

Biosecurity Advice 2015/03
Draft Review of Policy: importation of *Phytophthora ramorum*
host propagative material into Australia

Background

Phytophthora species in general are destructive pathogens capable of causing direct and indirect economic impacts in natural and formally-planted environments.

The Department of Agriculture recently undertook a review of the existing Australian importation policy for plants known to be hosts of the fungus, *Phytophthora ramorum*. The review and policy were primarily of importance to the nursery industry. The review focussed on plants known to be natural and/or experimental hosts of this fungus. Experimental hosts are those capable of becoming infected via a deliberate inoculation of the plant with the fungus.

The original plant importation policy prohibited the entry of all rooted hosts of *P. ramorum*, from countries known to have this fungus. Entry as microplantlets (tissue-cultured plants) was however allowed. In 2013, as acknowledgement of the genera unsuccessfully propagated in this way, approval was given for several plant genera to be imported as dormant, unrooted cuttings and budwood.

The existing requirements for entry of dormant cuttings and tissue-cultured plant hosts, from *P. ramorum* affected countries, include: import permits, mandatory on-arrival inspections, and mandatory growth in post-entry quarantine (PEQ) with pathogen screening. In addition, dormant cuttings require mandatory methyl bromide fumigation and surface sterilization.

Current review

The known distribution of *P. ramorum* includes ornamental plant nurseries in the USA and Europe, natural woodlands in western USA and European forests. The identified hosts and the geographical presence of *P. ramorum*, are increasing worldwide. Australia has not yet detected or reported the presence of *P. ramorum* in our nurseries, native environments or cultivated areas. However, as stated in the report, “*Host plants that support the spread of P. ramorum are widespread in cities, towns and horticultural production areas throughout Australia.*”

The report states that, “*The nursery trade is the main pathway for worldwide introduction and spread of exotic pathogens, including P. ramorum*” and the evidence given included the confirmed introduction of *P. ramorum* from a single, infected nursery distributing Camellia plants, to 21 states in the USA.

Fungicide treatment of infected nursery plants is unlikely to cure the infection. Rather it is more likely to temporarily suppress the extent of infection and symptoms. Asymptomatic root infections have been confirmed, thereby ensuring that infected - but visually healthy - plants at times, be transported. Transport conditions for most nursery stock will not be detrimental to the survival of the pathogen in infected plants. The composting of infected plant material waste has the potential to kill the fungus, providing temperatures exceed 42°C (for an specified duration).

The fungus survives in water. Rivers and streams are now considered a potential pathway for long distance spread. Foliar hosts, especially *Rhododendron*, *Vaccinium*, *Viburnum* and *Quercus* spp., allow spore proliferation and therefore these hosts are important in aerial dispersal of the fungi. In Australia, *eucalypts* and plants within the Ericaceae are also potential hosts, and would likely be important in the development of epidemics.

The scope of the current review was to consider recent and updated scientific information and

- revise the existing policy for importation of *P. ramorum* host material;
- revise the host list for *P. ramorum* and newly recognised exotic *Phytophthora* species (*P. kernoviae*, *P. nemorosa* and *P. pseudosyringae*) and
- propose phytosanitary and risk-mitigation measures for hosts of these species.

The *Phytophthora* species included in the review do not all behave similarly. They have different mating types and optimal growth conditions. It has been speculated that all species would find favourable conditions for their growth in SE and SW Australia, should they enter.

Review conclusions

*The likelihood that the Phytophthora species will enter Australia on nursery stock (including ornamental plants and propagative material) from countries where this pathogen is known to occur, be distributed in a viable state to susceptible hosts, establish in that area and subsequently spread within Australia is **HIGH**.*

The Department of Agriculture review has resulted in the BA 2015/03 draft policy, and:

- inclusion of newly identified exotic *Phytophthora* species (in addition to *P. ramorum*) in policy development.
- the addition of several natural hosts to the host list
- the removal of experimental hosts from the host list
- proposed, modified risk mitigation measures
- proposed approval for entry of leafless, one-year-old bare-rooted plants
- proposed reduction in growing time in PEQ (from 24 to 15 months) for dormant cuttings and budwood of host species.

Specific comments relevant to *Vitis* species and grapegrowers

Vitis species are not identified as natural or experimental hosts of *P. ramorum* or of the other exotic *Phytophthora* species in this review. The proposed risk mitigation measures therefore are unlikely to be imposed on, or affect, imported grape material. Imported grape material is subjected to other risk mitigation measures effective against fungi for which they are proven hosts.

Although in California, the fungus has caused extensive oak tree and ornamental plant losses, there is no published literature suggesting that grapevines have at any time become infected or suffered, despite growing in close proximity to infested sites and infected plants. Should the reviewed *Phytophthora* species enter Australia, grapevine rootstocks and scion material raised in field nurseries located near natural (eg. *eucalypts*) or cultivated host plants, are highly unlikely to become infected.

Prof. Dave Rizzo is a lead researcher on *P. ramorum* at the University of California, Davis. I questioned him about the potential impact of the fungus on *Vitis* spp. His response follows:

We have no evidence that P. ramorum infects grapevines. Many years ago, we and other labs did a series of inoculations and found they were not susceptible. We have also not observed any infections in the field even though there are many vineyards adjacent to forests devastated by P. ramorum.

In my opinion, neither wine grape growers, nor the grapevine industries of Australia, will be adversely affected or inconvenienced by the proposed policy changes presented in BA 2015/03.

The current knowledge of these fungi is such that I am confident they would not affect the growth of grapevines in nurseries or vineyards, should they enter Australia. However I would urge the grapevine industries to remain vigilant and well-informed about future revisions of the host list and risk mitigation measures for all imported nursery stock, especially that in bare-rooted or retail-ready form.

PAMcM
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