Issue No. 33 **Lettuce Leaf** June 2008

National Vegetable Industry Centre Newsletter

What to expect when using IPM in lettuce

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First, what we mean by IPM: It is dealing with all pests in a lettuce crop, primarily by biological and cultural controls, supported by compatible chemical when necessary and as determined by monitoring.

The main biological control agents are brown lacewings, ladybirds (several species), hoverflies, and damsel bugs.

Cultural controls include variety selection, planting grassy strips and sequential planting.

Chemical supports are usually restricted to BT sprays (such as *Delfin, Dipel or XenTari*) and *GemStar* or *Vivus* for caterpillars. *Chess* may be used for aphids. *Confidor* drench cannot be used within an IPM strategy.

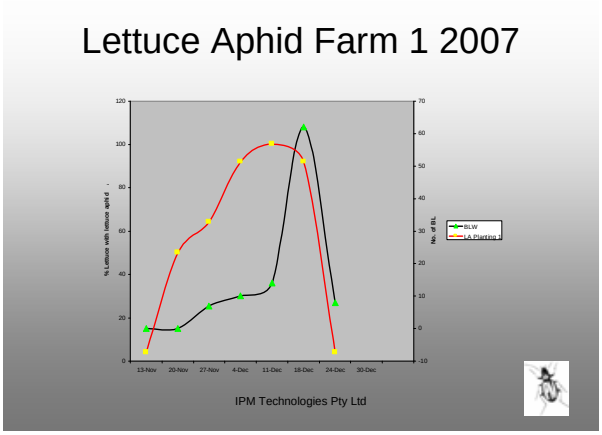
Lettuce aphids are likely to arrive within the first week after transplanting and the numbers will increase rapidly. Levels may reach 100% of plants with lettuce aphid within 4 weeks.

Predators of aphids can be expected to appear in the crop shortly after the arrival of aphids unless it is winter. The adult predators colonise the crop but control only begins to be noticed once there are juveniles from the next generation present. In an 8-week crop, total control may be reached as late as week 7.

If there are sequential plantings then control should become far more rapid in later plantings as beneficials are already present.

We have demonstrated this same result each and every year since the arrival of lettuce aphid in Australia (that lettuce aphid can be controlled using an IPM approach relying on biological and cultural controls with only minor support from pesticides).

The most recent example is provided here. It is how lettuce aphid was controlled in a commercial crop in Werribee South in December 2007. It shows the percentage infestation of lettuce and the numbers of brown lacewings present in the crop.



Summary - Lettuce IPM Consultation

In April grower meetings were held in Virginia, Wanneroo, Gatton and Richmond. Paul Horne and Jessica Page collected responses from Victorian growers. 27 surveys were collected and ironically the 3 growers who did not want to continue IPM research are 3 IPM growers – they have a system that is working for them. All but 2 were field growers. When asked what areas they wanted funded, most wanted everything…but more wanted work or information on weeds as pest and disease hosts. The handout on Nas & Downy resistant lettuce varieties had the most support as did workshop on using biological pesticides.

Priority rating	Low *1*	*2*	*3*	*4*	High *5*	Shouldn't fund
IPM Demonstrations	0	1	4	**10**	8	1
Beneficial nursery crops	0	2	3	3	**12**	4
Predatory mites	3	2	3	5	**10**	2
Weeds as pests & disease hosts	1	0	3	4	**15**	
Supermarkets & processors	2	3	4	2	**10**	3
Lettuce leaf newsletter	2	2	4	5	**11**	
IPM case studies	1	0	5	5	**11**	2
Information handouts	0	2	4	6	**10**	3
Practical workshop activities	0	1	3	7	**12**	2

Proposed work areas for June 2008 – June 2010:
Handout options:
CLA alternative host poster – 8
Aphids on lettuce poster – 9
Key weed hosts of lettuce pests & disease – 15
Nas & downy resistant lettuce varieties - **17**
Other suggestions: DVD

Workshop options*:*
Pest identification – 14
Beneficial identification – 17
Disease identification – 14
Weeds as pest & disease hosts – 14
Spray application – 9
How do insects develop resistance – 7
Using biological pesticides – **18**
Other suggestions: Introducing new predator species

We will endeavour to find collaborators for IPM demonstrations/trial in QLD and WA as was planned but will also work at getting information to growers on weeds, will continue updating the lettuce variety handout (latest version is Mar 08), will work to having some workshops in key production areas on beneficial identification and using biological pesticides.

Success for IPM in WA

To complement the lettuce IPM project and as part of the VG06037 *Increasing adoption of IPM by WA vegetable growers and development of an ongoing technical support service* Manchil IPM services have been working with lettuce growers just north of Perth. Lachlan Chilman and his staff have been monitoring field lettuce crops on a weekly basis for the past year. The project funds the first two months of monitoring of a farm and in all cases the growers have paid for the service to continue. Although all the growers are using Confidor® for CLA control there has been a marked reduction in insecticides applied for WFT.

