



Risk Management Proposal: *Citrus, Fortunella, and Poncirus* spp. nursery stock from offshore MPI- accredited facilities

FOR PUBLIC CONSULTATION

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Submissions

The Ministry for Primary Industries (MPI) invites comment from interested parties on the proposed amendment to the import health standard (IHS) 155.02.06: Importation of Nursery Stock, schedule of special conditions for *Citrus*, *Fortunella*, and *Poncirus* which is supported by this Risk Management Proposal document.

The following points may be of assistance in preparing comments:

- Comments should be specific to a particular change in IHS requirements or a question asked in this document (referencing section numbers or commodity names as applicable).
- Justifications, data and supporting published references to support comments are requested.
- The use of examples to illustrate particular points is encouraged.

MPI encourages respondents to forward comments electronically. Please include the following in your submission:

- The title of the consultation document in the subject line of your email;
- Your name and title (if applicable);
- Your organisation's name (if applicable); and
- Your address.

Send submissions to: plantimports@mpi.govt.nz.

However, should you wish to forward submissions in writing, please send them to the following address to arrive by close of business on **21 November 2014**.

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Official Information Act 1982

Please note that your submission is public information and it is MPI policy to publish submissions and the review of submissions on the MPI website. Submissions may also be the subject of requests for information under the Official Information Act 1982 (OIA).

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Purpose

1. The purpose of this document is to:
 - a) Summarise the known biosecurity risks associated with *Citrus*, *Fortunella*, and *Poncirus* spp. nursery stock from offshore MPI-accredited facilities.
 - b) Summarise how the proposed measures can effectively manage risks.
 - c) Seek stakeholder feedback on the proposed phytosanitary measures for the amendment.

Background

2. The import health standard (IHS) [155.02.06: Importation of Nursery Stock](#) identifies the requirements for the import of *Citrus*, *Fortunella*, and *Poncirus* spp. nursery stock from all countries (collectively referred to as Citrus).
3. There are four options for the import of Citrus nursery stock into New Zealand under this IHS:
 - a) Citrus cuttings from offshore MPI-accredited facilities
 - b) Citrus cuttings from non-accredited facilities in any country
 - c) Citrus plants in tissue culture from offshore MPI-accredited facilities
 - d) Citrus plants in tissue culture from non-accredited facilities in any country
4. Changes to the import requirements for plants in tissue culture, and cuttings from non-accredited facilities are outside the scope of this amendment. These pathways are being assessed separately as part of a wider review of the import requirements for Citrus germplasm (including dormant cuttings, tissue culture and seed for sowing).
5. The changes proposed in this amendment to the IHS relate specifically to Citrus cuttings from offshore MPI-accredited facilities. In particular, to dormant cuttings sourced from offshore MPI-accredited facility Elizabeth Macarthur Agricultural Institute (EMAI), Australia. As discussed in this document, the proposed changes will affect the requirements while the material is held in post entry quarantine.

COMMODITY DESCRIPTION

6. The IHS covers all species of *Citrus*, *Fortunella*, and *Poncirus* approved for entry in New Zealand on the [MPI Plants Biosecurity Index](#) as nursery stock¹. Approved commodities in the IHS include dormant cuttings and plants in tissue culture.
7. This amendment specifically relates to dormant cuttings imported into New Zealand from EMAI. The IHS includes the following definitions relevant to this amendment:
 - a) **Cuttings:** A nursery stock commodity sub-class for propagation material from the stem only (no roots). Cuttings may be required to be dormant.
 - b) **Dormant:** Temporarily inactive/suspended growth (cuttings of deciduous species should have no leaves; bulbs should have no leaves or roots).

CURRENT REQUIREMENTS

8. The IHS requires Citrus cuttings from offshore MPI-accredited facilities to be sourced from a facility that is accredited to the MPI Standard [PIT.OS.TRA.ACPQF: Accreditation of Offshore Plant Quarantine Facilities and Operators](#) to undertake phytosanitary activities.

¹ *Citrus australasica* (finger lime) is currently listed on the Plants Biosecurity Index with a nursery stock import specification of 'Requires assessment' which means that this species is not currently approved for import into New Zealand as nursery stock. The import requirements for *Citrus australasica* will be considered as part of the wider review for Citrus germplasm.

