



# *Chrysoperla rufilabris*

## Green Lacewing

### DESCRIPTION:

Green lacewings are widely used in various situations to control many different pests. Many species of adult lacewings do not kill pest insects; they actually subsist on foods such as nectar, pollen and honeydew. It is their predacious offspring that get the job done. In general, they attack the eggs and the immature stages of most soft-bodied pests. Lacewing larvae are also known as aphid lions. They are tiny upon emerging from the egg, but grow to 3/8 of an inch long.

### TARGET PEST:

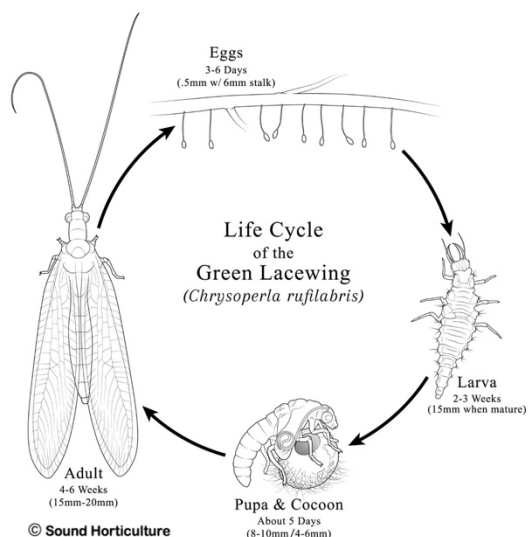
Aphids, thrips, spider mites, sweet potato & greenhouse whitefly, mealybugs, leafhoppers, and the eggs and caterpillars of most pest moths.



*Chrysoperia rufilabris*

### LIFE CYCLE:

The adult lacewing lays her eggs on foliage. Each adult female may deposit more than 200 eggs. Each egg is attached to the top of a hair-like filament. After a few days the eggs hatch and a tiny predatory larva emerges ready to eat the pests. Each lacewing larva will devour 200 or more pests or pest eggs a week during their two to three week developmental period. After this stage, the larvae pupate by spinning a cocoon with silken thread. Approximately five days later, adult lacewings emerge to mate and repeat the life cycle. Depending on climatic conditions, the adult will live about four to six weeks. Lacewing adults can survive the winter in protected places but have a difficult time surviving cold winters.



### USE IN BIOLOGICAL CONTROL:

Lacewing larvae voraciously attack their prey by seizing them with large, sucking jaws and inject paralyzing venom. The hollow jaws then draw out the body fluids of the pest. Of all available commercial predators, this lacewing is the most voracious and has the greatest versatility for pests of field crops, orchards, and greenhouses.

### MONITORING TIPS:

Monitoring is essential. Traps and lures can be very helpful tools for establishing "start dates" and for predicting pest population levels.

For more information, Please contact **Sound Horticulture**

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## PRODUCT INFORMATION:

Sound Horticulture offers lacewings at three life-stages:

Eggs are oval and pale green in color. Just before the larvae hatch, eggs become gray in color. The eggs are normally shipped in vials with food and a carrier such as rice hulls, bran or vermiculite. It is best to allow a few of the lacewing larvae to begin emerging from the eggs before field releases are made. Then, release as soon as possible to avoid cannibalism. The best time to release is early morning or late afternoon. If release is not possible nearly immediately upon arrival of the lacewing eggs, because of weather conditions, for example, the eggs can be stored at no lower than 50°F (10°C) for up to 48 hours. To minimize egg mortality, humidity should be approximately 75%. Warmer temperatures will speed up larval emergence, but the eggs should not be held at more than 80°F (26°C).

For small areas, sprinkle the contents of the container(s) over the entire target area. For large areas you may need to mix eggs with additional inert ingredients such as vermiculite, bran, saw dust, etc. to help dispersal. You may also release eggs on every other row on alternating dates. If eggs are purchased on adhesive squares, attach the squares to the underside of leaves in the target area.

Larvae are sold in bottles of 1000 each and are prepared at the insectary when ordered so they are “ready to go.” The bottles contain a limited amount of food so the larvae must be used as soon as possible.

Adults are sold in containers (cardboard tubes) of 100, 250 or 1,000 and should be released the day received. We do not advise refrigerating the adults. If immediate release is not possible, moisten the accompanying sponge in water and replace it. Release as soon as possible, no later than 24 hours after receipt. To release, remove the top screen and use a piece of cardboard to regulate the amounts released throughout the target area. The eggs already deposited in the shipping container can be released in the target area by cutting the container.

## INTRODUCTION RATES:

Start early in the season as soon as pest insects are detected. Initiating natural enemy releases when pest populations are high does not lend itself to successful augmentative biological control. The pest must be detected and releases begun when infestations are at a manageable level. Because every situation is different, numbers of lacewings required can vary significantly from site to site. It is therefore important to monitor the beneficial insect and pest populations.

Generally, it is best to start with early release of a relatively low number of lacewings per acre or target planting. Lacewings should be released every 10-15 days until their populations are easily detectable or pests are no longer a threat.

## FOR BEST RESULTS:

For best results, habitats should be provided that encourage the adults to remain and reproduce in the release area. Nectar, pollen, and honeydew stimulate their reproductive process. If these food sources are not available, adults may disperse. An artificial diet called *Wheat or Bug Feast* is available to provide the adults with the necessary nutrition they need for reproduction. This food is mixed with sugar and water, and can be applied to surfaces that the larvae and adults can reach as feeding outposts. In addition, studies by universities and the USDA have shown that spraying field crops with a *Wheat/sugar/water* mixture increases egg laying considerably.

When targeting caterpillars, lacewing used in conjunction with *Trichogramma* wasps (see Caterpillar Control) can be very effective. Since *Trichogramma* attack only the egg stage, the lacewing offers a second line of defense; it feeds on eggs and young caterpillars.

## USING CHEMICALS:

It is essential to refrain from using broad-spectrum chemicals in order to conserve naturally occurring predators and parasites.

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