIS inspector visiting at pre-clearance will be given the results. A draft set of guidelines are included in Section 6, Item 7). This testing, together with pre-clearance inspection, will replace on-arrival inspection and will further reduce any associated risk of disease entering Australia by conducting these tests in Japan. This ensures that this is truly a pre-clearance program.

Issue 16:
Physiological races of diseases: pathogens present in Australia may have limited genetic heterogeneity and this may be important for economic management of disease within Australia. The risk of introducing pathotypes, biotypes, forms etc., must therefore be part of the risk assessment.

AQIS's position:
As far as it can be determined, none of the diseases of quarantine concern to Australia which occur in Japan have physiological races. AQIS therefore has no justification for restricting entry of fruit on the assumption that some of the diseases have physiological races. Similarly no evidence is presented that in Australia the disease population is of limited diversity or that it is static.

9.2.4 General pest issues

Issue 17:
Climatic differences: climatic differences between Australia and Japan in relation to the life-cycles of pests have not been adequately addressed.

AQIS's position:
Climate is not a reliable parameter to be factored into a risk management strategy as weather conditions can change between years. It is not possible to accurately predict the behaviour of a pest in another environment as this depends on a number of variables, including the climatic conditions. The tolerances of various stages of the pest, if known, also have been considered. AQIS has considered the most favourable conditions for development of the pest and the commensurate pest control activities in the field as part of the IRA. For these pests of concern to AQIS the surveillance conducted by MAFF will identify variation in pest levels due to seasonal climatic variation.

Issue 18 :
Classification of pest distribution: in Table 1 of the draft IRA, column 3 appears to be unnecessary. It merely states that all pests listed are present in Japan. It would be more useful and informative if the pests were broadly stratified (+++= very common, very widespread; ++=common, widespread; += less common or common only some years; P=present, but unimportant), although many other systems would also be suitable.

AQIS's position:
The information of presence and absence was included in the draft IRA to help non-specialists understand the logical basis for the separation of pests into quarantine and non-quarantine categories. Quarantine decisions are based on the *Guidelines for Pest Risk Analysis ISPM No. 2 FAO (1996)* which incorporates entry, establishment and rates of spread in its analysis. The IRA also takes into account presence and prevalence of pests at harvest. MAFF and AQIS officers will report on the level of prevalence of pests present during pre-harvest inspection.

9.3. Pest Risk Management

9.3.1 Orchard registration

Issue 19 :
Registration of orchards and identification of export fruit: the opportunity appears to exist for MAFF and Fuji apple growers to test all orchards and only submit registration for those which have acceptably low levels of fungal diseases.

AQIS's position:
MAFF will not be able to selectively eliminate growers because to meet AQIS's requirements for area freedom, MAFF must provide a list of designated export areas and detection survey

data for specified diseases. AQIS will request that MAFF provide a list of registered orchards, their numbers and maps as soon as the orchards are registered, and submit petal testing, fruit fly trapping data for verification of area freedom, etc., as soon as the results are available.

9.3.2 Field management strategies

Issue 20 :
Individual pest management strategies: the proposed import conditions are very broad and do not adequately cover specific issues as they relate to individual pests/diseases. One respondent requires that individual pests/diseases have their own quarantine conditions and arrangements.

AQIS's position:
Specific control measures are applicable to each of the pests of quarantine concern in List 1 of the draft IRA; however individual treatment of pests is unnecessary as most management operations are applicable to a broad range of pests. Individual species control proposed in the draft IRA is based on the systems approach for pest management. No substantive data have been presented by stakeholders to indicate that the management options would not reduce populations of any pest of concern to a minimal level.

Unacceptable levels of quarantine pests will result in suspension of trade pending the outcome of an investigation. This investigation will focus on pest management strategies.

Issue 21 :
Field sanitation: AQIS was asked to define the requirements for field sanitation. Specific details of pest control programs (equipment, volumes, records, chemicals, timing, weather) were requested to ensure that the Australian and New Zealand Food Authority (ANZFA) standards for chemical residues are met.

