

DEPARTMENT OF AGRICULTURE AND FOOD, WESTERN AUSTRALIA'S SUBMISSION TO THE DRAFT IMPORT RISK ANALYSIS FOR THE IMPORTATION OF FRESH UNSHU MANDARIN FRUIT FROM JAPAN

ENTOMOLOGY COMMENTS

1. Pest list

As the draft IRA only requires an organism's presence on *Citrus* as the justification for presence on fresh Unshu mandarin fruit, this direction was followed in preparing these comments. A review of the scientific literature and online databases has established that 92 invertebrates are not listed in the draft IRA or are listed and are of concern to Western Australia, which may be associated with Unshu mandarin fruit production in Japan. These organisms are included in Table 1. Of the 92 organisms listed, 63 organisms are of potential quarantine concern to Western Australia. The Department of Agriculture and Food Western Australia (DAFWA) requests that these 63 organisms be assessed to determine their quarantine status as outline in FAO (2004), that is '*A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled*' and be further assessed should these organisms meet the requirements for a quarantine pest.

Table 1: Invertebrate species associated with citrus production and present in source area but not listed in Appendix A of the draft IRA or have been listed and are of concern to Western Australia

Scientific name	Common name	Reference	Comment
<i>Abgrallaspis degeneratus</i> (Leonardi in Berlese & Leonardi) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Aleurothrixus floccosus</i> [Hemiptera: Aleyrodidae]	Woolly whitefly	(CABI 2008)	Not known to occur in WA
<i>Antonina crawii</i> Cockerell, 1900 [Hemiptera: Pseudococcidae]	Bamboo scale	(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Aonidiella aurantii</i> (Maskell) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Aonidiella comperei</i> McKenzie [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Aonidiella inornata</i> McKenzie [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Aonidiella messengeri</i> McKenzie		(Ben-Dov <i>et al.</i>	Not known to

Scientific name	Common name	Reference	Comment
[Hemiptera: Diaspididae]		2008)	occur in WA
<i>Aphis fabae</i> [Hemiptera: Aphididae]	Black bean aphid	(CABI 2008)	Not known to occur in WA
<i>Araecerus fasciculatus</i> [Coleoptera: Anthribidae]	Cocoa weevil	(CABI 2008)	Recorded from WA
<i>Aspidiotus excisus</i> Green [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Asterococcus muratae</i> (Kuwana) [Hemiptera: Cerococcidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Atherigona orientalis</i> [Diptera: Muscidae]	Pepper fruit fly	(CABI 2008)	Recorded from WA
<i>Attacus atlas</i> [Lepidoptera: Saturniidae]	Atlas moth	(CABI 2008)	Not known to occur in WA
<i>Aulacaspis crawii</i> (Cockerell) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Aulacaspis tubercularis</i> Newstead [Hemiptera: Diaspididae]	Mango scale	(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Brevipalpus californicus</i> [Acarina: Tenuipalpidae]	Citrus flat mite	(CABI 2008)	Recorded from WA
<i>Brevipalpus phoenicis</i> [Acarina: Tenuipalpidae]	False spider mite	(CABI 2008)	Recorded from WA
<i>Cacoecimorpha pronubana</i> [Lepidoptera: Tortricidae]	Carnation tortrix	(CABI 2008)	Not known to occur in WA
<i>Chaetanaphothrips orchidii</i> [Thysanoptera: Thripidae]	Anthurium thrips	(CABI 2008)	Not known to occur in WA
<i>Chrysodeixis acuta</i> [Lepidoptera: Noctuidae]	Tomato semi-looper	(CABI 2008)	Not known to occur in WA
<i>Chrysomphalus aonidum</i> [Hemiptera: Diaspididae]	Circular scale	(CABI 2008)	Recorded from WA
<i>Chrysomphalus dictyospermi</i> (Morgan, 1889) [Hemiptera: Diaspididae]	Spanish red scale	(BA 2008), (Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA.& possibly on pathway
<i>Crisicoccus matsumotoi</i> (Siraiwa) [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Dialeurodes citrifolii</i> [Hemiptera: Aleyrodidae]	Cloudy winged whitefly	(CABI 2008)	Not known to occur in WA

