

# 1 Addendum 1: Quarantine requirements for plants from MPI-approved offshore facilities and transitional arrangements in the import health standard

## 1.1 Background

- (1) The final draft import health standard for *Prunus* plants for planting was issued on 31 October 2019. During the ten day provisional period some submitters expressed concern that the import health standard did not identify quarantine requirements for plants imported from MPI-approved offshore facilities. There was also concern that if plants from MPI-approved offshore facilities require quarantine in a Level 3A quarantine greenhouse it will not be possible to import in the up-coming season because there is no space to import plants into this type of facility at present.
  - a) Quarantine requirements for plants from MPI-approved offshore facilities were not identified in the draft standard because the amount of residual risk was considered likely to differ between facilities. This meant that plants from different facilities may have different quarantine requirements on arrival in New Zealand. Following discussions with stakeholders MPI has revised this position. The new standard now specifies that, for plants from MPI-approved offshore facilities, the minimum quarantine requirements will be 270 days (nine months) in a Level 3A quarantine greenhouse. This decision is based on a generic assessment of measures applied at all offshore facilities previously approved to export *Prunus* plants for planting to New Zealand (refer to section 1.2 for this assessment);
  - b) To allow imports to resume as soon as possible, MPI has proposed a two year transitional period that will apply to any plants imported from MPI-approved offshore facilities. Any plants imported during the transition period will be allowed to be held in a Level 2 quarantine greenhouse, with some additional measures required to better manage risk during the transition period.
- (2) A high level summary of the rationale behind the proposed changes is provided below in Sections 1.1.1 and 1.1.2 of this document. Sections 1.2 and 1.3 provide the detailed information that was considered by the CTO when making the decisions about quarantine requirements and transitional arrangements proposed here.

### 1.1.1 Post entry quarantine requirements for plants imported from MPI-approved offshore facilities

- (3) The CTO has decided that, when *Prunus* plants for planting are obtained from an MPI-approved offshore facility, residual risk can be appropriately managed in a Level 3A post entry quarantine greenhouse with a minimum quarantine period of nine months. The reasons for this decision are summarised below. Full details are given in Part 1.2 of this Addendum.
- (4) The risk analysis identified some pests which need containing in a Level 3B greenhouse to ensure that, if present in imported plants, those pests do not escape and establish in New Zealand. This is why, when plants are obtained from non-approved sources, Level 3B is the minimum level of quarantine for *Prunus* plants for planting.
- (5) Level 3B post entry quarantine is not needed for plants from MPI-approved offshore facilities because:
  - a) Plants from MPI-approved offshore facilities have a lower risk profile than plants from non-approved sources
    - i) Refer to Parts 1.2.2.1.2 of this Addendum for more information about this.
  - b) An MPI assessment concluded that plants from MPI-approved offshore facilities have a similar risk profile to plants that have been held for one growing season in Level 3B in New Zealand under the conditions set out in part 2.3.1 of the import health standard
    - i) Refer to Parts 1.2.2.1.2 and 1.2.2.1.3 for more information about the above.
- (6) Level 3A post entry quarantine will manage risk more appropriately than Level 2 quarantine because:

- a) Level 3A has more stringent operational containment requirements than Level 2. This is particularly relevant because we are not sure of the exact risk of pests **not** identified in the standard, or their mode of transmission, **and** given that some high risk pests are only partially managed prior to export.
    - i) Refer to information in Parts 1.2.2.1.3 and 1.2.2.1.4 for more information about this.
  - b) The more stringent containment requirements for Level 3A greenhouses (relative to Level 2) may be more appropriate for holding high value crops imported into areas of domestic production.
    - i) Refer to information in Part 1.2.2.1.3 for more information about this
  - c) The temperature controls required under the import health standard can be reliably applied in a Level 3A greenhouse that complies with all requirements of the Facility Standard: Post Entry Quarantine for Plants.
    - i) Refer to Part 1.2.2.1.1.3 for more information about this.
- (7) A minimum nine month quarantine period in New Zealand will enable appropriate management of residual risk associated with plants from MPI-approved offshore facilities
- a) This will appropriately manage risk from pests listed in the standard, at the temperatures set out in the standard, for pests where risk has been partially managed prior to export (i.e. they would get one full season at these temperatures).
    - i) Refer to Part 1.2.2.1.5 for more information about this.

### 1.1.2 Transitional arrangements for plants imported from MPI-approved offshore facilities

- (8) The CTO has decided that the following transitional arrangements will apply to any *Prunus* plants for planting obtained from an MPI-approved offshore facility. These conditions will apply to any consignments imported from an MPI-approved offshore facility within two years after the date the standard is issued (and will continue to apply for the duration of the quarantine period for any affected consignments).
- a) Plants must be quarantined into a Level 2 quarantine greenhouse for a minimum period of nine months active growth;
  - b) Leaf material samples must be collected from each actively growing plant and tested by plating on potato dextrose agar (PDA). Each plant in quarantine must be sampled and tested separately;
  - c) Specific testing, using PCR or plating on agar, must be done for all members of the *Pseudomonas* genus listed in Schedule 1 of the import health standard: *Regulated pest list*. Samples for testing must be taken after a period of growth under summer-like conditions in post entry quarantine;
  - d) Plants must be irrigated using a method which prevents water coming into contact with plant foliage (such as drip irrigation). Overhead irrigation must not be used;
  - e) Irrigation water must be collected and either allowed to evaporate or treated prior to disposal;
  - f) Any debris on the greenhouse floor must be swept up or vacuumed (and disposed of in the normal quarantine waste stream) rather than being hosed into the drain;
  - g) The following post-clearance requirements must be applied to all consignments imported under transitional arrangements:
    - i) Traceability of all plants (and their progeny) must be maintained for a minimum of one year after plants receive a biosecurity clearance, with records of traceability provided to MPI on request;
    - ii) The owner of all plants that receive a biosecurity clearance must ensure that the plants are regularly inspected by a person authorised by a CTO for one year following clearance. The owner of the plants must ensure, at a minimum that there must be at least one inspection per week during periods of active growth and an inspection at the start and end of any dormancy period. Records must be retained of all inspections and made available to MPI on request.
- (9) Information considered by the CTO in allowing transitional arrangements is given in Part 1.3 of this Addendum. Some key points around this are as follows:
- a) MPI recognises that the change in import requirements is a move towards adopting a higher level of protection for the types of pest that may be associated with *Prunus* plants for planting.
  - b) It is acknowledged that there will be a continued acceptance of a lower level of protection during the transition period than will be achieved when the new standard is fully implemented.