AQIS's position:
Field sanitation procedures in Japan carried out during winter and early spring involve removal of plant parts which harbour overwintering propagules on the tree and on the orchard floor. The plant parts will be buried or burned. An AQIS consultant and an officer of the PQPB have visited some export orchards in the designated export areas and have confirmed that orchards are well maintained and have a very high level of hygiene. Sanitation is an integral part of the disease management strategy of export orchards in Aomori Prefecture.

MAFF has provided AQIS with details of chemical control programs for 1997. However, AQIS will require MAFF to submit details of the chemical control program for 1998 at the commencement of the season and to provide a revised copy at pre-clearance inspection if applicable.

AQIS will consider the necessity of reviewing the chemical control program following the first import season if AQIS has serious concerns about the efficacy of the pest control program. Pesticide residues will be monitored under the AQIS Imported Food Inspection Program.

Issue 22 :
Bagged fruit with relation to microbial pathogens: it is believed that more stringent monitoring of the orchards is necessary because the fruit may not be covered early enough to prevent spores of pathogens from landing on the fruit.

AQIS's position:
Fruitlets are exposed to fungicide applications before they are bagged. After bagging, fruit is protected from inoculum that can cause diseases so fungicides are not necessary until the bags are removed about a month before harvest to allow fruit to colour. The diseases affecting other plant parts are controlled by fungicide sprays throughout the season. We understand that pesticide impregnated bags are used but AQIS has not been provided with details by MAFF.

Fruit is bagged after a rigorous thinning operation. At that stage only uninfected and apparently healthy fruit is bagged. Fruit is sprayed with pesticide until it is bagged. Any fruit that may have received inoculum and not succumbed to infection is likely to develop disease symptoms within the bags and would therefore be rejected at the time bags are removed. Mature fruit is unlikely to be seriously infected as the level of inoculum in the orchard would be low as a result of the routine chemical control program. If fruit is infected, it would be discarded at pre-clearance inspection. AQIS also requires a sample of fruit to be incubated for a specific period to detect any latent infection that may be present.

Issue 23:
Bagging with relation to arthropod pests: several respondents commented on the lack of evidence presented in the draft IRA to support the claim that bagging significantly reduces the incidence of fruit infestation by quarantine pests which have been assessed as having a high risk. The draft IRA document highlights that for some pests bagging will not stop infestation of the fruit. Specific examples used were mites, mealybugs, thrips, summer fruit tortrix (*Adoxophyes orana*) and peach fruit moth (*Carposina sasakii*).

AQIS's position:
Bagging of fruit is undertaken routinely in Japan, Korea and China as a pest management measure. As a result of bagging and chemical controls, certain pests have not been seen in orchards for a number of years. Bagging has been used as a disease management method for nashi pear imports from Japan into Australia for almost a decade and no serious commercial arthropod pests and/or diseases have been detected on fruit during inspections. AQIS has also included orchard monitoring and inspection as a requirement to monitor pest levels and effectiveness of orchard controls.

Efficacy data for the proposed cold treatment/methyl bromide fumigation was provided for peach fruit moth (*Carposina sasakii*), summer fruit tortrix (*Adoxophyes orana*), hawthorn red spider mite (*Tetranychus viennensis*) and tea red spider mite (*Tetranychus kanzawai*). The data showed that the combined treatment is effective against the above pests.

Issue 24:

Time of bagging: there are no provisions for verification that the bags are applied at the time specified. The description about the timing of the second bagging should be deleted as in the production process of Fuji apples, one double bag is used for each fruit during the season.

AQIS's position:
Bagging of fruit occurs when fruit is about 4cm in diameter. Bags are removed about a month before harvest to allow the fruit to colour. Bagging is an essential component in the systems approach to control pests in apple orchards. There is no reason to assume that orchards will not adhere to fulfilling this requirement, as delays may increase the incidence of diseases. Any fruit that shows disease symptoms would be rejected at pre-clearance. AQIS has agreed for Japan to use a double bag instead of using a second bag. This procedure is adopted by other countries trading with Australia.