9. The cuttings must be sourced from mother plants which have been held and tested at the offshore facility in accordance with the agreement between MPI and the operator of the offshore facility. The agreement includes specific testing that must occur prior to export at the offshore facility, and any testing which must occur while the material is in post entry quarantine².
10. A permit to import issued by MPI is required for all Citrus nursery stock imported into New Zealand. Prior to issuing the permit, MPI will assess the testing history for each cultivar to verify that it complies with the agreement between MPI and the operator of the offshore facility.
11. Prior to export, the cuttings must be treated for insects and mites. The exporting National Plant Protection Organisation (NPPO) must ensure that the cuttings have been:
 - a) Treated for insects and mites as required by the standard
 - b) Sourced from mother plants which have been held and tested in accordance with the agreement
 - c) Held in a manner to ensure that infestation/reinfestation does not occur following testing and certification.
12. The exporting NPPO issues a phytosanitary certificate which certifies that the goods comply with the requirements of the IHS³.
13. The cuttings and accompanying documentation are inspected on arrival in New Zealand to verify that the pre-export requirements have been met. Compliant consignments are then given authorised movement to be held in the post entry quarantine facility.
14. The IHS allows for material sourced from approved offshore facilities to be held in a Level 2 post entry quarantine (PEQ) facility. PEQ facilities are approved to the MPI transitional facility standard [PBC.NZ.TRA.PQCON: Specification for the Registration of a Plant Quarantine or Containment Facility, and Operator](#). The indicative minimum quarantine periods are 6 months for cuttings sourced from mother plants that have been kept in insect proof plant houses, and 16 months of cuttings sourced from open ground mother plants.
 - a) The MPI Chief Technical Officer (CTO) decided that only PEQ facilities which are able to control the temperature range are suitable to hold imported Citrus cuttings. Since 2010, all Citrus cuttings imported from EMAI have entered a Level 2 (or Level 3) PEQ facility capable of maintaining the temperature between 18-25°C for the duration of the quarantine period. This is because temperature sensitive bacteria (e.g. Citrus greening) can be sensitive to higher temperatures, which means that if testing occurs on plants growing at higher temperatures the likelihood of detecting an infection with Citrus greening is greatly reduced.
 - b) The CTO decided that for cuttings sourced from mother plants that have been kept in insect proof plant houses at EMAI, 6 months is not a true reflection of the time taken to complete the required inspections and testing of material being held in PEQ. Since 2012, all Citrus cuttings imported from EMAI have been held in PEQ for a minimum active growth period of 12 months.
15. As specified in the agreement between MPI and the operator of the offshore facility, some of the pre-determined testing required by the IHS may occur on the imported plant material while held in the PEQ facility. Testing in New Zealand must occur at a diagnostic facility approved to the MPI Standard [155.04.03: A standard for diagnostic facilities which undertake the identification of new organisms, excluding animal pathogens](#).

² The testing requirements for Citrus cuttings sourced from EMAI can be obtained from MPI on request; this proposed amendment to the IHS does not include any changes to the testing requirements for Citrus cuttings from EMAI.

³ The details to be recorded on the phytosanitary certificate, including required additional declarations, are identified in the IHS.

SOURCE INFORMATION

16. In the development of the risk management proposal the following information was used to identify risk organisms and the appropriate measures to manage their entry and establishment in New Zealand:
 - a) MAF Biosecurity New Zealand (MPI) Audit Report: Importation of *Citrus*, *Fortunella*, and *Poncirus* nursery stock from the Elizabeth Macarthur Agricultural Institute, New South Wales, Australia. Audit date 26 February 2009.
 - b) Accreditation of Elizabeth Macarthur Agricultural Institute for the holding and testing of *Citrus*, *Fortunella*, and *Poncirus* budwood (the agreement between MPI and EMAI), dated June 2010.
 - c) Ministry for Primary Industries [Citrus \(Citrus\), Fortunella \(Kumquat\) & Poncirus \(Trifoliate orange\) Post-Entry Quarantine Testing Manual, July 2010.](#)

INTERNATIONAL SETTING

17. Where possible, phytosanitary measures are aligned with international standards, guidelines, and recommendations as per New Zealand's obligations under Article 3.1 of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), WTO 1995 and section 23(4)(c) of the Biosecurity Act 1993.
18. The SPS Agreement states that phytosanitary measures must not discriminate unfairly between countries or between imported or domestically produced goods, and where there is a choice of phytosanitary measures to reduce risk to an acceptable level, WTO members must select the least trade restrictive measure.

Objective

19. MPI's objective is to ensure the known biosecurity risks associated with Citrus cuttings sourced from offshore MPI-accredited facilities are managed appropriately and are consistent with New Zealand's domestic legislation and international obligations.

Summary of Risk

20. This review of the IHS relates specifically to the requirements in post entry quarantine in New Zealand, including the risks posed by temperature sensitive bacteria, and the minimum quarantine period required to complete all inspections and testing.