- c) It is important to note that risk from regulated pests associated with *Prunus* plants for planting will still be managed in the transition period, although to a lower level than will be the case when new measures are fully implemented.
- d) The transitional measures are intended to ensure that the level of protection during the transitional period is at least as high as measures under the previous standard. The post-clearance requirements mean that import requirements will be somewhat more stringent than under the previous standard (even though they will not achieve as high a level of protection as proposed under the new standard).

**Notes:**

MPI has amended the final draft import health standard to specify the minimum quarantine requirements from plants from MPI-approved offshore facilities and to include all transitional arrangements described above.

In addition to the above changes, the standard was also amended to reinstate the option for ELISA testing for regulated viruses. This was discussed in the original version of the review of submissions – it was an oversight that the final draft import health standard was not amended to reflect this change at that time.

## 1.2 Matters considered by the CTO when identifying post entry quarantine requirements for plants imported from MPI-approved offshore facilities

- (10) The following information has been taken from the document presented to the CTO in regards to identifying post entry quarantine requirements for *Prunus* plants for planting from MPI-approved offshore facilities.

### 1.2.1 Scope of the new standard

The new standard was developed based on a risk analysis that considered all species of *Prunus* plants for planting approved for entry into New Zealand, on the basis that plants are obtained from a source that is not approved by MPI. The scope of the standard (and the risk analysis) was agreed upon with industry (Summerfruit NZ, New Zealand Plant Producers Incorporated (NZPPI) and Horticulture NZ) when MPI started the project to review the standard. The new standard states that for these plants, the minimum quarantine period is 21 months (two growing seasons), of which the first ten months must be undertaken in a Level 3B greenhouse. Transfer to a lower level of quarantine (Level 3A) may be allowed for the second season. Mandatory temperature controls must be applied in both growing seasons.

### 1.2.2 Quarantine requirements for plants from MPI-approved offshore facilities

At present the new standard does not identify post entry quarantine requirements for plants from MPI-approved offshore facilities. These plants must comply with all aspects of the standard before they can receive clearance. However, for plants from MPI-approved offshore facilities, some requirements will be applied prior to export. Because of this there will be fewer quarantine requirements when plants arrive in New Zealand and the risk profile will be different compared to plants from non MPI-approved sources.

MPI's intention was that once the standard was issued the Director-General (or approved delegate) would identify the level of the quarantine greenhouse and the length of the post entry quarantine period for plants from each offshore facility when issuing an import permit (under section 24D(2) of the Act). This risk-based decision would be made by assessing which requirements of the standard have been applied at each different offshore facility, and what residual requirements need to be applied in New Zealand. This differs to the approach taken under the previous standard, which stated that there would be a minimum 9 month period of active growth in a Level 2 quarantine greenhouse for all *Prunus* plants for planting from MPI-approved offshore facilities. We do not know what the basis for the previous decision was. We do not have any documented assessment of why the decision was made, and do not know what specific risk analysis information was taken into account when that decision was made. Therefore, we do not have the benefit of hindsight to understand the rationale for measures in the previous standard.

#### 1.2.2.1 Considerations for establishing quarantine requirements under the new standard

A key goal of the new standard is to provide an increased level of protection particularly for fungi, bacteria and oomycete pests. There are two key aspects to this: reliable pest containment and reliable pest detection. These issues are discussed below in the context of (i) the import health standard development process and (ii) an assessment of the risk profile of plants obtained from offshore facilities (based on the measures applied at existing facilities approved to export *Prunus* plants for planting to New Zealand).

##### 1.2.2.1.1 Import health standard development

###### 1.2.2.1.1.1 Level of containment

The following information about the scope of the risk analysis needs to be considered when establishing the level of quarantine for plants from MPI-approved offshore facilities:

The import risk analysis for *Prunus* plants for planting did not seek to identify **all** risk pests associated with the pathway. The risk management question applied during preparation of the risk analysis was "*Which pathogens, nematodes and diseases are associated with Prunus budwood/ dormant cuttings and meet the risk evaluation criteria for requiring additional measures (over the minimum requirements proposed in the RMP)?*" The proposed minimum requirements were Level 3B post entry quarantine with a minimum of two growing seasons in post entry quarantine for material not coming from approved offshore facilities.

Based on the above risk management question, and the minimum requirements, the risk analysis identified regulated pests that may be associated with *Prunus* plants for planting obtained from any source and that were considered unlikely to be contained in less than a Level 3B post entry quarantine facility and which would require specific measures in Level 3B post entry quarantine to reliably detect them. This resulted in only a subset of risk pests being specified in the risk analysis, and the risk analysis remained silent about pests that would be managed by the minimum Level 3B post entry quarantine.

To achieve the aim of the risk analysis for fungi and oomycetes, a “selective” hazard identification process was undertaken (rather than a “comprehensive” identification). The selective identification, which used a limited range of literature sources, was likely to identify the major pests, but not to identify all pests that may be associated with the commodity. All pests that were identified in the hazard identification for inclusion in the *Prunus* standard can have impacts sufficiently high that New Zealand would not want them to establish. However other pests that may have similar impacts, and which would also require a minimum of Level 3B quarantine containment, were not listed in the standard if, during the hazard identification, it was clear that these pests would be effectively managed without any specific measures needed in Level 3B quarantine. This means that some pests that may not be effectively physically contained in anything other than a Level 3B quarantine greenhouse may not have been considered as the import health standard was developed.

