

Methomyl Gone!

Sonya Broughton, WA Department Agriculture & Food

Loss of methomyl

In a recent review by the APVMA, methomyl (trade names: Electra[®], Lannate[®], Marlin[®] and Nudrin[®]) has been removed for use from all horticultural crops grown in protected cropping situations (glasshouses, greenhouses, shadehouses, etc) and on lettuce and other leafy vegetables (both field grown and grown in protected cropping situations). The decision was based on new data that showed that the use of methomyl in leafy crops may result in residues in food exceeding the maximum residue limits. The APVMA advises that "growers should not use any methomyl products they may still have in stock on lettuce, leafy vegetables, or any food crops grown in protected cropping situations" (<http://www.apvma.gov.au/chemrev/reviewnews.shtml>).

All product containers supplied from January 2007 are expected to bear new labels. "In the interim, manufacturers will put warning stickers on containers currently in the supply chain, advising growers not to use the product on lettuce and leafy vegetables or on any crops grown in protected situations."

Possible replacement insecticides for WFT control

With the withdrawal of methomyl, leafy vegetable growers are left with spinosad as the sole insecticide for WFT control. However, two new insecticides have been identified by Grant Herron (NSW DPI) and Sonya Broughton (Ag WA) as possible replacements (project HG03003). In lab trials, acetamiprid and thiamethoxam were effective at controlling WFT. The data has been supplied to Peter Dal Santo (AgAware Consulting Pty Ltd) to progress permits for off label use.

New Zealand Update

Graham Walker, Crop & Food NZ

The 'IPM in Lettuce' project has shown that in the north insecticides are not needed at all in spring and early summer crops because natural enemies control all pests including currant lettuce aphid (CLA). Brown Lacewing larvae are the key predator of CLA within the plant, while spiders and hover fly larvae are important predators on the outer leaves. We have a 10:1 aphid:predator ratio that scouts can use. Below this threshold (<10:1) CLA is controlled. We have variable results in southern regions but potential for imidacloprid-free seasons in spring and early summer in the south of the North Island and spring and summer in the South Island.

The major pests now are *Thysanoplusia orichalcea* (soybean looper (SBL)), with high, continuous pest pressure in summer and autumn in the north, and *Helicoverpa armigera* in late summer also often causing a problem. We have an action threshold for caterpillar pests which has worked in summer trials over the last 2 years, and we have our last big lettuce trial being planted next week. This trial will be testing action thresholds and selective larvicides for caterpillar control. We are also researching a lure and kill technology for control of

SBL. Thrips are classed as minor pests with no TSWV found infecting lettuce in N.Z. recently.

We are also into our 2nd year of training crop scouts which involves three 1-day workshops, plus some 1 on 1 training. The 'IPM for lettuce' project finishes in June and IPM manual should be published by August.

Victoria Roundup

Slobadan Vujovic, Victoria DPI

It has almost been two years since CLA was first detected in Victoria. This season we did not have crop losses due to CLA. DPI VIC Plant Standards officers stopped monitoring commercial lettuce crops for CLA because there is no restriction for movement of Victorian lettuce interstate. The majority of growers continue to use Confidor[®] to drench seedlings against CLA.

Drought report

Some of the Victorian major lettuce growing regions have been affected by drought. Current irrigation allocation for Werribee is 10% of their total allocation and 25% of groundwater water allocation. Irrigation allocation for Bacchus Marsh is 10% of their total allocation and 100% of groundwater water allocation remains (but only for growers with existing licenses). Keilor vegetable growers are on total ban for irrigation from October. East Gippsland growers on the Mitchell River are now on a total ban for irrigating from the river. Several have dams available and most have several bores, however bore capacity will be limited.

Queensland Roundup

John Duff, DPI Qld

So far CLA had only been found in the greater Brisbane region and not outside in other lettuce growing areas namely the Granite Belt and the Darling Downs.

The Lockyer Valley has not started planting lettuce. Seedlings should be going in the ground mid to late February in the Lockyer Valley.

NSW Roundup**Riverina & the Central West**

Sandra McDougall, NSW DPI

Lettuce planting is just beginning in Hay and no lettuce is expected to be grown in the Central West this season.

Sydney Basin

Tanya Shaw, NSW DPI

Eleven hydroponic lettuce farms across the Sydney basin from mid-November through December 2006 were evaluated for CLA presence and management. The Hills, Hawkesbury and Liverpool-Camden farms were visited weekly to follow through a summer crop.

