

Chapter 7

The proposed importation of potatoes from New Zealand

7.1 The terms of reference for this inquiry required the committee to examine the validity and supporting scientific evidence underpinning the Pest Risk Analysis included in the 2009 Import Risk Analysis in relation to New Zealand potatoes. The committee was also required to determine the extent of scientific knowledge and understanding of the Tomato/Potato Psyllid (TPP) and other pests identified in the Draft Review of Import Conditions.

Australia's potato industry

7.2 The potato industry is a substantial and important industry across Australia. Potatoes are the highest value horticultural crop grown for consumption in Australia and are grown in all states of Australia except the Northern Territory. The following section provides a brief background on the Australian potato industry to provide context for the later discussion of the *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*.

7.3 The main growing areas for fresh potatoes are in wet temperate coastal regions in northern Tasmania, Victoria and south-east South Australia. These areas have annual rainfall of 800-1000 mm, cool summers and are relatively free from frost. Despite the cool, wet climate, most crops are grown under irrigation. Seed potatoes are primarily produced in Victoria, Tasmania, New South Wales and South Australia.¹

7.4 Potatoes represent approximately 20 per cent of all Australian vegetable production, at around 1.25 million tonnes in total, with processing potatoes representing 56 per cent of the value chain, fresh potatoes representing 36 per cent of the value chain and seed potato production the remaining 8 per cent.² The total value of Australian potato production is \$483 million.³

7.5 The potato industry is South Australia's (and Australia's) largest horticultural sector by both value and volume and is rated second in commodities sold at a national level. South Australia has the largest area under crop and is worth \$206 million at the farm gate. The state produces 80 per cent of the country's fresh washed potatoes and is also a significant contributor to the processed market. Kangaroo Island, in South Australia, produces some of the purest seed available internationally.⁴

¹ Australian Natural Resources Atlas, www.anra.gov.au/topics/agriculture/pubs/national/potatoes.html, accessed 18 January 2013.

² Horticulture Australia Limited, Potato Industry Annual Report 2011/12, p. 1.

³ Tasmanian Farmers and Graziers Association, *Submission 6*, p. 2.

⁴ Ms Robbie Davis, Potatoes South Australia, *Committee Hansard*, 24 October 2012, p. 1 and Potatoes South Australia, *Submission 9*, p. 6.

7.6 Potatoes are the largest vegetable crop grown in New South Wales and the state produces approximately one tenth of the total Australian potato crop. Two crops a year are grown, both for the fresh and crisping potato markets.

7.7 Tasmania produces approximately 425,000 tonnes of potatoes annually with a farm gate value of \$127 million. This represents a large proportion of Tasmania's horticultural income. Tasmania has a large processing industry and a significant percentage of potatoes grown in Australia – 360,000 tonnes – are processed in Tasmania.

7.8 Potatoes represent the fourth largest crop globally. It is argued that by 2050, the global population will have increased by two billion people and potatoes will play a significant role in addressing food shortages and food security issues. It is argued that China will require a 50 per cent increase in food production or food supply which will create an enormous export opportunity for Australian producers.⁵

Pests and diseases

7.9 The National Potato Industry Biosecurity Plan (the Potato Biosecurity Plan) was developed by Plant Health Australia (PHA) in collaboration with industry and government stakeholders and was launched in May 2007. The Potato Biosecurity Plan notes that Australia's geographic isolation and lack of shared land borders have, in the past, provided a degree of natural protection from exotic threats. In explaining the need for Biosecurity Plans, it is argued that whilst Australia's national quarantine system helps to prevent the introduction of harmful exotic threats to plant industry:

Rapid increases in overseas tourism, imports and exports, mail and changing transport procedures (eg. refrigeration and containerisation of produce), as well as the potential for pests to enter via natural routes, mean that relying on quarantine measures is not enough.⁶

7.10 The development of each Biosecurity Plan commences with the production of Threat Summary Tables (TST). These tables identify all the potential exotic pest threats to an industry and with expert consultation, rank their potential threat based on entry, establishment, spread potential, consequences of establishment and eradication potential (where available). From this information, the high priority Emergency Plant Pests can be established (for which diagnostic protocols and contingency plans are created).

7.11 The Potato Biosecurity Plan lists the top-ranked pest threats to the Australian potato industry as:

- **Late blight – A2 mating type** – *Phytophthora infestans*, A2 mating type
- **Bacterial ring rot** – *Clavibacter michiganensis* subsp. *sepedonicus*
- **Potato spindle tuber viroid (PSTVd)** – *Pospiviroidae*: Potato spindle tuber viroid

⁵ Potatoes South Australia, *Submission 9*, p. 6.

⁶ Plant Health Australia, *National Potato Industry Biosecurity Plan*, Version 1, May 2007, p. 5.

- **Potato Wart** – *Synchytrium endobioticum*
- **Potato mop top virus** – Unassigned virus family; Pomovirus; Potato mop-top virus
- **Potato cyst nematode (white or pale)** – *Globodera pallida*
- **Colorado potato beetle** – *Leptinotarsa decemlineata*⁷

7.12 The Potato Biosecurity Plan notes that areas previously declared 'Potato cyst nematode' (PCN) affected areas would not be covered by the Emergency Plant Pest Response Deed (EPPRD) because the EPPRD is not retrospective. However, the Pale cyst nematode (*Globodera pallida*) would be covered because it is exotic to Australia. Exotic strains of PCN (*G. rostochiensis*) would also be covered by the EPPRD if they were demonstrably new strains using appropriate diagnostic techniques.⁸

7.13 The Potato Biosecurity Plan also notes that if there was another outbreak of PCN of the same strain as the one already present in Australia:

- it would not qualify as an EPP if it was linked to the existing outbreak; and
- it could qualify as an Emergency Plant Pest if it was a new incursion.⁹

7.14 In the case of a pest which qualifies as an EPP (and is therefore covered by the EPPRD) eradication would still have to be considered technically feasible and economically justifiable to go ahead. The National Management Group (NMG) in consultation with all Affected Parties would make this decision on advice from the CCEPP (Consultative Committee).¹⁰

Import conditions for fresh potatoes from New Zealand¹¹

7.15 The import of fresh potatoes to Australia (for human consumption and for processing) is currently prohibited from all countries.

7.16 Australia previously allowed imports of potatoes for processing from New Zealand. In 1988, however, trade ceased because New Zealand was unable to certify area freedom for the quarantine pest, Potato Cyst Nematode (PCN).

7.17 In 2008, Zebra Chip disease and the Tomato Potato Psyllid (TPP) – a vector of the disease – were confirmed as being present in New Zealand. Australia then banned trade in all host material, including tomatoes and capsicums. DA Biosecurity

⁷ Plant Health Australia, *National Potato Industry Biosecurity Plan*, Version 1, May 2007, p. 6.

⁸ Plant Health Australia, *National Potato Industry Biosecurity Plan*, Version 1, May 2007, Table 1, p. 7.

⁹ Plant Health Australia, *National Potato Industry Biosecurity Plan*, Version 1, May 2007, p. 6.

¹⁰ Plant Health Australia, *National Potato Industry Biosecurity Plan*, Version 1, May 2007, p. 6.

¹¹ The following section is based on information from Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012 and Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012.

noted that Australia was entitled to take this action under Article 5.7 of the SPS Agreement. Following the trade ban, Australia was then, however, obliged to consider emergency measures in the short term followed by more permanent measures based on a risk assessment "conducted within a reasonable period of time".¹²

Pest Risk Analysis for *Candidatus Liberibacter psyllauros*

7.18 In 2009, DA Biosecurity conducted a Pest Risk Assessment (PRA) for *Candidatus Liberibacter psyllauros* (the bacteria which has since been renamed *Candidatus Liberibacter solanacearum*) in fresh fruit, potato tubers, nursery stock and its vector the tomato-potato psyllid.¹³ DA Biosecurity noted that in undertaking the risk assessment, departmental officials attended a number of conferences and workshops to present their findings. DA Biosecurity indicated that no substantive concerns were raised by AUSVEG or other potato representative bodies at the time.¹⁴

7.19 In 2009, trade in capsicums and tomatoes from New Zealand resumed under the conditions that had been developed during the PRA process. DA Biosecurity stated that since 2009, over '13,000 tonnes of tomatoes and capsicums have been imported and Australia remains free of the psyllid and the zebra chip bacterium'.¹⁵ DA Biosecurity also told the committee that:

As reported on the DAFF website, the psyllid has been intercepted twice at quarantine inspection. Both consignments were fumigated to kill the psyllid and the companies involved in the exports were suspended from trade and remain so. This is our biosecurity system at work.¹⁶

Review of import conditions for potatoes

7.20 In June 2006, the New Zealand Ministry for Primary Industries formally requested renewed access for fresh potatoes (*Solanum tuberosum*) for processing to Australia. In applying for renewed access, it was proposed to use quarantine measures similar to those now used to move potatoes domestically between some states within Australia (from PCN control areas) for processing.¹⁷

¹² Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

¹³ See, *Biosecurity Australia Final pest risk analysis report for 'Candidatus Liberibacter psyllauros' in fresh fruit, potato tubers, nursery stock and its vector the tomato-potato psyllid*, September 2009.