Scientific name	Common name	Reference	Comment
<i>Diaspis boisduvalii</i> Signoret [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Drosicha maskelli</i> (Cockerell) [Hemiptera: Margarodidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Drosophila simulans</i> [Diptera: Drosophilidae]		(CABI 2008)	Recorded from WA
<i>Duplaspidotus claviger</i> (Cockerell) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Dysdercus cingulatus</i> [Hemiptera: Pyrrhocoridae]	Red cotton stainer	(CABI 2008)	Not known to occur in WA
<i>Dysgonia arctotaenia</i> (Guenée, 1852) [Lepidoptera: Noctuidae]		(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Dysmicoccus boninsis</i> (Kuwana) [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Dysmicoccus brevipes</i> (Cockerell) [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded in WA
<i>Epilachna varivestis</i> [Coleoptera: Coccinellidae]	Bean ladybeetle	(CABI 2008)	Not known to occur in WA
<i>Eucalymnatus tessellatus</i> (Signoret) [Hemiptera: Coccidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Eutetranychus orientalis</i> [Acarina: Tetranychidae]	Citrus brown mite	(CABI 2008)	Recorded from WA
<i>Euwallacea fornicatus</i> [Coleoptera: Scolytidae]	Tea shot-hole borer	(CABI 2008)	Not known to occur in WA
<i>Ferrisia virgata</i> [Hemiptera: Pseudococcidae]	Striped mealybug	(CABI 2008)	Recorded in WA
<i>Ferrisia virgata</i> (Cockerell) [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded in WA
<i>Fiorinia fiorinae</i> (Targioni Tozzetti) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Fiorinia randia</i> Takahashi [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA

Scientific name	Common name	Reference	Comment
<i>Fiorinia turpiniae</i> Takahashi [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Halyomorpha halys</i> [Hemiptera: Pentatomidae]		(CABI 2008)	Not known to occur in WA
<i>Hemiberlesia pitysophila</i> Takagi [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Hypomeces squamosus</i> [Coleoptera: Curculionidae]	Green weevil	(CABI 2008)	Not known to occur in WA
<i>Icerya aegyptiaca</i> (Douglas) [Hemiptera: Margarodidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Icerya seychellarum</i> (Westwood, 1855) [Hemiptera: Margarodidae]	Yellow cottony cushion scale	(BA 2008), (Ben-Dov <i>et al.</i> 2008)	Recorded in WA
<i>Insignorthesia insignis</i> (Browne) [Hemiptera: Ortheziidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Ischnaspis longirostris</i> (Signoret) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Ishidaella albomarginata</i> (Signoret, 1853) [Hemiptera: Cicadellidae]		(BA 2008)	Not known to occur in WA. Justification for presence or absence from pathway required for WA
<i>Lepidosaphes conchiformis</i> (Gmelin) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Lepidosaphes pallida</i> (Maskell) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Lepidosaphes pinnaeformis</i> (Bouché) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Lepidosaphes takahashii</i> (Borchsenius) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Lepidosaphes tokionis</i> (Kuwana) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Lindingaspis rossi</i> (Maskell) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Lopholeucaspis cockerelli</i> (Grandpre and Charmoy, 1899)	Armoured scale	(BA 2008)	Not known to occur in WA. Justification for

