

# Pest Project Overview



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*This Quick Reference Guide enables A Lighter Touch stakeholders to easily identify pests and/or diseases that A Lighter Touch co-funded and/or aligned projects are targeting and provides the opportunity for stakeholders to ascertain if projects/results may be applicable for their sector. For more information about specific projects, please contact the ALT contact person listed in this table.*

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# 01 Completed Projects

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## Bacterial head rot (*Pseudomonas fluorescens*)



**Project Purpose:**

- Five field trials were undertaken to evaluate the efficacy of candidate compounds for head rot control in broccoli.

**Crop:** Broccoli  
**Contact:** Paul Munro

Photo credit: *Paul Munro*

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## Botrytis (*B. cinerea*, *B. fabae*)



**Project Purpose:**

- Five field trials were undertaken to evaluate the efficacy and residue profile of five candidate compounds for Botrytis control in broad beans.

**Crop:** Broad beans  
**Contact:** Paul Munro

Photo credit: *Howard F. Schwartz, Colorado State University, Bugwood.org*

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## Downy mildew (*Peronospora destructor*)



**Project Purpose:**

- Upgrade the Metwatch downy mildew decision support tool to enable effective fungicide programming, and
- Demonstrate and increase grower use of the Metwatch tool to manage the changing fungicide landscape.

**Crop:** Onions  
**Contact:** Jeff Smith

Photo credit: *Paul Munro*

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## Downy mildew (*Peronospora effusa*)



**Project Purpose:**

- Four field trials were undertaken to evaluate the efficacy and residue profile of a selection of candidate compounds for downy mildew control.

**Crop:** Spinach  
**Contact:** Paul Munro

Photo credit: *Paul Munro*

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## Onion thrips (*Thrips tabaci*)



**Project Purpose:**

- Four field trials were undertaken to evaluate the efficacy of eight new insecticides for the control of thrips in onions.

**Crop:** Onions  
**Contact:** Paul Munro

Photo credit: *Bruce Watt, University of Maine, Bugwood.org*

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## Sclerotinia sp



**Project Purpose:**

- Four field trials were undertaken to evaluate the efficacy and residue profile of a selection of new fungicides for the control of Sclerotinia in dwarf beans.

**Crop:** Dwarf beans  
**Contact:** Paul Munro

Photo credit: *Paul Munro*

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## Soilborne diseases (SBD) (*Fusarium oxysporum*)



**Project Purpose:**

- Two field trials were undertaken to evaluate the efficacy of six candidate compounds for Fusarium control in buttercup squash.

**Crop:** Buttercup squash  
**Contact:** Paul Munro

Photo credit: *Paul Munro*

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# 02 Projects Underway



## Australian citrus whitefly (*Orchamoplatus citri*)



**Project Purpose:**

- A field trial is being undertaken to evaluate five insecticides and biopesticides for Australian citrus whitefly control in oranges.

**Crop:** Oranges

**Contact:** Paul Munro

Photo credit: *Lesley Ingram, Bugwood.org*

## Barley yellow dwarf virus (BYDV)



**Project Purpose:**

- Independently evaluate BYDV management programmes that have a reduced environmental footprint while maintaining or increasing profitability.
- Compare BYDV incidence and yield in wheat crops managed using neonicotinoid seed treatment and bare seed using large-scale plots and a weigh-bin.
- Support uptake of Integrated Pest Management (IPM) practices amongst growers by providing regional monitoring of aphid and beneficial insect populations, and modelling aphid flight risks.

**Crop:** Cereals

**Contact:** Jeff Smith

Photo credit: *Copyright © Western Australian Agriculture Authority, 2013–2018*

## Black field cricket (*Telogyllus commodus*)



**Project Purpose:**

- Mitigate the risk of resistance development of existing control options for black field cricket and improve control outcomes through more targeted applications, by understanding the life cycle of black field cricket in two phases:
  - Phase 1: a knowledge review of both the literature and current kumara grower pest management practice,
  - Phase 2: to be determined based on the literature review outcome.

**Crop:** Kūmara

**Contact:** Paul Munro

Photo credit: *Phil Bendle Collection*

## Botrytis (*B. cinerea*)



**Project Purpose:**

- Four field trials have been undertaken to evaluate four biopesticides for botrytis control in boysenberries.