¹⁴ Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

¹⁵ DAFF Biosecurity also noted that the psyllid has been intercepted twice at quarantine inspection. Both consignments were fumigated to kill the psyllid and the companies involved in the exports were suspended from trade and remain so.

¹⁶ Department of Agriculture Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

¹⁷ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 14.

7.21 In support of its request, the New Zealand Government provided DA Biosecurity with its *MAFBZN Export compliance programme for the provision of additional declarations (Potato Cyst Nematode and Potato Wart)*. The MAFBZN Compliance Programme document outlines the operational requirements for growers, packing facility operators, storage facility operators and independent verification agencies to ensure production site freedom from PCN and area freedom from potato black wart.

7.22 As part of its market access request, the New Zealand Ministry for Primary Industries (MPI) proposed that all potatoes exported from New Zealand to Australia be produced under the MAFBZN Programme 'to reduce the risk of PCN and/or black wart being present in consignments of potatoes exported to Australia'.¹⁸

7.23 In July 2010, Australia's Import Market Access Advisory Group assigned New Zealand's market access request a priority 'A' status and a policy review was prioritised on DA Biosecurity's work plan.

7.24 Table 7.1 below provides a timeline of events in relation to the IRA process for New Zealand potatoes and the Review of import conditions for fresh potatoes for processing from New Zealand (Review of import conditions for potatoes):

Table 7.1 – Timeline of New Zealand potatoes IRA and review

1988	Australia stopped imports of potatoes for processing from New Zealand because New Zealand was unable to certify area freedom from the quarantine pest, potato cyst nematode (PCN). ¹⁹
2006	New Zealand requested market access for potatoes for processing with measures similar to those now used to move potatoes domestically between some states within Australia (from PCN control areas) for processing. ²⁰
2008	Zebra Chip Disease and the Tomato Potato Psyllid (TPP) confirmed as being present in New Zealand. Australia banned trade in all host material (including tomatoes and capsicums) under Article 5.7 of the SPS Agreement.
2009	DA Biosecurity conducted a PRA for Zebra Chip and TPP for all pathways.

¹⁸ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 14.

¹⁹ Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

²⁰ Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

2009	Trade in capsicums and tomatoes from New Zealand recommenced under conditions developed during the IRA process.
2010	Australia's Import Market Access Advisory Group (IMAAG) assigned New Zealand's market access request priority 'A' status. The proposed policy review was prioritised on DA Biosecurity's work plan.
3 July 2012	<i>Draft report for the review of import conditions for fresh potatoes for processing from New Zealand</i> was released for stakeholder comment.
3 September 2012	The 60 day comment period for stakeholders closed. 27 submissions were received.
October 2012	DA Biosecurity announced the engagement of an independent plant pathologist to review the <i>Draft report for the review of import conditions for fresh potatoes for processing from New Zealand</i> and the latest information on Zebra Chip Disease.

Scope of the review

7.25 In response to the New Zealand Government's request for access to Australia for potatoes for processing, DA Biosecurity commenced a specific review of biosecurity measures for potatoes, assessing all the pests associated with potatoes from New Zealand. In conducting its review, DA Biosecurity assessed New Zealand's proposal for market access and reassessed the risk management measures and import conditions currently recognised for this particular import pathway.²¹

7.26 DA Biosecurity indicated that because conditions for the import of potatoes for processing from New Zealand already existed (and an update to those conditions was delivered as a result of the 2009 assessment undertaken on Zebra Chip and TPP) the purpose of this particular review of import conditions for potatoes was to determine that the already established measures remained current.²²

7.27 The review of import conditions for potatoes from New Zealand included:

- an assessment of the pests and diseases associated with New Zealand potato production areas;

²¹ Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

²² Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 1.

- a review of both international and domestic policies for the import and movement of potato commodities; and
- verification visits to consider and assess potential risk management measures.²³

7.28 In conducting the review, DA Biosecurity also took into consideration the following issues:

- previous conditions established for the import of fresh potatoes for processing from New Zealand;
- domestic regulations for the interstate movement of potato commodities in Australia;
- relevant export compliance programs utilised by New Zealand for export of potatoes to other international markets;
- current policies for pests and diseases of quarantine concern to Australia which are relevant to this market access request and the development of final import conditions; and
- any additional information made available through the literature and the consultation process which is relevant to the assessment of the import risks posed.²⁴

7.29 DA Biosecurity also reviewed the available literature and conducted an assessment of the pests and diseases associated with potato tubers from New Zealand, including the pests and diseases previously identified by the New Zealand Government in 2007.

Results of the review

7.30 A number of pests and diseases were identified as 'potentially being associated with the import pathway and being of quarantine concern to Australia'²⁵. The list of pests and diseases identified in association with fresh potatoes from New Zealand included:

- *Candidatus Liberibacter solanacearum* (zebra chip);²⁶
- *Ralstonia solanacearum* (bacterial wilt, brown rot);
- *Synchytrium endobioticum* (potato black wart),

²³ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 6.

²⁴ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 5.

²⁵ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 7.

²⁶ The name *Candidatus Liberibacter solanacearum* has displaced the earlier name for this pathogen – *Candidatus Liberibacter psyllaeus*.

- *Ditylenchus destructor* (potato rot nematode);
- *Globodera pallida* (pale potato cyst nematode);
- *Globodera rostochiensis* (golden potato cyst nematode);
- *Trichodorus*, spp. (stubby-root nematode); and
- *Bactericera cockerelli* (tomato-potato psyllid).²⁷

7.31 DA Biosecurity indicated that some of the pests and diseases included in the list have not been recorded in some regions of Australia, and due to interstate quarantine regulations, are considered pests of 'regional concern'. The review also stated that:

Where a pest is identified as being of regional concern, any quarantine measures proposed for that pest need only be applied to product destined for that state where regional freedom is recognised.²⁸

7.32 DA Biosecurity made particular note of the fact that the disease zebra chip – caused by the bacterium '*Ca. L. solanacearum*' – is actually a disease-vector complex, which means that 'the disease can only be transmitted from plant to plant through its psyllid vector – *Bactericera cockerelli*'.²⁹

7.33 DA Biosecurity's review indicated that the *Final pest risk analysis report for Candidatus Liberibacter psyllaourous in fresh fruit, potato tubers, nursery stock and its vector the tomato-potato psyllid*, identified two potential pathways to introduce infected psyllids (*Bactericera cockerelli*) into Australia – fresh and nursery stock.³⁰

7.34 The review also indicated that *Bactericera cockerelli* may be associated with any aerial part of the plant, and while they feed primarily on leaves, psyllids and their eggs may also be present on stems or aerial fruit of the host plant.

7.35 It was concluded that:

Based on the findings of the final PRA report for bacterium "*Ca. L. solanacearum*", there is no evidence to suggest that this psyllid feeds on potato tubers.³¹

7.36 In finalising its review, DA Biosecurity suggested that a combination of mitigation measures may be required to manage the risks associated with the import of

²⁷ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 7.

²⁸ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 8.

²⁹ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 8.

³⁰ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 8.

³¹ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 8.

fresh potatoes for processing from New Zealand – consistent with Australia's appropriate level of protection (ALOP).

7.37 The measures proposed by DA Biosecurity include requirements which extend from production through to on-arrival processing.³²

MAFBNZ Export Compliance Programme for the Provision of Additional Declarations (Potato Cyst Nematode and Potato Wart)

7.38 As previously noted, when making its request for market access, the New Zealand Government proposed that all potatoes exported from New Zealand to Australia be produced under the *MAFBNZ Export Compliance Programme for the Provision of Additional Declarations (Potato Cyst Nematode and Potato Wart)*.

7.39 DA Biosecurity agreed that the following components of the MAFBZN Compliance Programme are suitable:

- only potatoes grown on production sites that are registered with MPI and comply with the Export Compliance Programme for the Provision of Additional Declarations (Potato Cyst Nematode and Potato Wart) are suitable;
- potato production sites are subject to an annual soil test (pre-planting or pre-harvest) to demonstrate freedom from PCN (this is a mandatory requirement and no exemptions apply);
- soil samples must be analysed by MPI-approved laboratories, and
- potatoes must be produced in areas certified as being free from potato black wart (*Synchytrium endobioticum*).³³

Packing house processes

7.40 The review recommended that measures would be required to ensure that potato tubers are practically free from soil. This is consistent with Australian domestic conditions for the management of PCN, and DA Biosecurity argued that this measure would reduce the risk of soil borne pests and diseases of quarantine concern (for example, nematodes) being present in consignments imported into Australia.

