

# Green lacewing

## General predator

### Biocontrol organism

☞ *Mallada signata*

As their common name implies, adult green lacewings are green, with four clear wings. Adult female lacewings live for 3–4 weeks and lay up to 600 eggs. Each egg sits on the end of a slender stalk, which elevates it from the ground and decreases the chances of predation by ants. The eggs take approximately 4 days to hatch.

Larvae increase in size from 1 mm at first emergence up to 8 mm just before they pupate. They have small spines on their backs upon which they impale the remains of prey. This provides a form of camouflage and allows the larvae to appear inconspicuous among the prey. It is also believed to reduce cannibalism between larvae.



Plate 13: Adult green lacewing

Larvae pass through three moults over a period of 12 days, before pupating inside a silken cocoon. Adults emerge after 9 days and start laying eggs 7 days after that. Adult green lacewings feed on nectar and pollen.

### Target pests

- ☞ Aphids (various species)
- ☞ Twospotted mite *Tetranychus urticae*
- ☞ Greenhouse whitefly *Trialeurodes vaporariorum*
- ☞ Scales (various species)
- ☞ Mealybugs (various species)
- ☞ Moth eggs and small caterpillars

Larvae of the green lacewing are wide-ranging predators that will attack and eat almost any



Plate 14: Lacewing eggs on slender stalks attached to a leaf surface

small insects or eggs. Lacewing larvae are particularly effective at controlling aphids and can consume 60 aphids in an hour. They also attack mealybugs, greenhouse whitefly, twospotted mite, thrips, small caterpillars and moth eggs.

### Suitable crops/environments

The green lacewing is one of the most common and widely distributed native lacewings in Australia. It is well suited to a wide variety of crops and habitats, including greenhouses, and is most active in warm climates. Lacewings are probably best suited to tree and shrub crops.

Adult lacewings feed on nectar and pollen, so the presence of flowers after release will assist in keeping adults within the crop. Cool conditions slow down green lacewing activity and may initiate diapause (hibernation).

### Before release

As with other beneficial insects, it is better to release lacewings earlier rather than later; they

should be released before pests can reach damaging levels. Do not use residual pesticides within 3–4 weeks of releasing lacewings.

### At release

Lacewings are dispatched as eggs, and larvae should emerge in transit. Eggs are packaged with lucerne chaff in lots of 100 or 500, and are accompanied by a small quantity of sterilised moth eggs for food. They should be dispersed by placing the lucerne chaff containing the larvae into the crop.

### Recommended release rates

**Field crops:** Release rates vary considerably, depending on the crop, the pest to be controlled and its density. For large areas, a minimum of 1000 lacewing larvae per hectare should be released. Release rates of 5000–10 000 larvae per hectare are recommended.

**Nurseries:** A minimum release rate of 1–5 lacewing larvae per plant is suggested.

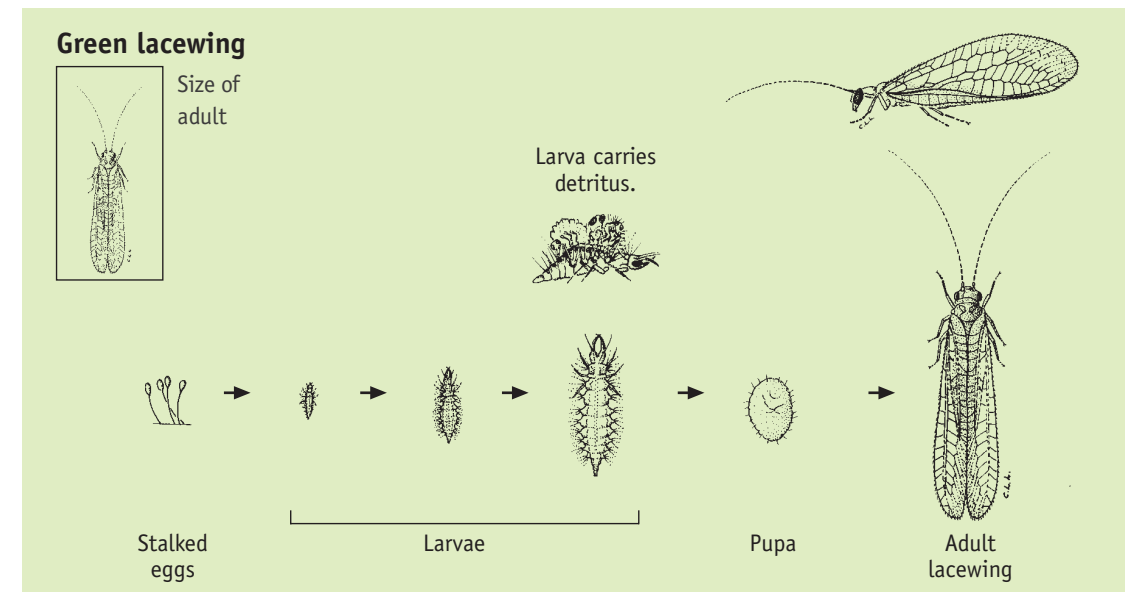


Figure 3: Life cycle of the green lacewing



Plate 15: Winged adult aphid (*left*) being attacked by a lacewing larva (*right*), which is camouflaged by dead aphids on its back

**Other situations:** The number of lacewings needed for an individual situation can be determined after consultation with the suppliers.

It is best to release larvae in pest ‘hot spots’ to ensure they have an immediate food supply. It is preferable to make two or three releases 10–14 days apart, to establish continuing populations of larvae in the field. Larvae take about 12 days to develop before they pupate in cocoons. It then takes 16 days before adults emerge and lay eggs. A second release of lacewings should therefore be made 12 days after the initial release, so that additional larvae are present while the first generation completes its development.

## After release

Since lacewing larvae camouflage themselves with dead prey, some practice is needed to find them in the field. Normally they are more

mobile than the pest, and can often be seen moving over plant leaves and stems. The lacewing cocoons are usually well hidden and difficult to find. Adults fly at night and are attracted to lights, so avoid leaving lights on at night. Lacewing eggs can readily be seen on their distinctive long slender stalks. Start scouting for eggs approximately 30 days after releasing larvae.

## Cultural practices to aid green lacewing establishment

Adult lacewings will persist in the crop if nectar and pollen are present. Practices such as strip intercropping and encouraging flowering plants will give best results.

## Chemical use

Little is known about toxicities of insecticides to lacewings. It is reasonable to assume that, unless the pesticide is specific to one particular group (e.g. a miticide), it will have some sort of harmful effect on lacewings. Some guidelines are provided in the chemical toxicity table.

## Additional information

Lacewings are dispatched by express post or courier and are usually received within 48 hours. If they cannot be released immediately, lacewings can be stored for 2–3 days in a cool, dark place. After this, the larvae will have eaten all supplied food and will start to devour each other.