Appendix 1

Comments on the Draft Report for the Review of Import Conditions for Fresh Potatoes for Processing from New Zealand

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Background

Tomato potato psyllid (TPP) is the vector for the very important bacterial disease *Candidatus* Liberibacter solanacearum (Lso) that affects solanaceous crops, especially potatoes, tomatoes, capsicums and tamarillos. The vector/disease was first recorded as a problem in USA in 1999 in potato crops, but Lso as the causal agent was not identified until 2008. TPP & Lso was an accidental incursion to New Zealand in 2006 and by 2009 had spread across the country.

Tomato potato psyllid (TPP) (*Bactericera cockerelli*) is a sucking insect that reduces yield in potatoes, tomatoes, capsicum and tamarillos. This can occur both directly through reduced plant vigour and resultant yield loss through insect feeding, and indirectly by transmitting the bacterial disease *Candidatus* Liberibacter solanacearum (Lso) which results in discoloured fruit that is rejected, plant death and poor tuber quality through browning of flesh which is especially noticed in processing potatoes when cooked resulting in the disorder Zebra Chip.

TPP is also found on solanaceous weeds, such as nightshade, in the USA, and on boxthorn in New Zealand. It is the reservoirs of TPP in such non-crop locations that will make eradication an almost impossible task, although it is almost certain that Biosecurity Australia would initially insist on such an approach if the pest was found in Australia.

TPP is native to North America. It is an important pest in the western half of USA, Central America and parts of southern Canada. It was of minor importance only in these areas until the late 1990's when its presence in crops began to be associated with disease causing plant death and poor quality of processing potatoes when cooked. Initially the cause of plant death and discoloured tuber flesh was unknown but in 2008 it was identified as Lso (Liefting et al, 2009). The disease survives only within its insect and plant hosts. To protect potato crops from TPP, growers in USA have paid up to $870/ha for a preventative insecticide spray program.

TPP and the associated bacterial disease Lso were first recorded in New Zealand in 2006 in and around glasshouses in the Auckland area. How it reached NZ is not known but is probably related to the increasing international trade in fresh horticultural produce, or the illegal importation of plants such as chillies.

The New Zealand potato industry suffered a loss of $120m in 2011, a loss of around $5m in the value of tomatoes and capsicums and a reduction in the number of tamarillo growers from 120 to 40 from 2007 to 2011.

The threat of this pest to Australian potato production cannot be underestimated. 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.

Risk of TPP arriving in Australia

It is possible that TPP could reach Australia on wind currents, as is considered that lettuce aphid arrived from New Zealand to Tasmania and then on to mainland Australia. However, it is less likely that TPP will arrive in this manner due to differences in its flight behaviour.

The most likely means of TPP arriving in Australia will be by the movement of plant material (legal or illegal).

Therefore, any legalisation of large scale importation of host material will necessarily increase the likelihood (and so the risk) that TPP will enter Australia. This risk is increased further if crops are harvested in New Zealand while green tops are present. This may occur in some circumstances and will incr4ease the likelihood that adult TPP are present with tubers entering storage.

Can TPP lay eggs directly on tubers?

In the scenario described above, potato crops with green leaf still present, and with TPP adults and other stages present, are harvested and put into cool storage. TPP could survive the cool store although they would not necessarily develop, and it is possible that they could lay eggs

directly onto the tubers. At this stage I have asked the question of entomologists in New Zealand, and have not had a conclusive answer, " Can TPP adults lay eggs directly on tubers in the absence of a leafy substrate?"

Until we have this answer then we cannot assume that tubers harvested green are free of TPP eggs.

Can Lso be imported without the vector?

The answer to this is Yes. If Australia imports potato tubers then they could have Lso. Recent work from the USA has been alarming as it suggests that even tubers harvested and assessed as clean from Lso have developed Zebra chip after months in storage.

Can other insects vector the disease?

It is stated on page 8 of the draft report that Zebra chip can only be transmitted by TPP. However, recent work reported at the Auckland Psyllid Conference does not agree with this summation. The same disease is being reported from crops such as celery in Spain without the same psyllid vector.

In Australia we have very many psyllids species. The potential for these to transmit the Lso disease is unknown. It is therefore very possible that Australian psyllids could vector the disease.

Conclusion

Given the last two sections alone, importing tubers is almost certain to import the disease, and we have a range of potential insect vectors even if TPP is not present. The only way to prevent this situation is to not allow the importation of potato tubers from New Zealand.

Similarly, the risk of introducing either adult or egg stages of TPP is increased if potato tubers are imported from New Zealand.

Australia can grow enough potatoes for our domestic market. My opinion is that local production should be allowed to meet the demand and the risk that importation of tubers from New Zealand poses to the industry is not justified and can be avoided.