



26 February 2002

PLANT BIOSECURITY POLICY MEMORANDUM 2002/07

REVISED POST-ENTRY QUARANTINE PROTOCOLS FOR THE IMPORTATION INTO AUSTRALIA OF APPLE (*MALUS*) AND PEAR (*PYRUS*) BUDWOOD

This Plant Biosecurity Policy Memorandum (PBPM) provides information regarding the revised post-entry quarantine protocols for the importation into Australia of apple (*Malus*) and pear (*Pyrus*) budwood.

Plant Biosecurity (Biosecurity Australia) has now completed the Review of Post-Entry Quarantine Protocols for the Importation into Australia of Apple (*Malus*) and Pear (*Pyrus*) Budwood.

Comments were invited on the draft Review (Plant Quarantine Policy Memorandum 2000/16) and the comment period closed on 16 October 2001. Comments received from all stakeholders were taken into account in the revision of the protocols. A summary of the comments received and Biosecurity Australia's response is attached.

The revised protocols have not changed substantially from the draft protocols sent with PBPM 2001/16. Key changes compared to existing post-entry protocols for apple and pear budwood and the draft Review are:

- PEQ period reduced from 4 years to a minimum of 15 months using a combination of biological indexing and *in vitro* testing
- reduced risk of release from PEQ of plants infected with quarantine pathogens by replacing visual screening with active testing for many of the quarantine pathogens
- testing during PEQ for the causal agent of fire blight, *Erwinia amylovora*, based on the use of susceptible rootstocks for both apple and pear introductions, polymerase chain reaction tests at three stages during the PEQ period and visual screening of mother plants held under conditions that favour the development of fire blight
- testing during the first 6 months of PEQ for apple rubbery wood
- additional test for apple rubbery wood using a Mazzard cherry indicator
- examination and testing for fungal pathogens of the budsticks used for propagation prior to initial propagation in PEQ (rather than 3 times).

The recommendations for revised PEQ protocols described in the Review document have been provided to AQIS for the development of a revised indexing manual. It is anticipated that the apple and pear introductions undergoing post-entry quarantine from early 2002 onwards will be processed as per the revised protocols. This will apply to both new importations of budwood and material already in post-entry quarantine.

The revised protocols are available from the AFFA website at http://www.affa.gov.au/docs/market_access/biosecurity/plantbiosec.html and hardcopies are available on request from the Technical and Administrative Services section of Plant Biosecurity. Requests should be sent the following address:

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I look forward to the successful implementation of the revised protocols and acknowledge the important contribution stakeholders have made in the review process.

Brian Stynes
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Plant Biosecurity

Attachment to PBPM 2002/07

**Summary of stakeholder comments received to PBPM 2001/16 Review of Post-Entry Quarantine Protocols for the Importation into Australia of Apple (*Malus*) and Pear (*Pyrus*)
Budwood and Biosecurity Australia's response**