Hills

Positive CLA identifications from some farms in the Hills were detected in *Nas* susceptible red oak (Jamai), green oak (Asteroid), green coral (Lavistro) and red coral (Anthony) and butter (Green Sun) varieties. Numbers appeared to be high in the Green Oak and Green Coral Varieties.

Growers mentioned CLA problems in these varieties in the past, but there were no *Nas* resistant varieties available yet. Farm hygiene did not appear to affect CLA presence. The majority of farms in the area did not use Confidor®.

Hawkesbury

There was no CLA sighted in the Hawkesbury hydroponic lettuce farms over the monitoring period. Other species of aphid such as the brown sow thistle aphid, (*Uroleucon sonchi*), artichoke aphid (*Capitophorus elaeagni*) and green peach aphid (*Myzus persicae*) were present.

Liverpool-Camden

Aphids collected from Liverpool-Camden hydroponic lettuce farms were confirmed positive for CLA and also for cotton aphid (*Aphis gossypii*). Very high levels of CLA were found in green coral (Lavistro). Farmers in close proximity both had CLA in harvest age Green Coral (Lavistro). Medium to high levels of aphids during the 2006 monitoring period were also found in green oak (Asteroid) and red coral (Concorde) varieties.

The hot, humid weather in November may have contributed to the high levels of CLA infestation around Sydney.

There were as high aphid levels observed on some hydroponic farms that had treated with Confidor® as some farms that did not use Confidor®. Further investigation into why the Confidor® was not controlling the aphids is needed to understand whether it is an application problem or an efficacy problem related to specific types of hydroponic setup.

Most of the growers surveyed said that they are including *Nas* resistant varieties when they become available to minimise losses to CLA and reduce insecticide sprays.

Field Lettuce

Selected field lettuce farms around the Sydney Basin will be monitored for CLA over an 8 week period from mid February 2007.

Many farmers have delayed planting of late summer crops due to the high temperatures, and the crop monitoring will begin once new crops are established. A number of growers will not be planting lettuce due to temperatures and the ongoing pressure of CLA.

Weeds

Weed surveys have been conducted at regular intervals throughout the region. CLA has not been detected on any alternate hosts during the survey period. Monitoring will continue through autumn.

Western Australia Roundup

Sonya Broughton, WA Department Agriculture & Food

In December 2006, CLA reached WA with detections on two properties in the Carabooda area, north of Perth. A grower meeting was immediately organized by Sonya Broughton (Ag WA) and David Ellement (Vegetable IDO). The meeting at Wanneroo was well attended by local growers and industry reps. Speakers included Sandra McDougall from NSW DPI who outlined the available control strategies. Lachlan Chilman from ManChil IPM spoke about monitoring for pests in lettuce, and Michael Berman from GSF shared grower's experiences in controlling CLA. The aphid has now been found on a

further three properties in the northern Perth area, illustrating the incredible ability of this aphid to colonise new areas.

Western Australia Variety Trials

Shane Trainer, Dept Agriculture & Food WA

Lettuce variety trials commenced at Manjimup Horticultural Research Institute in October 2004. Initial trials were instigated with the aim of identifying varieties to fit the summer time slot for Manjimup, which did not have a predisposition to bolting or tip burn. The identification of CLA in Australia, modified this aim in the 2004/05 season to include aphid resistant varieties.

Over the 2005/06 season six variety trials consisting of resistant and non-resistant varieties were completed. Planting of these trials began in spring or mid October continuing through summer and into autumn. Marksman was grown in spring as the commercial standard and Silverado in summer. At harvest, varieties were assessed for yield and growth characteristics (bolting, tipburn, density and internal blemishes).

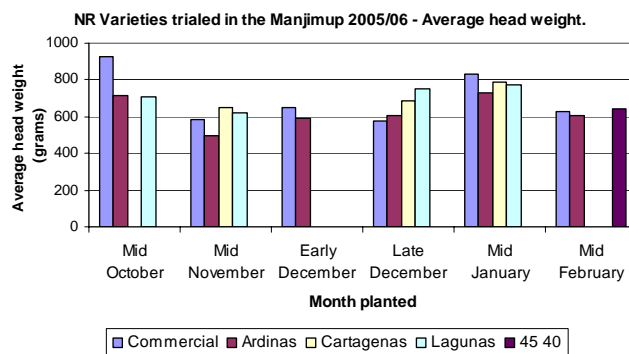


Figure. Average head weights of Manjimup iceberg variety trials during the 2005/06 season. Commercial refers to Marksman for the mid October planting and Silverado for all other plantings.