Based on the above, the **major** pests that may be associated with the pathway should have been identified. This will include pests which are likely to require the highest strength of measures (keeping in mind that the strength of measures is determined by a combination of the consequences the pest may cause if it was introduced into New Zealand and the likelihood that the pest will enter and establish from a pathway). In the context of post entry quarantine containment the highest strength of measure is quarantine in a Level 3B greenhouse.

Some key features of quarantine greenhouses<sup>1</sup> that were considered when assigning a minimum requirement for Level 3B quarantine for *Prunus* plants for planting from non-approved sources are discussed below:

Level 3B greenhouses provide the highest level of physical containment for highly mobile pests such as spore borne fungi (and mite vectored pests). A main reason for this is because these greenhouses operate under negative air pressure and have filtration of all in-and out-going air. Level 3B greenhouses also have strict mandatory requirements for treating wastewater and stringent requirements for facility hygiene, traceability and record keeping.

Level 3A greenhouses provide an intermediate level of containment between Level 2 and Level 3B. The main difference between Level 3B and Level 3A greenhouses is that Level 3A greenhouses do not have any air-pressure or air filtration requirements. All vents in a Level 3A greenhouse must be screened with stainless steel insect-proof mesh with a maximum aperture of 0.2 mm. Level 3A and 3B greenhouses have similar operational requirements.

Level 2 greenhouses provide a lower level of physical and operational containment than Level 3A. This is largely because Level 2 greenhouses have coarser insect mesh than Level 3A (all vents are screened using 0.6mm insect mesh), and no requirements to treat wastewater. Operational requirements are also less stringent in Level 2 greenhouses.

Keeping in mind the above features, Level 3B quarantine is considered necessary for *Prunus* plants from non-approved sources because:

- There will be no MPI-recognised pre-export phytosanitary measures;
- Particularly high risk pests may be present that may not be able to be reliably contained in a lower level of quarantine (for example if pests are highly mobile and dispersed by wind);
- There are also likely to be pests not identified in the risk analysis (or import health standard) which would require Level 3B physical containment to reliably prevent them escaping from a facility.

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<sup>1</sup> Physical and operational requirements for post entry quarantine greenhouses are available on the MPI website at <https://www.biosecurity.govt.nz/dmsdocument/11368-post-entry-quarantine-for-plants-facilities-standard>.

#### 1.2.2.1.1.2 Reliable pest detection

To improve the reliability of pest detection, the new standard requires temperature controls. This is because different temperatures are optimal for the development of different pests (some pests develop better at higher temperatures, some at lower temperatures). The temperature controls are expected to induce symptom expression of certain bacteria, fungi and oomycetes, increase the titre of phytoplasmas, viroids and viruses, and increase the likelihood of unknown or emerging pests (which may include regulated species not identified in the risk analysis) exhibiting symptoms in post entry quarantine. Part of the reason this approach was taken is because a Germac working group (in 2011) proposed that MPI should consider this in order to “*reduce the costs in testing (e.g. eliminate PDA plating etc.) and increase the possibility of detecting endophytic bacteria or fungi that are hitchhiking*”<sup>2</sup>.

The temperature controls have been proposed because the risk analysis identified some regulated pests which would not be detected in post entry quarantine if specific phytosanitary measures are not applied. Under the Biosecurity Act (1993), it is a requirement that MPI effectively manages these risks (to minimise the likelihood of new pests establishing in New Zealand). In particular when reviewing the existing *Prunus* standard, and when reviewing import requirements for *Actinidia* plants for planting (in 2018), it became apparent that risk from some classes of regulated pest (including fungi and oomycetes) was not being managed to the same level of protection as that of other classes of pest (such as viruses and viroids). The intent of the new standard is to more closely align the levels of protection for different classes of pest. The new specifications regarding temperature control will also provide more clarity about when sampling should be done to maximise the likelihood of detecting phytoplasmas, viroids and viruses when doing molecular testing (given that this was not clearly stated in the previous version of the standard).

The temperature controls will enhance risk management for a wide range of pests without having to do specific molecular testing for them all. Because of this, in some cases the new standard does not require specific testing in cases even where validated tests are already available (because risk will be managed to an appropriate level without doing any testing). For example this applies to members of the *Pseudomonas* genus, based on information in the risk analysis. This is beneficial because it is expensive and time consuming to develop new molecular tests, and the cost of developing such tests currently falls on MPI.

If applied to *Prunus* plants for planting, similar measures are expected to be applied to other plant genera. Introducing temperature controls should put less pressure on staff at the MPI diagnostic facility to develop new molecular tests. This is considered particularly important because as MPI revises and issues new import health standards for various genera of plants for planting, and pest risks become more fully understood, in the absence of temperature controls we predict a large increase in the number of tests to develop. That burden will create blockages/delays in the import system while large numbers of tests are developed and validated.

#### 1.2.2.1.1.3 What type of facilities can provide temperature control capability?

Having established that temperature controls are important to enhance detections of pests, it is necessary to address what sorts of facilities have the capacity to apply the required temperatures.

The only types of greenhouse that, under the Facility Standard for Post Entry Quarantine for Plants, are required to provide temperature control are Level 3A and 3B greenhouses. Managers of existing Level 3A and 3B greenhouses have confirmed that their facilities can apply the temperatures in the import health standard. The manager of the Level 3A greenhouse did not consider it possible to reliably apply the temperatures in a Level 2 greenhouse on the same site. This does not preclude the construction of a Level 2 greenhouse that can reliably apply the required temperatures. However from a regulatory perspective, especially given the need for MPI to have regard to technical and operational factors involved in implementing the requirements of a standard, it seems inappropriate to allow plants to be held in a facility that is not required to have the capacity to apply the risk management measures identified in the import health standard.

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<sup>2</sup> See Appendix 2 in Johnson, N. (2014). Barriers to importation of plant germplasm. <https://www.mpi.govt.nz/dmsdocument/6949-barriers-to-importation-of-plant-germplasm>.