Issue 25:
Oriental tea tortrix (*Homona magnanima*) and summer fruit tortrix (*Adoxophyes orana*) larvae are resistant to a range of insecticides and can chew through protective bags to access fruit. Other than by fumigation procedures, it is not clear how inspection procedures have addressed the likelihood that bagged fruit will be infested. In particular live *C. sasakii* is found each year by United States Department of Agriculture quarantine inspectors on unfumigated fruit from Japan and Korea.

AQIS's position:
Control of lepidopteran pests is managed by a systems approach which involves bagging, pesticides, orchard inspection, pre-clearance inspection and cold treatment/fumigation. The combined cold treatment and fumigation treatments are proven to be efficacious against *Carposina sasakii*. AQIS believes that this combined approach will reduce the risk to negligibly low levels.

Issue 26:
Pre-harvest pest management: there must be adequate checks in place to ensure that fruit for export cannot become infected/infested by quarantine pests after bags have been removed in the orchard prior to harvest.

AQIS's position:
Routine application of pesticides will help to minimise fruit infection/infestation. Any fruit that is infected/infested will be discarded at pre-clearance inspection. Testing for latent disease infections will be carried out by MAFF on fruit at the time of harvest.

Issue 27 :
Recognition of existing procedures for pest management: there are precedents set for the management of many pests which are the same or similar to those identified in the current risk assessment. There should be provision within the phytosanitary requirements document to refer to these successful management procedures.

AQIS's position:

AQIS has based its management strategies for pests of Fuji apple on the successful program and existing import conditions for nashi pear imports from Japan, which have resulted in no serious arthropod pests being intercepted on inspection and/or establishing in Australia. The systems approach to pest management would have contributed to the low level of pest interceptions.

Issue 28:
Nashi pear imports from Japan: should the proposed conditions for Fuji apple be extended to include those currently applying to nashi pear imports from Japan?

AQIS's position:
AQIS has based import conditions for apples on similar conditions already in place for importation of nashi pear from Japan.

9.3.3 Pest surveillance (survey and monitoring)

Issue 29 :
Disease survey requirements: the possibility of infection of fruit will be reduced to a minimum by Japan's effective pest control program during the growth period, and pre-clearance inspection before export, therefore the requirement for disease surveys should be removed.

AQIS's position:
Surveys and petal testing will have to be conducted by MAFF annually at flowering and during the growing season, to specifications provided by AQIS and results submitted to AQIS for evaluation. Eligibility of orchards to export fruit will depend on meeting area/orchard freedom requirements specified for nominated diseases by AQIS.

Issue 30 :
Assessment of information: item 2 of the phytosanitary conditions described in the draft IRA states that 'details of the pest control program are to be provided to the AQIS inspector...'.Who will have the responsibility to assess the adequacy of these programs?

AQIS's position:
The details of the pest control are provided by MAFF to AQIS. A copy of the details, with changes, if any, would be given to the AQIS inspector at the pre-clearance inspection. AQIS will consult with State quarantine plant pathologists and quarantine entomologists, if necessary, to determine the adequacy of pest control programs.

Issue 31:
It is proposed that qualified technical staff accompany AQIS inspectors to develop a revised arrangement and finalise an IRA for importation of Fuji apple.

AQIS's position:
In October 1995, the Assistant Director of the PQPB, AQIS together with an agricultural entomologist from Tasmania and an agricultural plant pathologist from New South Wales

visited Aomori Prefecture in Japan to view and report on the management of pests and diseases in apple orchards in that prefecture. Information gained from this visit was used in compiling the IRA document on the importation of Fuji apple from Japan. In addition, an Australian plant pathologist with extensive experience will visit the export areas at pre-harvest in the first year of trade.

The AQIS inspector who will visit Japan for pre-clearance is technically competent and has considerable experience in pre-clearance work including nashi pears from Japan, where pests affecting pear are similar to those affecting Fuji apple.

Issue 32:
Pre-harvest inspection procedures: there is very little information provided about inspections and their statistical validity. What statistical basis is provided for their selection?

