

Summary and life after today

Gerhard Bester

Fritolay

During his summary⁶ of the key points of the Workshop, Gerhard also noted that interpretation of sticky trap results is not yet clear, in particular to develop action thresholds.

He also invited participants to attend the next ZC conference in December. This conference will include citrus interests.

He applauded and encouraged further collaboration, especially in terms of sharing chemical effectiveness information, resolving market access issues, and development of beneficials programmes. In particular, he noted that US growers had not focused on IPM effects of their psyllid control treatments.

Gerhard offered to lead an informal question and answer session for those who were interested after the formal conclusion of the Workshop.

Conclusion

Sonia Whiteman

Horticulture New Zealand

⁶ A few notes made by me, Warrick Nelson, during his speech.

Informal Q&A session

A few notes made by me, Warrick Nelson, during the session.⁷

Gary Secor	Necrosis of the phloem in medullary rays and the pink “belly button” are diagnostic for ZC.
Gary Secor	Some pictures of fried crisps/chips show slight darkening, this is related to frying young tubers and is an artifact called oil clearing.
Joe Munyaneza	Psyllids on eggplants – the plants last a long time and show no symptoms.
Joe Munyaneza	Non-ZC inducing psyllids – foliar symptoms on potatoes look very like ZC, but tubers are clear. The plants survive with symptoms for a long time, and removing the psyllids results in healthy regrowth.
Lia Liefing	Bidens – first note of this Liberibacter outside Solanaceae. The plant was alongside a commercial potato crop – species unknown.
Lia Liefing	Seed transmission – tests were done 5-10 weeks after germination. 50 plants have been kept for longer to see whether any symptoms arise. (Note – tomato and tamarillo seed, not potato. WN).
Lia Liefing	The Phytoplasma sample was received in January. Potato symptoms do not always show purpling, and sometimes aerial tubers form. Fresh tubers show no symptoms, but fry even darker than with Liberibacter. Some samples were positive for both bacteria.
Stephen Ogden/John Fletcher	No psyllids found on potato crops in Canterbury, although some have been caught in yellow sticky traps.
John Thompson	Some greenhouse crops are still being severely affected. Growers generally remove affected plants. Growers need to know whether the symptoms are psyllid feeding damage or Liberibacter before they remove plants.
John Thompson	Bumble bees have been used to carry biocontrol agents to crops. Essential oils are also being investigated – they appear to inhibit psyllid egg laying.
Nigel Halpin	Processing tomato fruits are soft and low in brix resulting in a poor yield through the factory.
Gerhard Bester	The stolbur Phytoplasma in Eastern Europe gives the same ZC symptoms in fried chips. They do not have Liberibacter. ZC is therefore a tuber symptom and can arise from more than one bacterium. US growers also have some export issues arising from Liberibacter.
Gerhard Bester	Aphoil – a mineral oil, appears to work well. Some growers use it in back to back applications with other chemicals. IPM aspects – US potato experience has not yet taken IPM aspects into account and they will be watching NZ/Australian developments.

⁷ These were not verbatim notes and in some cases followed extensive discussion by many participants around the topic. I have attempted to attribute the source, but in some cases there was very extensive discussion.

Phytoplasma discussion	<ul style="list-style-type: none"> • Scouts report symptoms spread across fields, moving within 7 days of first report. It appears to take 20 days to get infection and then 20 days to first symptoms, ie 40 days from emergence. The group was about evenly split between being convinced Phytoplasma was likely to be psyllid vectored, and those who expect a leafhopper to be the culprit. • Joe noted that we will need to document and test all insects present from plant emergence, not just when symptoms appear. Growers had not noted leafhoppers on their crops in the Columbia Basin. The leafhoppers acquire Phytoplasma from other plants and then transmit it to potatoes. • Is hollow heart associated with Phytoplasma? In the US, occasional hollow heart is noted, but not associated with Phytoplasma. • Purple top-like symptoms have occasionally been seen for years, just not across whole fields. Was the serious drought and psyllid infestation a factor? • Eastern Europe stolbur Phytoplasma is vectored by a plant hopper of unknown species. Little is known of their biology and the other plants acting as a source for Phytoplasma. Stolbur phytoplasmas are common across a wide range of crops and weeds. • Jerusalem cherry – had psyllid nymphs, tested positive for Phytoplasma and negative for Liberibacter.
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