



Review of Submissions:

Risk management proposal for management of *Phellinus noxius* in nursery stock hosts (whole plants, including rooted cuttings) from all countries.

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Ministry for Primary Industries

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Plants, Food & Environment Directorate
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REVIEW OF SUBMISSIONS ON:

Risk management proposal for management of
Phellinus noxius in nursery stock hosts (whole plants,
including rooted cuttings) from all countries.

6 October 2016

Approved for general release

Peter Thomson

Director Plants, Food & Environment
Ministry for Primary Industries

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Introduction

The Ministry for Primary Industries (MPI) has consulted with interested parties on the proposed changes to specific requirements to manage the risk associated with *Phellinus noxius* in nursery stock hosts (whole plants, including rooted cuttings) imported from all countries under the Import Health Standard (IHS) 155.02.06: Importation of Nursery Stock.

The consultation ran from 23 June 2016 to 19 August 2016 in accordance with Section 22 of the Biosecurity Act (1993).

MPI received three submissions from the following stakeholders:

A.	NZ Avocado	Brad Siebert	12 July 2016
B.	NZ Winegrowers	Edwin Massey	15 August 2016
C.	Horticulture NZ	Richard Palmer	8 August 2016

Rationale for revised proposal

This document reviews the submissions and provides a response to any questions or queries raised during consultation.

MPI appreciates the responses and the time spent by NZ Avocado, NZ Winegrowers and HortNZ in reviewing the proposal.

The submissions have been reproduced in full and are available in Appendix 1.

General feedback

Submitters overall supported the proposed changes to the import health standard (IHS): 155.02.06: *Importation of Nursery Stock*, to regulate *Phellinus noxius* as a quarantine pest in the applicable schedules of host plants.

All submitters supported the requirement for whole plants and rooted cuttings to require an additional declaration, specifying either that plants were raised in soil-less rooting medium, out of contact with the soil, or that they were obtained from a Pest Free Area (which includes both countries that are known to be free of the disease, and geographical areas that have been determined by the exporting NPPO to be free of the disease within countries where *P. noxius* is known to be present).

Specific feedback

(1) Regional Pest Free Area Declarations

NZ Avocado requests further clarification on what areas and what type of pest free area (PFA) declarations will be acceptable for this disease; especially for countries such as Australia, with areas where the source of propagation material may border regions considered to have widespread occurrences of *P. noxius*. This, combined with no regular area wide surveying for *P. noxius* across Australia's Eastern States, may present an ongoing risk when an additional declaration regarding regional pest status is the only additional mitigation measure above the current Basic Conditions [MPI's RMP states that this currently "*does not manage the risk of P. noxius*"]. It is noted however that this point is planned to be considered further by MPI as the feasibility & practicality of these measures are consulted on.

HorticultureNZ (HortNZ) seeks a discussion with MPI on the assurance mechanism for PFA declaration, which is the remaining barrier to whole rooted plants/cuttings introducing *P. noxius*. [MPI met with HortNZ on 27 September, 2016 to discuss this and other issues raised in their submission].

MPI Response:

For countries where *P. noxius* is known to be present, MPI will not accept PFA declarations without further assurances from the NPPO of the exporting country about how they are determining and maintaining a PFA.

The International Standards for Phytosanitary Measures (ISPM) 4: *Requirements for the establishment of pest free areas* describes the requirements for the establishment and use of PFAs as a risk management option for meeting phytosanitary requirements for the import of plants. Any PFA declaration that is accepted by MPI will need to meet all criteria set out in ISPM 4. The standard identifies three main components or stages that must be considered in the establishment and subsequent maintenance of a PFA:

- systems to establish freedom
- phytosanitary measures to maintain freedom
- checks to verify freedom has been maintained.

Normally PFA status is based on verification from specific surveys such as an official delimiting or detection survey. It is accepted internationally that organisms or diseases that have never been detected in, or that have been detected and eradicated from, an area should not be considered present in an area if there has been sufficient opportunity for them to have been detected. When sufficient information is available to support a PFA declaration, this phytosanitary measure is usually considered to provide a very high level of protection.

(2) Time in Post Entry Quarantine

Both NZ Winegrowers and NZ Avocado question whether the current 3-6 months of post entry quarantine (PEQ) for most *P. noxius* hosts would be enough for visible symptoms of infection to be observed. Disease expression is also likely to differ significantly between plant types, and with such an extensive host list all above points need to be considered when setting PEQ time lines and conditions.