AQIS's position:
A random sample of trees at different points in the orchards will be inspected jointly by AQIS and MAFF officers for both arthropods and diseases. Pre-harvest inspections assess the efficacy of control measures adopted in the export orchards. The inspection results will also be used to re-evaluate the pest control program if there is a high incidence of pests in the current season. The inspection arrangement is based on the arrangement for nashi pear from Japan, which has resulted in a very low level of interceptions of non-quarantine pests. In addition, MAFF inspectors will carry out detection/monitoring surveys for pests and diseases at flowering and during the growing season.

9.3.4 Area freedom

Issue 33 :
Area freedom: respondents queried the area freedom status of regions in Japan. Specific questions were asked on the following issues: the distance from the nearest occurrence of a disease of major concern (eg. bacterial shoot blight of pear, brown rot), the level of surveillance required to define the occurrence and distribution of disease in the exporting country, the requirements for buffer zones, movement restrictions on quarantine risk materials into the export areas, application of proposed arrangements for orchard-level freedom only, the definition of an orchard and whether a registered and an unregistered orchard can adjoin each other.

AQIS's position:
The area referred to in area freedom may be an official country or part thereof. Area freedom is defined at levels from orchard to country depending on the pest or disease concerned.

In Japan, within the production area (Aomori Prefecture), there are registered export orchards and non-export orchards. Therefore AQIS requires MAFF to survey all registered export orchards and the closest surrounding non-export orchard for brown rot. An orchard is an area of production which operates as a single unit, with the same pest management practices and surveillance systems.

Orchards registered for export may adjoin unregistered orchards, however buffer zones are required. For instance if brown rot is detected in any registered orchard in the designated export area, all orchards in the designated export area will be excluded from exporting apple fruit to Australia for the current season. This designated export area refers to nominated districts within Aomori Prefecture. AQIS requires designated export areas within Aomori to be nominated at the time that petal test results are provided. MAFF will ensure that internal quarantine regulations are enacted to restrict the movement of material infected with quarantine diseases into the designated export areas.

Issue 34:
In the absence of economically important fruit flies in these countries an early warning system (eg. trapping at major ports and points of entry) is seen as a minimum to indicate area freedom.

AQIS's position:
MAFF has been monitoring for Mediterranean fruit fly (*Ceratitis capitata*), Oriental fruit fly (*Bactrocera dorsalis*), melon fly (*Bactrocera cucurbitae*) and Queensland fruit fly (*Bactrocera tryoni*) at major ports and airports and major fruit and vegetable producing areas since 1983. Monitoring for fruit fly incursions must continue for Japan to verify its freedom from fruit flies.

MAFF has provided sufficient technical information to consider the exporting orchards in Aomori Prefecture as pest free production areas for fruit flies. MAFF will continue the current sentinel fruit fly monitoring program already being carried out in Japan and information including data on trap catches and species caught must be provided to the AQIS inspector for audit at pre-clearance. If any fruit fly species of economic concern to Australia are detected, MAFF must inform AQIS immediately and trade will cease pending the outcome of an investigation.

Issue 35:
Internal quarantine within Japan: no information has been provided about the internal quarantine procedures currently in place, restricting movement of fruit and plant material between Prefectures in Japan.

AQIS's position:
MAFF in Japan has instituted internal quarantine measures to prohibit the movement of apple and pear material to other areas in Japan, in accordance with the Plant Protection Act, after bacterial shoot blight of pear (*Erwinia amylovora*) was detected in Hokkaido.

9.4. Postharvest Management

9.4.1 Export quarantine procedures

Issue 36:

AQIS proposed the procedures be carried out in the following order: sampling tests, packing of fruit, fumigation and then cold treatment. It has been suggested that the order be changed to cold treatment, packing, fumigation and sampling tests.

AQIS's position:
AQIS has agreed to change the order of the postharvest procedures. Fruit will therefore be cold treated and then packed prior to fumigation. AQIS and MAFF will jointly supervise all fumigation treatments. Supervision will include monitoring the entry of fumigant, temperature of product and the percentage of fumigant retained at the completion of each treatment.

