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State Roundups

Honours project Western Australia -Sonya Broughton, DAWA
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The indirect effects of imidacloprid on both adult and larvae of the ladybird beetle *Hippodamia variegata* were evaluated in the laboratory. Imidacloprid, in the commercial product Confidor® was applied at half the recommended rate, the recommended rate, and twice the recommended rate to lettuce seedlings. Poisoned aphids exposed to the different imidacloprid treatments were fed to larvae and adult *H. variegata.* Larval mortality, development, and aphid consumption by larvae were assessed for 28 days. Adult mortality, weight gain and aphid consumption by adults was assessed for 21 days. After 21 days any surviving adult females were mated and oviposition and egg hatch were measured. Adults and larvae had reduced survival and growth when fed aphids that had been placed on imidacloprid treated plants; surviving adults had reduced fecundity. Larvae fed poisoned aphids had a prolonged development time in the fourth instar stage, often resulting in mortality. The results suggest that if growers are interested in using IPM, imidacloprid may not be compatible with *H. variegata* for the control of aphids in lettuce crops.

Queensland –Austin McLennan QDPIF
Two weeks ago (20/11/07) some hydroponic lettuce was brought into the Gatton Research Station covered in aphids - these were subsequently confirmed as Currant Lettuce Aphid. This caused a mini-scare as the varieties were reported to be *Nas*-resistant lines, raising the possibility that we had a new CLA biotype capable of feeding on *Nas*-resistant lettuce. Thankfully, investigations quickly showed that the CLA infested lettuce varieties were in fact non-resistant varieties.

This incident reinforced the importance of: 1. Keeping accurate records of which varieties are planted and where.
2. Monitoring all plantings and reporting any suspected CLA feeding on *Nas*-resistant lettuce.
The grower in this case did the right thing by informing the relevant people and ensuring the situation was followed up.

Growers are also asked to report any suspicions of CLA developing resistance to imidacloprid or other chemistries.

South Australia –Greg Baker & Peter Crisp, SARDI
Lettuce aphid (CLA) was recently detected (October 07) at Murray Bridge in lettuces remaining in the field post harvest. As with the aphids detected in Virginia in early spring, the plants were 12 weeks old and past effective Confidor dip protection. The persistence of pests on remnant crops emphasises the need to for quick effective cleanup of harvested plantings. CLA was also detected in the Adelaide Hills on a small planting of *Ribes* spp.. The *Ribes* will be monitored through the summer to monitor survival.

High densities of a predatory mite (*Pergamasus* sp., pictured below), up to 20 per plant, have been detected in lettuce at Murray Bridge. The *Pergamasus* sp and related mites from other lettuce crops have been observed feeding on thrips. Their effect on CLA is currently being assessed in a greenhouse trial.

We are interested in the distribution of *Pergamasus* sp. and similar mites in lettuce crops across Australia, and the cultural practices that encourage their establishment, and would appreciate reports of detection (mobile 0438879633 or email: crisp.peter@saugov.sa.gov.au). They are small (2mm long), fast-moving, brown mites that are visible without magnification. They can be seen moving across the foliage or soil and often gather on the soil under outer leaves.

At Gumeracha (Adelaide Hills), a trial has been established to assess whether CLA can be controlled by aphid predators in crops where management includes a combination of several compost applications, undipped seedlings (ie. no Confidor) and foliar sprays which are less harmful to the predators.

Lettuce Symposium & Workshop NSW –Sylvia Jelinek NSW DPI
Sixty growers, industry and DPI staff attended a symposium and workshop for pest and disease management for field and hydroponic lettuce on Wednesday 28th November in Sydney. The day was organised by NSW DPI.

The morning symposium covered hydro-lettuce root diseases, chemical residue issues, WFT resistance status and potential chemical control options for lettuce and IPM alternatives for WFT and reducing TSWV incidence on farms. Two discussion sessions were held one on project directions and the second on the implications of the new CLA bio-type in Europe which feeds on Nas resistant varieties.

The five afternoon workshops were each geared to illustrate a basic concept relating to pests and diseases in lettuce. These small group workshops were rated highly by the participating growers and industry. The sessions included: the crop health and the IPM spiral, a resistance development exercise, a lettuce disease recognition game, identifying thrips on sticky traps and looking at common weeds that host lettuce diseases, and an aphid quiz.

Growers also got to look at a new spray system from Croplands and Tornado that recently demonstrated improved spray coverage when compared to the blower or cannon sprayers used by hydroponic lettuce growers. A short talk by Dave Farmer highlighted the importance of spray application, calibrating sprayers regularly and using water sensitive paper to evaluate spray efficiency.

Tomato spotted wilt virus, thrips and weeds

Tomato spotted wilt virus (TSWV) is a tospovirus transmitted by some species of thrips. Western flower thrips WFT (*Franklienella occidentalis*), tomato thrips (*Franklienella schultzei*) and onion thrips (*Thrips tabaci*) are common vectors for TSWV in vegetables. Melon thrips (*Thrips palmi*) is also a vector for TSWV and is found in northern areas. Once a plant is infected with TSWV it cannot be cured, so prevention or tolerant varieties (in some crops but not lettuce) are the only management options.

Thrips larvae must feed on a TSWV infected plant to acquire the virus. Uninfected adult thrips cannot acquire the virus. Plague thrips and other non-host thrips cannot acquire the virus nor can other insects such as aphids. TSWV is not spread in seed or via mechanical damage although it can be spread through cuttings used for plant propagation.

Many hundreds of plants are TSWV hosts (>900), most are in the Solanaceae, Asteraceae or Legumaceae. Some show symptoms and some do not. WFT, is one of the better vectors of TSWV and it breeds on a wide range of flowering plants including weeds, vegetable crops and fruit trees.

Not all weeds that are on the host list for TSWV seem to be important hosts. Common weed hosts that do test positive for TSWV and are hosts of WFT include amaranth, cape weed, pigweed, mallows, blue heliotrope, fat hen, purple top, shepherd's purse, nightshades, Scotch thistle and sow thistle.

Weeds that commonly host WFT & TSWV

Cape weed showing TSWV symptoms

Sowthistle showing TSWV symptoms

Pigweed

Mallow

Fat hen

Shepherd's Purse

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