Scientific name	Common name	Reference	Comment
[Hemiptera: Diaspididae]			presence or absence from pathway required for WA
<i>Maconellicoccus hirsutus</i> (Green) [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded in WA
<i>Melanaspis sulcata</i> Ferris [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Microcephalothrips abdominalis</i> [Thysanoptera: Thripidae]	Composite thrips	(CABI 2008)	Recorded in WA
<i>Milviscutulus mangiferae</i> (Green) [Hemiptera: Coccidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Oceanaspidiotus spinosus</i> (Comstock) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Orchamoplatus mammaeferus</i> [Hemiptera: Aleyrodidae]	Croton whitefly	(CABI 2008)	Recorded in WA
<i>Orthezia insignis</i> [Hemiptera: Ortheziidae]	Greenhouse orthezia	(CABI 2008)	Not known to occur in WA
<i>Oxya japonica</i> (Thunberg, 1815) [Orthoptera: Acrididae]		(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Pantomorus cervinus</i> [Coleoptera: Curculionidae]	Fuller's rose beetle	(CABI 2008)	Recorded from WA
<i>Papilio polytes</i> [Lepidoptera: Papilionidae]	Common mormon	(CABI 2008)	Not known to occur in WA
<i>Parasa lepida</i> [Lepidoptera: Limacodidae]	Nettle caterpillar	(CABI 2008)	Not known to occur in WA
<i>Parlatoria camelliae</i> Comstock [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Parthenolecanium persicae persicae</i> (Fabricius) [Hemiptera: Coccidae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Peridroma saucia</i> [Lepidoptera: Noctuidae]	Pearly underwing moth	(CABI 2008)	Not known to occur in WA
<i>Phyllocnistis citrella</i>	Citrus leaf miner	(CABI 2008)	Recorded in WA

Scientific name	Common name	Reference	Comment
[Lepidoptera: Gracillariidae]			
<i>Phyllocoptruta oleivora</i> [Acarina: Eriophyidae]	Citrus rust mite	(CABI 2008)	Recorded from WA
<i>Phyllophaga</i> [Coleoptera: Scarabaeidae]	White grubs	(CABI 2008)	Not known to occur in WA
<i>Physopelta gutta</i> (Burmeister, 1874) [Hemiptera: Largidae]		(BA 2008)	Not known to occur in WA. Justification for presence or absence from pathway required for WA
<i>Pinnaspis buxi</i> (Bouché) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Polyrhachis dives</i> Smith, 1857 [Hymenoptera: Formicidae]		(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Pseudaulacaspis cockerelli</i> (Cooley) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Pseudaulacaspis pentagona</i> (Targioni Tozzetti, 1886) [Hemiptera: Diaspididae]	White peach scale	(BA 2008), (Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA. Justification for presence or absence from pathway required for WA
<i>Pseudaulacaspis pentagona</i> (Targioni Tozzetti, 1886) [Hemiptera: Diaspididae]		(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Pseudococcus odermatti</i> Miller & Williams [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Pseudodendrothrips mori</i> [Thysanoptera: Thripidae]	Mulberry thrips	(CABI 2008)	Recorded in WA
<i>Pulvinaria floccifera</i> (Westwood) [Hemiptera: Coccidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA

Scientific name	Common name	Reference	Comment
<i>Pulvinaria psidii</i> Maskell [Hemiptera: Coccidae]	Green shield scale	(Ben-Dov <i>et al.</i> 2008)	Recorded from WA
<i>Recilia dorsalis</i> (Motschulsky, 1859) [Hemiptera: Cicadellidae]		(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Ripersiella kondonis</i> (Kuwana) [Hemiptera: Pseudococcidae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Selenaspilus articulatus</i> (Morgan) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Sinomegoura citricola</i> (van der Goot, 1917) [Hemiptera: Aphididae]		(BA 2008)	Not known to occur in WA Justification for presence or absence from pathway required for WA
<i>Trichoferus campestris</i> [Coleoptera: Cerambycidae]		(CABI 2008)	Not known to occur in WA
<i>Trichoplusia ni</i> [Lepidoptera: Noctuidae]	Cabbage looper	(CABI 2008)	Not known to occur in WA
<i>Unaspis citri</i> (Comstock) [Hemiptera: Diaspididae]		(Ben-Dov <i>et al.</i> 2008)	Not known to occur in WA
<i>Xyleborus perforans</i> [Coleoptera: Scolytidae]	Island pinhole borer	(CABI 2008)	Not known to occur in WA
<i>Xyleborus volvulus</i> [Coleoptera: Scolytidae]		(CABI 2008)	Not known to occur in WA

