

FROM THE FIELD

Lacebug

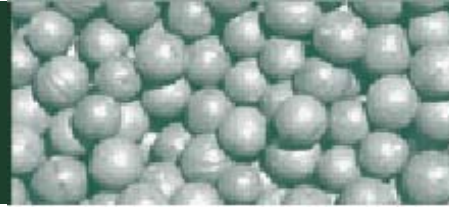
Macadamia Lacebug (*Ulonemia concava*) is a member of the Hemiptera order and Tingidae family. The *Ulonemia* species is an Australian native that feeds on macadamia flowers. Lacebugs are sap suckers of which both the nymph and adult feed on the juices of the flower raceme. There are several hundred species of lacebug in the world of which 20 species have been recorded in Australia. Scientific research material on the macadamia lacebug is severely limited and to-date has been regarded as an insignificant pest in macadamias.

The lacebug, not to be confused with the beneficial insect the lacewing, grows 3 to 4 mm in length and the adults have an appearance similar to a miniature lobster without the claws.

The adults range from light to dark brown in colour, consist of an elongated body with long antennae, protruding eyes and wings that appear to round the body at the tail end.

They are active fliers in summer and depending on temperature are capable of producing a generation in 30 to 40 days. Eggs remain dormant in winter in tree crevasses and emerge as soon as the racemes appear. This season they were active towards the end of July as the winter was short and mild. Lacebugs can produce 3 to 4 generations in one season and one adult lays 10 to 30 eggs in clusters. The nymphs hatch in 7 to 8 days and form colonies around the flower racemes. They are flat in appearance, almost transparent bodies with red eyes and ranging in colour from light yellowish to brown. There are at least 3 instars (stages) in the nymphs' development which takes a duration of approximately 12 to 18 days to complete and become an adult. In the process of molting the nymphs leave skins attached to the flower racemes which generally pinpoints the culprit to the flower damage.

So why the concern about lacebugs and why have they been regarded as an insignificant pest in the macadamia industry? There are a number of reasons for concern and just like every year, each season has its problems with an insect or disease that dominates the orchard damage threshold. Three orchards last season that were not regularly monitored were completely devastated of the entire crop within weeks due to excessive levels of lacebug activity. At first it was believed by growers the rapid damage to the heavy flowering on healthy trees was due to botrytis. Botrytis is a fungal disease that proliferates in damp, dark, humid environments. The fungus appears as grey hair-like structures commencing at the tip of the raceme and gradually engulfs the flowers. Botrytis requires dead plant cells to become active so what comes first the chicken or the egg. In the case of these three orchards the dead cells were caused by lacebugs destroying the flower tips and botrytis was the secondary effect.



My monitoring in this region has recently noted seven outbreaks requiring an insecticide application for high levels of lacebug and another three orchards on insect level alert. These farms are located in Tuckombil, Alstonville, Mclean's Ridges, Eureka, Rosebank and Dorroughby and the list does not stop here. A number of reasons could apply for the dominating emergence of lacebug populations, the past years of drought conditions could be one and being an adaptive native insect another. An example of an unchecked lacebug population devastated 100% of very heavy flowering in eighteen hundred 25 year old 344's in less than 6 weeks. Lacebugs do not discriminate with varieties as a food choice because they thrive well in any healthy macadamia flower supply, the heavier the better. The over use of insecticides was not a factor for high lacebug numbers as this orchard had been managed organically for twenty years without insect problems.

To identify lacebug damage, scan through the heavy flowering this season and note if you have dead tips on the flower racemes. Of course it could be attributed to a number of factors such as flower caterpillar or loopers, but it is also probable that lacebug is the primary cause. Lacebug damage initially begins at the flower tip and progresses along the raceme desiccating the unopened and open flowers. To check for lacebug in your trees, pick racemes with dead ends and tap them on a white A4 sheet of paper supported by a firm folder. Using a magnifying glass or an eye piece the lacebug is initially distinguished from the thrip by their comparative slower movement. Thrips are faster and generally more numerous than lacebugs. The lacebug nymph has a tendency to remain still when shaken off the stem whereas the thrip accelerates in all directions for cover. If you discover lacebugs in your orchard, do nothing and treat them as insignificant as the damage toll is not obvious over the sorting table. The tonnage drop can be easily attributed to the lack of fertiliser, drought, too much rain, botrytis, stress, age of trees etc or you could call your IPM monitor to check the level of lacebug populations.

Moderate to heavy levels of lacebug will mean you need to act before further damage takes place. An application of endosulfan or a natural pyrethrum will effectively contain the outbreak. Both chemicals are efficient in lacebug control and softer on the beneficials than most other broad spectrum insecticides. The natural pyrethrum is not as cost effective as using endosulfan, however the benefits are outweighed with close proximity of neighbouring cattle paddocks. There are beneficial insects that feed on lacebug nymphs and the lacewing larva is one of them, birds and spiders are underestimated in their role of containing these sap suckers. The bottom line this season is that lacebug is not insignificant, it is spreading in this region, outbreaks can potentially lower your tonnage faster than the lowering of next seasons price.

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