TEMPERATURE SENSITIVE BACTERIA

21. Three closely related liberibacter species, '*Candidatus Liberibacter asiaticus*', '*Candidatus Liberibacter africanus*', and '*Candidatus Liberibacter americanus*' are associated with the significant disease Citrus greening (Huanglongbing) on susceptible Citrus varieties.
22. Nearly all commercial citrus species and cultivars are sensitive to Citrus greening, regardless of rootstock. Trees become stunted and have a much shortened life-span. Premature fruit drop on infected trees results in decreased production. Infected fruit that remains on the tree can be small, hard, discoloured and misshapen with a very bitter unpleasant taste that makes it useless (Bové 2006).
23. Testing for Citrus greening species is not routinely undertaken at EMAI prior to the nursery stock being exported to New Zealand; therefore, the agreement between MPI and EMAI requires all imported Citrus budwood to be tested for all three Citrus greening species by PCR, while the plants are actively growing in PEQ in New Zealand. The location of PEQ facilities that hold Citrus in some of New Zealand's warmest areas means that during summer, temperatures within the PEQ facility can easily reach above 40°C.

24. Studies indicate that ‘*Ca. L. americanus*’ and ‘*Ca. L. africanus*’ are heat sensitive (Bové 2006, Lopes et al. 2009a) and do not produce symptoms above 27°C. Temperatures in the range of 22–24°C are optimum for the development of ‘*Ca. L. africanus*’ (Bové 2006) and ‘*Ca. L. americanus*’ (Gasparoto et al. 2008, Lopes et al. 2009a). ‘*Ca. L. asiaticus*’ is heat tolerant and produces symptoms above 27°C (Bové 2006, Lopes 2009b). Temperatures in the range of 17–32°C are optimum for the development of ‘*Ca. L. asiaticus*’.

MINIMUM QUARANTINE PERIOD

25. For Citrus cuttings from offshore MPI-accredited facilities the indicative minimum quarantine periods are 6 months for cuttings sourced from mother plants that have been kept in insect proof plant houses, and 16 months for cuttings sourced from open ground mother plants. Citrus cuttings from EMAI are sourced from mother plants that have been kept in insect proof plant houses.
26. As stated in the current IHS, the quarantine period may be extended if material is slow growing, pests are detected, or treatments/testing are required. Under the agreement between MPI and EMAI, all graft indexing testing occurs when the plants are actively growing in PEQ in New Zealand. Due to the time taken to complete the graft indicator testing (as described in table 1 below), 6 months is not an accurate indication of the time taken to complete this test.
27. The plants are actively growing in the PEQ facility for at least 6 months before individual plants are sent to the diagnostic laboratory for graft indexing. This is to allow for sufficient plant growth to allow for samples to be collected for testing.
- a) Where multiple daughter plants are derived from a single imported cutting, and traceability is maintained, only one daughter plant derived from each imported cutting must be tested by graft indexing.

Table 1. Graft indexing required in while in PEQ in New Zealand (applies to Citrus cuttings sourced from EMAI only)

| Target organism or disease | Indicator (temperature requirements) | Inspection period |
|---------------------------------|--|-------------------|
| <i>Citrus leaf rugose virus</i> | Mexican lime (18-25°C) | 6 weeks |
| <i>Citrus mosaic virus</i> | Mexican lime or Sweet Orange (18-25°C) | 70 days |
| <i>Citrus psorosis virus</i> | Sweet orange (18-25°C) | 6 weeks |
| <i>Citrus variegation virus</i> | Rough lemon (18-25°C) | 6 weeks |
| Blind pocket/ Concave gum | Sweet orange (18-25°C) | 8 weeks |
| Citrus chlorotic dwarf | Rough lemon (18-25°C) | 8 weeks |
| Citrus fatal yellows | Alemow seedlings (25-32°C) | 8 weeks |
| Citrus impietratura disease | Sweet orange (18-25°C) | 8 weeks |
| Citrus sunken vein disease | Alemow seedlings (18-25°C) | 8 weeks |
| Cristacortis | Sweet orange seedlings (18-25°C) | 8 weeks |
| Rubbery wood | Sweet orange (27-32°C) | 3 months |
| Yellow vein clearing of lemon | Mexican lime (18-25°C) | 2 months |

Risk Management

28. The risk management measures applied to Citrus cuttings imported from offshore MPI-accredited facilities, specifically EMAI, are described in the [Current requirements](#) section of this document. The specific testing on imported cuttings required in the agreement between MPI and EMAI can be obtained from MPI on request.