Each treatment will become an inspection 'lot'. Six hundred units per treatment 'lot' will be jointly inspected by AQIS/MAFF. Any live pests detected at inspection will be identified by MAFF. A duplicate specimen must be given to the AQIS inspector for confirmation and retention. Any live quarantine pest will mean that all fruit in that treatment 'lot' has failed and will be rejected for shipment to Australia.

On completion of inspection AQIS/MAFF will prepare the Master Phytosanitary certificate including required endorsements. If shipment is not to be undertaken immediately, the AQIS inspector will supervise the loading of fruit into cold storage facilities and will seal the chambers used.

9.4.2 Packing house

Issue 37 :
Packing house hygiene: what standards have been proposed by MAFF for orchard and packing house hygiene?

AQIS's position:
Packing house facilities will be inspected and approved by an AQIS inspector before pre-clearance. AQIS will insist on the same standard of hygiene as exists in Australian export packing houses. Experience from the export of nashi fruit from Japan to Australia has shown a very high packing house standard.

Issue 38:
It is proposed to use an agreed sampling plan for visual joint inspections of fruit in packing houses. No details of the agreed approach have been provided and no statistical basis has been provided.

AQIS's position:
Fruit inspection is based on the AQIS sampling plan (Cannon & Roe, 1982) of 600 fruit per 'lot' which gives a 95% level of confidence of detecting a 0.5% infection/infestation.

Issue 39:
MAFF has specified that they would like to pack the fruit in plastic containers for shipment to Australia.

AQIS's position:
AQIS has no objections to the use of plastic containers providing they are new and labels can be affixed. The plastic containers must be ventilated and provide quarantine security for fruit after disinfestation.

Issue 40:
Packing requirements and elimination of trash: respondents have asked for an explanation of the statement "packing material must be new and not of plant origin" and information about the elimination of trash from packed fruit.

AQIS's position:
Material of plant origin refers to unprocessed plant material such as straw and not to material processed out of plant material such as cardboard. This requirement is intended to remove the possibility of hitch-hiking pests. AQIS will require that only plant material processed by a standard procedure or synthetic material be used as packaging material**.** There is no provision for repacking. The packages must be free of quarantine pests, plant trash and soil and AQIS will take action if packages contain these contaminants.

Issue 41:
Security of packed fruit against reinfestation: inspected and cleared fruit will be stored separately in cold store, at 1-3°C. Are any safeguards planned to prevent pest infestation after packing? How will packages be sealed to prevent further attack?

AQIS's position:
Aomori Prefecture has heavy snow falls in winter and the average temperatures for the months December through March range from 1.5°C to -1.8°C. Due to these cold temperatures, fruit flies would not be active during this period. In any event, MAFF has provided sufficient technical information to classify Aomori Prefecture as a pest free area with respect to fruit flies. All fruit packages for export to Australia will be sealed and removed to a cool store where only fruit for export to Australia is stored.

9.4.3 Disinfestation treatments

Issue 42:
Efficacy of treatment: what evidence is there that the disinfestation treatment at item 8 is efficacious against the target pests? Does cold and methyl bromide treatment kill eggs, larvae and other stages of European red mite (*Panonychus ulmi*), Comstock mealy bug (*Pseudococcus comstocki*) and camphor scale (*Pseudaonidia duplex*)? Manchurian fruit moth (*Cydia inopinata*) is very cold tolerant, surviving at minus 38-41°C. There is no scientific data provided to verify the efficacy of fumigation or cold treatment to eliminate these or other internal feeders from fruit.

AQIS's position:
Efficacy data for the proposed cold treatment/methyl bromide fumigation was provided for peach fruit moth (*Carposina niponensis*, now *C. sasakii*), summer fruit tortrix (*Adoxophyes*

orana), hawthorn red spider mite (*Tetranychus viennensis*) and tea red spider mite (*Tetranychus kanzawai*).

The experimental process involved determining which stages of the pests might be present on or in the fruit at harvest and then conducting large-scale mortality tests to ensure that these stages would be completely killed by the disinfestation standards established.