**Crop:** Boysenberries

**Contact:** Paul Munro

Photo credit: *Geoff Langford*

## Botrytis (*B. cinerea*)



**Project Purpose:**

- Establish understory plantings in summerfruit orchards to enhance orchard biodiversity and examine whether associated co-benefits from these plantings can be realised. These benefits include:
  - weed management, leading to fewer herbicide applications,
  - improved botrytis disease control by planting and covering bare ground, and
  - improvements to soil health through the rootzone activity of these plantings and incorporation of additional organic matter back into the soil.

**Crop:** Cherry

**Contact:** Jeff Smith

Photo credit: *bayercropscience.cl*

## Brown rot (*Monilinia fructicola*)



**Project Purpose:**

- Four field trials are being undertaken to evaluate the efficacy and residues of a Group 3 fungicide in cherries, apricots and peaches.

**Crop:** Cherries, apricots and peaches

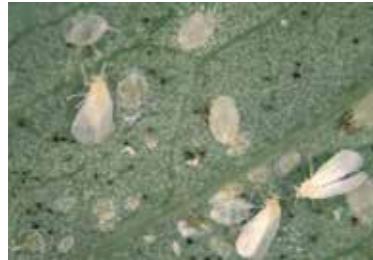
**Contact:** Paul Munro

Photo credit: *Rebecca A. Melanson, Mississippi State University Extension, Bugwood.org*

# 03 Projects Underway



## Greenhouse whitefly (GHW) (*Trialeurodes vaporariorum*)



### Project Purpose:

- Reduce agrichemical applications on greenhouse tomatoes by revitalising Integrated Pest Management (IPM) practices. This will be achieved by:
  - identifying the economic risks at grower level to using an IPM programme and how these can be mitigated;
  - providing growers with a guide detailing the ideal methods of pest control for their crop;
  - incorporating the use of Biological Control Agents into crop protection programmes for New Zealand greenhouse tomatoes.

**Crop:** Tomatoes

**Contact:** Jeff Smith

Photo credit: *Whitney Cranshaw, Colorado State University, Bugwood.org*

## Passion vine hopper (PVH) (*Scolypopa australis*)



### Project Purpose:

- Develop an Integrated Pest Management programme for use against PVH that is not reliant on agrichemicals by:
  - reducing PVH populations at the source through border management and search for new biological control agents in Australia;
  - minimising migration of PVH into kiwifruit blocks by through shelter designs and host plant volatiles;
  - testing and implementing a new automatic smart trap as a monitoring tool to replace current labour-intensive methods.
  - identifying best options and timing for within block management of PVH eggs and nymphs.
  - understanding sooty mould complex on kiwifruit.

**Crop:** Kiwifruit

**Contact:** Jeff Smith

Photo credit: *David Logan*

## Kelly's citrus thrips (*Pezothrips kellyanus*)



### Project Purpose:

- A field trial is being undertaken to evaluate five insecticides and biopesticides for Kelly's citrus thrips control in lemons.

**Crop:** Lemons

**Contact:** Paul Munro

Photo credit: *agrobaseapp.com*

## Psa (*Pseudomonas syringae pv actinidiae*)



### Project Purpose:

- Zespri has three ALT-aligned projects investigating biological control options, and one focused on reducing chemical input by optimising application dosage and timing.

**Crop:** Kiwifruit

**Contact:** Jeff Smith

Photo credit: *supplied by KVH/Zespri*

## Leaf rust (*Puccinia tritici*)



### Project Purpose:

- Investigate the effective use of plant genetics for an A Lighter Touch pest management programme.
- Independently evaluate disease management programmes on current commercial cultivars that have a reduced environmental and economic impact.
- Identify biopesticide products that have use in autumn sown wheat and demonstrate to the grower how they can be incorporated into a disease management programme.

**Crop:** Wheat

**Contact:** Jeff Smith

Photo credit: *FAR*

## Powdery mildew (*Blumeria graminis*)



### Project Purpose:

- Identify biopesticide products that have a use in autumn sown wheat.
- Demonstrate to growers how they can be incorporated into a disease management programme.

**Crop:** Wheat

**Contact:** Jeff Smith

Photo credit: *FAR*



# 04 Projects Underway



## Sclerotinia sp



### Project Purpose:

- Evaluate the efficacy of a selection of bio-fungicides/bio-stimulants for control of sclerotinia on dwarf beans by conducting a series of replicated field trials.
- Following initial screening of these products for efficacy over two seasons, further work over the following two to three seasons will involve the establishment of trial sites using the most efficacious of these products to demonstrate to growers and agronomists how these products perform at field scale, and how they can be integrated into Integrated Pest Management (IPM) programmes.