### 1.2.2.1.2 Risk profile of plants from MPI-approved offshore facilities

The new *Prunus* standard was developed on the basis that plants can be obtained from sources that are not approved by MPI. Apart from a standard certifying statement on the phytosanitary certificate, plants from non-approved sources do not have any mandatory MPI-approved phytosanitary measures applied prior to export. In contrast, when plants are produced at an MPI-approved offshore facility, some of the risk is managed before export. This means that the risk profile of plants from MPI-approved offshore facilities will be lower than that for plants from non-approved sources. Although different offshore facilities may apply different pre-export measures, generic risk management measures that are applied at all offshore facilities include:

- An MPI assessment of each facility before plants can be exported to New Zealand. This is to make sure that plants are held in a way that is compliant with requirements set out in the offshore facility standard. The offshore standard sets minimum structural and operational requirements for offshore facilities holding and testing plants for planting destined for export to New Zealand. Facilities are re-audited at a frequency determined by MPI.
- Containing all *Prunus* plants in a screenhouse before they become eligible for export (for example generally for a minimum of at least two years). Features of screenhouses at all offshore facilities that will help to manage biosecurity risk include:
  - Construction that will exclude many disease vectors (such as aphids and whiteflies);
  - Insect control programmes (e.g. regular spray programmes and/or monitoring of sticky traps);
  - Growing plants in sterilised or inert medium and out of contact with the ground, with watering generally done using drip irrigation, thereby reducing likelihood of association with some pests including some (but not all) fungi, bacteria and oomycetes.
- Regularly monitoring plant health and applying preventative or curative pesticide treatments (e.g. insecticide or fungicide) as needed (although it is noted that the application of fungicide does not necessarily eradicate the organism causing symptoms; refer to comments below about this).
- Specific pre-export testing for some pests listed in the import health standard. In particular, this is done for phytoplasmas, viroids and viruses.
- A commercial incentive for all facilities to produce high health material. This is because their primary purpose is to supply their country's domestic industry with high quality plants for commercial fruit production.

The measures described above mean that the risk profile of plants from offshore facilities will be lower than for plants from non-approved sources. Depending on the type of pest, risk may be well managed offshore, with most requirements of the *Prunus* standard applied prior to export. For example this may occur for pests such as phytoplasmas, viroids and viruses which are only insect transmitted, where pre-export testing is done and where the screenhouse will effectively prevent vectors from entering the screenhouse and re-infecting plants.

However, for other pests, where specific testing is not done and the facility structure may not prevent pests from entering and infecting plants (for example in the cases of pests with wind-borne spores), there is much less risk management, with the only measures applied being the generic measures described above. Furthermore, for this type of disease (for example caused by fungal pests), measures in the facility such as preventative fungicide treatments, or treatment when symptoms are seen, may suppress but not eliminate the pest. This may result in infections going undetected prior to export.

When considering the risk profile of plants from offshore facilities, it is particularly relevant that these facilities are used to produce plants for domestic purposes and generally do not make any claims in regards to the phytosanitary status of plants for pests other than viruses and virus like organisms. For non-viral pests, including high impact pests and those that may have lower (but still not insignificant) impacts, less stringent risk management is needed for domestic purposes in the country of export. This is because there will be acceptance that pests which are present in domestic plants and non-regulated may just require managing to a low level of prevalence (and/or leaving to domestic industry to manage). In contrast, in the post entry quarantine context, there is much greater emphasis on providing **certainty** that such pests, if regulated and not present in the destination country, are not introduced to that country on new plants for planting.

Some examples of regulated pests which may be associated with *Prunus* plants for planting, and for which there is limited or no specific risk management offshore include: *Monilinia* spp., *Ceratocystis* spp., *Phaeoacremonium* spp., and *Phytophthora* spp. These pests are considered to be of high risk to the summerfruit industry and/or other industries or the environment in New Zealand. They all have the potential to be dispersed by windborne spores, so would not necessarily be prevented from infecting plants held in a screenhouse at an approved facility. Furthermore they may all be latent over a period of months to years (depending on the pest). Based on this, Level 3B post entry quarantine is considered necessary to contain these pests if no risk management is done prior to export.

When plants are produced at an MPI-approved offshore facility, the likelihood of the above pests being associated with plants is lower. This is because there will be a lower likelihood of exposure to the pests (for example when plants are held in a screenhouse with a covered roof and are grown in inert medium out of contact with the ground) and a higher likelihood that, if plants do become infected, actions will be taken to rid the plant of the pest. When taking into consideration the requirements of the offshore facility standard and operational and physical containment measures applied offshore (as summarised above), MPI considers it appropriate for residual risk to be managed on arrival in New Zealand in a level of quarantine lower than 3B, and for a shorter period of time in quarantine.

As well as managing risk from pests specifically identified in the risk analysis and import health standard, the import health standard is also managing risk from unknown pests (for example arising from new or unexpected host associations) and from pests not specifically identified in the import health standard because they are likely to be contained with a Level 3B quarantine greenhouse and detected within two growing seasons. Such pests will not necessarily be contained if held in a lower level of quarantine than 3B. However, for the reasons described above, these pests are also considered less likely to be associated with plants from an MPI-approved offshore facility than with plants from a non-approved source.