2. Pest categorisation process

DAFWA is concerned that the pest categorisation has not been undertaken according to international standards as set out in ISPM 11 (FAO 2004). Although section 2.2.1. of the draft IRA correctly indicates the procedures for undertaking the pest categorisation process and is in accordance with ISPM 11 (FAO 2004), Appendix A of the draft IRA includes a process of determining if the pest is likely to be associated with mature, fresh harvested fruit. This approach contains elements of the pest risk assessment process namely the assessment of the probability of entry, which results in the elimination of some pests from further consideration, despite the draft IRA establishing that these pests are associated with the pathway (Table 2). Elements of the assessment of the probability of entry included in Appendix A as

justification for the absence of a particular pest from the commodity pathway include the pest management, cultural and commercial procedures applied at the place of origin (application of plant protection products, handling, culling, roguing, grading). DAFWA requests that these species are assessed in a manner consistent with ISPM 11 (FAO 2004).

DAFWA is aware that a similar approach was undertaken with the New Zealand Apple IRA but this was restricted to old singular records regarding species associated with the host plant and did not contravene the processes as outlined in ISPM 11 (FAO 2004).

Table 2: Organisms where justification for the absence from the Unshu mandarin pathway is based on elements associated with the probability of entry

Edwardsiana flavescens (Fabricius, 1794) [Hemiptera: Cicadellidae]

Empoasca arborescens Vilbaste, 1968 [Hemiptera: Cicadellidae]

Empoasca onukii Matsuda, 1952 [Hemiptera: Cicadellidae]

Glaucias subpunctatus (Walker, 1867) [Hemiptera: Pentatomidae]

Halyomorpha halys Stål, 1855 [Hemiptera: Pentatomidae]

Parlatoria theae Cockerell, 1896 [Hemiptera: Diaspididae]

Plautia stali Scott, 1874 [Hemiptera: Pentatomidae]

Unaspis euonymi (Comstock, 1881) [Hemiptera: Diaspididae]

Zyginella citri (Matsumura, 1909) [Hemiptera: Cicadellidae]

3. Specific organisms

3.1 *Parlatoria theae*

The draft IRA has established the absence of this organism from the fresh Unshu mandarin fruit pathway on the basis of a lack of confirmation of its presence on Unshu mandarin even though the draft IRA establishes that it is a polyphagous pest for which *Citrus* is a recognised host. Other organism's presence or absence on the pathway has been justified by presence or absence on *Citrus* in Japan. DAFWA requests that *P. theae* be treated in a similar manner to the other organisms presented in the draft IRA and that it be considered further as it is present on *Citrus* in Japan.

3.2 *Bactrocera tsuneonis*

DAFWA is concerned over the apparent lack of formal area freedom from the serious citrus pest *B. tsuneonis*. DAFWA has several concerns relating to this issue including:

- the apparent lack of phytosanitary control on the movement of host fruit from Kyushu Island and other Japanese islands to the export areas for Unshu mandarins; and
- the marginal trapping program demonstrating the absence of *B. tsuneonis* from the export area.

DAFWA acknowledges that there are movement restrictions of host material regarding citrus canker, but not for *B. tsuneonis*. As such the DAFWA requests that

B. tsuneonis be considered further or the IRA clearly demonstrates that the area freedom status claim for *B. tsuneonis* is based on International standards such as ISPM 4 Requirements for the establishment of Pest Free Areas (FAO 1995), ISPM 10 Requirements for the establishment of Pest Free Places of Production and Pest Free Production Sites (FAO 1999) and ISPM 22 Requirements for the establishment of areas of low pest prevalence (FAO 2006).

3.3 *Limonia amatrix*

DAFWA will only accept area freedom from *L. amatrix* based on International guidelines. As such DAFWA requests that *L. amatrix* be considered further.

