

# NSW VEGETABLE IPM NEWSLETTER

Integrated Pest Management for Insects and Viruses in Sydney Vegetables



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Your Levy at Work

February 2006

**\* \* \* STOP PRESS \* \* \***

**Lettuce Aphid is now confirmed as widespread in the Sydney Basin.**

**For more information on this pest, lettuce growers should refer to: [www.agric.nsw.gov.au/reader/vegetables](http://www.agric.nsw.gov.au/reader/vegetables) and to page 3 in this Newsletter.**

## IPM in the Sydney Basin: Progress Report

The last 6 months has involved weekly monitoring on demonstration farms for pest and disease issues. This has assisted in painting a clear picture of seasonal targets of integrated management plans. Results from demonstration farms will be presented to growers at on-farm meetings during 2006.

These activities hope to help growers improve their ability to identify problems and use IPM to avoid large crop losses caused by virus infection without the need for heavy spraying.

## Seasonal Farm Surveys

Throughout 2006 the project officer Stacey Azzopardi will be visiting farms with cooperation from District Horticulturists. Farms producing a range of vegetable commodities will be visited and samples with viruses plus any insect pests will be collected, identified and documented in an attempt to record the seasonal virus and vector status for 2006. Growers will be asked to estimate losses from each pest and disease and provide information on the typical control measures used throughout the year.

Summer surveys are currently underway throughout the state, so if you would like suspect plants tested and insects identified, contact Stacey on 0437 977 263. Further surveys will be conducted in autumn, winter and spring 2006.

## Commercial IPM Services

Following advertising and meetings in late 2005, a number of companies are, in cooperation with NSW DPI, developing their capacity to offer commercial IPM services to vegetable growers in the Sydney region.

In an exciting phase of the project, training programs involving IPM specialists from around the country will be held in order to bridge the gap between IPM research and horticultural consultants. While services are offered at present, the project will open communication lines between all parties, and increase access to diagnostic services, insect identification and technical support for the next few years.

Growers of all vegetables will have access to trained consultants to initiate their IPM programs. Similar initiatives in other states have led to streamlined IPM adoption and clear understanding of the steps required to practice IPM.

## WFT and Spinosad Resistance

Recent testing of Sydney WFT populations has revealed spinosad resistance at high levels. Other insecticides seem to be holding up well, however the current overuse of Success® against WFT has led to resistance. Two vegetable and two non-vegetable crops were screened in 2005, and the results ranged from 0% to 24% kill.

Growers should not rely on spinosad for WFT control. However, those who are using it should make use of sticky traps to monitor the effectiveness of the chemical to make sure resistance is not developing. Insecticides must only be used according to label directions and alternate chemical groups should be used in rotation for effective control.

Using IPM for WFT will enable growers to reduce their use of insecticides and minimise the impact of resistance on their pest management programs.

## Resistant Cultivars in IPM

Growers visiting the Henderson Seeds variety demonstration for **hydroponic lettuce** in Vineyard made a clear statement on the value of selecting resistant varieties in an integrated pest management program where available.

For hydroponic lettuce growers, trials of Currant-Lettuce Aphid (CLA) resistant varieties have been taking place on most farms across the state. Coupled with good farm hygiene and regular pest monitoring, the use of resistant varieties is a key strategy in reducing the frequency and better targeting of pesticide applications for CLA.



*Graham Nicol, Bayer CropScience and Stacey Azzopardi at the Henderson Seeds field day, discussing the importance of insecticide rotations in an IPM program*

*(Photo courtesy of M. Lamond, Good Fruit and Vegetables)*

Current summer trials of **zucchini** are also demonstrating to field growers the benefits of virus resistant varieties. Five farms across Sydney have been incorporating various new varieties and comparing them to their own crops. Preliminary results are showing that the key virus this summer in zucchinis is Watermelon Mosaic Virus, and that the new range of varieties with intermediate resistance to the disease are looking promising.



*Leaf symptoms of mosaic virus in zucchini*

A further trial is being conducted through February-March. Selected resistant zucchini cultivars are being compared with Congo for mosaic virus resistance and marketability. An on-farm field day will be held in late March for growers to see the results of this trial plus the anti-virus treatments trial at the same site (see article titled Anti Virus Treatments for Vegetables in this Newsletter).

## Brassica IPM

A field vegetable farm day was held in Bathurst with the Brassica IPM project team from South Australia. Growers attending this event gained an understanding of **IPM in field vegetables** in the central west.



*Andy Ryland of the Beneficial Bug Company (centre) with Joe Vassallo and Ray Vella at the field day*

The information presented by the host, Jeff McSpedden, was well received and the discussion extended beyond IPM to holistic farm management, machinery and marketing.

Follow up IPM seminars will be held in the Camden and Hawkesbury regions focussing on insect management and variety selection in summer crops. For dates and locations, contact Stacey on 0437 977 263.

## Anti-Virus Treatments for Vegetables

A new range of products recently released as spray additives are being trialled as **anti-virus** sprays.

Hydroponic lettuce is being treated to determine the products' effectiveness at preventing the spread of Tomato Spotted Wilt Virus by thrips. The polymer-based film over the leaves is said to inhibit TSWV transmission, thus breaking the virus cycle.

A similar trial is also underway looking at the protection of zucchini plants from mosaic viruses. Aphids can vector a number of zucchini viruses, with the most predominant this season being Watermelon Mosaic Virus II.

Results will be available in the next issue of the Vegetable IPM Newsletter.

