

SMARTGARDEN™ — Biological Controls



Consider using these natural weapons in the fight against garden pests

One method of thwarting garden pests is to enlist their natural enemies to work for you. Insects, mites, nematodes, and microbial organisms that feed upon or infect plant pests are known as biological controls, and they are among the most effective ways of dealing with troublemakers in your garden. Because most beneficial organisms are specific with respect to their prey, they pose minimal danger to humans and other non-target animals.

BENEFICIAL ORGANISMS

The organisms gardeners often lump together under the term “insects” are more correctly known as arthropods. Technically, true insects—such as ants, grasshoppers, butterflies, and beetles—are distinguished from other groups of common garden arthropods such as arachnids (spiders and mites) and crustaceans (pillbugs and sowbugs). Many arthropods benefit garden plants by hunting and eating other insects and mites that feed on plants. Others parasitize pests, often by laying their eggs inside the body of the pest, where they eventually hatch and consume their host. Learn to recognize these garden-friendly critters and avoid spraying pesticides when they are present.

Attracting or releasing beneficial insects into your garden will not give you instant results—your pests may still be around for several days—but once the predators or parasites arrive, they will work to control the pest until the pest population is depleted.

INSECTS AND OTHER PREDATORS

Lady beetles—sometimes called lady bugs—control pests both in their larval and adult stage. Their preferred meal is aphids, but they will also consume other small, soft-bodied plant feeders.

Lacewings feed on aphids, many scale insects, small caterpillars, mites, and thrips. These predators can be purchased in the larval stage for release into your garden and are generally considered to be the most useful and effective beneficial insects for use in home gardens.

Spined soldier bugs consume the larvae of a variety of notorious plant pests, including gypsy moth, Colorado potato beetle, and Mexican bean beetle.

Ground beetles are general feeders and will consume nearly any garden pest that spends time beneath ground debris or in the top few inches of soil.

Other common pest-devouring insects include: the larval stage of the *syrphid fly*, which can consume dozens of soft-bodied, plant-feeding insects in a day; the predatory *stink bug*, which eats fairly large insects, including potato beetle larvae and a variety of caterpillars; and *hunting wasps*, which capture a wide range of plant pests.

Many *mites* and *spiders* are predaceous. Predatory mites often feed on plant-feeding spider mites. Web-building spiders feed on whatever prey gets stuck in their webs. Non-web-building spiders seek their prey by hiding in foliage and flowers. Among the pests they help control are leafhoppers, aphids, and caterpillars.

PARASITIC INSECTS

Trachinid flies parasitize a variety of plant pests, including caterpillars and beetles. Adults lay their eggs on the host insect, and after the eggs hatch, the maggots tunnel into the host, feeding on it and eventually killing it.

Several types of wasps—including braconid and trichogramma wasps—help control garden pests by laying their eggs on or inside the bodies of a host. The eggs hatch and the grubs that emerge feed on the body fluid of the host, eventually killing it. Occasionally, you may see a caterpillar covered with small white projections that resemble grains of rice. These are the cocoons of the wasp; if you observe a caterpillar with these telltale signs of parasitism, leave it alone so the wasps can emerge to continue their pest control activities.

ATTRACTING BENEFICIAL ORGANISMS

It is to your advantage to encourage predators and parasites of plant pests to inhabit your garden. They are more likely to visit and stay if you follow a few easy rules:

- Increase the diversity of nectar- and pollen-producing flowers in your garden, and make sure a variety of plants are blooming throughout the growing season. Many beneficial insects feed on nectar and pollen as well as pests.
- Provide water in a shallow pan, birdbath, or pond.
- Learn to recognize beneficial insects so you do not mistake them for pests. A useful Web site to aid in identification is www.ag.ohio-state.edu/~bygl/images.index.html.
- Minimize use of pesticides, particularly those that are non-selective. Even botanical pesticides—such as rotenone and pyrethrum—and low-toxicity insecticidal soaps will kill beneficial insects.
- You can also purchase beneficial insects for release in your garden, but make sure there are pests around for them to munch on, otherwise they will quickly move on to other gardens with a more tempting menu.

An in-depth article on the use of beneficial insects in the garden was published in the March/April 1998 issue of *The American Gardener*. Visit the publications section of the AHS Web site at www.ahs.org to view an electronic version of that article and find sources for purchasing beneficial insects.

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