

Lettuce aphid

The lettuce aphid, *Nasonovia ribis-nigris*, has become a major issue of concern to New Zealand lettuce growers, since the pest was first found in Christchurch in April. The aphid colonises the centre of the lettuce and is difficult to control with insecticides once the lettuces have hearted. In Europe and USA, the aphid is known to be resistant to a range of insecticides. Tests are currently being conducted in New Zealand to determine the resistance status of the lettuce aphids.

The challenge for the Australian industry is to develop an effective response for the arrival of the aphid. History suggests that eradication will be out of the question - by the time the aphid is recognised in the field, it will be widespread. However, we have access to many tools for managing this intruder.

Plans before arrival:

- Form a regional advisory group of growers, agrochemical companies, seed & seedling companies, consultants and researchers to ensure contingency plans are in place.
- Provide growers & crop scouts with an illustrated fact sheet to aid early identification.
- Work with agrochemical companies to ensure that growers have access to appropriate registered insecticides.
- Work with seed companies to ensure that growers have access to appropriate resistant cultivars.
- Keep in close touch with New Zealand to monitor their progress with solutions to the problem.

Develop an effective IPM strategy:

Including: monitoring crops regularly, applying effective insecticides at the appropriate time, using innovative methods of application, rotating chemical groups to delay resistance problems, using resistant cultivars and protecting beneficial insects by using selective insecticides.

Resistant lettuce cultivars:

European plant breeders have developed several lettuce cultivars resistant to lettuce aphid. These cultivars will be tested extensively in New Zealand in the coming season.

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Victorian insecticide trials

Field trials were carried out to evaluate the effectiveness of a range of pesticides in controlling *Helicoverpa armigera* (corn earworm) on lettuce. The sites were in Werribee, Cranbourne and Lindenow.

Eight insecticides were evaluated at each of the three sites: Prodigy®, Proclaim®, Avatar®, Success®, Dominex®, Sumitomo 1812 (unregistered), Delfin®, Gemstar®, along with an untreated control.

During autumn 2002, *Helicoverpa* pressure was much lower than in recent years. As a result, we could not detect differences in control of *Helicoverpa* between treatments.

However, in the trials at Cranbourne and Lindenow, very high levels of infestation were observed with the brown sowthistle aphid, *Uroleucon sonchi*. This is the first season that we have seen this aphid (a recent arrival to Australia) in lettuce. It is more commonly found colonising sowthistle weeds, often in association with the green sowthistle aphid, *Hyperomyzus lactucae*, the vector of lettuce necrotic yellows.

At Cranbourne, aphid levels were very high in all treatments apart from the broad-spectrum Dominex®. Results were more variable at Lindenow. The high numbers of aphids attracted many beneficial hoverflies to the lettuces.



Brown Sowthistle aphids – on a lettuce

These results highlight the need to carefully monitor crops and headland weeds, particularly as the industry moves away from broad-spectrum insecticides towards more selective chemicals.

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Pest management survey

A survey of the current pest management practices in the Australian lettuce Industry has been completed. A full copy of the report can be obtained by request or downloaded from:

<http://www.agric.nsw.gov.au/reader/15235>

- *Helicoverpa* is the main target pest in Queensland, New South Wales and Victoria.
- Western Flower Thrips is the main target pest in Western Australia and South Australia.
- Most growers still use older insecticides and conventional hydraulic boom spray rigs.
- Many growers have found a place for crop scouts and new generation chemicals in their pest management strategy.
- Very few growers use unregistered chemicals, rely on a single chemical control or use unnecessary insecticide tank-mixes.
- Many growers spray to a schedule that is adjusted to suit seasonal conditions and observed pest pressure.
- Victoria appears to have the highest adoption of crop monitoring and IPM implementation.
- Many growers tank mix methomyl with another insecticide when *Helicoverpa* pressure is high.

Hay Update

Most growers in the Hay district have had to water due to the unseasonable dry conditions. The pest pressure is variable throughout the district. There have been some early flights of *Helicoverpa punctigera* and Rutherglen bugs are swarming into some lettuce crops. At present Big Vein virus appears to be the most prominent disease.

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Queensland insecticide trials

Four *Helicoverpa* insecticide treatments were evaluated on Queensland lettuce crops in autumn 2002:

1. Grower Best Practice: Bt or Success® pre hearting, and then Success® or Avatar® until harvest, (methomyl added when egg numbers are high).
2. Proclaim®,
3. Sumitomo 1812 (unregistered),
4. Azamax® (a neem oil product)

Results indicate that Azamax® appeared no better than the untreated control while the other three treatments performed equally well.

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Food safety and chicken litter

Strategies for the safe use of poultry litter in food crop production

Scientists at IHD-Knoxfield have shown that :

- Chicken litter deliveries can contain bacteria of concern but their numbers quickly decrease once the litter is incorporated into the soil.
- Work with cos lettuce and *Escherichia coli* (a bacterium used as a model for human pathogens) indicates that the prevention of plant injury can decrease the risk of food-borne illness.

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Sclerotinia fungicide trials in WA

The field trial to look at control of sclerotinia with fungicides has just been completed. Several fungicide, fertiliser and soil amendment strategies were tested. The most effective treatments for controlling sclerotinia were:

- (1) Weekly applications of procymidone.
- (2) Weekly applications of procymidone with "microgyp" (lime) added.
- (3) A fungicide rotation including weekly sprays of iprodione, benomyl and procymidone in conjunction with a high rate of potassium nitrate fertiliser (900 kg/ha KNO₃ total).

The percentage of plants lost to sclerotinia at harvest was 50% or less with these treatments. This was a significant improvement over untreated plots where 75% of plants were lost to sclerotinia.

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Rots and browning in lettuce

The project investigating the causes of bacterial rots and browning of lettuce has been completed. The project assessed the number of *Pseudomonas* bacteria in lettuce-growing soils and their ability to cause browning on postharvest lettuce.

- The natural levels of fluorescent pseudomonads in soils of lettuce growing regions varied over the seasons and also varied between crop types.
- The after-harvest lettuce waste contained high populations of fluorescent pseudomonads, therefore there should be a time lapse between harvest and replanting of seedlings of about 14 days.

The project was funded by the Australian vegetable industry levy, Horticulture Australia and the Department of Natural Resources and Environment, Victoria.

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