#### **1.2.2.1.3 What is the most appropriate level of post entry quarantine, and quarantine period, for *Prunus* plants for planting from MPI-approved offshore facilities?**

The generic risk management measures applied at each offshore facility, as described above, combined with the specific testing that is done for some particularly high risk pests prior to export, are seen as providing a similar level of phytosanitary assurance as would be provided by one growing season in a Level 3B quarantine greenhouse. This means that plants from MPI-approved offshore facilities should have a similar risk profile to plants from a non-approved source that have been tested and inspected over a ten month period in a Level 3B greenhouse. Therefore, it stands to reason that the same quarantine requirements (in terms of both the length of quarantine period, and the type of quarantine greenhouse) should apply to plants from both sources. As such, it is considered that *Prunus* plants for planting from an MPI-approved offshore facility should require a minimum of nine months (one growing season) quarantine in a Level 3A greenhouse (because this is the same requirement as for plants that have been held for one growing season in Level 3B quarantine). Reasons for this are further discussed below:

For plants from MPI-approved offshore facilities, if major pests which need quarantine in a Level 3B greenhouse are identified in the standard *and* if risk from these pests is managed, or partially managed, prior to export, plants will have a lower risk profile. This means that those plants may be able to be held at a lower level of physical containment. Taking into account that we are not sure of the exact risk of pests not identified in the standard, or their mode of transmission, and given that some high risk pests may only be partially managed prior to export, MPI considers that a prudent approach is to require a minimum of containment in a Level 3A greenhouse (rather than holding plants in a lower level of quarantine (i.e. Level 2)).

Part of the reason for requiring Level 3A containment is that there are likely to be other pests not identified in the standard which may be more reliably contained in a Level 3A greenhouse than a Level 2 greenhouse when taking into account differences in physical and operational containment requirements between the two types of greenhouse. This is because, as noted previously, Level 3A greenhouses provide a higher level of physical containment (given their mandatory requirements for treating outgoing wastewater, finer insect mesh and more robust construction than Level 2 greenhouses). Facility hygiene measures, traceability and record keeping are also more stringent within Level 3A greenhouses. This is likely to result in more effective containment of all regulated pests, including those which were not identified when the standard was developed (such as waterborne diseases and some insect vectored pests).



Another consideration when identifying the most appropriate level of quarantine is that *Prunus* plants for planting have historically been imported into quarantine facilities located in domestic nurseries, or in close proximity to production areas. If a facility is in this type of location there is a higher likelihood of exposure to suitable hosts, and there is also more chance of local-origin vectors being present (and entering or exiting a greenhouse). The more stringent containment requirements for Level 3A greenhouses may be more appropriate for holding high value crops imported into these locations. This is important to consider if the import health standard is setting minimum requirements for all plants for planting from MPI-approved offshore facilities.

#### 1.2.2.1.4 Quarantine in a Level 3A greenhouse for plants from MPI-approved offshore facilities is considered appropriate for the following reasons:

- A Level 3A greenhouse is the minimum level of quarantine greenhouse that, when constructed according to the mandatory requirements of the facility standard, can apply the temperature regimes set out in the import health standard.
  - The CTO has agreed that the temperature regimes are necessary to improve the reliability of pest detection and to provide an increased level of protection particularly for fungi, bacteria and oomycetes pests
- Some of the highest risk pests will have been managed, or partially managed, by specific testing prior to export.
  - Specific testing will have been done for some particular high risk pests (for example *Plum pox virus*, *Candidatus Phytoplasma* spp., and/or *Xylella fastidiosa*);
  - Specific testing will have been done for multiple other species of viroid and virus.
- Generic risk management measures employed at all offshore facilities (for example as required under the MPI Standard for Offshore Facilities Holding and Testing Plants for Planting, and summarised earlier in this document) will reduce the likelihood of other high risk pests being present in cases where there is no specific pre-export testing. For example this may include partial management of risk associated with *Monilinia* spp., *Ceratocystis* spp., *Phaeoacremonium* spp., and *Phytophthora* spp.
- A Level 3A quarantine greenhouse can appropriately contain regulated pests for which risk is partially managed prior to export, taking into account the remaining risk.
  - Physical containment requirements of a Level 3A greenhouse (compared to Level 2) are expected to more effectively contain any insect-vectored pests for which risk has not been fully managed prior to export. In particular, as a general rule the 0.2 mm mesh in a L3A facility is expected to more effectively exclude adult stages of all aphids and whiteflies, which may not be excluded by 0.6mm mesh in a Level 2 greenhouse. However, a Level 2 greenhouse will exclude larger vectors such as leafminers, planthoppers and psyllids.
  - Physical containment requirements of a Level 3A greenhouse (compared to Level 2) will provide better management of risk from any waterborne regulated pests (for example including waterborne *Phytophthora* and *Pseudomonas* spp.) that are not managed prior to export.
  - Operational requirements for Level 3A quarantine greenhouses are consistent with those for Level 3B greenhouses, so are considered appropriate to help manage remaining risk from pests where there is no specific risk management prior to export, but where generic measures have been applied offshore that will reduce the likelihood of those pests being present.
- A Level 3A quarantine greenhouse will appropriately manage remaining risk from any unknown or emerging pests, and from pests which are not specifically identified in the standard, which were not considered in the risk analysis because they would be effectively managed according to the minimum requirement for quarantine in a Level 3B greenhouse.
  - These pests are likely to be of lower risk than pests identified in the standard. The physical and operational requirements outlined above are considered appropriate to this risk when taking into account generic risk management measures that are applied prior to export.

- More stringent containment requirements for Level 3A greenhouses will more effectively manage risk if quarantine facilities are located in domestic production areas where there is greater likelihood of exposure to domestic hosts if pests escape from quarantine, and the potential for more local origin vectors to be present (and to enter and/or exit the quarantine greenhouse).

**Note:** Level 2 post entry quarantine was considered appropriate to manage risk when the previous standard was issued, but the basis for this decision is not known. Level 2 quarantine is no longer seen as appropriate because Level 2 facilities do not have the capacity to apply the required temperatures and/or to contain pests of certain types as reliably as can be achieved in Level 3A quarantine. In addition, under the new standard, MPI requires plants to be grown under specific temperatures to increase the likelihood of disease symptoms (and hence disease propagules) being produced. Because there may be a higher likelihood of disease propagules being produced, and given that these propagules can be more reliably contained within a Level 3A greenhouse, Level 2 now seems less appropriate.

