

NSW VEGETABLE IPM NEWSLETTER

Integrated Pest Management for Insects and Viruses in Sydney Vegetables



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Your Levy at Work

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An IPM Success Story

Sylvia Jelinek

Joe D'Anastasi has been one of the main hydroponic lettuce demonstration farms for the duration of the Vegetable IPM project. Many trials and exercises have been carried out on his Glenorie farm.

Western flower thrips (WFT), since their debut in Sydney, have caused great chaos for the vegetable and ornamental industry. The prevailing resistance to spinosad (Success[®]) came quickly with WFTs in the Hills District tested for spinosad resistance in March 2007 with 88% resistant and 79% resistant in November 2008 (Data obtained from Dr Grant Herron). To create further stress for the hydroponic lettuce growers, methomyl (Lannate[®]) was removed from use to lettuce growers early in 2007 leaving no chemical to use in rotation with spinosad against WFT. These events prompted Joe to employ the services of an IPM consultant to scout his farm, diagnose problems and prescribe actions. Andy Ryland from the Beneficial Bug Co. in Richmond has been working with Joe on his Glenorie farm for many years to combat the persistent WFT problem.

The only way to combat tomato spotted wilt virus (TSWV) in lettuce on-farm was to focus on other control methods. The control

method that has been the most effective on Joe's hydroponic lettuce farm is good hygiene practices. Basic and successful farm hygiene practices managed to lower WFT numbers thus reducing TSWV in plants, which in turn lowered plant loss and increased profitability. Prior to implementing these practices Joe estimates his losses to TSWV in 2007 as being anywhere between 40-60%, depending on what time of year it was, and once the new hygiene management practices were put into operation, losses have been calculated at less than 1%.



Workers at Joe D'Anastasi's farm deleafing lettuce into pre-lined otto bins

The most important hygiene practices are roguing TSWV infected plants, disposing of diseased plants appropriately, removing all postharvest litter on the ground or under benches and removing all waste, whether it is TSWV affected or not. All waste and

diseased plants are bagged, binned and removed off site. This simple practice has once and for all removed a very persistent resident population of WFT (see pictured sticky trap results) and reservoirs of the virus that cause TSWV. Chemical sprays have also been avoided for periods longer than six weeks.



WFT on sticky traps, left and middle traps are prior to change in hygiene practices and trap on right after implementation that show very few WFT present

These changes institute part of an integrated pest management (IPM) plan, assisted by an IPM consultant. IPM is an approach that encourages the reduction of pesticides; growers/farm managers are responsible for final decisions and actions regarding recommendations of pesticide use and their application. For a list of IPM consultants in your area please contact Sylvia Jelinek *I&I NSW* 02 4588 2135.

IPM Training EOI

Sylvia Jelinek

In the coming weeks and months some IPM training will be delivered to vegetable growers in the Sydney Basin. This will be essential training on farm hygiene, pest and disease recognition and control measures as well as beneficial identification. If any growers or consultants are interested in attending any of the workshops (dates yet to be announced) please call Sylvia Jelinek *I&I NSW* on 02 4588 2135.

Revolution in IPM

Leigh Pilkington & Sylvia Jelinek

Will pesticide limitations and the change in consumer perception drive a change for greater biological control use?...YES

Australia seems to lag behind European nations when it comes to implementing biological control agents in greenhouse crops. In the United Kingdom growers have

been encouraged to consider reducing their reliance on pesticides, this was achieved by the Pesticide Safety Directorate lowering registration fees for biopesticide development so to increase and speed up the availability of reduce risk pesticides to growers.

Changes in the growing systems are often driven by consumers demanding pesticide-free produce from retailers, in which campaigns have assisted in education and promotion of alternative growing systems, such as using biological control agents. The changes necessary in greenhouse pest management throughout the world is often driven by crisis. This crisis is yet to come to our shores in Australia, but most definitely acts as a warning, if a change is on the way; understanding and strategy development including the implementation of biological control agents in greenhouses is something that should begin soon, so to have more than one foot in the door when the surge of change comes our way.

The main factors that are driving change to reliance on synthetic pesticides include:

- worker safety
- scarcity of registrations for use of pesticides within greenhouses
- consumers demanding pesticide-free produce from retailers
- increase in access to a variety of biological control agents.

For assistance in establishing biological control agents in your greenhouse or for more information please contact Sylvia Jelinek *I&I NSW* on 02 4588 2135.

Orius in the Spotlight

Sylvia Jelinek

The minute pirate bug or *Orius armatus* is a thrips predator. It preys on many species of thrips, larvae and adults especially WFT. They feed on their prey by sucking out their body fluids. When there is a lack of thrips to feed on Orius will feed on aphids, spider mite, caterpillar eggs and pollen. Crops that flower and have pollen are the best situation for Orius, except for flower crops that are harvested regularly such as roses, capsicums are ideal.