7.41 The measures recommended are:

- potatoes must be washed and/or brushed so as to be practically free from soil;

³² The following section is based on information from Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, pp 14-17.

³³ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 14.

- consignments with cakes of soil adhering to potato tubers will not comply with Australian requirements for the import of New Zealand potatoes for processing;
- all growers, packing houses and/or storage facilities in New Zealand must be registered under the *Export Compliance Programme for the Provision of Additional Declarations (Potato Cyst Nematode and Potato Wart)*; and
- phytosanitary inspection and certification must be completed by MPI or Independent Verification Agency (IVA) staff.³⁴

Packing and labelling

7.42 DA Biosecurity recommended the following measures to prevent contamination of potatoes by pests or diseases during storage and/or transport, prior to export:

- potatoes are to be transported in bins or bags marked or labelled with the registration number for the designated production site issued by MPI or IVA staff;
- potatoes are to be stored at least one metre from potatoes from non-designated production sites, and potatoes are not to be staked below potatoes from non-designated production sites;
- only potatoes for export to Australia are to be sorted and packed at a given time;
- potatoes are to be packed into new, clean bags (eg polypropylene bags) and packed on clean pallets;
- each bag must be labelled with the words 'not for planting' and provide traceability information (ie production area, packing house registration and packing date); and
- potatoes must be imported in fully sealed shipping containers – Full Container Loads (FCL).³⁵

Phytosanitary import requirements

7.43 The phytosanitary import requirements proposed by DA Biosecurity will also require that:

- fresh potato tubers (imported into Australia for processing) be sourced from production sites and packing facilities registered for export under

³⁴ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, pp 14-15.

³⁵ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 15.

the *MAFBNZ Export Compliance Programme for the Provision of Additional Declarations (Potato Cyst Nematode and Potato Wart)*;

- the phytosanitary requirements shall be defined in the phytosanitary certification as 'fresh potatoes produced from production sites/areas in New Zealand free from PCN and potato black wart disease';
- the phytosanitary certificate provide registration information for growers, packing houses and store facilities for traceability purposes, as well as container and seal numbers; and
- DA Biosecurity reserves the right to audit New Zealand's export compliance program prior to the commencement of trade.³⁶

Transport to DA Biosecurity quarantine approved premises for inspection and processing

7.44 DA Biosecurity recommended several measures to lessen the risk of pests and diseases entering and establishing in Australia (while consignments are transported from the port of entry to quarantine approved premises for processing) DA Biosecurity recommended that:

- potatoes be transported in sealed containers (FCL);
- Full Container Loads (FCLs) may be vented (door ajar) to allow airing during sea transit to Australia, provided the containers are secured by closing and sealing the doors prior to movement from the wharf to the quarantine approved premises (QAP) for inspection and processing;
- transport must use a direct route to the QAP and must not travel through rural areas (DAFF Biosecurity will verify that containers are secure and seals are intact);
- in the event of spillage of potatoes during transportation to the QAP for inspection and processing, DAFF Biosecurity must be notified and the spillage cleaned up to DAFF Biosecurity's satisfaction;
- all consignments be subject to inspection on arrival by DAFF Biosecurity prior to being directed to a QAP for potato processing; and
- if live quarantine pests, disease symptoms, or contaminants including unidentified plant material, seeds or trash are found, the consignment must be treated (using a DAFF Biosecurity-approved method that suitably addresses the quarantine risk) or re-exported or destroyed.³⁷

³⁶ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, pp 15-16.

³⁷ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 16.

Processing in quarantine approved premises

7.45 DA Biosecurity recommended that all potatoes imported from New Zealand be required to be processed at a QAP, located in a metropolitan area. It was argued that processing at a QAP will ensure that the quarantine risks associated with the processing of imported potatoes are contained and fully managed.

7.46 DA Biosecurity argued that, in particular, all waste (including soil, peelings, waste water and packaging material) generated during processing operations should be appropriately treated or disposed of. It was also recommended that:

- potatoes must be held under secure conditions as determined by DA Biosecurity until processed to ensure that no imported potatoes are used for any purpose other than processing;
- should a QAP facility handle and/or process potatoes from any other origin (domestic or otherwise) for the period that the New Zealand potatoes and any associated waste products are on site, the QAP must have in place appropriate segregation procedures;
- an approved quarantine waste management program must be in place at the QAP for potato processing. All waste generated during processing will be handled in accordance with the DA Biosecurity waste management policy and guidelines, including the following:
 - all loose soil and sweepings must be treated and disposed of under appropriate quarantine conditions;
 - all waste (including peel, sludge, waste water, packaging, discarded potatoes) generated during processing must be treated and disposed of under appropriate quarantine conditions;
 - the equipment and premises must be cleaned and sanitised after processing imported potatoes from New Zealand;
 - empty shipping containers must be cleaned and all debris must be treated and disposed of under appropriate quarantine conditions prior to next use;
 - if the water generated during processing cannot be treated and/or disposed of under appropriate quarantine conditions at the QAP, a contract must be entered into with a waste disposal provider approved by DA Biosecurity, to perform the required treatment and disposal procedures for waste generated during processing.
- a QAP for potato processing be required to record quantities (weight) of potatoes processed and quantity (weight) of waste – this will be audited by DA Biosecurity to ensure that the total quantity of potatoes is accounted for; and

- a QAP for potato processing (and any third parties engaged) would be subject to auditing procedures by DA Biosecurity to ensure compliance with the import conditions.³⁸

7.47 As noted in Table 7.1, the *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand* was released for stakeholder comment on 3 July 2012. When the 60 day comment period for stakeholders closed on 3 September 2012, 27 submissions had been received.

Review conducted by plant pathologist

7.48 In October 2012, DA Biosecurity announced the engagement of an independent bacteriologist to review the *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand* and the latest information on zebra chip disease. DA Biosecurity indicated that the plant pathologist's review was being conducted in order to:

...provide added assurance to stakeholders that the biosecurity measures being developed will appropriately manage the risks for the import of potatoes from New Zealand for processing...³⁹

7.49 In May 2013, following a request from the Committee Chair to the Secretary of the Department of Agriculture, the committee was provided with a copy of the bacteriologist's report⁴⁰. The review was conducted by Dr Alan (Chris) Hayward, Consultant, Bacterial Plant Diseases, University of Queensland. Dr Hayward's report (the Hayward report) summarised his review of the current literature on zebra chip disease and provided comment on the entry of the TPP into New Zealand and the possible evolutionary origin of *Candidatus Liberibacter solanacearum*.

7.50 The Hayward report argued that very little of the current literature on zebra chip disease of potato affects the import conditions for importation of potatoes for processing from New Zealand.⁴¹ The report did, however, provide comment on four

³⁸ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 17.

³⁹ Department of Agriculture, Fisheries and Forestry, *Updated Statement regarding the proposal to import potatoes from New Zealand*, 4 October 2012, p. 1.

⁴⁰ A. Chris Hayward, University of Queensland, Report to DAFF *on the Draft report for the review of import conditions for fresh potatoes for processing from New Zealand and Recommended quarantine conditions with regard to "Candidatus Liberibacter solanacearum"*, 13 December 2012.