#### **1.2.2.1.5 A nine month minimum quarantine period is considered appropriate because:**

A minimum nine month quarantine period in New Zealand will give sufficient time to enable samples to be collected at appropriate times of year for mandatory testing. This will also allow mandatory plant health inspections to be completed over one complete growing season (both by the facility operator and the MPI Inspector). This will appropriately manage risk from pests listed in the standard, at the temperatures set out in the standard (i.e. they would get one full season at these temperatures).

This is the same length of quarantine period for plants from MPI-approved offshore facilities under the previous standard (which required nine months active growth).

### 1.3 Matters considered by the CTO when approving transitional arrangements for plants imported from MPI-approved offshore facilities

- (11) The following information has been taken from the document presented to the CTO in regards to applying transitional arrangements to *Prunus* plants for planting from MPI-approved offshore facilities.

#### BACKGROUND:

MPI's objectives in reviewing the IHS for germplasm of *Prunus* species were to determine which pests are associated with *Prunus* dormant cuttings and meet the risk evaluation criteria for requiring additional measures beyond the minimum measures proposed for the import health standard. The proposed minimum requirements in the final draft import health standard for material from non-approved sources are a 21 month (two growing seasons) quarantine period, with the first growing season in Level 3B post entry quarantine, and an option to transfer plants to a Level 3A facility for the second season. The standard does not specifically identify the post entry quarantine requirements for plants from MPI-approved offshore facilities. However, plants from approved sources must meet all requirements of the standard, either prior to export, or on arrival in New Zealand (or a combination of both).

The risk analysis identified that, for some pests, additional risk management measures would be needed to ensure reliable detection. Based on information in the risk analysis, some new phytosanitary measures were introduced in the new standard. These new measures consist of a combination of temperature control in post entry quarantine (to induce symptom expression) and specific testing (for example by PCR or plating on agar).

The proposed temperature controls are expected to be met in a facility that meets the MPI specifications for a Level 3A post entry quarantine greenhouse, but it is not clear if they can be applied in a Level 2 facility (for example based on information from existing post entry quarantine facilities). However, there is insufficient space available in Level 3A quarantine in New Zealand to allow imports of *Prunus* in the coming season.

As well as having the capacity to apply the desired temperatures, Level 3 post entry quarantine greenhouses also provide a higher level of containment than Level 2. This is because Level 3A greenhouses have stricter physical containment standards including requirements for treating outgoing wastewater, finer insect mesh and more robust construction than Level 2 greenhouses. Operational standards including facility hygiene measures, traceability and record keeping are also more stringent within Level 3A greenhouses.

The CTO has agreed that, when importing plants from an MPI-approved offshore facility, these plants should undergo post entry quarantine for a minimum period of nine months in a Level 3A quarantine greenhouse.

MPI's intention in developing the new import health standard is to enable imports from MPI-approved offshore facilities to resume in the summer of 2019-2020. *Prunus* importers have highlighted to MPI the importance of this in order to help the industry remain internationally competitive. Because of this, a transitional period is considered appropriate, as follows:

1. Temperature control requirements in Part 2.3.1 of the new standard will not need to be applied to any consignments imported from MPI-approved offshore facilities within two years after the date the standard is issued (regardless of when those consignments become eligible for clearance);
2. Consignments imported from MPI-approved offshore facilities within two years of the issuance date of the standard will remain eligible for quarantine in a Level 2 quarantine greenhouse for the duration of their quarantine period. Any consignments that enter New Zealand after the two year transitional period will have a minimum requirement for quarantine in a Level 3A greenhouse as set out in Part 2.4(2)a) of the new standard.
3. Consignments from non-approved sources will need to meet all requirements of the standard from the date of issuance.
4. All consignments imported after two years from the issuance date of the standard will need to comply with all aspects of Parts 2.3 and 2.4 of the standard.

It is noted that a similar approach (with a 12 month transitional period) was applied when MPI made significant changes to the post entry quarantine facility standard in 2016, and also when managing risks associated with biofouling (where a four year period was allowed).

**Note:** The purpose of applying temperature controls is to provide a risk management measure for a wide range of pests without having to do specific molecular testing for them all. Because of this, in some cases the new standard does not require specific testing in cases even where validated tests are already available (because risk will be managed to an appropriate level without doing any testing). For example this applies to members of the *Pseudomonas* genus, based on information in the risk analysis. This approach is beneficial because it is expensive and time consuming to develop new molecular tests, and the cost of developing such tests currently falls on MPI. Part of the reason this approach was considered is because a Germac working group (in 2011) proposed that MPI should consider this in order to “*reduce the costs in testing (e.g. eliminate PDA plating etc.) and increase the possibility of detecting endophytic bacteria or fungi that are hitchhiking*”<sup>3</sup>.

If applied to *Prunus* plants for planting, similar measures are expected to be applied to other plant genera. Introducing temperature controls should put less pressure on staff at the MPI diagnostic facility to develop new molecular tests. This is considered particularly important because as MPI revises and issues new import health standards for various genera of plants for planting, and pest risks become more fully understood, in the absence of temperature controls we predict a large increase in the number of tests to develop. That burden will create blockages/delays in the import system while large numbers of tests are developed and validated. This could also result in significant increases in costs of testing to importers.

## DISCUSSION:

As discussed in the risk management proposal and review of submissions for *Prunus* plants for planting, MPI considers that applying temperature controls in post entry quarantine will enable risk from various regulated pests to be managed more effectively. This is why this was included as a risk management measure in the new standard.

The new measures have been proposed because the risk analysis identified some regulated pests which would not be detected in post entry quarantine if specific phytosanitary measures are not applied. Under the Biosecurity Act (1993), it is a requirement that MPI effectively manages these risks (to minimise the likelihood of new pests establishing in New Zealand). In particular when reviewing the existing *Prunus* standard, and when reviewing import requirements for *Actinidia* plants for planting (in 2018), it became apparent that risk from some classes of regulated pest (including fungi and oomycetes) was not being managed to the same level as that of other classes of pest (such as viruses and viroids). The intent of the new standard is to more closely align the levels of protection for different classes of pest. The new specifications regarding temperature control will also provide more clarity about when sampling should be done to maximise the likelihood of detecting phytoplasmas, viroids and viruses when doing molecular testing.