The efficacy data showed that cold treatment/fumigation is effective against the internal feeders peach fruit moth and summer fruit tortrix. AQIS considers that the disinfestation treatment will also provide a significant degree of control for other insect pests. However in the absence of specific risk management strategies for these pests, AQIS will require orchard and pre-clearance inspection combined with commercial field controls and fruit bagging to control other insect pests of concern to Australia.

Issue 43:
Fumigation: non-disease pest risks could be handled in ways other than fumigation. This is overkill, as with Tasmanian apples to Japan.

AQIS's position:
Cold treatment/fumigation was proposed by Japan in addition to bagging. AQIS considers it is required since apples are unbagged in the orchard for approximately a month prior to harvest.

Issue 44:
What is the minimum concentration of methyl bromide that is to be maintained for the duration of the treatment or at any specific interval? Where are the temperatures referred to in the disinfestation treatment to be taken? Is this in line with the current AQIS fumigation standard?

AQIS's position:
Fruit will be fumigated with methyl bromide for two hours at a rate of $48g/m^3$ for temperatures greater than or equal to 10°C but less than 15°C (or two hours at a rate of $38g/m^3$ at 15°C or above). A standard of 50 per cent or more of the original fumigant concentration is required at the final monitoring. The pulp temperatures are taken from samples from at least the bottom, the centre and the top of the stack. These procedures are in line with the *AQIS Standard for Fumigation with Methyl Bromide* (1994).

Issue 45:
What arrangements have been made to introduce other fumigation treatments with the proposed phase-out of methyl bromide?

AQIS's position:
This is a global problem. Many countries are doing research to find a suitable alternative to methyl bromide. When methyl bromide is no longer available for use, Japan would be required to propose alternative treatments and provide efficacy data for our assessment.

Issue 46:

Post-harvest treatment of fruit for pathogens: there is no information provided on post-harvest treatments to control fungi or bacteria.

AQIS's position:
The likelihood of pathogenic propagules/contaminants reaching fruit will be minimal as fruit is bagged from when it is 4 cm in diameter until about a month before harvest. Fruit is thinned to select a desirable shape and quality free from pests. All fruit is visually inspected in the packing house and fruit which is blemished, damaged or infected/infested are rejected. Dipping fruit after harvest in a fungicide or disinfecting agent would possibly control contaminants but this would not be necessary as fruit is covered during most of the growing season. A sample of fruit will also be incubated to check for any latent infection before export of fruit commences.

AQIS will investigate the possibility of using a post-harvest dip of fruit in chlorine/fungicide in a subsequent export season, if diseases of quarantine concern are detected during latency testing. AQIS would require research data proving efficacy of these treatments and/or equivalence with the existing arrangement.

Issue 47:
Cold treatment: it is not clear why details of cold treatment are not part of the phytosanitary certificate but are provided on an additional declaration.

AQIS's position:
As the disinfestation treatment is a combined cold disinfestation plus fumigation treatment both parts cannot be included in the "treatment section" of the Phytosanitary Certificate. For this reason an additional declaration stating that both treatments have been completed prior to shipment is necessary.

9.4.4 Pre-clearance inspection

Issue 48:
Microscopic examination of pests at pre-clearance inspection: a number of respondents commented on the need for microscopic examination of all sampled fruit as the minute size of pests such as tetranychid mites will make their detection extremely difficult. The issue of internal feeding pests being overlooked during visual inspection was also raised.

AQIS's position:
Pests which have a high entry risk are targeted in the IRA if they are difficult to detect by visual inspection. All quarantine pests are managed by a systems approach to pest management (sanitation, chemical control, bagging, surveillance etc). Pests which are difficult to detect are subject to reporting requirements and especially targeted during pre-clearance inspection. AQIS and MAFF inspectors will be required to inspect for mites in particular at pre-clearance.

The combined cold storage/fumigation disinfestation treatment proposed by Japan has been shown to be efficacious for both hawthorn red spider mite (*Tetranychus viennensis*) and tea

red spider mite (*Tetranychus kanzawaii*). AQIS does not intend to inspect each fruit under a microscope as it is not feasible to examine a sample of 600 fruit microscopically. However AQIS inspectors will be equipped with a handlens (10x magnification) during pre-clearance, and any suspect fruit will be examined under a stereoscopic microscope. The risk of internal feeding insects will be addressed by random surveillance of culled fruit during the export packing operation and by cutting any fruit which is suspected of being infested by pests.

