



Monitoring for Western Flower Thrips

Photo: Tony Burfield

The benefits of bugs

Backed by solid industry support, greenhouse growers on the Adelaide Plains have taken a leap of faith that is creating a paradigm shift in pest management.

For more than 20 years now capsicum, cucumber and tomato crops in greenhouses on the Adelaide Plains have been under attack from Western Flower Thrips.

Feeding by these thrips causes scarring and deformities that reduce fruit quality, but also spreads tomato spotted wilt virus – one of the most damaging and widespread diseases of vegetable crops in Australia.

Other major pests like two-spotted mite, aphids and greenhouse whitefly also cause big reductions in yield and quality in the region.

Pesticide spraying is expensive, time-consuming, difficult in the confined space and often ineffective due to pesticide resistance in the area.

Frustrated and financially-stretched, many greenhouse growers were looking for a better way to manage pests and diseases.

Although recognising the need for a new approach, many growers were faced with an impossible situation.

With productivity so low they were unable to afford to change their practices.

Without change they were facing the prospect of abandoning the industry.

The problems

- high pest and virus pressure
- major losses in yield and quality
- declining productivity
- pesticide sprays expensive and time-consuming
- widespread resistance to pesticides
- occupational health and safety (OHS) issues.

The approach

Help came in the form a partnership between the Adelaide and Mount Lofty Ranges Natural Resources Management (NRM) Board, Hortex and integrated pest management (IPM) service providers Biological Services and Manchil IPM.

The project aimed to build on the results of IPM trials conducted by Tony Burfield (formerly of the South Australian Research and Development Institute) and funded by the vegetable levy.



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Spurred by some initial success with IPM in the region, some growers were ready to investigate a more sustainable pest management solution.

Funding from the board's Sustainable Industry Grant scheme helped subsidise the costs of IPM for growers by 15 per cent.

Initially 16 growers joined the project in 2012, which grew to 20 in early 2013, encompassing an area of approximately 25 hectares.

Growers were provided with an IPM program tailored to their production system which targeted four main pests using 11 species of beneficial insects.

"Many growers don't realise the potential of their business until they see improvements. Funding like this can help make that potential a reality," said Tony Burfield, Integrated Farming Services.

All IPM programs began in the nursery with healthy pest and virus-free seedlings free of pesticide residues.

Ideally, these were transplanted into a pest and virus-free greenhouse, modified with insect mesh to reduce entry by pests.

Sprays of compatible pesticides were sometimes needed to reduce the large numbers of thrips emerging after pupation in the soil. This gave the crop time to establish the canopy and flowers needed to support beneficial insects.

Growers were provided with a high level of technical support that included regular monitoring by trained personnel, twice weekly at first, then weekly once beneficial insects were established.

After each visit growers were given a written report outlining what was found and the actions to be taken.

"The main thing is continuing to learn from taking risks, assessing results and adapting with expert guidance and support," said greenhouse vegetable growers, Emmanuel and Bill Cafcakis.

The aim was to teach growers how to identify and find pests, diseases and beneficial insects so they could learn how to manage their own system.

The outcomes

IPM programs reduced damage by pests and viruses and increased the yield and quality of fruit.

Less sprays were needed which saved time and money and improved crop health.

The majority of growers reduced spraying from weekly (or more) to monthly.

The superior quality fruit and more consistent harvest resulting from IPM can give growers a marketing advantage through:

- reduced pesticide use by up to 85%
- effective control of pests
- lower virus incidence
- higher yields
- better quality fruit
- healthier plants
- longer harvesting period
- reduced pressure on pesticides
- less OHS concerns
- marketing advantage
- IPM becoming more affordable as uptake increases.



Comparison: IPM crop and conventionally-managed crop – same farm, same time, but two different treatments

Photos: Steve Coventry





Farmer Hung Nguyen with James Altman and virus researcher Denis Persely in a crop grown successfully using IPM principles

“As a result of implementing IPM we have roughly doubled our sustainable production levels compared to our low point when we were trying to deal with pests and virus by relying on pesticides alone,” said Emmanuel and Bill.

Although initially expensive to set up, over a whole season the cost of IPM is more than justified compared to the risk of crop failure.

Where to from here?

The success of IPM has sparked wider interest in the industry, with 35 growers now in the program.

Increasing adoption of IPM on the Adelaide Plains is bringing the costs of IPM down, making it potentially more accessible to an even greater number of growers.

The Sustainable Industry Grants scheme tapped into a desire for change in the greenhouse industry and helped growers see first-hand how and where improvements could be made.

“This funding helped us grow our business in the Adelaide Plains because growers could afford us,” said James Altmann, Managing Director of Biological Services.

The partnership between the board and industry provided the financial and technical support that growers needed to make a major change in production, improving productivity and paving the way for a more sustainable greenhouse industry.

Sustainable industry support

Sustainable industry partnerships are funded through the Australian Government and managed by the board.

Healthy natural ecosystems and sustainable primary production systems are fundamental to social, environmental and economic well-being.

With more than 50 per cent of the Adelaide and Mount Lofty Ranges region used for primary production, the board will continue to partner with industry to increase sustainability in production systems.



*Good bugs
Photo: Tony Burfield*

For more information

**Natural Resources Adelaide and Mt Lofty Ranges
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