## Reasons for allowing a transitional period

As described in the background section of this document, a two year transitional period is considered appropriate. This will apply to plants from approved sources, but not to plants from non-approved sources. The following reasons, collectively, favour a two year transition period for plants from approved sources:

- Transition periods are routinely used by MPI when significant changes are made to import requirements that require industry to adapt, and where immediate adaption is not possible or feasible. For example, this approach was used by MPI when introducing new measures to manage risk from biofouling, and when reviewing the post entry quarantine facility standard (in 2016).
- Imports of *Prunus* plants for planting have occurred for many years from the same MPI-approved sources as are expected to be used under the new standard. The risk profile of plants from these sources has not necessarily changed. However MPI's awareness of these risks, and the measures needed to ensure risks are effectively managed, has changed as a result of information in the risk analysis. Because the risk profile of plants from approved facilities may not have changed MPI considers that, in this instance, it is reasonable for there to be continued acceptance of the previously established level of protection during the two year

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<sup>3</sup> See Appendix 2 in Johnson, N. (2014). Barriers to importation of plant germplasm. <https://www.mpi.govt.nz/dmsdocument/6949-barriers-to-importation-of-plant-germplasm>.

transition period. Clearly stating the minimum quarantine requirements for plants from MPI-approved offshore facilities in the standard also future proofs the standard for any facilities that are approved in the future.

- The requirements in the final draft import health standard continue to be those that MPI consider appropriate to effectively manage risk in the long term. However considerations under section 23(4) of the Act in regards to *matters that the Chief Technical Officer (CTO) must have regard to in the course of developing the version of the standard for recommendation to the Director-General* mean it is appropriate to allow a transition period. In particular the following factors in section 23 are considered particularly relevant in this case:

- Section 23(4)(a): The CTO must have regard to the matters raised by the persons consulted.

As shown in the review of submissions, the CTO has considered matters raised during the consultation period. However during the ten day provisional period some additional matters were raised by stakeholders. In particular, of relevance to this CTO decision, stakeholders expressed concern that there is not enough space in Level 3A greenhouses to allow imports in the coming year. This could have a significant economic impact on importers and the wider industry. In allowing a transition period, the CTO is giving due regard to this concern.

Some stakeholders also expressed concern that the new standard did not identify quarantine requirements (i.e. length of quarantine period and level of quarantine greenhouse) for plants from MPI-approved offshore facilities (as discussed in Part 1.2 of this review of submissions).

- Section 23(4)(e)(iii): The CTO may have regard to other economic factors involved in implementing the requirements

MPI agreed to develop the new import health standard to enable trade in a safe manner and to help deliver MPI's strategic goal of enabling prosperity whilst protecting New Zealand from biosecurity risk. Part of the reason for prioritising development of this standard was because the ongoing international viability of the industry depends on timely access to new germplasm. Given the potential long term economic consequences if industry cannot obtain new germplasm, it may be unwise not to allow a transition period. When considering the MPI strategy, and taking into account that the risk profile of plants from MPI-approved offshore facilities sources has not necessarily changed (even though MPI's awareness of those risk has changed), it may be that introducing the new requirements with immediate effect will put too much emphasis on protection and not enough on prosperity.

- Section 23(4)(e)(iv): The CTO may have regard to technical and operational factors involved in implementing the requirements

During the provisional period stakeholders expressed concern that it is not operationally possible to import plants under the new standard (because of a lack of Level 3A post entry quarantine space). Allowing a transition period would alleviate stakeholders concerns that insufficient regard was given to operational factors involved in implementing the requirements. It is noted that MPI is aware of businesses in New Zealand who intend to construct new Level 3A greenhouses. It is anticipated that lack of Level 3A post entry quarantine space will be much less significant in the future, once new facilities are constructed (and after the expiration of a proposed transition period).

- The transition period will not apply to plants from non-approved sources; they will need to meet all biosecurity requirements from the date the standard is issued. This is because importing these plants would represent opening a new pathway (a search of QuanCargo could not find any records of imports from non-approved sources for at least the past ten years), and these plants would have a different risk profile to plants from approved sources.
  - There is no change to the level of post entry quarantine for plants from non-approved sources; these required quarantine in a Level 3B greenhouse under the previous standard. The existing MPI Level 3B quarantine facility can already apply the required temperatures. As such the CTO does not consider that there are any other technical and operational factors that need to be considered in regards to importing plants from non-approved sources. It is noted that there is currently no space available in the Level 3B facility for new imports of *Prunus* plants for planting. However this also applies to all other plant genera and is not considered relevant in regards to the issuance of this new import health standard.

### Measures to ensure that there is an appropriate level of protection during the transition period

MPI recognises that the change in import requirements is a move towards adopting a higher level of protection for the types of pest that may be associated with *Prunus* plants for planting. If a transition period is allowed, it is acknowledged that there will be a continued acceptance of a lower level of protection than will be achieved when the new standard is fully implemented. However, under the transitional measures, import requirements will be somewhat more stringent than under the previous standard (even though they will not achieve as high a level of protection as proposed under the new standard). It is important to note that risk from regulated pests associated with *Prunus* plants for planting will still be managed in the transition period, although to a lower level than will be the case when new measures are fully implemented.

MPI will require some interim measures to help reduce the likelihood of any new pests escaping from post entry quarantine and/or establishing in New Zealand during the transition period. These measures are included in Part 1 of the import health standard, under a new heading 1.7 Transitional arrangements. During the transition period, consignments either need to meet all of the requirements of the IHS, including Parts 2.3.1 and 2.4(2)a) of the new standard, or comply with all transitional arrangements instead of Parts 2.3.1 and 2.4(2)a).