Issue 49:
Training requirements for pest detection/recognition: the AQIS inspector that will undertake inspection in the exporting country will require specific training in order to recognise all the pests and diseases of concern as they will not have the backup of Australian specialists. It is suggested that the exporting country play a role in providing this training.

AQIS's position:
AQIS provides training to inspectors who are likely to visit Japan for pre-clearance inspection of Fuji apple. They will receive training on all aspects of pest and disease identification as well as the survey methodologies and management strategies required in this document. Many of these inspectors have considerable experience in pre-clearance work, especially nashi pear fruit from Japan where the pests affecting pear are similar to those affecting Fuji apple.

AQIS sees merit in incorporating the assistance of MAFF in training programs but does not have the financial resources to allow overseas training of its inspectors. AQIS will request that MAFF provide preserved duplicate specimens of pests intercepted by the inspector to be retained for training purposes and that photographs of pests be taken to assist in training AQIS inspectors.

Issue 50:
Definition of a 'lot': the definition of an inspection 'lot' is inconsistent from one IRA to another and it is unclear how a 'lot' will be defined.

AQIS's position:
Fruit that has been cold treated will be packed and then subjected to a fumigation treatment. Each fumigation treatment will become an inspection 'lot'. Six hundred units per treatment 'lot' will be jointly inspected by AQIS and MAFF inspectors. For traceback purposes registered grower numbers will be retained.

Issue 51:
Inspection sampling rate: several respondents asked what is the agreed sample rate or proportion of fruit for inspection, and suggested that a sample of reject fruit from each day's packing be examined for pests and diseases.

AQIS's position:
The sample rate has not been stated in the draft IRA because the quantity of fruit available for import is unknown. AQIS will set up a sampling plan based on the projected volume of fruit to be exported but the AQIS standard will be used where possible. The AQIS standard is based on Cannon and Roe (1982), where a 600 fruit sample per 'lot' gives a 95% confidence

of detecting a 0.5% infection/infestation in a homogeneous 'lot'. However, the sampling rate can be intensified if the AQIS inspector considers that the interception rate of quarantine pests is high.

Culling of fruit on the packing line will be done by packing house staff supervised by MAFF. An agreed fruit sample per 'lot' of the remaining fruit will be examined by an AQIS inspector. A sample of culled fruit will be visually examined by an AQIS inspector as a part of general verification to determine the efficacy of field control measures. A random selection of culled fruit will be inspected by the AQIS inspector for internal feeders. Any fruit suspected of being infested by pests will be cut for inspection. If the AQIS inspector suspects the occurrence of critical pests and those that do not conform to typical symptoms of the specified diseases, samples will be taken by the AQIS inspector for laboratory investigation by MAFF, or their designated agent.

Issue 52:
Quality management system: a traceback system will be required for culled fruit so that if pests of concern are found, fruit from the particular registered orchard can be rejected.

AQIS's position:
If a 'lot' is determined to have failed then all fruit in that 'lot' fail. If quarantine pests other than those that require area freedom are detected, fruit from that 'lot' will be rejected at pre-clearance inspection. If quarantine pests requiring area freedom are detected, area freedom will be suspended and trade will cease pending the outcome of an investigation. The orchard and packing house registration numbers will be used to traceback to grower lines in order to review pest control programs of offending growers.

9.4.5 Latent disease infection testing

Issue 53:
On-arrival inspection: what is the purpose and who bears the cost of on-arrival inspections?

AQIS's position:
The proposed on-arrival inspections have been replaced with latent disease infection testing to be carried out in Japan. MAFF will conduct testing of samples of fruit (10 export quality apple fruit (plus an additional 5 control fruit) from each export orchard) for latent disease infections at the time of harvest. This testing will further reduce any associated risk by conducting all activities off-shore, thus ensuring that the program is truly a "pre-clearance" program.