⁴¹ A. Chris Hayward, University of Queensland, Report to DAFF *on the Draft report for the review of import conditions for fresh potatoes for processing from New Zealand and Recommended quarantine conditions with regard to "Candidatus Liberibacter solanacearum"*, 13 December 2012, p. 7.

subjects which related directly to the draft review of import conditions. The following is a summary of the Hayward report's conclusions in relation to each of these issues:⁴²

- **Tuber transmission** – The fate of the bacterial pathogen in tubers has implications for the transmission to daughter tubers. This will have most significance for potato tubers used for propagation where the growth of tubers is the primary purpose of the imported material. The pathway considered in the draft report is only for potatoes for processing. Processing will stop potatoes from growing and therefore prevent tuber transmission.
- **Haplotypes of *Candidatus Liberibacter solanacearum* (CLso) and potential vectors** – Recent work in the USA has shown that there are three biotypes of the tomato potato psyllid though only two have been shown to acquire CLso – evidence suggesting a very high level of specificity between pathogen and vector. However, the potential for native psyllid vectors to acquire the pathogen from sprouting shoot material is not ruled out. The pathway considered in the draft report is only for potatoes for processing. Processing will stop tubers from growing and therefore prevent shoot growth that could allow any potential native psyllid vector(s) to feed and acquire the bacterium. No published information has been found indicating that haplotypes C and D are transmissible to potato.
- **Survival of the zebra chip pathogen external to its insect or plant host** – If imported potatoes carrying CLso were accidentally released into the environment and then washed into water courses or crushed, it is likely that the pest population would lose viability and numbers decline to zero, when subjected to environmental stress or in competition with native microbiota, antibiotic-producing bacteria or predatory protozoa, for example. Genetic analysis also shows that CLso has reduced metabolic capabilities reflecting its fastidious and obligate parasitic nature, including a limited capacity to utilise complex carbohydrates. The reduced metabolic capacity of CLso would limit any ability to compete with specialist saprophytes.
- **Impact of improved diagnostic method** – Diagnostic methods of the required sensitivity and specificity are an essential prerequisite for an understanding of the transmission pathway of zebra chip, the epidemiology of the disease as well as for screening of potato germplasm and in seed certification programs to ensure the availability of clean potato seed. Diagnostic methods based on cultural procedures, including the use of selective media are not available because CLso has

⁴² A. Chris Hayward, University of Queensland, Report to DAFF *on the Draft report for the review of import conditions for fresh potatoes for processing from New Zealand and Recommended quarantine conditions with regard to "Candidatus Liberibacter solanacearum"*, 13 December 2012, pp 6-10.

not been obtained in culture. Accordingly there has been the need for development of DNA-based diagnostic procedures. DNA-based diagnostic procedures enable early detection and monitoring of infective populations of the tomato potato psyllid throughout the growing season. Control of psyllid populations through timely application of insecticides is made possible. The same methodologies have made possible fundamental studies on the acquisition of CLso by its insect vector and its transmission to host plants.

7.51 The Hayward report noted that the import conditions proposed by DA Biosecurity require that New Zealand potatoes be imported in insect proof containers and opened only within quarantine approved premises, and in a metropolitan area. Hayward concluded that when these conditions are applied the risks of importing an exotic pest are minimised⁴³.

7.52 In its conclusion, the Hayward report quoted an argument put forward by Nunyaneza (2012b) that:

The main pathway for introducing the disease into potato and other solanaceous crops in regions where ZC is absent would be the introduction of infective potato psyllids, rather than infected seed material or fresh tubers. All life stages of the psyllid can easily be transported on live plant material that serves as hosts to potato psyllid, including produce for sale as well as plants meant for propagation.

Because potato tubers are not a suitable host of the psyllid, exported potato tubers are much less likely to contribute to psyllid movement. Therefore more emphasis should be on developing strategies and phytosanitary measures to effectively exclude the potato/tomato psyllid instead of focusing on preventing export of fresh and seed potatoes.⁴⁴

Response to Hayward report provided by AUSVEG

7.53 Industry peak body AUSVEG provided the committee with additional information which responded to the issues raised in the Hayward report. The response, prepared by AUSVEG Biosecurity Consultant Dr Kevin Clayton-Greene, noted that AUSVEG's submission to the inquiry had covered a number of potential pest and disease introductions that occur in New Zealand but which were not addressed in the potato IRA.

⁴³ A. Chris Hayward, University of Queensland, Report to DAFF *on the Draft report for the review of import conditions for fresh potatoes for processing from New Zealand* and Recommended quarantine conditions with regard to "*Candidatus Liberibacter solanacearum*", 13 December 2012, pp 9 and 10.

⁴⁴ Munyaneza JE, Sengoda VG, Buchman JL, Fisher TW (2012b) Effects of temperature on "*Candidatus Liberibacter solanacearum*" and debara chip potato disease symptom development. *Plant Disease* 96: 18-23, quoted in A. Chris Hayward, University of Queensland, Report to DAFF *on the Draft report for the review of import conditions for fresh potatoes for processing from New Zealand* and Recommended quarantine conditions with regard to "*Candidatus Liberibacter solanacearum*", 13 December 2012, p. 10.

7.54 AUSVEG expressed concern that this aspect of its submission had not been dealt with by the Hayward report. AUSVEG also questioned whether the issue of potential disease threats (other than TPP) had been included in the terms of reference for Dr Hayward's review.⁴⁵

7.55 AUSVEG argued that one of the issues that arises when studying the literature in relation to zebra chip is that it is frequently not a matter of comparing 'apples with apples' It is suggested that because of the different degrees of sensitivity between the New Zealand and US molecular tests for *Liberibacter*, the US data is in some cases misleading. AUSVEG expressed concern that:

...although there is a discussion about this aspect of research, there is no consideration of this 'problem' in the report by Dr Hayward when presenting data. All papers are treated equally as if they were all derived from the same methodology.⁴⁶

7.56 AUSVEG note that, in considering the role of tuber transmission, the Hayward report does acknowledge that infected tubers can grow. AUSVEG also note, however, that Dr Hayward dismisses this issue based on the assumption that the potatoes for import are solely for processing – therefore there is no risk according to Dr Hayward. It is argued that this 'is an interesting conclusion given the uncertainty surrounding the disease's entry to NZ'.⁴⁷

7.57 It is argued by AUSVEG that Dr Hayward uses the same reasoning when considering the likelihood of native psyllids acquiring the Lso bacteria:

The potatoes are entering Australia for processing thus there is no risk. This would seem to be a somewhat circular argument. It is, however, conceded by Dr Hayward that native psyllids could potentially acquire the pathogen.⁴⁸

7.58 AUSVEG's response also notes that the Hayward report gives consideration to the likelihood of Lso being acquired from the environment. It is argued however that this is also problematic because:

...there is currently much scientific discussion/speculation upon the significance of acquisition of the genome through phages. The origin of the

⁴⁵ Additional Information, AUSVEG, *Comment on Independent Bacteriologist's report contained in correspondence from former Department Secretary Andrew Metcalf to Senator Heffernan*, undated, p. 3.

⁴⁶ Additional Information, AUSVEG, *Comment on Independent Bacteriologist's report contained in correspondence from former Department Secretary Andrew Metcalf to Senator Heffernan*, undated, p. 4.

⁴⁷ Additional Information, AUSVEG, *Comment on Independent Bacteriologist's report contained in correspondence from former Department Secretary Andrew Metcalf to Senator Heffernan*, undated, p. 4.

⁴⁸ Additional Information, AUSVEG, *Comment on Independent Bacteriologist's report contained in correspondence from former Department Secretary Andrew Metcalf to Senator Heffernan*, undated, p. 4.

sudden appearance of highly pathogenic Lso strains around 1986 is still unclear. Debate on this issue is at best still speculative.⁴⁹

7.59 AUSVEG also argued that, in assessing the merits of the Hayward report it had concerns about Dr Hayward's independence. AUSVEG point to Dr Hayward having quoted himself in the report and referenced himself in the bibliography.⁵⁰

7.60 AUSVEG argued that this represents a serious conflict of interest, and 'belies any claim about this being an independent report'. It was also suggested that the fact that Dr Hayward had provided input and advice to DA Biosecurity on the potato IRA, undermined any claim of independence. AUSVEG went on to say that:

Unfortunately, the issues at stake in Biosecurity and the way information is handled mitigate against objective analysis by any government agency, despite the public affirmations to the contrary.⁵¹

Issues raised by stakeholders

7.61 The committee received submissions and evidence from a number of individual growers, academics, industry organisations and peak bodies which expressed concerns in relation DA Biosecurity's review of import conditions for potatoes from New Zealand. Industry stakeholders in particular, expressed the view that DA Biosecurity had underestimated the risks associated with the importation of potatoes from New Zealand.⁵²

7.62 Stakeholders raised concerns about the current lack of scientific evidence in relation to possible disease pathways and reliable diagnostic testing for the zebra chip bacteria. It was also noted that apart from zebra chip disease, only PCN and black wart were given serious consideration.⁵³

7.63 Industry representatives were critical of what was described as DA Biosecurity's failure to update the relevant science since the PRA was conducted in 2009.⁵⁴ It was also suggested that the risk management measures proposed by DA

⁴⁹ Additional Information, AUSVEG, *Comment on Independent Bacteriologist's report contained in correspondence from former Department Secretary Andrew Metcalf to Senator Heffernan*, undated, p. 5.

⁵⁰ The citation contained in the Hayward report's bibliography reads: Hayward A C (2011) Report to Biosecurity Australia on the draft revised import conditions for entry of potatoes from New Zealand for processing and the position paper for the review of import conditions for fresh potatoes from New Zealand.