The transitional measures are intended to ensure that the level of protection during the transitional period is at least as high as measures under the previous standard. The following transitional measures are considered appropriate to achieve this goal:

- Maintaining the requirement for plating leaf samples on agar during the transition period

The risk management proposal highlighted some shortcomings with the requirement in the previous standard for leaf samples to be plated onto agar in order to detect regulated fungi. One reason for removing this requirement from the new standard was because exposing plants to specific temperature regimes in post entry quarantine is expected to more effectively manage this risk. If a transition period is allowed, plants will not be required to be exposed to these temperature regimes. To maintain at least the same level of protection as under the previous standard for regulated fungi during the transition period, the transitional arrangements require that any plants imported from MPI-approved offshore facilities that do not meet all requirements of Parts 2.3.1 and 2.4(2)a) of the new standard must undergo testing by plating leaf samples on agar.

- Maintaining the requirement for testing for *Pseudomonas* spp. during the transition period

Under the previous standard specific testing was required for *Pseudomonas syringae* pv. *cerasicola*, and growing season inspection for *Pseudomonas amygdali*. The risk analysis identified several new members of this genus that should also be considered regulated. Under the new standard it was considered that risk from these species could be appropriately managed by growing season inspection under the proposed temperature regimes, without the need for specific testing. To maintain an appropriate level of protection for members of this genus during the transition period, the transitional arrangements require that any plants imported from MPI-approved offshore facilities that do not meet all requirements of Parts 2.3.1 and 2.4(2)a) of the new standard must undergo specific testing for regulated species of *Pseudomonas* (either by plating on agar or PCR).

The joint Bloomz/NZPPI submission on the standard stated that risk from the *Pseudomonas* genus could be managed by PCR testing, without the need for any other measures; this was their preference to manage risk from this species. This is likely to be the case (assuming that appropriate sampling regimes are used). However, the risk analysis concluded that members of this genus should show symptoms if risk is managed according to the minimum requirements of the standard, without the need for specific testing. This is why testing has not been adopted as a measure in the final draft standard, but will be required as an interim measure if plants are held in Level 2 quarantine without the proposed temperature regimes being applied during a transition period.

- Additional operational restrictions in post entry quarantine

To minimise the likelihood of any regulated pests that are dispersed by rain, or water, from escaping from post entry quarantine the following restrictions will be applied to all plants imported during the transition period:

- i. A prohibition of overhead irrigation in post entry quarantine;

- ii. A requirement to place individual plant containers in trays to collect irrigation water. This water can then evaporate from the tray so that the wastewater isn't exiting the facility. The trays can be sterilised with a suitable disinfectant using standard hygiene procedures. Alternatively absorbent material could be placed in the tray to catch the irrigation water. This could be disposed of in the normal quarantine waste stream. The use of trays to collect wastewater may already be in place in some Level 2 quarantine greenhouses. However MPI would need to ensure that this is the case, and that their use is stated in each greenhouse's operating manual for the duration of a proposed transition period. This is because the operating manual forms the basis of each facility's approval, and all procedures in the manual must be followed at all times.
- iii. To prevent any contaminated cleaning water from exiting the facility in the wastewater stream, any debris on the greenhouse floor should be swept up or vacuumed (and disposed of in the normal quarantine waste stream) rather than being hosed into the drain. As above, any such procedure would need to be documented in the operating manual of the receiving quarantine greenhouse.
- Post-clearance requirements for *Prunus* plants for planting that enter post entry quarantine during the transition period

Under section 22(3) of the Act an import health standard may include post-clearance requirements. Under section 22(7) such post-clearance requirements may also specify the following:

- (a) the class or description of persons to whom the requirements apply;
- (b) the use to which the goods must be put;
- (c) the restrictions or conditions on the use of the goods;
- (d) the duration of the requirements;
- (e) any other matters reasonably necessary for the effective transitional of the requirements.

The CTO has agreed to apply the following post-clearance requirements:

- i. A requirement to maintain traceability of plants that are released from quarantine (and their progeny) and to provide records of traceability to MPI on request. Traceability records must be maintained for a minimum period one year. This will make it easier to trace released plants in the event that the types of disease symptoms described above are detected.
- ii. After the plants receive a biosecurity clearance the owner of the released plants must arrange for a suitably qualified person authorised by a CTO to do ongoing inspections of all plants for any signs of pests and disease that appear to be caused by a pest not normally seen or otherwise detected in New Zealand, in order to increase the likelihood of reliably detecting any symptoms of disease.
  - It is noted that, under section 44 of the Act every person is under a duty to inform MPI of such detections. However, clearly specifying regular inspections as a post clearance condition for plants imported during the transition period may increase the likelihood of such pests being identified as soon as possible;
  - These inspections should be done at least once per week during all periods of active growth as well as at the start and end of any dormancy period, with records retained of each inspection;
  - A diary must be kept to record dates of all inspections and a description of any disease symptoms that are observed, and must be made available to MPI on request.
  - The same procedures identified in Part 3.6.1 of the Guidance Document: Post Entry Quarantine for Plants should be used for inspections, as pasted below:

### 3.6.1 Plant inspections by the operator

- (1) The aim of plant inspections by an operator (or delegate) is to allow any pests and disease to be detected and appropriately managed as soon as possible. An operator is expected to be able to identify signs or symptoms of pests and disease, however it is not expected that the operator will be able to identify all such pests or diseases. When symptoms are noted, they should be recorded and the MPI Inspector informed as soon as possible (and within 24 hours of detection).
  - (2) It is not anticipated that an in depth inspection of individual plants will be done by the operator; rather the operator should be regularly examining all plants (at least once per week) for obvious symptoms of pests or disease, and selecting a small number of plants for a more detailed inspection (for example using a hand lens).
- The CTO also considered a requirement for more frequent inspections of plants during growing seasons in post entry quarantine (either by an MPI inspector or the facility operator). However, under the new, and existing, standard all plants must be inspected for signs and symptoms of regulated pests by the facility operator at least twice per week during periods of active growth and once per week during dormancy. The inspector must also inspect plants five times each growing season, as described in the new import health standard. As such, it is not clear that more frequent inspections would provide any additional benefit, and so it is not a requirement.