## Lettuce Aphid Update

The detection of the currant-lettuce aphid (*Nasonovia ribis-nigri*) has been confirmed in NSW on a number of commercial lettuce production properties. The initial detection was on a hydroponic lettuce farm in Austral, south-west Sydney and the sample was collected as part of routine surveillance by NSW DPI.

Inspections in the Sydney basin and regional lettuce growing areas of NSW had not detected any lettuce aphid until early February 2006.



*Lettuce aphids on red coral hydroponic lettuce, showing the numbers present in the heart (Photo courtesy of Leigh James)*

There had been over 100 inspections across NSW lettuce producing regions and markets and 370 insect identifications reported between 25 February 2005 and the end of January 2006 prior to the positive detection.

Lettuce aphid feeds on lettuce, endive, chicory and some weeds, and can be found both on the leaves and in the heart of the lettuce. When monitoring your crops for the aphid, check the leaves through to the heart.

- ✓ It is a good idea to get any insect pests identified so that management can be more effective
- ✓ All aphids found in the heart of the lettuce should be forwarded to DPI for identification

Several other green and brown aphids occur on the outer leaves of lettuce. These are easier to manage as they can be controlled with contact insecticides such as Pirimor®, Chess® or Dimethoate®.

Lettuce aphids hide in the heart away from insecticide sprays, allowing them to breed through to harvest.

Lettuce aphid management trials conducted in Tasmania and Victoria have shown the most effective methods to be:

- ✓ Seedling treatments with Confidor® as per APVMA Permit 7416
- ✓ Biological IPM
- ✓ Resistant varieties

A biological IPM program will not be successful with the use of Confidor® drenches. Confidor® has been shown to affect the populations of natural predators such as lacewings and ladybeetles. The use of resistant varieties provides growers with the ability to reduce insecticide applications, including Confidor® drenches.

Lettuce aphid was confirmed in Tasmania (the first time in Australia) in March 2004 but difficult to control aphids were observed from late January 2004. The aphid is thought to have come to Tasmania from New Zealand on an easterly weather stream. It is now considered endemic in Melbourne metropolitan area following its detection in May 2005.

Current protocols for the movement of lettuce between states will be available on the following internet site:

- ✓ [www.agric.nsw.gov.au/reader/vegetables](http://www.agric.nsw.gov.au/reader/vegetables)

If you have any questions regarding lettuce aphid, contact the following District Horticulturists:

Leigh James – 02 4588 2100  
Jeremy Badgery-Parker – 02 4348 1900  
Lawrence Ullio – 02 4640 6333

If you have aphids to be identified, samples are to be sent in containers with cotton wool soaked with methylated spirits. Live aphids are not to be sent. Please express post containers with your details to:

Insect Identification  
Orange Agricultural Institute  
Forest Rd, Orange NSW 2800



*A wingless adult lettuce aphid with the black stripes seen on its back (Photo courtesy of Leigh James)*

## Tomato Spotted Wilt Virus

### Why do western flower thrips cause such losses year after year?

The past few months have been tough for vegetable growers – both field and greenhouse or hydroponic – with Tomato Spotted Wilt Virus (TSWV) on many farms, causing up to 70% losses in some areas.

It is this time in the season that growers must take a step back and evaluate the situation on their farm. What did you see first – thrips or virus? When did you see thrips on your farm? When did you start to see plants with virus symptoms?

A **TSWV Action Plan** should be in place on every farm to cut losses from this disease:

### Monitoring and Diagnosis

Do you see thrips before you see virus?

- ✓ Use weekly **sticky traps** or tap random and suspect plants over a white surface while monitoring
- ✓ **Magnifiers** – hand lens or headband magnifiers

If you don't know what thrips you have, submit a sample for identification by phoning the NSW DPI Insect Enquiry Line on 1800 675 821 or visit the web site:

- ✓ [www.agric.nsw.gov.au/reader/what-thrips-is-that-series](http://www.agric.nsw.gov.au/reader/what-thrips-is-that-series)



There are only 3 types of thrips that spread the virus in NSW.

If you suspect **TSWV**, check your field guides for symptoms and have it confirmed by a laboratory.

- ✓ Keep a **weekly record** of how many plants are sick and whether thrips are present.

Samples can be submitted by phoning NSW DPI Plant Health Diagnostic Service EMAIL on 02 4640 6428.

## Hygiene

Remember that any thrips that hatch from affected plants can spread the virus as they feed on healthy plants. Thrips eggs cannot be killed with insecticides – no matter how much you spray them.

- ✓ **Remove all TSWV affected plants** in order to reduce the spread of the disease

Weed control ensures the thrips don't breed in the areas around the crop. Viruses can also be found in weeds, surviving on your farm through winter months until the thrips numbers build up in spring.



- Before & After -

*Weed control under hydroponic lettuce benches*

- ✓ Plough, bury or **dispose of old crops** – most farms plant successively, so get in straight after harvest and clean up.

## Control

Chemicals registered for Western Flower Thrips are wearing thin, however permits are available temporarily for most vegetable crop situations. To find up-to-date chemical information, contact your local district horticulturist or the NSW Vegetable IDO, Alison Anderson, on 02 9746 1865 or visit:

- ✓ [www.agric.nsw.gov.au/reader/thrips/wft-insecticide-mgt-plan.htm](http://www.agric.nsw.gov.au/reader/thrips/wft-insecticide-mgt-plan.htm)

**Chemical** applications should be made at the label rate, and growers should ensure that equipment is calibrated and coverage is adequate.

**Biological** controls are commercially available for greenhouse crops, including predatory mites, while field vegetables can host natural predators such as lacewings and lady beetles.

**Growers interested in IPM demonstrations or pest and disease surveys are encouraged to contact Stacey Azzopardi on 0437 977 263**