MPI Response:

The measures proposed in part 2.2.1.13 of the IHS are considered sufficient to manage all risk associated with *P. noxius* before plant material is exported to New Zealand. Part of the reason that these measures were introduced is because MPI agrees that for many host species, the time in PEQ will not be sufficient for the development of visible symptoms of infection.

It is MPI's general policy to manage risk before goods arrive at the border, as is the case with the proposed measures for *P. noxious*. However, it should be noted that for many plant disease organisms, a period of PEQ is required as an additional risk management measure. The 3-6 month period of PEQ that is required for nursery stock hosts of *P. noxius* is not intended as a risk management measure specific for *P. noxius*, instead as a measure for other disease organisms that may be associated with these host species.

(3) Temperature Conditions in PEQ

NZ Avocado were concerned that as *P. noxius* mycelium does not grow at $<8^{\circ}\text{C}$ (Everett, 2016) if nursery plants were put into quarantine in NZ in June it is possible the low temperatures would suppress expression of the disease, especially if the PEQ facility was in Te Teko or similar cold climate. NZ Winegrowers were also concerned whether visible symptoms of infection would express themselves, even in controlled greenhouse conditions, as the temperature may be too cool and suppress disease expression.

MPI Response:

MPI agrees that in some parts of NZ, the temperatures in PEQ will not be sufficient for the development of the disease. Therefore MPI does not consider visual inspection in PEQ as a sufficient measure to manage the pest in PEQ, and has proposed specific measures to manage the risk. Refer to previous response to 'Time in PEQ'.

The measures proposed to manage *P. noxius* in host plants are export from a pest free area or plants raised from cuttings in soil-less media in containers out of contact with the soil.

(4) Risk of Contamination with Airborne Spores

NZ Avocado raises the potential for spores to be introduced into graft wounds or other entry points in unsterile nurseries, remaining latent until conditions for infection improve. NZ Avocado acknowledge that the risk is low for plants propagated in a clean nursery away from *P. noxious* affected orchards.

MPI Response:

The MPI risk analysis concluded the risk from contamination with airborne basidiospores was very low, because of the rarity of sporophores in the field.

Infection via basidiospores does not appear to be a common method for plants to become infected with *P. noxius*. It is unclear whether small plants like those used for nursery stock traded internationally would become infected as *P. noxius* is mostly described attacking trees. Ann and others (2002) state that the way new infection centres of brown root rot are established is still undetermined, but that it is likely that *P. noxius* is introduced into new areas on trees infected in the nursery then planted into the landscape. However Ridley (2001) says that there is no evidence that *P. noxius* colonises its hosts when they are grown in containers in a nursery.

Given the low likelihood of infection from basidiospores, MPI considers that the proposed measures targeting the most likely source of risk (infected roots and soil) are sufficient to manage the risk of entry.

References

Ann, P J; Chang, T T; Ko, W H (2002) *Phellinus noxius* brown root rot of fruit and ornamental trees in Taiwan. *Plant Disease* 86(8): 820-826.

Proposed amendments to the import health standard for nursery stock for the management of *Phellinus noxius*: <http://www.mpi.govt.nz/news-and-resources/consultations/proposed-amendments-to-the-import-health-standard-for-nursery-stock-for-the-management-of-phellinus-noxius/>

Pest risk analysis: *Phellinus noxius* from all countries:
<http://www.mpi.govt.nz/document-vault/12681>

Ridley, G S (2001) *Phellinus noxius*. Unpublished report prepared for MAFBNZ by Forest Research, June 2001.

Appendix 1: Copy of submissions

12 July 2016

Submission on the proposed amendments to the import health standard for nursery stock for the management of *Phellinus noxius*

Submitter: NZ Avocado

Submitted by: Brad Siebert, Biosecurity Manager

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NZ Avocado is a GIA Deed signatory so therefore acknowledges the opportunity to provide feedback on proposed amendments to the nursery stock Import Health Standard.

Brown rot (*Phellinus noxius*) is considered a high impact exotic pest of the New Zealand avocado industry. It is listed as a High Priority Pest threat within the industry's biosecurity plan and its increasing distribution across Australia has been of concern to the industry for a number of years.

NZ Avocado is in overall support of the proposed changes to the Import Health Standard.