⁵¹ Additional Information, AUSVEG, *Comment on Independent Bacteriologist's report contained in correspondence from former Department Secretary Andrew Metcalf to Senator Heffernan*, undated, p. 3.

⁵² See, for example, Potato Processors Association of Australia, *Submission 1*, Appendix 2; Tasmanian Farmers and Graziers Association *Submission 6* and AUSVEG, *Submission 7*.

⁵³ See, for example, Tasmanian Department of Primary Industries, Parks, Water and Environment, *Submission 4*; Tasmanian Farmers and Graziers Association, *Submission 6* and Potatoes South Australia, *Submission 8*.

⁵⁴ AUSVEG, *Submission 7*, p. 5.

Biosecurity in its review of import conditions show a lack of understanding of both the industry and of packing shed operations.⁵⁵

Impact of disease on Australia's potato industry

7.64 In his comments on DA Biosecurity's review of import conditions, entomologist Dr Paul Horne noted that TPP and the associated bacterial disease Lso⁵⁶ were first recorded in New Zealand in 2006. It was noted that whilst TPP and Lso were initially detected in and around glasshouses in the Auckland area, between 2006 and 2009 they both spread across New Zealand. Dr Horne indicated that in 2011, in addition to the New Zealand potato industry suffering a loss of \$120 million, it experienced a loss of around \$5 million in the value of tomatoes and capsicums. The number of tamarillo producers has also declined – from 120 in 2007 to 40 in 2011.⁵⁷

7.65 Dr Horne went on to argue that the threat of zebra chip disease to Australian potato production 'cannot be underestimated', and that:

The cost of dealing with it by the use of insecticides is massive and is likely to cause growers to re-consider whether or not they continue in potato production if such an approach is required.⁵⁸

7.66 Dr Kevin Clayton-Greene, in his response to the review of import conditions, stated that the industry's position is that DA Biosecurity 'has significantly underestimated the risk posed by the import into Australia of Solanaceous crops in general and fresh potatoes in particular'.⁵⁹

7.67 Dr Clayton-Greene also submitted that conservative estimates, based on overseas experience, suggest that potential losses to the potato industry should Australia experience an incursion of TTP and its associated bacterium, would be in the order of \$0.25 billion.⁶⁰

7.68 In evidence to the committee, Ms Robbie Davis, Chief Executive Officer, Potatoes South Australia, told the committee that the potato industry is South Australia's (and Australia's) largest horticultural sector by value and volume and is rated second in commodities sold at a national level. Ms Davis also indicated that

⁵⁵ Harvest Moon, *Submission 8*, p. 4.

⁵⁶ *Candidatus Liberibacter solanacearum* (zebra chip)

⁵⁷ Potatoes Tasmania, *Submission 2*, Appendix 1, *Comments on the Draft Report for the Review of Import Conditions for Fresh Potatoes for Processing from New Zealand*, prepared by Dr Paul Horne, August 2012, [pp 1-2].

⁵⁸ Potatoes Tasmania, *Submission 2*, Appendix 1, *Comments on the Draft Report for the Review of Import Conditions for Fresh Potatoes for Processing from New Zealand*, prepared by Dr Paul Horne, August 2012, [p. 2].

⁵⁹ Potato Processors Association of Australia, *Submission 1*, Appendix 2, Dr Kevin Clayton-Greene, *Response to Draft report for the review of import conditions for fresh potatoes from New Zealand*, *Biosecurity Advice 2012/14*, August 2012, p. i.

⁶⁰ Potato Processors Association of Australia, *Submission 1*, Appendix 2, Dr Kevin Clayton-Greene, *Response to Draft report for the review of import conditions for fresh potatoes from New Zealand*, *Biosecurity Advice 2012/14*, August 2012, p. i.

South Australia has the largest area under crop – 11,900 hectares – which is worth \$206 million at the farm gate. She went on to stress however that the impacts of disease become a national problem:

There is little doubt amongst us in South Australia, in the industry, that South Australia has the most to lose if zebra chip enters Australia. Using the New Zealand and USA experiences as a benchmark, we would witness more than \$100 million is lost production value due to the effects of the psyllid and the disease. I want to add this though: despite South Australia's dominance in this industry, this is a national issue and we are all here with that in mind. It is why we are sitting with the Tasmanians and Victorians. Collaboration across borders is absolutely critical.⁶¹

Lack of scientific knowledge

7.69 The committee was told that, in terms of plant diseases, zebra chip is 'relatively new' – having been 'known' for less than twenty years. Whilst zebra chip disease has been studied since 1994 (when symptoms were first described in Mexico) and it was later detected in southern Texas, USA in 2000, the disease was only 'confirmed' as present in New Zealand in 2008.⁶²

7.70 Industry representatives in particular argued that, zebra chip being such a new disease means there is still a lack of conclusive scientific information in relation to disease pathways, possible vectors and the practical (non-destructive) means for testing tubers.

7.71 Production and packing company Harvest Moon, for example, noted that at the time the Pest Risk Assessment (PRA) was produced (2009) zebra chip disease had only recently been identified and there was very little known – both about the disease and its vectors. Harvest Moon also expressed concern that there was 'too little information available to provide the degree of certainty that was being advanced in the PRA,'⁶³ and submitted that:

Subsequent research has shown that these fears were well founded. It has since been discovered that more than one species of psyllid can carry the bacteria, that the bacteria has been found in non-Solanaceous crops (carrots) and that native Australian psyllids can indeed change feeding habits to feed on introduced commercial crops. In addition, the development of more sensitive testing methods has revealed that tubers can indeed carry the disease. All of these events were dismissed as unlikely in the 2009 PRA. It is also clear that at this stage we still do not understand the spatial and temporal distribution of this disease both within the plant and tubers.⁶⁴

⁶¹ Ms Robbie Davis, Potatoes South Australia Inc., *Committee Hansard*, 24 October 2012, pp. 1-2.

⁶² Department of Agriculture, Fisheries and Forestry, *New Zealand Potatoes and risk assessment*, Additional information provided by DAFF Biosecurity, 24 October 2012, p. 2.

⁶³ Harvest Moon, *Submission 8*, p. 2.

⁶⁴ Harvest Moon, *Submission 8*, p. 2.

7.72 In its submission, the Tasmanian Farmers and Graziers Association (TFGA) noted that the PRA conducted in 2009 indicated that 'the only way for potato tubers to become infected by *Liberibacter* is through its vector the Tomato-potato psyllid'⁶⁵. TFGA went on to argue that:

This has been known to be incorrect since 2011. Evidence now shows we are seeing different species of psyllids acting as vectors.⁶⁶

7.73 The Potato Processors Association of Australia (PPAA) raised specific concerns about the lack of scientific evidence regarding possible disease pathways. PPAA submitted, for example, that there was a lack of evidence to support DA Biosecurity's statement in the PRA that it had identified two potential pathways to introduce infected psyllids into Australia and referred specifically to its statement that:

Bactericera cockerelli may be associated with any aerial part of the plant, and while they feed primarily on leaves, psyllids and their eggs may also be present on stems or aerial fruit of the host plant.⁶⁷

7.74 PPAA's submission noted that DA Biosecurity's report does not take into account the fact that, according to Graham Walker, Plant and Food Research New Zealand, the lifecycle of the psyllids can range from 30 to 80 days from egg lay to adult stage. PPAA argue, therefore, that:

It is perfectly feasible for eggs to be transported on the tubers and find their way to Australia only to hatch and find a suitable host plant to colonise.⁶⁸

7.75 PPAA goes on to note that entomologist, Dr Paul Horne, has been asking the question 'can TPP adults lay eggs directly on tubers in the absence of leafy substrate?' It is further argued that Dr Horne's critical scientific question has not yet been tested by trials, and that this work is needed 'to assist in effectively assessing the risks associated with importing fresh potatoes'.⁶⁹ PPAA also noted that 'recent work in the USA shows that tubers can test free of *Candidatus Liberibacter solanacearum* and then later will be found to be infected with 'Zebra Chip' after some months in storage',⁷⁰ and went on to argue that:

It is clear that testing for the bacterium in tubers is fraught with difficulty and scientists are still at the early stages of learning and discovering about the life cycle of the pest and the associated pathways for the bacterium.⁷¹

⁶⁵ Tasmanian Farmers and Graziers Association, *Submission 6*, p. 3.

⁶⁶ Tasmanian Farmers and Graziers Association, *Submission 6*, p. 3.

⁶⁷ Department of Agriculture, Fisheries and Forestry, *Draft report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 8.

⁶⁸ Potato Processors Association of Australia, *Submission 1*, [p. 2].

