

# BENEFICIAL INSECTS

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Every pest has a natural enemy, these are referred to as beneficial insects. The key to successful pest control is to identify the pest and its natural enemy. It is best to release your beneficial insects early when pest levels are low and then sit back and let nature take its course. Beneficial insects attack and destroy only insects, they will not harm people, plants or pets.

**LADYBUGS** – Target pests are aphids, whitefly, fruitworm, mites, etc.

Ladybugs are the most widely used and best known form of biological pest control. Famous for their control of aphids, Ladybugs will also consume large numbers of whitefly, mealybugs, scales, mites and many other soft bodied insects as well as bollworm, broccoli worm, cabbage moth and tomato hornworm. Ladybugs will consume up to 1,000 aphids in their lifetime and work well in both the garden and greenhouse. Keep your ladybugs refrigerated until use.

To apply your ladybugs, first plan to release them in the evening as they will not fly at night and are less active when it is cooler. This will give them all night to settle in, find food and water, and to decide they have found a good home in your garden. We recommend spraying the area down with water first before opening the ladybug bag as this will give something to drink and hopefully increase the chance that they remain in that area. If desired, you can keep ladybugs from flying away by 'gluing' their wings shut, temporarily, with a sugar-water solution. Half water and half sugared pop (Coke, Pepsi, etc.), in a spray bottle works fine. Spray it right in the bag as soon as you open it. You'll easily coat most of them. After a week or so, the 'glue' wears off. You can't use too many ladybugs, but remember that they do take time – they need to be released early enough in the pest cycle so that they have time to be effective. For home use, 1500 is usually enough for one application.

**PRAYING MANTIS** – These are general predators.

Praying mantis are beautiful insects with a voracious appetite, and a delight to have in the garden. Being strictly carnivorous, they will eat almost any insect of a size they can overcome. Each egg will hatch from 50 to 200 tiny mantises. In order to hatch they will need several weeks of warm weather, so they can 'sense' that summer (and pest insects for food) has arrived. Once hatched, praying mantis begin feeding on small insects, such as aphids. As they grow, they seek out larger insects for food. By summer's end, praying mantis can reach several inches long.

To apply your praying mantis egg case, attach it to a twig or plant about a foot or two off the ground where there is cover to protect the babies. When hatching, the young crawl from between tiny flaps in the cases and hang from silken threads about 2 inches below the case. After drying out, the young disperse into the vegetation, so it can be very difficult to know hatching has occurred unless the young are found (the egg case does not change in appearance). If you would like to watch the mantis hatch (a fun project for young and old), place the egg case in a paper bag, fold the top and seal shut with a paper clip. Place the bag on a window sill in direct sunlight. Periodically open the bag carefully, and when you see tiny mantids, take them outside and sprinkle them throughout the garden. Be patient – sometimes it takes up to eight weeks of warm weather for them to hatch.

**BENEFICIAL NEMATODES** — Target pests are fleas, grubs, crane fly, root weevil, ants, cutworm, etc.

Beneficial nematodes offer the greatest value when it comes to beneficial control due to the wide variety of pests they control and how easy it is to get good results. They control over 250 types of soil dwelling pests that are difficult to control using other methods. Any pest that spends any part of its life cycle in the soil falls prey.

Beneficial nematodes are microscopic and live below the soil surface and like a moist environment. Once a nematode comes in contact with a pest they attack by entering through body openings or simply by boring through the body wall, once inside the nematode will release a bacteria that kills its host within 48 hours. They will then feed and reproduce before exiting in search of fresh prey. They do not harm worms, birds, plants, people or pets.

To apply your nematodes, soak the sponge in a few gallons of water. Each sponge contains 1 million nematodes. Apply using a hose end sprayer, pump sprayer or watering can. A pack of 1 million nematodes will treat 2500 to 3000 sq ft. Soil temperatures should be between 50 and 90 degrees. Spring and fall are ideal times to apply for general insect control. For controlling root weevil, apply in September.