

Canterbury Potato Liberibacter Initiative CPLI

CPLI Committee

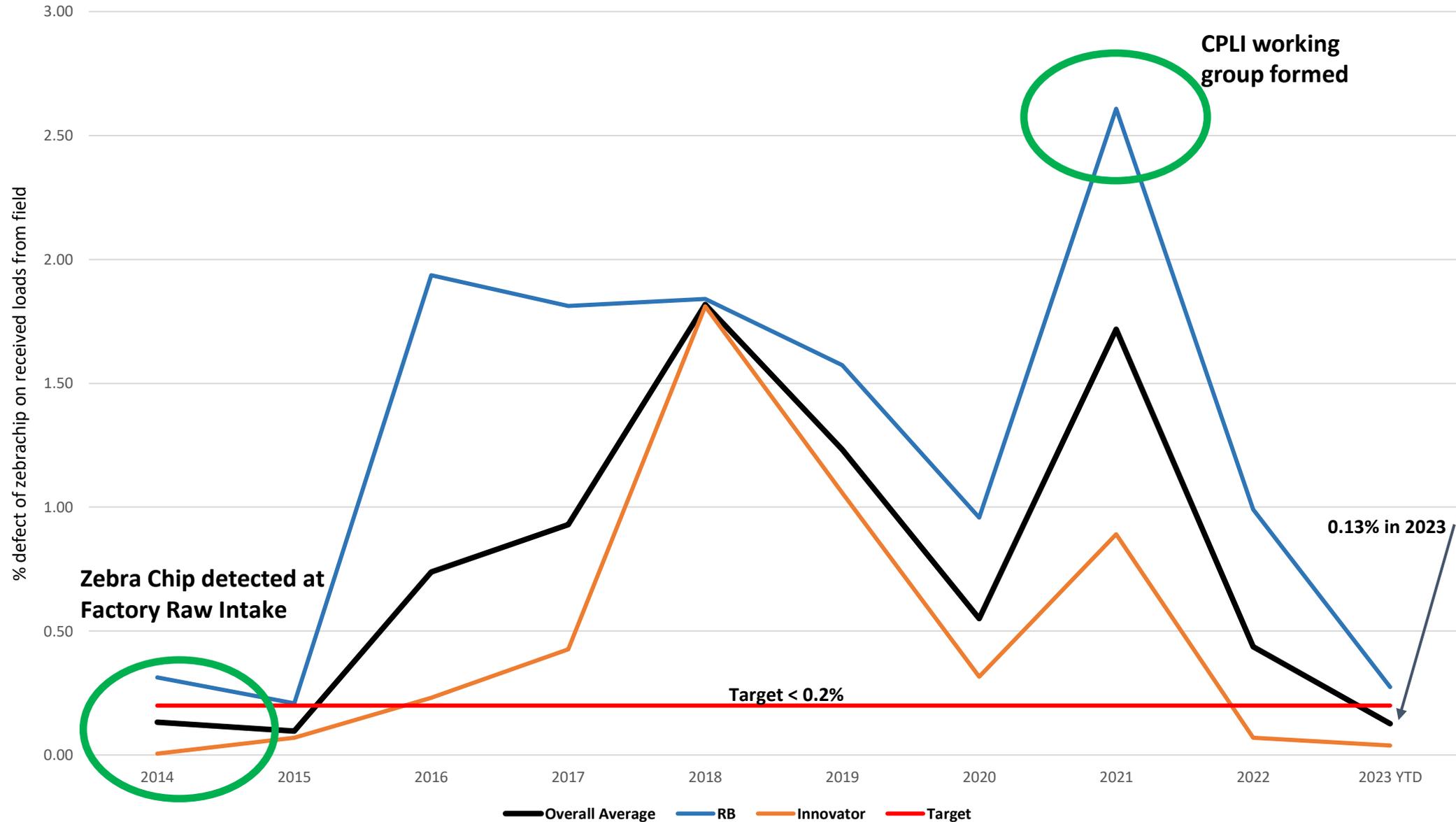
- John Jackson – Chair
- Richard Redfern – Seed Grower
- Gerhard Botha – Process Grower
- Kyle Grey – Process Grower
- Daniel Lovett – Process Grower
- Jessica Vereijssen – Plant & Food Research
- Chris Claridge – Potatoes NZ
- Iain Kirkwood – Potatoes NZ
- Nicola Loach – Potatoes NZ
- Gemma Carroll – Potatoes NZ
- Paula Lleras – Potatoes NZ
- Roger Blyth – Seed & Field Services
- Scott Clelland – McCain Foods
- Christine Gregory – McCain Foods
- Tim Hanrahan – Talley's
- Nigel Rowe-Lucas – KraftHeinz
- Daniel Sutton - Fruitfed
- Graham Bunckenburg – Balle Bros / Mr Chips
- Clive Kaiser – Lincoln University
- Hamish Gow – Lincoln University
- Kate Braidwood – Lincoln University
- Ping Koay – Lincoln University