⁶⁹ Potato Processors Association of Australia, *Submission 1*, [p. 2].

⁷⁰ Potato Processors Association of Australia, *Submission 1*, [p. 2].

⁷¹ Potato Processors Association of Australia, *Submission 1*, [p. 2].

Review of import conditions based on 2009 research

7.76 Stakeholders expressed their concerns about DA Biosecurity's review of import conditions not including more up-to-date science. It was argued that whilst there are still numerous 'unknowns' when it comes to zebra chip disease and its vectors, there have been some advances in the science since the PRA that were not included in the review.⁷²

7.77 The TFGA, for example was particularly critical of the PRA's lack of up-to-date science and described it as a 'deeply flawed document'.⁷³ It was also argued that:

No attempt has been made to keep abreast of the science, some of which contradicts or shows the PRA to be wrong. We would argue that the document be excluded from consideration in the IRA process, as there is simply not enough data available to adequately address the risk.⁷⁴

7.78 Harvest Moon also noted that there were a number of questions which 'merit answers before pest risks can be adequately addressed'⁷⁵ and submitted that:

We also wonder why there were no further scientific findings post 2009 considered when compiling the Draft Review? We would have thought that some consideration would have been given as to why this disease should suddenly appear in potatoes and other Solanaceous crops?⁷⁶

7.79 Dr Kevin Clayton-Greene summarised stakeholders' comments in relation to what was perceived as a lack of up-to-date science, when he submitted that:

According to senior DAFF staff the approach to biosecurity must be science based (Grant pers. comm.). It is therefore disappointing that the Advice does not provide a required standard of science and rigour. Data is out of date, referencing is selective and on occasions where comments may run counter to what would appear to be the DAFF position, they are ignored.

...

No attempt has been made by DAFF to update their science over the past three years since the "Final pest risk analysis report for '*Candidatus Liberibacter psyllaurosus*' in fresh fruit, potato tubers, nursery stock and its vector the tomato-potato psyllid" (PRA) was produced (2009) despite the following statement quoted from p5 of the Advice:

⁷² See for example, Potato Processors Association of Australia, *Submission 1*; AUSVEG, *Submission 7*; Potatoes South Australia, *Submission 9* and G A Young and Sons, *Submission 11*.

⁷³ Tasmanian Farmers and Graziers Association, *Submission 6*, p. 3.

⁷⁴ Tasmanian Farmers and Graziers Association, *Submission 6*, p. 3.

⁷⁵ Harvest Moon, *Submission 8*, p. 2.

⁷⁶ Harvest Moon, *Submission 8*, p. 2.

"any additional information made available through the literature and the consultation process which is relevant to the assessment of the import risks posed."⁷⁷

7.80 Whilst in evidence provided to the committee, Dr Colin Grant, DA Biosecurity, acknowledged that 'there has been some additional knowledge gained in the period between 2009 and 2012, and we are aware of that', he also went on to argue that:

The critical point that we are trying to make here, and it is critical to biosecurity, is that we have in place a set of measures, and we have not spoken about the detail of those at this point in time. But potatoes will come into this country to be processed in a facility and potatoes will be cooked as a result of that, and all the waste will be either incinerated or autoclaved and all water waste will go through proper quarantine treatment. Those measures do not need to be changed in our view. They are sufficient to cover the diseases that we know about, and the state of knowledge that has increased since 2009 to 2012 does not lead us to say that those measures are not sufficient.⁷⁸

7.81 DA Biosecurity was asked by the committee whether any research had been commissioned in relation to Australia's native psyllids and their potential for transmitting zebra chip (or any other disease).

7.82 In response, officers from DA Biosecurity responded by indicating that it had not commissioned any research⁷⁹, and explained that:

Dr Findlay:...there is more sophisticated science available than has been presented today around the various haplotypes of the candidatus liberibacter bacterium. ... There is a body of scientific evidence that gives us confidence that there is high specificity of the psyllid association with particular haplotypes of this bacterium.

Dr Grant: In other words, there is no evidence that they are likely to be a vector for this bacterium.

Dr Findlay: Our native psyllid occurs in New Zealand too, by the way, so if it was going to happen New Zealand would have seen it.

Senator MADIGAN: And we rely on New Zealand for our information. We are not proactive about seeking and commissioning our own research. Is that what you are telling me?

Dr Findlay: We have not commissioned any research.

⁷⁷ Potato Processors Association of Australia, *Submission 1*, Appendix 2, Dr Kevin Clayton-Greene, *Response to Draft report for the review of import conditions for fresh potatoes from New Zealand, Biosecurity Advice 2012/14, August 2012*, p. 1.

⁷⁸ Dr Colin Grant, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, p. 40.

⁷⁹ Dr Vanessa Findlay, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, p. 49.

Senator MADIGAN: So the international research that the department continually refers to as your body of evidence, so to speak: has the department conducted any research of their own, at all, of any of the research that you rely on, to check the voracity of that research – as a check and balance?

Dr Findlay: We give various weights to the information we rely on, depending on the credibility of that information. We use a system whereby we look at the weight of evidence from the least valid information, or that that you can apply the least amount of weight to, which would include things like unsubstantiated statements, specialist literature, government reports et cetera, right through to peer reviewed experimental data that is undertaken according to scientific principles and internationally recognised practices. So we weight that evidence according to the validity that you can apply to it.⁸⁰

Pests and diseases considered by DA Biosecurity

7.83 Stakeholders were critical of the review's assessment of pests and diseases associated with potato tubers in New Zealand. It was noted, for example, that DA Biosecurity's review contains a list of twenty one 'pests and diseases identified in association with fresh potatoes from New Zealand'.⁸¹ It was argued that from a list of twenty one, the review only discusses a small number of pests and diseases in any detail.

7.84 In its submission, the McCain Grower Group – Ballarat stated, for example, that the review discussed *Candidatus Liberibacter solanacearum* (zebra chip), potato cyst nematode (PCN) and potato black wart (PBW). However, the pests and diseases known to occur in New Zealand in 2007 include three bacteria, three fungi, four nematodes, seven arthropods and four viruses – many of which are of significant concern to Australian potato producers.⁸²

7.85 AUSVEG also raised concerns about the supporting documentation supplied by the New Zealand Ministry for Primary Industries (quoted in DA's review of import conditions). AUSVEG expressed the view that:

The MAFBNZ document considers only two pests/diseases: PCN and Black wart. There are a considerable number of other pests and diseases in NZ not found in Australia, yet these have been ignored.⁸³

7.86 PPAA noted that its members were concerned about the risk of entry of further potato cyst nematode (PCN) species into Australia. It was submitted that the *Globodera pallida* species of PCN is known to occur in New Zealand as well as a

⁸⁰ Dr Vanessa Findlay and Dr Colin Grant, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, p. 49.

⁸¹ Department of Agriculture, Fisheries and Forestry, *Draft Report for the review of import conditions for fresh potatoes for processing from New Zealand*, 3 July 2012, p. 7.

⁸² McCain Grower Group – Ballarat, *Submission 5*, p. 1.

⁸³ AUSVEG, *Submission 7*, pp. 11-12.

second race of *Globodera rostochiensis* – neither of which have been found to occur in Australia. PPAA also submitted that it is widely accepted that, once established, *Globodera pallida* is extremely difficult to control.⁸⁴ PPAA also urged caution, particularly given that Australia is one of the only regions in the world where known PCN infections are limited to just one species, and submitted that:

PPAA believes the existing protocol conducted by New Zealand for PCN testing of land and crops to be very inadequate when compared to other testing standards for trade. We believe that this testing protocol needs to be far more robust before further consideration is given for export of fresh potatoes to Australia.⁸⁵

7.87 Associate Professor Calum Wilson referred specifically to viruses and virus-like agents such as PVS-A and PVM. Professor Wilson indicated that New Zealand currently has the Andean strain of potato virus S (PV-A) and submitted that this particular strain of virus has greater capacity for aphid transmission and induces greater impacts on yield than the strains present in Australia.⁸⁶

7.88 Professor Wilson added that all strains of the virus are difficult to manage (because of inconspicuous symptoms and its ability to present at high incidence) and went on to explain that:

Because of this difficulty the virus is not included within a seed certification system. The virus is efficiently transmitted from mother plant to daughter tuber. There is a reasonable chance of PVS-A could enter Australia within infected tubers. Several aphid species in Australia would have the capacity to spread the virus to other potatoes or alternate hosts (which could easily be present in metropolitan regions). Viruses could spread from discarded tubers, or even from sprouts on tubers in storage prior to processing.