Summarised below are some specific areas where further discussion is warranted to provide confidence that the proposed risk management steps will help mitigate the threat of *Phellinus noxius* being introduced into New Zealand.

- **Risk of contaminated soil or latent infection in roots**

Due to the disease cycle of *P.noxius* the pathogen is not known to be present in leaves, stems or branches. Therefore, there seems negligible risk of the pathogen being introduced through these plant parts alone. Dispersal often results from root contact with infected matter or, in some situations, through the dispersal of air-borne basidiospores. Without the presence of fruiting bodies (and resulting basidiospores) in the surrounding environment, the pathogen could only infect propagation material via the root zone and surrounding soil. Consequently, the proposed IHS requirement for all host plants to be grown in soilless media and thereby keeping all propagation material out of contact with potentially infected soil/root material prior to export should significantly reduce the risk of introduction through the PEQ pathway. When the disease is prevalent in the environment, infections have been shown both experimentally and in the field to take place following colonisation of a fresh graft or wound by basidiospores (Ann et al., 2002). While this air-borne basidiospore stage could pose an infection risk, if plants are propagated in a clean nursery away from *Phellinus* affected orchards then the risk is low. It is however conceivable that in an unsterile source nursery spores could be introduced onto a graft wound or other entry point and remain latent until conditions for infection improve. Yet as it is the root zone that ultimately supports infection the likelihood of introduction through the PEQ pathway remains low if the proposed measures are implemented for whole plants.

- **Regional Pest Free Area's**

Although Brown rot root is well known to be a tropical/subtropical pathogen and not likely to be found in cooler growing regions its range does seem to be expanding southward within Australia. If introduced into New Zealand, warmer areas of the upper North Island may already support the pathogen and more regions may become suitable for disease spread with longer

term climate shifts. B3 research through Plant & Food is currently developing a monte carlo model that is will be able to better predict the risk of pathogens such as *P. noxius* establishing in regions of New Zealand based on temperature. The Beta version of this model is near completion and NZ Avocado has requested that this and a number of other high priority pathogens are run through this software.

Phellinus noxius is known to be present in rural horticultural plantations, urban amenity trees and new plantings from the northern reaches of Australia's east coast down to northern New South Wales. Australian researchers working with this disease believe the range is from Byron Bay (NSW) up to the Atherton Tablelands (QLD). However, there is also infected sandalwood plantations in either NT or north of WA (exact details are difficult to confirm). This acknowledged uncertainty even with those closest to the research of this disease warrants further consideration when there remains the ability for some countries to provide Pest Free Area declaration for specific regions. Especially for countries such as Australia when areas where propagation material may be sourced may border regions considered to have widespread occurrences of *P. noxius*. This combined with no regular area wide surveying for *P. noxius* across Australia's Eastern States may present an ongoing risk when an additional declaration regarding regional pest status is the only additional mitigation measure above the current Basic Conditions which, as MPI's RMA states, currently "*does not manage the risk of P. noxius*". It is noted however that this point is planned to be considered further by MPI as the feasibility & practicality of these measures are consulted on. Therefore, NZ Avocado look forward to further clarification on what areas and what type of PFA declarations will be acceptable for this disease.

- **Time in Post Entry Quarantine (PEQ)**

Because visible, above ground, foliar symptoms are not often seen until extensive root system damage has occurred (Bartz 2007), NZ avocado questions whether the current 3-6 months of PEQ for most *P. noxius* hosts would be enough for visible symptoms of infection to be observed. Specific research with the pathogen in Australia shows no infection or symptom development in the glasshouse in winter, only in the warmer summer months (Dann 2016). This research has shown that under optimal conditions you would see foliar symptoms within 3 months yet New Zealand PEQ conditions and associated temperatures are probably not optimal for disease progression. This research also revealed that the time taken to express foliar symptoms was also very dependent on plant age.

Because *P. noxius* is a hot climate disease the potential may exist for plants in PEQ to be grown at ~30°C to provide further confidence that three months is sufficient for the disease to express visible symptoms yet admittedly this may only be practical for a select number of host plants. As *P. noxius* mycelium does not grow at <8°C (Everett, 2016) if nursery plants were put into quarantine in NZ in June it is possible the low temperatures would suppress expression of the disease, especially if the PEQ facility was in Te Teko or similar cold climate.

The expression of the disease is also likely to differ significantly between plant types and with such an extensive host list this and all above points need to be considered when setting PEQ time lines and conditions.