**Crop:** Dwarf Beans

**Contact:** Paul Munro

Photo credit: *Paul Munro*

## Septoria tritici blotch (*Zymoseptoria tritici*)



### Project Purpose:

- Investigate the effective use of plant genetics to:
  - develop profitable lighter touch cereal disease management strategies based on cultivar selection;
  - introduce new strategies to support cultivar management; and
  - identify spring milling wheat cultivars best suited to reduced pesticide applications.
- Introduce new crop protection tools by:
  - identifying biological products that have a use in cereal production systems;
  - demonstrating to growers how biological products can be incorporated into disease management programmes; and
  - evaluating non-chemical options for control of pests and diseases in wheat.
- Reduce chemical pesticide programmes through:
  - developing balanced and profitable fungicide programmes that protect at-risk chemicals; and
  - evaluating pest and disease management programmes that have a reduced environmental and economic footprint.

**Crop:** Wheat

**Contact:** Jeff Smith

Photo credit: *FAR*

## Soilborne diseases (SBD) (*Fusarium spp*)



### Project Purpose:

- Provide strategies to help growers minimise yield and financial losses caused by SBD through:
  - collating overseas and New Zealand literature and practical knowledge into an agroecological approach, Best Management Practice guide to managing SBD; and
  - trialling new biological controls to be incorporated into model farm systems to demonstrate best practice and emerging technology to growers.

**Crop:** Butternut Squash

**Contact:** Paul Munro/Jeff Smith

Photo credit: *Paul Munro*

## Soilborne diseases (SBD) (*Fusarium spp*)



### Project Purpose:

- Evaluate the efficacy of a selection of bio-fungicides/bio-stimulants for control of Fusarium, on pea and dwarf beans by conducting a series of replicated field trials.
- Following initial screening of these products for efficacy over two seasons, further work over the following two to three seasons will involve the establishment of trial sites using the most efficacious of these products to demonstrate to growers and agronomists how these products perform at field scale, and how they can be integrated into Integrated Pest Management (IPM) programmes.

**Crop:** Peas and dwarf beans

**Contact:** Paul Munro

Photo credit: *Howard F. Schwartz, Colorado State University, Bugwood.org*

## Tomato potato psyllid (TPP) (*Bactericera cockerelli*)



### Project Purpose:

- Reduce agrichemical applications on greenhouse tomatoes by revitalising Integrated Pest Management (IPM) practices. This will be achieved by:
  - identifying the economic risks at grower level to using an IPM programme and how these can be mitigated;
  - providing growers with a guide detailing the ideal methods of pest control for their crop;
  - incorporating the use of Biological Control Agents into crop protection programmes for New Zealand greenhouse tomatoes.

**Crop:** Tomatoes

**Contact:** Jeff Smith

Photo credit: *Whitney Cranshaw, Colorado State University, Bugwood.org*

# 05 Projects Being Scoped

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## Diamondback moth (DBM) (*Plutella xylostella*)



**Project Purpose:**

- Add a new biopesticide to vegetables crop protection programmes for the control of DBM that will delay potential resistance to insecticides that are currently used in New Zealand.
- Provide ALT with an opportunity to address a number of broader topics central to the programme's aims, such as the regulatory pathway for biopesticides, integration of biopesticides into crop protection programmes and managing pesticide resistance risk.
- This project is currently being developed as a full project proposal for ISAG.

**Crop:** Cabbage, cauliflower, broccoli, brussels sprouts

**Contact:** Jeff Smith

Photo credit: *Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org*

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## Green vegetable bug (GVB) (*Nezara viridula*)



**Project Purpose:**

- Evaluate alternative insecticide options for control of GVB in sweetcorn.
- This project is in discussion with Vegetables NZ.

**Crop:** Sweetcorn

**Contact:** Paul Munro

Photo credit: *Johnny N. Dell, Bugwood.org*

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## Sclerotinia spp



**Project Purpose:**

- Evaluate fungicides and biological control agents for control of sclerotinia in lettuce.
- This project is in discussion with Vegetables NZ.

**Crop:** Lettuce

**Contact:** Paul Munro

Photo credit: *Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org*