...Potato virus M belongs to the same genus as PVS, and similarly produces inconspicuous symptoms. It would not be observed (nor tested for within crop certification processes). As with PVS-A it would be readily spread by aphids present within Australia to other potatoes and alternate hosts.⁸⁷

7.89 The committee raised stakeholders' concerns with DA Biosecurity when officers were asked questions in relation to the 'hierarchy of diseases' and the perception that the review's primary focus was on zebra chip, PCN and black wart:

Senator COLBECK: What I am trying to deal with is the discussion that we have had. You have three headline diseases that we are talking about – there is zebra chip, PCN and black wart – but the discussion seems to be focused around particularly zebra chip. There is some concern around PCN and an acceptance that area-free sourcing from New Zealand can deal with

⁸⁴ Potato Processors Association of Australia, *Submission 1*, [p. 3].

⁸⁵ Potato Processors Association of Australia, *Submission 1*, [p. 3].

⁸⁶ Associate Professor Calum Wilson, *Submission 10*, [p. 3].

⁸⁷ Associate Professor Calum Wilson, *Submission 10*, [p. 3].

black wart. I am just trying to give you the opportunity to deal with the issue that we have talked about. There is not a lot of mention of the other diseases within the document. Dealing with those key disease risks actually mitigates for the other ones that are being considered as part of the process. That is what I am trying to get at. Am I on the right wavelength?

Dr Findlay: The goal of risk mitigation and risk management measures is to make sure that you have safety nets – I guess you could describe them as that. It is not just one mechanism in place. What we try to do is provide layers of biosecurity management. If you add them all together, you would have a mechanism that provides the best protection against failure. So, if one safety net fails, we have another one that sits underneath it and then another one again.

Senator COLBECK: So why not mention all the other diseases in the document?

Dr Findlay: It is probably a good time to describe the difference between the process we have undertaken for potatoes and the risk assessment process which we undertook for, say, ginger or pineapples. This is a very different process because we had measures in place, trade was occurring and we updated those measures to take account of the occurrence of zebra chip in New Zealand with the 2009 document. When New Zealand approached us for market access we took the previous information we had, the previous measures we have in place, the assessment we did in 2009, plus any science that had developed in those three years, to look at whether the measures that we had in place remained appropriate. That is the process we have undertaken here. It is not redoing the risk assessment that was done to establish the previous measures.⁸⁸

Proposed risk management measures - protocols

7.90 Criticism in relation to DA Biosecurity's proposed risk management measures focused on the definition of 'practically free of soil', import potatoes being 'stored one metre' from potatoes from non-designated production sites and container loads being vented 'door ajar' to allow airing.⁸⁹

7.91 In its submission, Harvest Moon suggested that DA Biosecurity's review revealed a 'lack of understanding of packing shed operations and the supply chain in making what appear to be completely unreferenced suggestions for disease control', for example in relation to the 'one metre separation' protocol.⁹⁰

⁸⁸ Dr Colin Grant, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, p. 39.

⁸⁹ See, for example, Potato Processors Association of Australia, *Submission 1*; Tasmanian Department of Primary Industries, Parks, Water and Environment, *Submission 4*; Tasmanian Farmers and Graziers Association, *Submission 6* and AUSVEG, *Submission 7*.

⁹⁰ Harvest Moon, *Submission 8*, p. 4.

Packing house processes

7.92 The McCain Grower Group – Ballarat, noted that the review of import conditions contains reference to tubers being washed or brushed so as to be 'practically free' from soil. The group argue that this protocol is clearly problematic as the word 'practically' is open to interpretation and the protocol also:

...fails to outline the pests and diseases that are contained in the soil that require removal. Furthermore, there is a risk of flying insects and larger animals that may be involved in the transmission of pest and disease. Clear assessment of the risks, transmission vectors and control points has not been presented; the risk remains.⁹¹

7.93 The Tasmanian Department of Primary Industries, Parks, Water and Environment also submitted that the term 'practically free from soil' is not robust and argued that there is 'no guarantee that a tuber that appears visibly free of eggs actually is free of eggs'.⁹²

7.94 In responding to questions in relation to this protocol, Dr Colin Grant, DA Biosecurity, told the committee that in the case of potatoes for import, 'practically' 'means that it will be almost, virtually, nearly free of soil, to a sensible level but not completely free'.⁹³ When DA Biosecurity was further questioned about how, in practical terms, packers would comply with these regulations, the following discussion took place:

Dr Findlay: This is an important point about our being able to apply the measures to the importation of goods only to the extent that we have measures applied domestically. I refer you to ICA 44, which controls the movement of potatoes from PCN infected areas in Australia to other areas. The measure that we have used to inform our work refers to:

Potatoes shall be washed so as to be practically free of soil ...:

1. remove soil clods, oversize and reject potatoes;

We have used that information to inform the establishment of measures for the importation of –

CHAIR: Does that mean that there are no clods allowed in the pallet?

Dr Findlay: So that you cannot see soil.

CHAIR: What size is a clod?

Dr Grant: It says, 'practically free'. A clod would not be 'practically free', in our view.

⁹¹ McCain Grower Group – Ballarat, *Submission 5*, p. 2.

⁹² Tasmanian Department of Primary Industries, Parks, Water and Environment, *Submission 4*, [p. 6].

⁹³ Dr Colin Grant, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, p. 52.

CHAIR: But that would allow any inspector a fair bit of licence to do whatever he liked and get away with it. Because he could say, 'I thought that was practical', even if it was not. What the bloody hell?

Dr Grant: If I can answer that question, yes, there is judgement involved in this. The point we would make is that, if you go to the New Zealand apple issues, inspectors were finding small pieces of leaf two millimetres by two millimetres, which were considered not acceptable and consignments were rejected.⁹⁴

Packing and labelling

7.95 The TFGA noted that DA Biosecurity's review refers to packing and labelling requirements and states that potatoes must have a 'one metre separation between them' in the packing house. The Association questioned this protocol and submitted that:

Presumably there would be some scientific basis to claim that one metre is a critical distance to prevent the spread of any pest or disease, which is of quarantine concern. Currently, this section goes unreferenced citing no evidence to substantiate it and the opinion that this would somehow function is ill-informed.⁹⁵

7.96 AUSVEG also questioned the basis for the proposed one metre separation and asked whether DA Biosecurity is basing this protocol on scientific evidence which has not been cited, and:

Is this distance appropriate for flying insects? What is to stop TPP entering containers or packing units during the loading process? Dust in potato stores and sheds is well documented as a means of spreading spores and propagules (Crump pers comm.). It is noted that this risk is not addressed in the Advice.⁹⁶

7.97 DA Biosecurity officers explained that the one-metre separation is a standard arrangement for the control of contaminating pests across the world and in trade:

Senator NASH: Specifically on this for potatoes, what will that one-metre rule mean? What is the idea of one metre when it comes to potatoes?

Dr Grant: It is a physical separation.

Senator NASH: I understand that, but what is it stopping?

Dr Findlay: Anything that can occur if you leave potatoes sitting side by side.

Senator NASH: That is exactly my question: what would those things be? I understand that you are saying that it is the standard.

Dr Findlay: It stops soils being transferred.

⁹⁴ Dr Colin Grant and Dr Vanessa Findlay, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, pp. 52-53.

⁹⁵ Tasmanian Farmers and Graziers Association, *Submission 6*, p. 4.

⁹⁶ AUSVEG, *Submission 7*, p. 17.

Senator NASH: What else does it do?

...

Dr Findlay: As an example of what the one metre does as a standard quarantine control. It is not specifically related to any particular pest or disease. It is a safety net to give us added assurance.

Senator NASH: I understand that. But in the case of potatoes, what would those things be?

Dr Findlay: Transfer of soil, making sure that when you get other beetles or insects in the storage area they are not about to transfer straight across. It is just standard practice.

Senator NASH: Why not? If they are flying around the storage area, how can they not go across?

CHAIR: How does the beetle not make it across the one metre? Is it barbed wire?

Dr Grant: No the point to make is that we have a tiered approach. We are saying in general quarantine we like to keep things separated. That is a standard procedure. It is not the reliance that we place totally and wholly on quarantine. We are saying it is a standard operating procedure. It facilitates control at some level.⁹⁷

Transport to quarantine approved premises for inspection and processing

7.98 Professor of Plant Pathology, David Guest noted that DA Biosecurity's PRA and the review identified potential points of escape of pathogens (and their vectors) and recommended appropriate quarantine measures be implemented. Professor Guest also noted however, the recommendation that 'shipping containers may be opened for ventilation at the port of entry, and argued that:

This makes no sense and poses a real threat that any psyllids contaminating the shipment may escape. Any host plants in the vicinity could become infected with the zebra stripe pathogen and provide a source of inoculums for the further spread of the disease.⁹⁸

7.99 PPAA also questioned the protocol, and referred to Dr Andrew Pitman's observations at the Psyllid Conference held in Auckland in July 2012. Dr Pitman's observations are based on crops in the Canterbury district of New Zealand (an area where zebra chip is not at epidemic levels) that were ready for harvest. PPAA noted that Dr Pitman found:

...on some 'bolter' plants with significant 'regrowth' of green tissue there was heavy infection with all life stages of the Psyllid. When tested for LSO, these plants were found to be at levels he described as 'seriously infected', far higher levels than those from infected psyllids tested from the North

⁹⁷ Dr Colin Grant and Dr Vanessa Findlay, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 24 October 2012, pp 42-43.