NZ Avocado:

- A. Supports the inclusion of a new section "*Measures for P. noxius*" within the basic conditions of the Import Health Standard.

- B. Supports the requirements for an additional phytosanitary declaration when importing known hosts as whole plants due to the risk of prior contact with soil.
- C. Supports the addition of *Phellinus noxius* into the quarantine pest lists of the relevant host schedules.
- D. Looks forward to further comments being provided on points 1-3 above.

References:

- Risk Management Proposal for management of *Phellinus noxius* in nursery stock hosts (whole plants, including rooted cuttings) from all countries
- MAFBNZ import risk assessment: *Phellinus noxius* pest risk analysis (21 June 2011) Import Health Standard (IHS) 155.02.06: Importation of Nursery Stock
- Dr Elizabeth Dann, 2016 (Pers. Comm) Senior Research Fellow, Queensland Alliance for Agriculture and Food Innovation (QAAFI), University of Queensland.
- Bartz, F. (2007). "Pathogen Profile *Phellinus noxius* (Corner) G. H. Cunningham." Retrieved 20/7/2016, from https://www.cals.ncsu.edu/course/pp728/Phellinus/Phellinus_noxius.html.
- *Phellinus noxius* fact sheet. Department of Employment, Economic Development and Innovation
- Ann, P.J., Chang, T.T. and Ko, W.H. (2002). *Phellinus noxius*: brown root rot of fruit and ornamental trees in Taiwan. *Plant Disease* 86(8): 820-826.
- Dr Kerry Everett, 2016 (Pers. Comm) Senior Scientist, Plant & Food Research NZ.

15 August 2016

Submission on the proposed amendments to the import health standard for nursery stock for the management of *Phellinus noxius*

Submitter: New Zealand Winegrowers

Submitted by: Dr Edwin Massey, Biosecurity Manager

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Introduction

New Zealand Winegrowers is currently seeking mandate from its members to join the Government Industry Agreement. NZW acknowledges the opportunity to provide feedback on proposed amendments to the nursery stock Import Health Standard.

While *P. Noxious* is not one of the wine industry's most unwanted pests it has the potential to impact the industry as follows:

- *P. noxious* is the causal agent of Brown root rot which can attack grapevines. The disease is limited to sub-tropical climates and at present Northland is the only region which may be warm enough to support its establishment.
- The risk to the wine industry is very low at present due to the climatic range of the organism and the small scale of the industry in Northland (.02% of the 2016 national grape harvest)
- While climate change is hard to predict there is a reasonable chance that in the next 20/30 years climate in the greater Auckland region would support this organism potentially establishing. The Auckland region produced .29% of the 2016 national grape harvest.
- If *P. noxious* were to establish it would likely make it more challenging for the industry to expand plantings in Auckland and Northland.

Analysis of proposed changes

Overall NZW supports the proposed measures as they strengthen the Import Health Standard's risk mitigation against the potential entry of this disease and support a long-term precautionary approach. Specifically NZW supports:

- The inclusion of a new section "Measures for *P. noxious*" within the basic conditions of the Import Health Standard.
- The requirements for an additional phytosanitary declaration when importing known hosts as whole plants due to the risk of prior contact with soil.
- Supports the addition of *P. noxious* into the quarantine pest lists of the relevant host schedules.

Further discussion

NZW seeks further discussion with MPI on whether the proposed measure of 3 Months in PEQ is sufficiently precautionary and cost effective. Specifically NZW questions whether 3 months in PEQ is long enough for:

- Visible symptoms of infections to express themselves in NZ conditions? Even in controlled greenhouse conditions, the temperature may be cool enough to suppress disease expression; and
- Visible symptoms of infections to express themselves in all plants identified across the wide ranging host list?

NZW looks forward to further comments from MPI on these specific issues.

8 August 2016

SUBMISSION ON THE RISK MANAGEMENT PROPOSAL FOR MANAGEMENT OF PHELLINUS NOXIUS IN NURSERY STOCK HOSTS (WHOLE PLANTS, INCLUDING ROOTED CUTTINGS) FROM ALL COUNTRIES

Submitter: Horticulture New Zealand Incorporated

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References:

A. Risk Management Proposal for management of *Phellinus noxius* in nursery stock hosts (whole plants, including rooted cuttings) from all countries dated 23 June 2016

B. Pest risk analysis: *Phellinus noxius* from all countries, Version 2.0, dated 22 July 2016

C. MPI Standard 155.02.06, Importation of Nursery Stock

EXECUTIVE SUMMARY

1. Horticulture New Zealand (HortNZ) represents the interests of New Zealand's 5,500 commercial fruit and vegetable growers. The horticulture industry is valued at \$5.5 billion including nearly \$3 billion in exports.

