Senate inquiry into importation of potatoes from New Zealand

1) **The validity and supporting scientific evidence underpinning the pest risk analysis included in the New Zealand potatoes import risk analysis 2009.**

- The draft review document was very brief, provided reference to the prior import risk analysis report but did not provide this document. It was unclear on what basis many of the claims of low or no risk was made.
- Lack of evidence of risk does not equate to evidence of lack of risk. I would have expected greater detailed studies to prove beyond reasonable doubt the lack of risk of transhipment of pests and pathogens of quarantine significance.
- The risk analysis was based on potato tubers in the transhipping process remaining fully within quarantine control, with the processing facility being a quarantine approved facility that would provide adequate containment of imported product. I would question the ability of the import process to adequately contain bulk imports of potato tubers during deliver to processing facilities and on the facilities themselves, and to ensure destruction of all material. Non-processed tubers (rotted, small, etc) will be discarded (not cooked/processed). How effectively will the systems be for destruction? I could imagine them sitting in open bins for extended periods. As far as I am aware imported tubers will not be subject to additional treatments (fumigation etc) that other imported produce that pose a possible risk may be.
- The import risk analysis is based on procedures that may be adequate for transhipment of individual tissue culture plantlets where containment is much more likely. I do not easily accept that up scaling the volume of imported material would not affect the likelihood of breaches of quarantine control.
- I would also question whether shipping in open door containers would be considered adequate containment.
- The risk analysis is based to some extent on state procedures that are not fully accepted by all states (eg “Interstate certification (ICA) agreement: potatoes from a PCN control area, ICA-44”), and therefore is misleading.

2) **The extent of scientific knowledge and understanding of the tomato/potato psyllid and other pests identified in the draft review of import conditions.**

Tomato potato psyllid (TPP) & *Candidatus Liberibacter solanacearum* (Lso)

- It is suggested in the draft review document that TPP will not be transported with fresh potato.
- However, there is very little known about this insect and the bacterium it transmits. TPP is present in high numbers associated with all potato cropping regions (and all potato crops) in New Zealand. The nymph and egg load within any crop is likely to be very high. Whilst it is known that TPP will lay eggs on leaves of host plants, I am not aware of clear scientific evidence to demonstrate that eggs cannot be associated with tubers, soil or plant trash that may be

transported in a tuber consignment. It is known that some psyllids, whilst predominantly leaf inhabiting, may colonise plant roots (for example *Craspedolepta nubulosa*).

  - It is currently unknown how TPP entered New Zealand presumably from the USA, the pathways of pest entry are not clear.
  - We simply do not have enough information to state that TPP will not traffic with tubers (no evidence of association with tubers is not the same as comprehensive surveys and experimental evidence proving lack of association with tuber) either attached or as a contaminant.
  - It is possible that eggs could associate with residual soil and/or residual leaf trash in exported bins/containers (they are generally laid on leaf margins held by a fine thread-like structure – but could be a) knocked off leaves into the soil, b) dropped with leaf trash and released into soil.
  - As many TPP individuals surveyed are known to be carrying Lso, any TPP that do enter Australia have a reasonable chance that they carry Lso.
- Lso is an obligate plant parasite found and propagated within potato tubers and is present in all cropping regions in New Zealand.
  - The report states it is only transmitted between plants by its psyllid vector – it can however survive and propagate within vegetative propagules of potato in absence of its vector.
  - It occurs at high incidence in affected crops (which includes most of the New Zealand crop).
  - The current diagnostic testing procedures are not completely robust.
  - It is therefore to be expected that any shipment of potatoes from New Zealand will contain Lso in a substantial quantities.
  - Rare potatoes/potato peel that escape a QAP are therefore likely to contain the pathogen and provide a potential source for its propagation.
  - **Importantly,** It is unknown whether native psyllids present in Australia (including members within the same family) possess the ability to vector Lso. It is well documented that Australia has a wide diversity of psyllid species. Surveys of psyllid populations in and around potato crops in Victoria, South Australia and Tasmania have reflected this diversity, including discovery of individuals related to (but distinct from) TPP.
  - **This Lso pathogen** (taxonomically regarded as the same pathogen) causes a significant disease of carrots in Europe. In this instance, the pathogen is spread by a different insect vector, the carrot psyllid *Trioza apicalis.* Thus we known that Lso, can be vectored to other hosts by psyllids other than TPP. It is possible that import of potato from New Zealand, that will carry Lso, could represent a risk to potato and other industries if tubers or peel escape QAP and become associated with a compatible native psyllid.

Potato cyst nematode

- New Zealand possesses both *Globodera pallida* and *G. rostochiensis.* Australia has very limited occurrence of only *G. rostochiensis*, which are under strict quarantine management to exclude movement of potato material from areas of known infestation. Potato cultivars resistant to Ro1 strains of *G. rostochiensis* offer a management tool for areas with PCN infestation, however they will not necessarily possess resistance to *G pallida*.

- Residual soil associated with imported potatoes (see comment re “practically free” from soil) may carry nematode resting cysts.
- Area freedom status is extremely difficult to confirm given the insidious nature of cyst nematodes. Accuracy of soil testing is reliant on adequate sampling procedures which are problematic. Low levels of nematode infestation are not easily visually observed within the growing crop. Area-freedom status should be regarded with caution, be confirmed through long term testing of sites (with repeated negative results following comprehensive surveys over many years).

Potato wart.

- I believe this disease is very infrequent in New Zealand. It is a very serious disease, but risks associated may well be very low. Greater detail on surveys to demonstrate regions of area freedom would be required to make this judgement however.

Viruses and virus-like agents

- **PVS-A** - New Zealand has the Andean strain of Potato Virus S (PVS-A). PVS-A has greater capacity for aphid transmission and induces greater impacts on yield than ordinary strains of PVS (PVS-O) present in Australia. PVS (all strains) are poorly managed due to inconspicuous symptoms and can be present at high incidence. 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 that PVS-A could enter Australia within infected tubers. Several aphid species present 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.

- **PVM** – 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.