⁹⁸ Professor David Guest, *Submission 14*, [p. 1].

Island infections. It would only take an infected adult Psyllid/s to fly from a 'door ajar' container and find a suitable host plant species such as *Solanum nigrum*, Black Nightshade.⁹⁹

7.100 GA Young and Sons was also critical of the risk management measures contained in DA Biosecurity's review:

The review states that the containers will be sealed to prevent pests entering Australia. The following paragraph however states that the container doors can be opened to vent the load but that the doors must be shut prior to being moved off the wharf. However we consider the assumption that this would prevent potential pests or pathogens from entering Australia to be incorrect, as vectors such as insect, rodents and people may access the potatoes and subsequently access Australia, potentially carrying pests or pathogens ashore. This section also provides no evidence as to how these measures would be effective in preventing pests and diseases from entering Australia.¹⁰⁰

Committee comment

7.101 A range of potato industry stakeholders provided evidence to the committee's inquiry, including individual growers, academics, industry organisations and peak industry bodies. In reviewing the evidence received, the committee notes that stakeholder groups share common concerns about DA Biosecurity's review of import conditions for potatoes from New Zealand. The committee shares a number of their concerns.

7.102 Specifically, the committee agrees with the view put forward by stakeholders that DA Biosecurity has underestimated the risks associated with the importation of potatoes from New Zealand. The committee also agrees with stakeholders' concerns in relation to both the current lack of scientific evidence in relation to possible disease pathways, and reliable diagnostic testing for the zebra chip bacteria.

7.103 The committee shares industry representatives' disappointment that DA Biosecurity failed to update the relevant science (since the PRA was conducted in 2009), particularly when the Department continues to assert that the approach to biosecurity must be science-based.

7.104 The committee also agrees with the concerns raised by a number of stakeholders who suggested that the risk management measures proposed by DA Biosecurity (in its review of import conditions) show a lack of understanding – both of the industry and of packing shed operations.

7.105 The committee notes the concerns raised about the limited number of pests and diseases considered by DA Biosecurity's review. The committee acknowledges that the review considered – and provided detailed comment in relation to – a small number of pests and diseases. However, the committee notes that there are a variety of

⁹⁹ Potato Processors Association of Australia, *Submission 1*, p. 2.

¹⁰⁰ G A Young and Sons, *Submission 11*, [p. 2].

bacteria, fungi, nematodes, arthropods and viruses which are known to occur in New Zealand, and which are of concern to Australian potato producers.

7.106 The committee also notes that the supporting documentation supplied by the New Zealand Government (the MAFBNZ document) considers only PCN and black wart. The committee shares the concerns of stakeholders who argued that there are a considerable number of other pests and diseases found in New Zealand (and not found in Australia) that appear to have been discounted in this context.

7.107 The committee acknowledges DA Biosecurity's decision to engage an independent bacteriologist to review its report on import conditions for potatoes from New Zealand (and the latest information on zebra chip disease). The committee notes, that in engaging Dr Hayward, DA Biosecurity was seeking to provide assurance to stakeholders that the biosecurity measures it is proposing will appropriately manage the risks associated with the import of potatoes from New Zealand.

7.108 The committee further notes the information provided in the Hayward report – specifically, Dr Hayward's comments in relation to the four issues he described as relating directly to the draft review of import conditions including: tuber transmission; haplotypes of *Candidatus Liberibacter solanacearum* (CLs0) (and potential vectors); survival of the zebra chip pathogen external to its insect or plant host; and the impact of improved diagnostic methods.

7.109 In its response to the Hayward report, AUSVEG raised the point that its submission to the inquiry covered a number of potential pest and diseases that occur in New Zealand (but which were not addressed in the potato IRA). The committee shares AUSVEG's concern that these aspects of its submission were not dealt with by the Hayward report. The committee also questions whether the issue of potential disease threats (other than TPP) were included in the terms of reference for Dr Hayward's review.

7.110 The committee also shares the concerns raised by AUSVEG regarding Dr Hayward's consideration of the role of tuber transmission. Whilst the Hayward report does acknowledge that infected tubers can grow, Dr Hayward dismisses this issue based on the assumption that the potatoes for import are solely for processing – and therefore concludes that they do not pose a serious risk. The committee agrees with AUSVEG's suggestion that Dr Hayward's conclusion is interesting, particularly given the uncertainty surrounding the disease's entry into New Zealand.

7.111 The committee notes Dr Hayward's conclusion that very little of the current literature (on zebra chip disease of potato) affects the import conditions for importation of potatoes for processing from New Zealand. However, the committee also notes the concerns expressed by AUSVEG in relation to Dr Hayward's treatment of the current zebra chip literature.

7.112 AUSVEG argued that there is a need to be aware of (and take account of) the varying degrees of sensitivity between the New Zealand and US molecular tests for *Liberibacter* – particularly because the US data can, in some cases, be misleading. AUSVEG argued that whilst Dr Hayward does discuss this aspect of research, there is no consideration given in his report to this being a possible problem. The committee

shares AUSVEG's concern that Dr Hayward treats all papers equally – and as if they were all derived from the same methodology.

7.113 The committee also has concerns about Dr Hayward's independence and agrees that – having provided input and advice to DA Biosecurity on the potato IRA – Dr Hayward is not able to provide an independent, unbiased review.

7.114 The committee notes that, in his submission to the inquiry, Associate Professor Calum Wilson argued that 'lack of evidence of risk does not equate to evidence of lack of risk'. Professor Wilson also argued that he would have 'expected greater detailed studies to prove beyond reasonable doubt the lack of risk of transshipment of pests and pathogens of quarantine significance'.¹⁰¹

7.115 Professor of Plant Pathology, David Guest also argued that the PRA assumes perfect knowledge and compliance, and challenges DA Biosecurity to 'identify one instance of perfect compliance to biosecurity conditions regulating the importation of plant material in recent years'.¹⁰² Professor Guest went on to argue that:

The recent incursions of eucalyptus rust, chestnut blight and stripe rust of wheat demonstrate the catastrophic failure of Australia's risk assessment-based plant biosecurity system. In each case biosecurity measures and incursion management plans failed because of modelling based on imperfect knowledge and flawed assumptions, followed by human error and regulatory failure.¹⁰³

7.116 Professor Guest then urged the committee to:

Apply the precautionary principle and reject the application to import processing potatoes from New Zealand until it is possible to absolutely guarantee the exclusion of zebra stripe, the tomato/potato psyllid and other pathogens and pests. The potential benefit to Australia of importing processing potatoes from sources where these pests and diseases are present is overwhelmed by the potential damage an incursion would cause.¹⁰⁴

7.117 The committee would argue that Professor Wilson's comments are a reflection of the concerns held by Australia's potato industry stakeholders. The committee also acknowledges the argument put forward by Professor Guest and repeats the comment made in Chapter 4 – that it has, over the years, observed a number of examples of blatant biosecurity risks, none of which were either predicted or anticipated.

¹⁰¹ Associate Professor Calum Wilson, *Submission 10*, [p. 1].

¹⁰² Professor David Guest, *Submission 14*, [p. 1].

¹⁰³ Professor David Guest, *Submission 14*, [p. 1].

¹⁰⁴ Professor David Guest, *Submission 14*, [p. 1].

Recommendation 24

7.118 The committee recommends that, before commencing the importation of fresh potatoes from New Zealand, a formal Import Risk Analysis be conducted for fresh potatoes for processing from New Zealand. In conducting the IRA, DA Biosecurity should ensure that particular attention is paid to:

- **the conduct, or commissioning, of scientific research in relation to possible disease pathways for the *Candidatus Liberibacter solanacearum* pathogen;**
- **the lack of reliable diagnostic testing for the zebra chip bacteria;**
- **the large number of bacteria, fungi, nematodes, arthropods and viruses which are known to occur in New Zealand, and which are of concern to Australian potato producers.**

**Senator Glenn Sterle
Chair**