Description of comments	BA response
Queried the availability of resources within AQIS or other organisations to undertake plant health testing while apple and pear budwood is undergoing PEQ.	The draft Review stated that testing for non-quarantine pathogens is not the responsibility of AQIS and that there are three options for how this testing could be conducted: by industry plant health improvement programs, by the importer or by AQIS on a full cost recovery basis if resources permit. Testing for non-quarantine diseases by AQIS is only possible if AQIS has the resources to undertake this testing. Alternatively, the final Review includes the option that NRE or other organisations could undertake testing for non-quarantine pathogens during PEQ in an AQIS approved quarantine facility under a Compliance Agreement.
Questioned the quarantine status of apple rubbery wood and the technique used to detect the disease.	<p>It is Biosecurity Australia's view that apple rubbery wood is a quarantinable disease due to its economic importance and its unknown aetiology. This disease will remain quarantinable until its causal agent has been identified. As described in the Review, yield losses of up to 80% can occur in sensitive apple cultivars.</p> <p>Imported material will be tested for apple rubbery wood during the first 6 months of PEQ. The revised testing protocol for apple rubbery wood is reduced from 3 years to 180 days by maintaining the material at 26°C in a greenhouse rather than at ambient temperature in a shadehouse. Under the revised protocols, budwood will also be indexed for apple rubbery wood by budding onto cherry rootstock (Mazzard F12/1). Symptoms develop quicker on this rootstock (necrosis at the bud union) than on Lord Lambourne. Material that tests positive for apple rubbery wood can then undergo heat therapy while other testing procedures are completed.</p> <p>Biological indexing is based on the ability of the indicator plant to develop characteristic symptoms. The selection of indicator plants is based on their ability to develop the characteristic symptoms upon infection rather than be symptomless carriers. The <i>Malus pumila</i> cv. Lord Lambourne indicator plants used to index for rubbery wood are symptomless at the time of grafting.</p>
Queried the status of pear bark measles in Australia and its relationship to pear blister canker and pear blister canker viroid.	Pear blister canker viroid (PBCVd) is the causal agent of the disease pear blister canker. The relationship between pear bark measles and PBCVd is not clear. Nemeth (1986) states that a close relationship is assumed between pear bark measles and PBCVd. However, the relationship between these two diseases has not been clarified and they are recognised as two distinct diseases by Washington State University. Both of these diseases are regarded as not occurring in Australia. PBCVd is regarded as a quarantine pathogen for Australia whereas pear bark measles is regarded as of minor quarantine importance.

Description of comments	BA response
Questioned the use of acidified potato dextrose agar (PDA) and recommended the involvement of taxonomists for the identification of the more taxonomically difficult fungi.	PDA is recommended for the initial isolation of fungi from the budwood. Subsequent sub-culturing techniques and identification methods are based on the professional judgement of AQIS quarantine plant pathologists and advice received from any relevant experts. As noted on p23 of the draft Review, Biosecurity Australia considers that AQIS quarantine plant pathologists have the knowledge and experience necessary to examine introductions for quarantine fungi and that they should seek assistance from taxonomists when required.
Requested confirmation of whether <i>Pyrus calleryana</i> cv. Aristocrat is sensitive to <i>E. amylovora</i> or not.	The DNRE report describes <i>P. calleryana</i> cv. Aristocrat as a fireblight sensitive indicator plant. The Review rejected the DNRE recommendation to use this cultivar as an indicator plant because of a United States Department of Agriculture recommendation to use this cultivar as a street tree based due to its resistance to fireblight. Further investigation has established that the reported reaction of <i>P. calleryana</i> cv. Aristocrat to fireblight varies from resistant to susceptible. Milbocker and Straw (1977) describe <i>P. calleryana</i> cv. Aristocrat as “resistant to all the common diseases of pears including fireblight”. Ohio State University describe all cultivars of <i>P. calleryana</i> as resistant to fireblight in northern regions of the USA but note that the disease can be a moderately serious problem for some cultivars (including Aristocrat) in humid southern regions. Conversely, the Urban Horticulture Institute at Cornell University in the USA describe Aristocrat as “susceptible to fireblight”. Biosecurity Australia has based its final decision on a worst case scenario and excluded <i>P. calleryana</i> cv. Aristocrat from the testing protocol for fireblight.
Proposed that all introductions of apple and pear budwood be heat treated then undergo minimal testing.	Heat treatment is included as an option for the treatment of apple rubbery wood infected plants. Biosecurity Australia would consider the use of heat treatment during PEQ for other diseases once it had been verified as an effective treatment for these diseases.
Queried the correct website for accessing the documents.	The AFFA website has changed since the draft Review was released. The correct site to locate documents for reviews of existing policy is: http://www.affa.gov.au/docs/market_access/biosecurity/plantbiosec.html

Nemeth, M. (1986) Virus, Mycoplasma and Rickettsia Diseases of Fruit Trees. Martinus Nijhoff/Dr W Junk Publishers

Milbocker, D.C. and Straw, W.T. (1977) ‘Aristocrat’ pear. HortScience 12: 78-79.

Ohio State University www.hcs.ohio-state.edu/hcs/TMI/Plantlist/py_ryana.html

Urban Horticulture Institute www.hort.cornell.edu/departments/faculty/bassuk/uhi/pear.html

Washington State University. <http://nrsp5.prosser.wsu.edu>