NZ TPP Progression Background

- May 2006 TPP observed in Auckland.
- Jan 2008 New disease observed in tomato glasshouse in Auckland, also seen in capsicum, TPP observed in relation to these affected plants.
- 4 June 2008 presence of new *Liberibacter* announced. Scientists in NZ named the new species “*Candidatus Liberibacter solanacearum*”.
- Nationwide surveillance programme started – found in harvested tubers.
- 2008-09 season yellow stick traps went out to see if TPP was present in Canterbury – they were found but tested negative for *Liberibacter*.
- 2014 saw the first LSO infected tubers detected in the Canterbury factories.
- 2021 Canterbury Potato harvest saw the highest severity of LSO defect in the factories.

Canterbury Zebra Chip Time Line 2014 - 2023



Achievements to Date

- **CPLI-1 Contact resistance** -Testing the efficacy of seven contact insecticides.
- **CPLI-2 Systemic Resistance** - The project investigated nine insecticides with systemic and/or translaminar properties at label rate.
- **CPLI-3 Biological control Post Doc** – Investigate the use of biological control agents to manage TPP populations in both potato crops and in alternate / over-wintering hosts. Identify and shortlist potential biocontrol agents based Boxthorn on scientific literature, specific life-traits and potential TPP consumption.
- **CPLI-4 Systemic acquired resistance** - The project involved the screening of Systemic Acquired Resistance (SAR) products and antibiotics for efficacy on Liberibacter.
- **CPLI-5 TPP Lure & traps** - Using lures to attract and kill TPP to prevent their entry into potato crops, a range of products will be investigated for attractancy and repulsion of psyllids.
- **CPLI-6 Calcium propionate** - The fertilisation of potatoes with calcium propionate to prevent spread of Liberibacter.
- **CPLI-7 Border plantings** - Using selected border planting to attract beneficial insects and limit Psyllid ingress into potato crops.
- **CPLI-8 Bioassay** - The rapid detection of Liberibacter plants in the field using starch conversion iodine testing.
- **CPLI-9 Spray Technology Review** - Investigate different spray technologies and techniques for efficacy of coverage.
- **CPLI-10 Tolerant Varieties** - PNZ is investigating USA bred varieties which show tolerance to Liberibacter.
- **CPLI-11 Levity Cropscience product trial** - Testing the Indra product as a possibility for slowing down the metabolic processes of Liberibacter. The aim is to reduce the symptoms of Zebra Chip.
- Grower factsheet to minimize TPP hotspots in field, stressed areas in field.
- Field history & Self-set potatoes in other crops.
- Nature strips for beneficial/predator insects, headlands on outside of field.
- Analysis spray dairies, best results of best 10 crops and worst 10 crops.
- Fish Fert or other potential products to discourage TPP, Protector oils and new products, test and review what is available.
- Improve knowledge on Hot Psyllids and Lso, trap data analysis .

Future and beyond 2023 crop year.

- Mapping Boxthorn in Canterbury, identify populations and reduce over-wintering populations of TPP.
- Molecular tests of sticky traps.
- Knowledge gap with Lso, understand the problem, can we inhibit, eradicate the bacteria in the plant.
- Control of self-set potatoes.

What does Success look like after 2022 harvest

And now with the 2023 Harvest complete

- Increase in profitability and payable yield, no reject crops. 
- Zebra Chip under 0.2 percent defect level at the factories.  
- Improve seed quality. 
- Improved forecasting and management tools for TPP and Lso.  
- A clear vision of the pathway forward to reduce the reliance on Insecticides. 
- Better understand of nature strips and how to use them, beneficial and Predatory insects and biological alternatives. 

Future Risk

- Loss of Register chemicals.
- Risk of TPP developing resistance to chemicals.
- La-Nina weather pattern the last few years which has seen wetter seasons and hence also may have contributed to reduced Zebra Chip incidence.
- Potentially an El Nino weather pattern may increase incidence of Zebra Chip.
- Grower/Industry complacency with the results this past season.
- Lack of investment to prove we have made a difference in sustaining the results.
- Lack of industry resilience to future Lso pressure.

CPLI Working Group Future

To cover the ongoing R&D requirements of CPLI for the 2023/24 Season and the 2024/25 season we have the following commitment from both McCain and Talley's Companies and Growers.

- 35 cents per Grower Paid Weight Tonne from both grower and company from the 2024 harvested crop only (Total 70 cents per tonne).
- Note payments are treated as donations so tax deductible.

From Potatoes NZ we request.

- To match \$1 for \$1 from the Companies and Growers above.

The Good Guys

Tasmanian Lacewing



Tamarixia



Pirate Bug



Hoverfly