AQIS, however, reserves the right to inspect Fuji apple fruit at the port of arrival into Australia. These on-arrival inspections will only be invoked should there be a suspected breach of security in the shipping of the consignments from Japan to Australia. The inspection may only involve a minor proportion of the trade and costs will be charged to the importer. If diseases or live pests of quarantine concern are detected, AQIS reserves the right to have the

affected Fuji apple fruit returned to Japan, re-exported, or ordered to be destroyed. AQIS will inform MAFF of action including any intention to suspend importation.

Issue 54:
Refinement of import conditions once trade commences: it was submitted that the conditions for the proposed arrangement will need to be refined before export commences.

AQIS's position:
Fuji apple imports will commence when MAFF and AQIS have signed the arrangement document specifying the phytosanitary requirements that must be met. In effect, the first shipment will be a trial shipment as import conditions will be reviewed at the end of the first year. Non-compliance provisions are incorporated into the import conditions.

Issue 55:
Importation of fruit via air freight: is air freight permitted and if so under what conditions?

AQIS's position:
There is no change to the import conditions even if fruit is imported via air freight.

9.4.6 Non-compliance action

Issue 56:
Action to be taken on detection of exotic pests.

AQIS's position:
AQIS's action will depend on the pest and disease detected. Depending on the arthropod pest found, pesticide applications may be re-evaluated, pre-clearance inspection may be intensified or trade may be suspended.

- If fruit flies are found at pre-clearance inspection area freedom will be suspended and trade will cease pending the outcome of an investigation.
- If bacterial shoot blight of pear is confirmed anywhere else in Japan (other than Hokkaido) fruit will not be imported and trade will cease immediately, pending the outcome of an investigation.
- If brown rot is detected in any registered export orchard in a designated export area, fruit from orchards in that export area will not be permitted.
- If Japanese apple rust is detected on apple, fruit from export orchards within 2 km of the infected site will not be accepted into Australia.
- If European canker is detected in the designated export area, fruit will not be imported from orchards in that area and trade will cease immediately, pending the outcome of an investigation.
- If physalospora canker, monilia leaf blight, alternaria blotch, apple blotch or marssonina blotch are detected at pre-clearance inspection that 'lot' will be rejected.
- Detection of latent infection of any quarantine disease of fruit will result in disqualification of those orchards from exporting fruit.

Investigations by AQIS in cooperation with MAFF will determine the ultimate position that AQIS will take.

9.4.7 Post entry quarantine

Issue 57:
Internal restrictions on movement of fruit into Western Australia: both apples and pears from any source are currently prohibited entry to Western Australia under Agriculture WA legislation. AQIS should inform Japan that there are legitimate restrictions on the movement of fruit within Australia that may have implications for the proposed trade.

AQIS's position:
Movement of fruit from ports of entry to other Australian States is under the control of State Legislation, not AQIS. Fruit is not permitted into Western Australia as apples and pears from any source are currently prohibited entry under WA State legislation. However, there will be no restrictions imposed by AQIS on other ports of entry.

10. LIST OF RESPONDENTS

Victorian Fruit Exporters Committee
Victorian Growers' Liaison Committee
Northern Territory Department of Primary Industry and Fisheries
Queensland Fruit and Vegetable Growers
The Australian Dried Fruits Association Inc
Environment Australia, Biodiversity Group
Australian United Fresh Fruit and Vegetable Association Ltd
Cherry Growers of Australia Inc
Cherry Growers of South Australia
Northern Victorian Fruitgrowers' Association Ltd
Primary Industries South Australia
Queensland Department of Primary Industries
New South Wales Agriculture, Division of Plant Industries
Agriculture Western Australia
Department of Primary Industry and Fisheries, Tasmania
Apple & Pear Growers Association of SA Inc
Crops Division, Department of Primary Industries and Energy, Canberra
Australian Apple and Pear Growers' Association
South Australian Research and Development Institute
Commonwealth Scientific and Industrial Research Organisation, Division of Entomology
Commonwealth Scientific and Industrial Research Organisation, Division of Horticulture
Natural Resources and Environment, Victoria

Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan

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