3.4 *Chrysomphalus dictyospermi*

(CABI 2008) reports that *C. dictyospermi* generally lives on leaves and fruits where the adult female lives for several months and feeds throughout her life. This indicates that *C. Dictyospermi* can be present on mature fruit. (CABI 2008) reports that *C. dictyospermi* is known mainly as a serious pest of *Citrus*. Spain recorded it as one of the arthropods responsible for rejection of 22% of citrus fruits in the sorting and packing house. As such DAFWA requests that this organism be considered further.

3.5 *Unaspis euonymi*

The draft IRA reports that *U. euonymi* 'attacks almost all parts of the host above ground...' which suggests that fruit can be infested. DAFWA requests that the justification for this organism's absence from the fresh Unshu mandarin pathway be more specific as the draft IRA indicates that other *Unaspis* spp. are present on the pathway.

3.6 Leafroller moths

The draft IRA indicates that 14,507 tonnes of fresh Unshu mandarin have been transported to overseas markets without detecting tortricid moths in pre-export inspections, yet the draft has assessed the probability of entry for these organisms as 'Moderate' ($0.3 < P \leq 0.7$). Given that pre-export inspections are conducted prior to phytosanitary treatments then DAFWA suggests that the lack of tortricid detections is indicative of a lower probability of entry and requests that the assessment be reviewed to better align this pest's probability of entry with the data presented in the IRA.

4. Proposed phytosanitary measures

4.1 *Pink citrus rust mite*

The draft IRA indicates that visual inspection and remedial action is suitable for pink citrus rust mite and would reduce the risk of this organism to below the ALOP; however, as these organisms are extremely small (in the order of 0.2 mm), they would be unlikely to be observed by the naked eye during phytosanitary inspections as indicated in (BA 2005). DAFWA does acknowledge that a severe infestation of this organism would be likely be detected due to damage symptoms. DAFWA considers that the proposed standard phytosanitary inspection and remedial action would be ineffective in reducing the risk of pink citrus rust mite to below the ALOP and requests that alternative phytosanitary measures be developed for this organism.

4.2 *Mealybug species*

The draft IRA indicates that visual inspection and remedial action is suitable for mealybug species and would reduce the risk of this organism to below the ALOP; however, the draft IRA indicates that mealybugs are inconspicuous, small and are found in protective spaces and can and are difficult to detect at low population levels. DAFWA considers that the proposed standard phytosanitary inspection and remedial action would be ineffective in reducing the risk of the mealybug species to below the

ALOP and requests that alternative phytosanitary measures be developed for this organism.

4.3 *Stathmopoda auriferella*

The draft IRA indicates that visual inspection and remedial action is suitable for *S. auriferella* and would reduce the risk of this organism to below the ALOP; however, the draft IRA indicates that the small size of the eggs and larvae make it unlikely to be detected on infested fruit. DAFWA considers that the proposed standard phytosanitary inspection and remedial action would be ineffective in reducing the risk of *S. auriferella* to below the ALOP and requests that alternative phytosanitary measures be developed for this organism.

4.4 *Thrips*

The draft IRA indicates that visual inspection and remedial action is suitable for the thrips species and would reduce the risk of this organism to below the ALOP; however, the draft IRA indicates that for the small size and cryptic nature would make them difficult to detect. The draft IRA also indicates that eggs can be laid under the fruit peel. DAFWA considers that the proposed standard phytosanitary inspection and remedial action would be ineffective in reducing the risk of the thrips species to below the ALOP and requests that alternative phytosanitary measures be developed for this organism.