Ardinás recorded good head weight, minor bolting and good density in the mid October planting. These characteristics indicate that this variety could be planted in the Marksman time slot, transplanting in early spring and maturing in early summer. Later plantings (late spring) could predispose Ardinás to bolting prematurely if air temperatures increased close to harvest.

Traditionally the variety Silverado is transplanted from November through to the end of January. Silverado in all trials between November and January produced good average head weights of roughly 600g whilst suffering only minor physical defects. Cartagenas which fits in the Silverado time slot produced similar average head weights when transplanted during this period and harvested at the same time. Cartagenas consistently recorded minor physical defects in the trials between November and January. The maturity time for Cartagenas and other resistant varieties was similar to that recorded for commercial standards, often being slightly shorter. Maturity times varied between 56 days for spring plantings, 46 to 49 days for summer and up to 53 days for late plantings.

Lagunas produced average head weights in excess of commercial standards when transplanted November through to January. However it did suffer tip burn, internal breakdown and bolting in late December and Mid January plantings.

The numbered variety 45-40 was only tested during the mid February planting. Although it recorded higher average head weights than the commercial standard, 45-40 recorded physical defects in excess of those suitable for production.

Cartagenas out performed the other lettuce aphid resistant varieties either through consistency, head weights or low levels of physical defects. Ardinias however was consistent in limiting any physical defects, but recorded head weights slightly lower than Silverado throughout the season. Lower performance during the middle of the growing season indicate this variety to be suitable for either spring or autumn production only. Further screening of resistant varieties has commenced for the 2006/07 growing season.

Effect of Growing Conditions on Yield and Shelf-Life

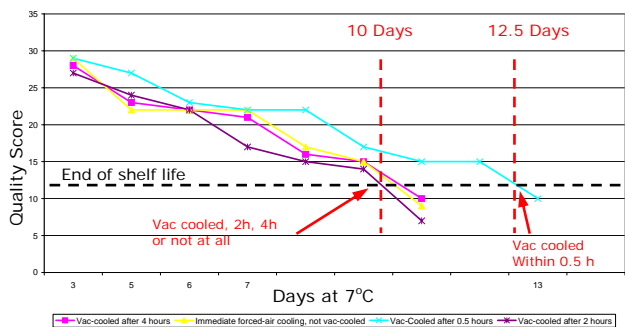
Taken from the 2006 Ausveg Conference proceedings submitted by M.E. Tittley, G. Rogers, B. Giggins and B. Bauer

A three year study by Applied Horticultural Research (AHR) has developed techniques to increase the shelf-life of minimally processed cos and iceberg lettuce and heightened the understanding of environmental effects on yield and quality. The following has been taken from the 2006 Ausveg conference proceedings and summarises the results on cool chain management, new varieties and production timing at different locations. Results on harvest timing, irrigation type and plant density were presented in Issue No. 25 of "Lettuce Leaf" (August 2006).

Cool Chain Management

The effects of postharvest temperature management on cos lettuce shelf-life was explored in trials which compared time intervals of 30 minutes, 2 hours and 4 hours between harvest and vacuum-cooling. Vac-cooling within 30 minutes extended shelf-life by 2.5 days, relative to vacuum-cooling after 2 or 4 hours. The latter, delayed cooling treatments resulted in a shelf-life which was similar to that obtained when product was placed directly into forced air cooling without any vacuum-cooling.

The Effect of Postharvest Temperature Management on the Quality of Processed Cos Lettuce - 2005



New Varieties

A large selection of cos and iceberg lettuce varieties were assessed in all regions with an emphasis on lettuce aphid (*Nasonovia ribisnigri*) resistance (Nas). Trials were conducted over a number of plantings in each season to identify key varieties for early, medium and late season and further assessed within standard production systems for yield and shelf-life.

Cyclone and Challenger were chosen as key cos lettuce varieties, displaying a high level of performance and with exceptional resistance to tipburn for the industry.



Patagonia and Cartagenas Nas were recommended as valuable iceberg lettuce varieties

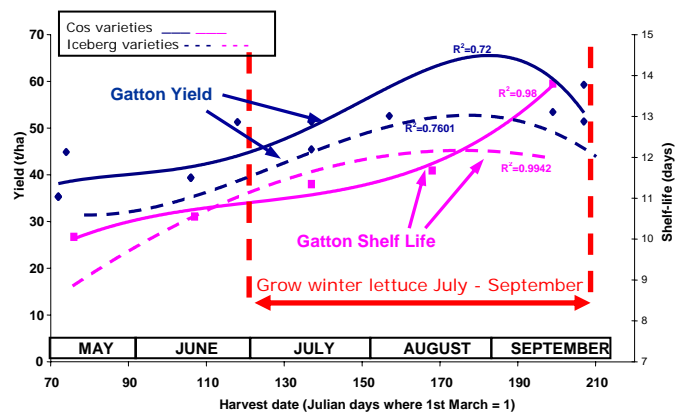


Production Timing

For areas of both summer and winter production, the variation in yield and quality over a season was established. The yield and shelf-life values were found to follow similar trends at all sites.