Orius has seven developmental stages, an egg, five larval stages and an adult – this lifecycle taking about 16-18 days at 25°C to complete. The adult lives for 3-4 weeks, the male has a shorter life span than the female. At 20°C Orius can kill around two WFT per day, if the pest pressure is high, they will kill more than their dietary needs require. They are good flyers and nimble, which assists in dispersing throughout the growing environment.

Image courtesy of Lachlan Chilman



Adult Orius armatus

Orius, when used for thrips control need up to three releases. The first release should be at the early flowering stage of the crop and the successive application should be two weeks apart. As the season advances additional releases may be required in hotspots.

When monitoring for Orius, it is best to do it during the middle of the day when they are most active due to the light conditions. They leave a red stain on the petals of capsicum flowers when feeding in the flower. Juveniles should appear around 3-5 weeks after the initial release and have a red dot on their backs during the early stages of growth.

Orius can be purchased from Manchil IPM Services Pty Ltd,

<http://www.manchilipmservices.com.au>

info@manchilipmservices.com.au

Further contact details can be found on their webpage.

Pest and Disease Issues

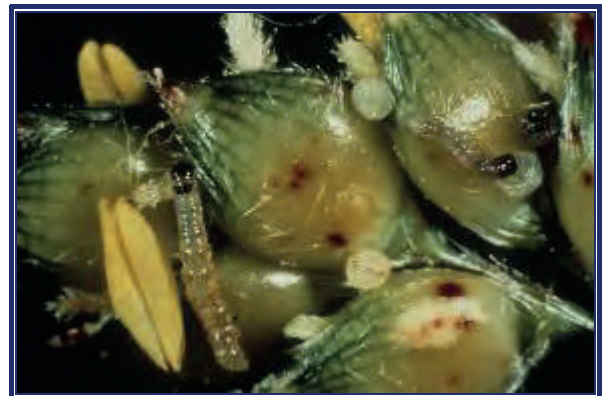
Sylvia Jelinek

Has anyone seen CLA?

The elusive currant lettuce aphid (CLA) has still not been seen since spring 2009. If anyone has spotted them in their lettuce crop please contact Sylvia Jelinek *I&I NSW* on 02 4588 2135.

Grubs in your Lettuce?

Heliothis seemed to be a persistent problem earlier this year, especially in head lettuce. This is an indication that correct and sufficient monitoring for grubs is lacking. Dipel® and Vivus® are effective in the combat of grubs but timing is of the essence. It is best to target the first few instar caterpillars (young stage), once the grubs are dark green and large it is almost impossible to control them and they create a lot of damage within the heart of the lettuce. A lot of this damage isn't seen until the consumer takes their lettuce home. Close monitoring will ensure that spray applications are better timed and good control can be achieved.



Heliothis eggs & new hatched larva & 1st instar larva caterpillars

New Virus Threat for Vegetables

Sylvia Jelinek

Earlier this year I&I NSW plant diagnostics detected impatiens necrotic spot virus (INSV) in an ornamental crop. INSV is a tospovirus much the same as tomato spotted wilt virus (TSWV), they are vectored by thrips, namely WFT and have similar symptoms and plant hosts. Although INSV mainly affects ornamental or flowering crops there are some weed and vegetable crops that are susceptible. This is important to vegetable

growers as it increases the risk of potential virus infection on-farm. Although a full eradication plan was undertaken at the property to contain the spread of the virus and neighbouring nurseries/farms were surveyed for the virus and all results came back negative, there is still the minor chance that INSV may be latent in neighbouring crops or weeds. INSV has not been found in any vegetable crops yet in Australia.



INSV symptoms on begonia's

The vegetables and herbs that are known to host INSV include:

- Basil
- Bean
- Broccoli
- Cauliflower
- Celery
- Coriander
- Cucumber
- Lettuce
- Parsley
- Pea
- Pepper
- Spinach
- Tomato

The symptoms are very much the same as TSWV with plants developing necrotic spots, streaking, ring spots, sometimes with double ring spotting, stunting and wilting. Once again this highlights the importance of farm hygiene and the necessity to remove plants that appear to be affected with the virus, as leaving virus infected plants amongst your plantings creates a reservoir for thrips to spread it throughout the crop.

Greenhouse Vegetables Field Identification Guide

Sylvia Jelinek

Just a reminder that the 'Pests, Beneficials, Diseases and Disorders in Greenhouse Vegetables: Field Identification Guide' first edition is available at a reduced price of \$18. This publication is a must for any greenhouse vegetable grower, but can also be a very useful guide to most vegetable farmers.



This guide is available through the bookshop on: 1800 028 374
<http://www.dpi.nsw.gov.au/aboutus/resources/bookshop>
or email: bookshop@dpi.nsw.gov.au

Further Information

www.dpi.nsw.gov.au for pest and disease management information

www.apvma.gov.au for chemical permits and registrations

www.dpi.qld.gov.au/infopest to subscribe to the Infopest AGVET DVD

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