PATHOLOGY COMMENTS

5. General

Following the release of the 2002 Technical Issues Paper (TIP) for the importation of Unshu Mandarin Fruit from Japan, DAFWA made several recommendations that have not been addressed in the current draft IRA, nor has any explanation been provided to indicate why they have not been included in the draft IRA:

- DAFWA recommended inclusion of 20 pathogens in the draft. These pathogens were recorded or known to be associated with *Citrus reticulata* production and known to be present in Japan. All these pathogens except *Aschersonia aleyrodinis* Webber were included. DAFWA requests that *Aschersonia aleyrodinis* Webber be included in the IRA.
- DAFWA recommended further consideration of *Cylindrocladium citri*. This has not occurred, the draft IRA states that *C. citri* is not on pathway as 'causes decay of citrus fruit which would not be packed for export'. This statement is incorporating elements of the probability of entry into the categorisation process which is not consistent with ISPM 11.'
- DAFWA requested the recognition of absence of *Helicotylenchus dihystrer*, *Pratylenchus curvatus*, *Pratylenchus loosi*, and *Xiphinema brasiliense* from Western Australia. These nematodes were omitted from the draft IRA. DAFWA requests these nematodes be included in the draft in the interest of transparency. It is acknowledged that these nematodes are not associated with the fresh fruit pathway and would not require further consideration.

There are 23 pathogens associated with Unshu mandarin production, which are present in the source area but have not been included in Appendix A of the draft IRA. Of these 18 are of potential quarantine concern to Western Australia, see Table 3.

Table 3: Plant pathogen species associated with Unshu mandarin production and present in source area but not listed in Appendix A of the draft IRA

Organism Name	Host	Reference to host and origin	Potential quarantine concern for WA (absence from WA)
<i>Alternaria pellucida</i>	Unshu mandarin	(ATCC 2008)	Yes
<i>Cercospora penzigii</i>	Unshu mandarin	(BA 2002)	Yes
Citrus tatter leaf capillovirus	Unshu mandarin	(BA 2002)	Yes
Citrus vein enation – woody gall associated luteovirus	Unshu mandarin	(BA 2002)	Yes
<i>Dothiorella gregaria</i>	Unshu mandarin	(BA 2002)	Yes
<i>Elsinoë australis</i>	Unshu mandarin	(BA 2002)	Yes
<i>Helicotylenchus dihystra</i>	Unshu mandarin	(BA 2002)	No
<i>Hypocapnodium japonicum</i>	Unshu mandarin	(BA 2002)	Yes
<i>Liberobacter asiaticum</i>	Unshu mandarin	(BA 2002)	Yes
<i>Meloidogyne sp</i>	Unshu mandarin	(BA 2002)	Yes for some species
<i>Neocapnodium tanakae</i>	Unshu mandarin	(BA 2002)	Yes
<i>Ogma civellae</i>	Unshu mandarin	(BA 2002)	No
<i>Paratrichodorus porosus</i>	Unshu mandarin	(BA 2002)	No
<i>Paratylenchus curvatus</i>	Unshu mandarin	(BA 2002)	Yes
<i>Pellicularia koleroga</i>	Unshu mandarin	(BA 2002)	Yes
<i>Phaeosaccardinula javanica</i>	Unshu mandarin	(BA 2002)	Yes
<i>Phoma erratica</i>	Unshu mandarin	(BA 2002)	Yes
<i>Pratylenchus coffeae</i>	Unshu mandarin	(BA 2002)	No
<i>Pratylenchus loosi</i>	Unshu mandarin	(BA 2002)	Yes
<i>Sclerotium citricolum</i>	Unshu mandarin	(BA 2002)	Yes
<i>Scorias citrina</i>	Unshu mandarin	(BA 2002)	Yes
<i>Spiroplasma citri</i>	Unshu mandarin	(BA 2002)	Yes
<i>Tylenchulus semipenetrans</i>	Unshu mandarin	(BA 2002)	No

6. Pest categorisation process

As stated in the section relating to invertebrates, DAFWA is concerned that the pest categorisation has not been undertaken according to international standards as set out in ISPM 11. Although section 2.2.1 of the draft IRA correctly indicates the procedures for undertaking the pest categorisation process and is in accordance with ISPM 11, Appendix A of the draft IRA includes a process of determining if the pest is likely to be associated with mature, fresh harvested fruit. DAFWA is concerned that this approach contains elements of the pest risk assessment process namely the assessment of the probability of entry, which results in the elimination of some pests from further consideration, despite the draft IRA establishing that these pests are associated with the pathway (Table 4). Elements of the assessment of the probability of entry included in Appendix A as justification for the absence of a particular pest from the commodity pathway include the pest management, cultural and commercial procedures applied at the place of origin (application of plant protection products, handling, culling, roguing, grading). DAFWA requests that these species be assessed in a manner consistent with ISPM 11 (FAO 2004).

