



GREEN TIPS

Department of Horticulture - Michigan State University

NON-CHEMICAL INSECT CONTROL

Using Natural Enemies

Two strategies are available for using natural enemies in pest control:

- 1) Attracting more of the naturally occurring enemies.
- 2) Purchasing natural enemies at a commercial supply house.

These strategies are not mutually exclusive and (should!) be used in combination whenever possible.

Many species of birds are predators of various pest insects. Birds can be attracted to pest infested areas by supplying abundant water and shelter. Bird houses, bird baths, berry producing trees (dogwood, mulberry, Russian olive, etc.) and seed producing flowers (asters, sunflowers, zinnias, etc.) will lure birds to the garden. Toads can be encouraged to live in the garden by providing them with toad houses. A simple toad house can be made from a clay flower pot by breaking off part of the rim. Invert the pot and set in a damp shady location. Predatory insects such as wasps, beetles and mantids can be attracted by providing moisture and shelter.

Natural enemies also may be purchased for introduction into the garden or orchard. The most commonly available natural enemies are lady beetles used to control aphids, mealybugs, and scale insects. Praying mantids will help to control grasshoppers, crickets, flies and various beetles. Trichogramma wasps are egg parasitoids of over 200 species of caterpillars including cutworms, armyworms and budworms. Green lacewings are predators of aphids, scales, mites, thrips, and moth eggs. Special fly "predators" are also available for controlling severe fly infestations around stables, barns, kennels and compost heaps.

For a list of commercial suppliers of natural enemies, check the advertisements in "organic" gardening and other horticultural magazines.

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MECHANICAL CONTROL METHODS

Insect pests may be reduced or excluded by mechanical devices that directly affect them. Examples of mechanical controls include hand destruction, exclusion barriers, and traps.

Hand picking and crushing are effective, although sometimes unattractive, methods of controlling many pests. This method is particularly useful for beetles and caterpillars. The insects can be killed by placing them in boiling water, rubbing alcohol or kerosene, or by directly crushing them. Remove small, soft-bodied insects with a forceful spray of water.

Two commonly used exclusion devices are screens and sticky tape. Screens, of course, are used to exclude pests from enclosed areas such as buildings. Sticky tape can be used to protect tree foliage from caterpillars that migrate up and down the trunk of the tree.

Stickum is also used in many insect traps, often in combination with a bait or lure. Other insect traps catch insects by visual attraction or by simply intercepting them. Plans for many different types of insect traps are available in entomology and organic gardening books.

Monitoring and controlling some insect pests is possible with pheromone traps. A pheromone is a chemical "message" used by insects to communicate with one another. One principle use of pheromones is as sex attractants, which enables females to attract males of the same species for mating. The pheromones of several important pest insects can now be produced synthetically, and these can be used in traps to attract and capture male insects (thereby disrupting reproduction).

CULTURAL CONTROLS

Manipulation of habitat with agricultural practices can also be used to control insects. Examples of cultural controls include crop rotation, crop residue destruction and sanitation, soil tillage, pruning and thinning, water management, and trap crops.

For example, the planning and care of a garden or ornamental planting will greatly influence the nature and severity of any insect pest problems. Start by selecting vigorous plants that are suited to the local conditions (use resistant varieties where possible). Don't plant annual crops or flowers (or closely related species and varieties) in the same spot year after year. After the season, clean up and destroy any plant residue that may provide shelter for overwintering pests. Deep cultivation of the soil will expose soil insects to predators and adverse conditions, or will bury them too deeply to emerge in the spring.

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