

Lettuce aphid update

Andrew Creek

Currant-lettuce aphid (*Nasonovia ribis-nigri*) was confirmed in Melbourne, Victoria during May 2005. The aphid has steadily spread from the outbreak at Templestowe to most of the lettuce production areas around the bay. By October the aphid was established in lettuce crops at both Werribee and Cranbourne. DPI Victoria are still actively monitoring aphid traps and surveying lettuce crops to maintain area freedom for the remainder of Victoria's lettuce production zones (Bacchus Marsh, Bairnsdale and Robinvale).

Lettuce growers in both Victoria and Tasmania are mainly managing the aphid with Confidor® seedling drenches. Lettuce aphid resistant varieties are working however growers have found the lettuce sizes to be variable. To use Confidor® sustainably growers need to consider implementing area wide resistance management strategies. Such a strategy may include Integrated Pest Management (IPM) techniques with the use of a drench free period and resistant varieties.

Compliance to interstate trading regulations is the greatest issue for Victorian growers. An approved IPM strategy has been accepted by NSW as a treatment for allowing lettuce produce into NSW markets. QLD and SA only accept resistant varieties, fumigation or Confidor® as suitable treatments. WA only accepts state based area freedom. The differences between regulations essentially limit the marketing potential of lettuces grown with an IPM strategy.



Image courtesy of TAS DPIWE

A lettuce leaf infested with lettuce aphid

The time it will take for the aphid to spread throughout the country is unknown. Respective state departments are surveying lettuce production areas regularly to maintain the trading regulations. Growers are advised to check the Ausveg website for the latest information on the lettuce aphid's movements and interstate regulations. <http://www.ausveg.com.au>

Lettuce aphid in the USA

Andrew Creek

In 1998 lettuce aphid *Nasonovia ribis-nigri*, arrived and became a serious insect pest for lettuce producers in the Salinas Valley of California, the western USA. Although there are many variables between Australian and USA circumstances, it is interesting to note that *Nasonovia* has yet to establish in the lettuce production areas of Florida, eastern USA. This distance can be likened to the distance between Perth and Melbourne.



Comparison of Australia/United States (Geoscience Australia)

Nasonovia has at times been found in grocery stores across Florida within "organic" lettuce shipped in from California, but it has not colonized cultivated crops. However Florida lettuce growers do have a similar aphid problem. *Uroleucon pseudambrosiae*, a large reddish-brown coloured aphid that also begins colonies inside the lettuce heart. This aphid is currently not found in Australia.

In recent years, lettuce aphid has been sporadically abundant in California and Arizona lettuce crops. *Nasonovia* pest pressure has reduced as growers now know how to manage the pest and beneficial insects have been cued into the pest as a food source. Green peach aphid *Myzus persicae*, Potato aphid *Macrosiphum euphorbiae* and Foxglove aphid *Aulacorthum solani* are other important aphid pests of US lettuce crops. Foxglove aphid also colonises lettuce hearts like the lettuce aphid. Aphids tend to cause the most economic damage to crops harvested in the spring. Many growers apply imidacloprid chemical treatments to the seed bed for this production period. Destructive sampling of lettuces is part of the monitoring procedures used by growers to determine when to apply insecticides.

Aphid key

The agricultural scientific collections unit from NSW DPI has published an illustrated key to the aphids found on lettuce in Australia. Entomologists may find the key helpful to identify specimens of *Nasonovia ribisnigri*. <http://www.agric.nsw.gov.au/Hort/ascu/lettuce/lett00.htm>

Downy mildew 'Aus 4'

Andrew Creek

Some growers from Victoria and NSW have reported economic losses in lettuce crops this season from downy mildew, *Bremia lactucae*. A new strain of downy mildew 'Aus 4' has been confirmed in Victoria. The resistance gene for downy has been overcome and varieties like Shrek, Julius, Grenadier, Silverado, Sentry and some of the aphid resistant (NR) varieties will be susceptible. Varieties which have resistance to race 25 appear to be resistant to "Aus4".

Downy mildew is fungus disease where the outer lettuce leaves develop yellow patches that eventually turn brown. White fluffy growth can be seen on the undersides of leaves. Downy mildew develops during showery weather or when there are heavy morning dews on leaves. The disease mostly occurs during spring and autumn.



Left: white coloured spores of downy mildew
Right: a lettuce leaf with downy mildew

Growers are advised to use a protectant spray program and apply systemic fungicides when conditions for downy mildew disease development are favourable. Varieties with resistance to the new strain of downy are being introduced and fast tracked through trialling programs. Seed company territory managers can advise growers on lettuce varietal resistances and tolerances to disease and their suitability to an area.

Completed lettuce project

A three year Horticulture Australia (HAL) and vegetable levy funded project that focused on improving insect pest management in lettuce has been completed, with the final report being submitted to HAL this month.

Outcomes of this NSW DPI and QDPI project are:

- evaluation of new insecticides for heliothis, lucerne leaf roller, aphids and silverleaf whitefly
- the best management options (BMO) trials
- more than 15 field days / workshops in the major lettuce production regions of Australia
- 2nd & 3rd Australian Lettuce Industry Conferences
- the ute guide, "Pests, Beneficials, Diseases and Disorders in Lettuce: Field Identification Guide"
- 17 issues of the newsletter "Lettuce Leaf"

Lettuce IPM project

Sandra McDougall

In September, a new two year lettuce project began that aims to further develop Integrated Pest Management (IPM) in lettuce. Lettuce aphid is currently a focus of the work, with commercial IPM demonstration trials in both Tasmania and Victoria. Paul Horne and Jessica Page from IPM Technologies are managing the trials in Victoria and also making alternating weekly visits to the trial sites at Hobart and Devonport in Tasmania.

In Werrabee one IPM grower has already harvested the first six lettuce plantings of susceptible varieties without significant losses from lettuce aphid. The interstate trading protocols pose a greater problem to Victorian growers using an IPM strategy than does the aphid itself.

The use of Confidor® in many Victorian lettuce crops may inadvertently kill many of the beneficial insects that predate on caterpillar eggs and larvae. This may lead to a greater need for insecticide sprays to control loopers and heliothis. Researchers in Victoria will be gathering insect monitoring data from both IPM and Confidor® treated crops for comparison.

In Tasmania there is an iceberg IPM trial site at Devonport, where there will be four 0.1ha plantings similar to the trials last year at Forthside research station. There is also a commercial demonstration trial site near Hobart investigating IPM in red and green oaks and coral lettuces. There will be 14 plantings of 15 000 plants throughout the season.

On farm field days and demonstrations will be held at both Victorian and Tasmanian IPM trial sites. Growers have the opportunity to see how IPM strategies can be implemented to effectively manage insect pests.

Researchers realise that western flower thrips (WFT) and tomato spotted wilt virus are an impediment to IPM adoption in other areas around Australia. Research will also be done on alternative WFT management strategies that suit an IPM system.



Brown lacewing adult (*Micromus tasmaniae*)
Both the larvae and adults are voracious aphid predators

Final reports from HAL funded projects can be downloaded from the levy payers section of the AUSVEG website. Recently completed lettuce projects include:

- Scoping study of varnish spot disease in lettuce
- Lettuce insect pest management - Victoria
<http://www.ausveg.com.au>