Table 4: Organisms where justification for the absence from the Unshu mandarin pathway is based on elements associated with the probability of entry

Antennella citrina Hara

Capnodium citri Berk. & Desm.

Capnodium tanakae Shirai & Hara

Chaetoscorias vulgaris W. Yamam.

Cylindrocladium citri (H. S. Fawc. & Klotz) Boedijn & Ritz. Bos

Guignardia citricarpa Kiely

Limacinia harae W. Yamam.

Limacinia japonicum Hara

Meliola butleri Syd. & P. Syd.

Penicillium fructigenum Takeuchi

Chaetothyrium javanicum (Zimm.) Boedijn

Triposporiopsis spinigera (Höhn.) W. Yamam.

7. Specific organisms

The following comments relate to Appendix A: pest categorisation for fresh Unshu mandarin fruit from Japan – presence/absence in Australia and pathway association for arthropods and pathogens.

7.1 *Antennella citrina*

This pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.2 *Capnodium fuliginodes*

No records in WA. DAFWA acknowledges that this pathogen is present in other part of Australia and that the risk associated with the importation of Unshu mandarin from Japan would probably be similar to the risk associated with the importation of citrus fruit from other Australian States.

7.3 *Capnodium tanakae*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.4 *Chaetoscorias vulgaris*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.5 *Cylindrocladium citri*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.6 *Geotrichum citri-aurantii*

Current name is *Geotrichum candidum* var. *citri-aurantii* (Ferraris) Cif. & F. Cif..(CABI Bioscience 2004)

7.7 *Guignardia citricarpa*

No records in WA. DAFWA acknowledges that this pathogen is present in other part of Australia and that the risk associated with the importation of Unshu mandarin from Japan would probably be similar to the risk associated with the importation of citrus fruit from the other Australian States.

7.8 *Limacinia harae*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.9 *Limacinia japonicum*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.10 *Meliola butleri*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.11 *Chaetothyrium javanicum*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

7.12 *Triposporiopsis spinigera*

As stated in the draft IRA, this pathogen can be present on fresh Unshu mandarin fruit. Further consideration is therefore required.

The following comments relate to Appendix A2: Potential for establishment or spread and associated consequences for pests of fresh Unshu mandarin fruit from the production area.

7.13 *Corticium koleroga*

This pathogen is not present in Australia but is known to be associated with fresh citrus fruit in Japan as stated in the draft IRA. Further information is requested regarding the prevalence/incidence of this pathogen on Unshu mandarin in Japan.

8. Pest risk assessments

8.1 *Citrus canker* (*Xanthomonas axonopodis* pv. *citri*)