29. It is proposed that the IHS is amended to manage the risk posed by [temperature sensitive bacteria](#), and to clearly identify the true [minimum quarantine period](#) for material sourced from EMAI.

TEMPERATURE SENSITIVE BACTERIA

30. Citrus greening can be sensitive to higher temperatures, which means that if testing occurs on plants growing at higher temperatures the likelihood of detecting an infection with Citrus greening is greatly reduced.
31. To ensure the greatest likelihood of detecting Citrus greening infected plants during the quarantine period, it is proposed that plants must be held in a PEQ facility under temperature controlled conditions, with the temperature maintained between 18-25°C for the duration of the quarantine period.
32. The plants must be actively growing in the PEQ facility (under the prescribed temperature controlled conditions) for a minimum of 6 months before PCR testing for regulated bacteria may occur.
33. If 72 cumulative hours between 27.0°C – 32.0°C is exceeded; or if the temperature exceeds 32.0°C at any stage, one of the following actions will be required:
- a) Transfer of all plants to another PEQ greenhouse (level 2 or 3) which can hold the material under temperature controlled conditions. The plants must be grown for at least 6 months under temperature controlled conditions at the new facility before PCR testing for regulated bacteria can occur.
 - b) Reshipment or destruction of the consignment.

PROPOSED CHANGES TO THE MINIMUM QUARANTINE PERIOD

34. As all graft indicator testing required in the agreement between MPI and EMAI occurs while the plants are actively growing in PEQ in New Zealand, the minimum 6 months PEQ period specified in the IHS (for cuttings sourced from mother plants that have been kept in insect proof plant houses, as at EMAI) is not a true reflection of the time taken to complete all testing.
35. It is proposed that a minimum PEQ period of 12 months is a more accurate reflection of the time taken to produce sufficient material from imported cuttings, to allow for graft indexing to occur, and for the testing to be completed.

Feasibility & Practicality of Measures

36. Temperature control capability is already in place at one level 2 PEQ facility that imports Citrus, and at all Level 3 PEQ facilities. The Level 2 PEQ facility has reliably demonstrated that they can maintain temperature control between 18-25°C for the duration of the PEQ period, and have good operational procedures in place for monitoring of the temperature and reporting to the MPI Inspector.
37. The minimum PEQ period of 12 months is an accurate reflection of the time taken to complete all PEQ, inspection, and testing requirements for Citrus cuttings sourced from EMAI.

Proposed IHS requirements

38. It is proposed that the post entry quarantine requirements in the IHS [155.02.06: Importation of Nursery Stock](#), schedule of special entry conditions for *Citrus*, *Fortunella*, and *Poncirus*, part 3.1 ‘*Citrus/Fortunella/Poncirus* cuttings from offshore MPI-accredited facilities’ is updated as specified below (proposed additions to the requirements are in red text):

(v) *Post-entry quarantine*

PEQ: Level 2. **Plants must be held at 18-25°C throughout the quarantine period.**

Quarantine Period: This is the time required to complete inspections and/or indexing to detect regulated pathogens. The quarantine period may be extended if material is slow growing, pests are detected, or treatments/testing are required.

Indicative minimum quarantine periods are:

- 6 months for *Citrus/Fortunella/Poncirus* cuttings sourced from mother plants that have been kept in insect proof plant houses, **which may be extended to 12 months to allow for testing to be completed;** or
- 16 months for *Citrus/Fortunella/Poncirus* cuttings sourced directly from open ground mother plants.

39. No other changes are proposed to the IHS at this time. Changes to the import requirements for plants in tissue culture, and cuttings from non-accredited facilities are outside the scope of this amendment. These pathways are being assessed separately as part of a wider review of the import requirements for Citrus germplasm (including dormant cuttings, tissue culture and seed for sowing).

References

Bové, J M (2006) Huanglongbing: a destructive, newly-emerging, century-old disease of citrus. *Journal of Plant Pathology* 88(1): 7–37.

Gasparoto, M C G; Bassanezi, R B; Lopes, S A; Frare, G; Martins, E C; Della Colletta Filho, H; Amorim, L (2008) 5.4 Influence of temperature on Huanglongbing infection under controlled environment. In: IRCHLB Proceedings. Pp. 186–187.

Lopes, S A; Bertolini, E; Frare, G F; Martins, E C; Wulff, N A; Teixeira, D C; Fernandes, N G; Cambra, M (2009b) Graft transmission efficiencies and multiplication of ‘*Candidatus Liberibacter americanus*’ and ‘*Ca. Liberibacter asiaticus*’ in citrus plants. *Phytopathology* 99: 301–306.

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