

COMBATING THE TOMATO-POTATO PSYLLID

PROJECT PART-FUNDED BY THE SUSTAINABLE FARMING FUND

The Sustainable Farming Fund is supporting a programme that is looking for long-term, more sustainable answers.

THE ISSUE OR OPPORTUNITY

If a new pest or disease arrives, the affected industry needs to find ways to physically stop the spread as soon as possible and also pull together resources to pursue a longer term solution.

The Tomato-Potato Psyllid spreads the bacterial disease *liberibacter* (*Candidatus Liberibacter solanacearum*) to several key horticultural crops, including tomatoes, potatoes, capsicums, sweet potato and tamarillos. This disease causes sudden decline and eventual death of the affected plant, and in potatoes a disorder called zebra chip.

Affected growers are using measures to manage the psyllid and the disease for the moment, but these mean added costs. Also, the insecticides they need to use reduce natural predator populations and threaten pollinating insects such as bumblebees.

The Sustainable Farming Fund is supporting a programme that is looking for long-term, more sustainable answers.

It is taking a pan-sector approach – involving growers and commercial companies, and using the best of New Zealand's scientific expertise.

The programme ensures that all resources are pooled for maximum effect and that any information gained is shared across all groups.

This three-year project will finish in July 2012.

The potato industry has gained Sustainable Farming Fund support for a follow-on project (11/058).

The Sustainable Farming Fund has also recently approved some additional money for further work on the biological control methods (L12/116).

RESULTS SO FAR

- » National monitoring for the Tomato-Potato Psyllid has been set up, with 44 sticky trap sites around New Zealand.
- » Data from the second year (to July 2011) of monitoring indicates that Tomato-Potato Psyllid numbers generally peak between late December and early January, with higher Tomato-Potato Psyllid numbers in the Hawke's Bay and Auckland regions.
- » Tomato-Potato Psyllid was recorded for the first time in Southland, where three insects were recorded on a sticky trap.
- » Insecticide trials have highlighted the importance of sampling to identify critical times when psyllid numbers rise rapidly. Follow-up work is being done to identify threshold levels for spraying and suitable spray regimes to control or delay build-up of Tomato-Potato Psyllid.
- » It is useful to know which Tomato-Potato Psyllid are carrying *liberibacter* – called “hot” psyllids (as opposed to those that are not, which are called “cold” psyllids). A molecular tool for diagnosing *Liberibacter* has been developed, which will detect presence in plant or insect tissue.
- » Some essential oils have been tested in glasshouses. The essential oils Neem and Cederwood were found to have the most effect in putting Tomato-Potato Psyllid off feeding. Neem also significantly repelled adult female TPP and reduced depositing of eggs. However, the results indicated these oils would not have enough of an effect in a commercial glasshouse situation.
- » A parasitic wasp which is known to attack psyllids in Mexico, *Tamarixia triozae*, has been brought to New Zealand for testing in a containment facility to determine if it could be used as a biological control agent. The tests have assessed what native psyllids it will attack. It was found that it parasitised two of the eight native psyllid species.

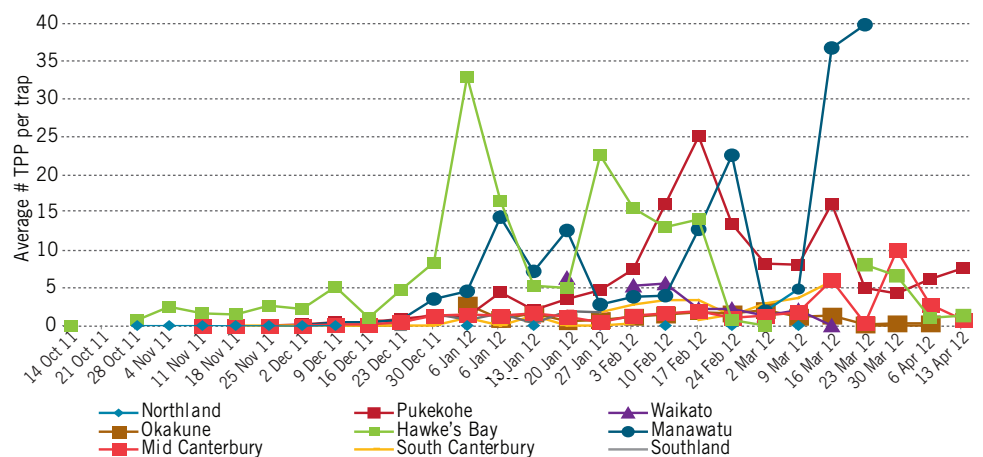
- » Several fungi that are known to attack insects are being assessed in the third year to find out whether they could help manage Tomato-Potato Psyllid. Eight of the 13 fungal strains tested have killed all Tomato-Potato Psyllids within 72 hours of exposure in a glasshouse.
- » Testing has shown that tamarillos are highly susceptible to the Tomato-Potato Psyllid and liberibacter infection. Sticky trap monitoring for TPP indicated that while the numbers present in the orchards were very low (maximum six per trap), disease incidence was high (15 out of 40 trees had symptoms). It proved very difficult to even keep enough plants alive to do the testing.
- » Growers are being advised to clear the area within and around tamarillo orchards of any alternative host species such as nightshade to keep Tomato-Potato Psyllid populations down.



AT A GLANCE

SFF project	09/143 Sustainable Tomato/Potato Psyllid Management SFF investment: \$600 000
Other cash contributors	Potatoes NZ, Fresh Tomato Product Group, Fresh Vegetable Product Group, McCain Foods (NZ) Ltd, NZ Tamarillo Growers Association Inc
Total project value (including in-kind contributions): \$1 537 700	

National Tomato-Potato Psyllid monitoring 2011/2012



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