Probability of importation

- Citrus canker is known to be present in the Shizuoka Prefecture but Biosecurity Australia has not been able to obtain data on the citrus canker status in the production area (excluding the four designated export areas). The unknown status of citrus canker and its hosts in the production area outside the designated export areas is a matter of concern. It is requested that Biosecurity Australia seeks this information.
- Citrus canker is known to be present within the Shizuoka Prefecture yet no consideration is given to a potential fruit contamination by pickers or animals at harvest time. For example, it appears as though pickers could harvest infected citrus fruits outside these production areas and then pick Unshu mandarins inside these production areas.
- DAFWA would like to underline that while Unshu mandarins are not very susceptible to citrus canker they still can be infected and can serve as inoculum reservoirs.
- Shizuoka Prefecture is affected by typhoons from July to October yet it is stated that the production area is located in a sheltered valley environment, which reduces the incidence of wounds as potential entry sites to infection. Can Biosecurity Australia confirm that the production area is unaffected by typhoons when they occur.
- MAFF's Unshu mandarin spray calendar (Table 3.5) recommends the use of chemicals to control leafminer and citrus canker. These recommendations raise doubts regarding MAFF's assurances that citrus canker is not present within the production areas. Furthermore, adherence to the spray calendar is not mandatory and should not be included when determining the unrestricted risk.
- Extrapolation on the spread of the pathogen by favourable hurricane storm fronts in the Florida region indicate that the pathogen may have spread as far as 17.9 km from the infection source under such conditions (Gottwald *et al.* 2000; Gottwald *et al.* 2001; Gottwald *et al.* 2002). While citrus canker is known to be present within the Shizuoka Prefecture no consideration is given to the risk typhoons or storms represent to the introduction of citrus canker inoculum within the designated export areas.
- The packing house receives citrus fruit for processing for the domestic market and a number of export markets yet no consideration appears to be given to possible fruit contamination during the processing stage.

Probability of distribution

- The probability of distribution was determined to be 'Very Low' in this draft IRA, whereas in the draft IRA for citrus from Florida, the probability of distribution was determined to be 'High'. Based on both the IRA and the French pest risk analysis for citrus canker for Antilles and French Guyana (Pruvost 2004), DAFWA agrees that the probability of distribution is 'Very Low'.

9. Pest risk management

9.1 *Citrus canker (Xanthomonas axonopodis pv. citri)*

- The '*appropriate decontamination procedures*' regarding staff working in orchards infected with citrus canker and vehicles and equipment used in canker infected orchards are not clearly stated in the draft IRA. It is therefore impossible for DAFWA to assess if the proposed decontamination procedures would be adequate or not. In the interests of transparency this information should be provided in the IRA.
- The packing house receives citrus fruit for processing for the domestic market and a number of export markets yet no consideration appears to be given to possible fruit contamination during the processing stage.

10. General Comments

There are apparent inconsistencies in methodology between recently released IRAs including US stonefruit, Indian mango, Korean capsicum and this IRA. It is unclear how production practices in Japan have been considered in the risk analysis as they appear not to be mandatory. For example, Biosecurity Australia in estimating the unrestricted risk have indicated that they have included existing commercial production practices in Japan including commercial practices '*for the control of insect pests and diseases*' in Table 3.5, however, the IRA later states that '*orchardists may or may not use chemicals in the production area*'.

It is not clear how existing policy for some pests has been determined to be appropriate, given the differences between production practices considered in the Italian sweet oranges policy extension and the current IRA. For example, determining the unrestricted risk in the Italian sweet oranges policy extension included post harvest treatment (specifically '*anti-transpiration substances supplemented with thiabendazole or imazalil (more commonly used) or orthophenylphenol, sodium ortho-phenylphenate (SOPP) or chloro-diphenyl*'), (Biosecurity Australia 2005) whereas in the current IRA '*post-harvest treatment is not included in assessing the unrestricted risk*'. As another example, when determining the probability of distribution different criteria are used for the current IRA and the Italian sweet orange policy extension.

Lack of clarity exists throughout the document, for example, the scope states '*The production area has not any phytosanitary conditions imposed by the other countries*' however it appears that New Zealand HIS for *Citrus reticulata* from Japan requires several activities to be undertaken prior to the issuance of an export phytosanitary certificate which includes phytosanitary conditions such as '*been inspected in accordance with appropriate official procedures and found to be free of visually detectable regulated pests specified by the New Zealand Ministry of Agriculture and Forestry. AND undergone an agreed treatment that is effective against species in Quarantine: Risk group 3 AND undergone appropriate pest control activities that are effective against: Bactrocera tsumeonis, Tetranychus kanzawai, Xanthomonas capestris pv. citri OR been sourced from an area free (verified by an official detection survey) from the following: Bactrocera tsumeonis, Tetranychus kanzawai, Xanthomonas capestris pv. citri*' (MAF 2000)

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