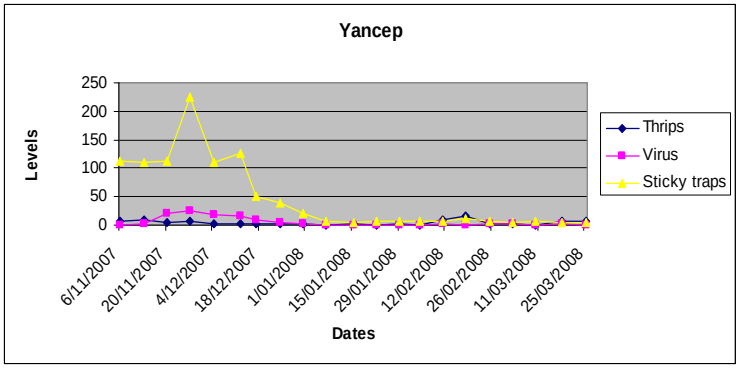
Manchill IPM Services scout Brendan monitoring field lettuce

Lachlan presented results from his monitoring at a meeting of vegetable growers in Wanneroo in late April. He presented data from three areas: Lancelin, Bullsbrook and Yancep. Lancelin was winter production with low thrips and Tomato Spotted Wilt virus (TSWV) and used few insecticides. At Bullsbrook monitoring over the spring thrips numbers on the sticky traps were very high but mainly plague thrips and tomato thrips but TSWV was low. Lastly at Yancep WFT present in October and November transmitted TSWV and needed to be controlled.

Lachlan commented that growers that have moved out of the crowded Wanneroo or Carabooda growing areas have much less problems from being isolated from other farms, growers in Bullsbrook, Lancelin and Guilderton areas receive much lower TSWV rates. He recommended that growers use seedlings not grown in the Carabooda region, preferably in greenhouses, to reduce the chances of thrips and TSWV.

On other pests he noted Heliothis as sporadic throughout the summer period and that Gemstar® was effective way of controlling the caterpillars but if thresholds were reached he suggested Proclaim®. Rutherglen bugs were present between November and February.

Lachlan also noted that Imidacloprid or Confidor® reduced ladybeetle and lacewing (predator levels) by almost 90%, which in the long term could be a disadvantage for growers.



New project – disease prediction & control

HAL and AUSVEG have recently approved funding for a national project with international links to develop and trial new models of disease prediction and control in Australian broccoli, lettuce and cucurbit crops.

The work will be led by Dr Elizabeth Minchinton from DPI Knoxfield (*Victoria*) and will involve interstate and international researchers working together to provide control measures for downy mildew, powdery mildew and white blister.

Components of the project will include:

- Dr Elizabeth Minchinton of DPI Victoria will validate the various models for ***downy mildew*** of lettuce.
- DPI Victoria staff will investigate the best time to ***irrigate*** crops to reduce white blister on broccoli and downy mildew on lettuce at Werribee.
- Barbara Hall at SARDI in South Australia will investigate the effects of ***nitrogen nutrition*** on white blister, downy and powdery mildews.
- Dr Roy Kennedy at HRI Warwick will develop a spore trap specific for white blister, in collaboration with UK growers, to be trialled in Australia in 3 years time. An improved version of the white blister model will be evaluated on broccoli and Chinese cabbage, in Victoria, Tasmania and Queensland.
- Dr Victor Galea at UQ Gatton along with Dr Chrys Akem QDPI&F, will develop a disease-predictive model for powdery mildew of cucurbits.

The full title of the project is "Benchmarking disease predictive models, nutrient and irrigation for white blister, downy and powdery mildews'. For more information on the project please contact Elizabeth Minchinton 03 9210 9222.

New Zealand Lettuce IPM system launched

A new Integrated Pest Management system specifically designed for New Zealand outdoor head lettuce was published by the Fresh Product Group of Horticulture New Zealand in May 2008.

The pocket sized handbook will help growers and scouts to identify key pests and diseases out in the field. The CD-ROM includes information and management advice relevant to all stages of the crop cycle, from selecting a field prior to planting through to scouting for pests and diseases and managing these issues.

The information guide is available for Australian growers and order forms are available from www.freshvegetables.co.nz - use the Lettuce IPM Manual non-grower order form. Those without internet access can contact NSW DPI at Yanco to obtain a copy of the order form.
Cost is NZ$112.50 + postage ~$7.00.

"This project is facilitated by HAL in partnership with AUSVEG and is funded by the National Vegetable levy. The Australian Government provides matched funding for all HAL's R&D activities." For editorial comment contact: Sandra McDougall, NSW DPI, Ph (02) 6951 2728, Fax (02) 6951 2692
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