Data collected in Gatton, Queensland found July to September as the optimal growth period for winter lettuce, corresponding to the highest yields and quality that were obtained for both cos and iceberg.

Winter Lettuce Yields x Shelf Life



Summer production results were gathered from Toowoomba, Queensland and East Gippsland, Victoria with yield and quality trends opposite to those seen in Gatton. The highest yields and shelf-life were measured in spring and autumn with the season's minimum values reached during summer. It is the cooler periods of both winter and summer production that is associated with the highest performance of the crop.

- Summer Cos Yields - lowest mid summer in both regions. Higher in autumn and spring
- Summer Cos shelf-life - best in autumn and spring, worst in summer
- Summer Iceberg Yields - low yield in summer especially in Toowoomba
- Summer Iceberg Shelf-life - best quality in spring, lowest in summer

Training workshops based on this research are planned for 2007 in all major lettuce production areas. More detailed information about the training sessions will be sent out to lettuce growers closer to each training day. Interested growers can also contact Growcom Vegetable IDO Kate Dunn on 07 36203844. To register for the training days, please contact AHR on 02 95270826

Commonly asked questions about Confidor®

Sonya Broughton, WA Department Agriculture & Food

Confidor® 200 SC (imidacloprid) is used as a seedling drench for control of currant lettuce aphid (CLA). It is made available to growers through APVMA permit 7416.

How does it work?

Confidor® (active ingredient Imidacloprid) is a systemic insecticide that is taken up by roots and transported from the roots to developing leaves over a period of 8-10 weeks. It is classified as a neonicotinoid insecticide (class 4A) and acts on the insect nervous system. When an aphid feeds on a Confidor® treated plant, the insecticide causes a 'blockage' in its nervous system causing tremors, loss of coordination, and eventual death.

How is it applied?

- Confidor® is applied as a drench to seedlings rather than as a foliar spray.
- The rate is 35-55 mL product per 1000 plants and each seedling requires a specific dose. If an individual plant receives too low a dose, then control may not be effective. The amount of diluted product that each cell can take up needs to be calculated and is influenced by factors such as type of potting mix.
- The use of watering cans and impact sprinklers to apply Confidor® is not encouraged as this frequently results in uneven distribution of Confidor® resulting in control failure.

Can Confidor® be applied as a seed dressing?

- No. It is thought that the small size of the lettuce seed means that the surface area is too small for the appropriate dose to be delivered in this way.

Can I delay planting treated seedlings?

- Delaying planting beyond 24 hours after treatment (that is, retaining seedlings in trays for more than 1 day after treatment) is not recommended since it may result in some unacceptable crop burn. This is thought to be due to excessive uptake of Confidor® by the developing roots of the seedling, since it does not have access to alternative water sources.
- Burning appears to be worse in warmer conditions and if the higher rate for field grown crops is used. To minimise crop damage, transplant within 24 hours of treatment. Irrigation

should also be provided soon after planting to ensure that seedlings have access to an alternative water source.

- If a delay is unavoidable, place seedlings in a cool room. If watering, care should be taken to avoid or minimise runoff.

Occupational health and safety

- Persons handling treated trays and seedlings following treatment should wear PVC gloves.
- If seedling trays are wet, overalls should also be worn.

Monitoring

- Lettuce crops treated with Confidor® should be monitored for lettuce aphid following transplanting and throughout the life of the crop.

How often can I use Confidor®?

- Confidor® should be used only once as a drench treatment during the entire life of the crop.
- If lettuce aphid is observed feeding on the crop, an insecticide with a different mode of action should be used. Pirimor® (pirimicarb) and Chess® (pymetrozine) are both registered for use on CLA in lettuce.

Confidor® as a soil drench

Tony Napier, NSW DPI

Confidor® can be used when growing lettuce from seed.

Confidor Guard® (350 g/L imidacloprid) can be applied before sowing when direct seeding lettuce. Confidor Guard® needs to be applied below the seed line prior to seeding at a rate of 14mL per 100m of row. APVMA issued the permit (per 8140) in June 2006 to allow the use of Confidor Guard® as a pre seeding treatment in field lettuce for the control of CLA and is in force until 30 June 2007.