2. The industry employs over 50,000 people, occupies some 130,000 ha of land and provides critical regional development opportunities in Northland, Auckland, Bay of Plenty, Hawke's Bay, Marlborough, Nelson, Canterbury and Central Otago.

3. The industry relies heavily on New Zealand's excellent biosecurity status to protect productive capacity, and provide for significant market access opportunities internationally. This status is also key to the industry's drive towards Integrated Fruit Production and Integrated Pest Management that reduce agrichemical inputs while maintaining product quality and meeting the exacting standards of our international consumers.

4. Effective biosecurity is a key part of industry risk management. Biosecurity supports production, secures market access, and provides confidence for investment – all key to the horticulture industry continuing to make a strong contribution to the Government's 'Export Double' goal.

5. Ref A identifies significant threat to a broad range of species in New Zealand from *Phellinus noxius* (Brown Root Rot), many of which are key commercial horticultural crops, including: persimmon, avocado, apricot, plum, peach, pear and grapes. HortNZ commends MPI for undertaking this review and identifying the risks posed by *P. noxius*.

6. Horticulture New Zealand:

- supports the conclusion drawn on risk of exposure of moderate, therefore not negligible.
- supports the proposal to declare *P. noxius* a regulated quarantine pest, to be managed on imported nursery stock, and listed as a quarantine pest for host species
- supports the proposal to amend the IHS to ensure the risk posed by *P. noxious* is managed
- seeks a discussion with MPI on the assurance mechanism for Pest-Free Area declaration, which is the remaining barrier to whole rooted plants/cuttings introducing *P. noxious*

HAZARD AND RISK FROM PHELLINUS NOXIUS

7. Ref A, notes the likelihood of entry is highest on rooted plants (with risk not currently managed) and negligible on cuttings and budwood. Consequent risk, from establishment and spread, increases, so avoiding entry represents the most effective risk management approach.

8. Ref A considers the economic consequence to New Zealand as low. HortNZ considers that in a NZ sense this is correct, however New Zealand's agricultural value proposition comes, in large part, from production of a diverse range of agricultural outputs, across all of New Zealand. Any economic approach must carefully consider the value of the parts and economic consequence, not just the whole. There are no known treatments or cures for *P. noxius*.

9. Ref B acknowledges that the basic conditions, in section 2 of the current Import Health Standard 155.02.06 (IHS), applying to whole plants do not manage the risk of entry of *P. noxius* into New Zealand. Basic conditions allow for whole plants to be grown in soil and have the soil washed off prior to export, which doesn't manage the risk of *P. noxius*.

PROPOSED CHANGES TO RISK MANAGEMENT

10. Ref A proposes the following changes to address the risk of *P. noxius*:

- a. new section "Measures for *P. noxius*" is incorporated within the basic conditions of the IHS (applying only to whole plants, including rooted cuttings)
- b. Phytosanitary certification issued by the exporting National Plant Protection Organisation (NPPO) that certifies that the risk has been managed by one of the following declarations:

(i) "The plants were raised from seed/cuttings in soil-less rooting media in containers maintained out of contact with the soil"

OR

*(ii) "The plants have been sourced from a "Pest free area" free from *Phellinus noxius*"*

11. HortNZ supports the introduction of these measures to manage the risk from *P. noxius*. HortNZ encourages MPI to undertake pathway assurance activities regarding country absence from *P. noxius*, where there are concerns raised about the veracity of such absence, in order to deliver the necessary confidence in the PFA declaration.

12. HortNZ seeks discussion with MPI regarding the nature and independence of offshore verification that confirms the declaration that seed/cuttings are raised in soil-less rooting media in containers maintained out of contact with soil.

CONCLUSION

13. HortNZ supports the proposed changes to the IHS.

14. HortNZ seeks a further discussion with MPI regarding the offshore assurance for both PFAs and soil-less growing.

15. HortNZ welcomes the opportunity to discuss the matters raised, together with other horticultural industry product groups.

ENDS