

Lettuce IPM project 2005/06 summary

Dr Sandra McDougall – NSW DPI

Current Lettuce Aphid, *Nasonovia ribis-nigri* (CLA) is currently throughout Tasmania and in the lettuce growing areas in and around Melbourne, Adelaide and Sydney basin. CLA has been found in central western NSW and Tamworth. As yet it has not been found in Queensland or WA. It will be difficult to detect in Queensland as all growers are treating their lettuce with Confidor®.

The project funded by HAL with AUSVEG levy contributions and contributions from the various state governments has demonstrated on commercial field head lettuce sites that a biologically based IPM strategy can successfully manage CLA and other lettuce pests in Victoria and Tasmania. A babyleaf trial in Tasmania was less consistently successful. Demonstrations in NSW and SA will be conducted this season.

The fact that babyleaf is harvested within 4-5 weeks of planting is a particular challenge. CLA produces a proportion of winged forms all year round and they quickly colonise new plantings, whereas beneficials tend to stay in an infested planting until it is 'clean' of aphids then move so there is a 'lag' between the aphid pest and the beneficials.

Predatory mites found in the soil and on lettuce plants also offer some potential as thrips, aphid and small caterpillar predators. Soil samples from a number of lettuce crops in Victoria, SA and NSW yielded low numbers of predatory mites but one species that was found could be promising. Work with a similar species in citrus showed increasing soil organic matter was very important in increasing the predatory mite numbers. Trials are planned to test whether adding various soil amendments increases the predatory mite populations in lettuce.

Some of the IPM demonstrations have included sowings of plants that either encourage beneficials or are non-hosts of western flower thrips (WFT) or both within or near lettuce plantings as part of the pest management strategy. In WA routine monitoring of pests and beneficials in lettuce will soon begin to identify when and to what degree beneficials are present in their system.

Two surveys have been conducted as part of this project. One is of lettuce growers from around the country and covers the basics as to their pest management practices, particularly for CLA, it also covered attitudes towards and degree of adoption of IPM. The second survey was

of consultants serving the lettuce industry and it covered what level of IPM service they offer growers, their attitudes towards and ability to deliver a biological IPM service and what training or support materials they would find useful to improve their skills in IPM and hence their service to growers.

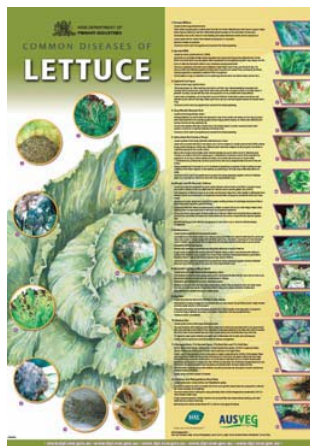
Given many of the concerns about IPM by non-IPM growers are the very reasons IPM growers like IPM, a series of more detailed IPM case studies are being conducted. These case studies are of IPM businesses and similar businesses that are non-IPM from a few lettuce growing areas. They are covering attitudes towards pest management, levels of crop damage and an economic comparison.

More detailed reports are available on the Tasmanian and Victorian IPM demonstration sites, the mite field survey, grower IPM telephone survey and the consultant IPM telephone survey. If you would like a copy of these reports or other information on the lettuce IPM project, please contact Dr Sandra McDougall, project leader at Yanco Agricultural Institute on 02 6951 2611.

New Lettuce Pest & Disease Posters

NSW DPI recently launched new, up-to-date separate lettuce pest and disease posters at a Hydroponic Lettuce Conference held at Windsor on June 21st. The new posters are the third instalment in a series of Common Pests & Diseases of vegetable crops produced by NSW DPI and are relevant to both field and hydroponic lettuce growers.

The first two posters produced covered cucumber and tomato pests and diseases. All the posters are A1 in size and printed on rip-resistant, waterproof paper with fade resistant dyes. Senior contributors of the posters from NSW DPI were Leigh James, who coordinates the poster series, Sandra McDougall and Len Tesoriero. All the posters are free for growers and available from NSW DPI at Richmond, ph 02 4588 2100, the NSW DPI Bookshop 02 6391 3994 or your State Vegetable IDO.



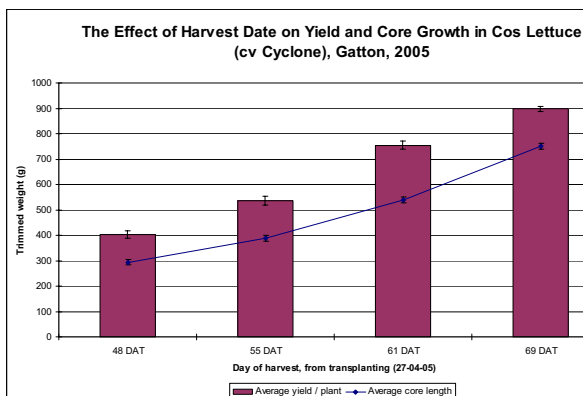
Location and Agronomic Influences on Shelf-Life in Cos and Iceberg Lettuce

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

A three year study by Applied Horticultural Research 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 study examined the influences of cool chain management, irrigation type, harvest timing, plant densities, new varieties and production timing at different locations. The following has been taken from the 2006 Ausveg conference proceedings and summarises the results on harvest timing, irrigation type and plant density. Results on cool chain management, new varieties and production timing at different locations will be presented in a future edition of "Lettuce Leaf".

Harvest timing

Trials comparing harvest timing which is typical of commercial practice with harvesting 1-2 weeks later were conducted in the Gatton area with lettuce transplanted in late April. This has highlighted the importance of harvesting at optimal maturity, with respect to achieving maximum yield and shelf-life.



A 40% yield increase was obtained when the harvest of cos lettuce (var. Cyclone) was delayed by 6 days. The extra period of growth had minimal impacts on shelf-life and core length. Suspending the harvest of iceberg lettuce by 6 days resulted in heads that were up to 63% heavier but with the same shelf-life as plants harvested in the commercial time-frame.

Irrigation type

The different choice of irrigation systems made by trial co-operators in the Gatton district was exploited to compare lettuce yields and shelf-life associated with overhead irrigation (sprinklers on portable spray lines) and sub-surface trickle irrigation. Although the two systems were not directly compared in a single trial in

the same block of lettuce, contrasts were made between production systems utilising either system and located within 25km of each other. Plantings from each system were transplanted and harvested on the same dates and contained the same varieties.

Overhead irrigation was generally found to generate higher yields than trickle irrigation, for both lettuce types. Iceberg lettuce, however, was less sensitive than cos lettuce to irrigation type in yield response. Shelf-life did not vary with irrigation method, for iceberg or cos lettuce. Given the reduced water consumption (up to 60%) which is possible for trickle irrigation, further research is required to define the potential value of this system to the industry. It is suggested that a period of establishment with overhead irrigation before utilising the more efficient trickle system may be beneficial.

Plant density

In investigations of how planting density can be fine-tuned to optimise yields, cos lettuce stands of 66 000, 80 000 or 100 000 plants/ha were compared. Cyclone was chosen as a variety with particular relevance, as its smaller head size dictates an adjustment to typical planting densities, to maximise grower returns.

Although average head weight was found to decrease with increasing density, a density of 80 000 plants/ha produced a higher yield per hectare than 66 000 plants/ha, when supported with an increased supply of crop nutrition. This optimum density of 80 000 plants/ha provided a 20% yield increase and ultimately a higher net return to the grower, relative to standard practice.

