

**Syrphid fly** - also called hover fly and flower fly. Black and yellow striped body - often mistaken for bees or yellow jackets but do not sting. Larvae feed on aphids and other small soft-bodied insects.

**Tachanid fly** - parasitoid. Lays eggs on cutworms, caterpillars, corn borers, stink bugs and others. Help control tent caterpillar and army worm outbreaks.

**Spiders & Predatory Mites** - though technically not insects, these help control many types of insects.

**Predatory bugs** - many kinds (ambush, assassin, big-eyed, damsel, minute pirate, predatory stink and shield bugs, and others). Attack soft-bodied insects.

### Other Control Methods

In addition to beneficial insects, there are many other chemical-free options for controlling pests in the garden.

- Choose pest-resistant plants, rotate crops, and keep plants healthy and strong.
- Interplant fruits, vegetables, herbs, and flowers throughout the garden. Pests are more likely to find a mass planting of their favorite food.
- Use trap crops to attract pests away from desirable plants. These plants can then be destroyed or left to maintain a pest population for the beneficials.
- Use physical barriers such as row covers.
- Use mechanical control methods - a sharp spray of water will knock aphids or other small insects off plants. Larger insects can be hand-picked.
- Horticultural oils and insecticidal soaps may be less harmful to beneficial insects than other pesticides.

With a little patience and tolerance, your yard and garden can be safe, productive, and beautiful. A healthy garden is filled with bugs and there will always be a few pests but, if you let nature take its course, the good bugs can keep the bad bugs from taking over.

For more information on gardening please visit:  
<http://web.extension.illinois.edu/state/horticulture/index.php>

or  
call University of Illinois Extension  
Knox County Office  
309-342-5108

Other information brochures can be found online at <http://web.extension.illinois.edu/hkmw/hort.html>

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# Beneficial Insects: Controlling Garden Pests Naturally



## Garden Tips from Knox County Master Gardeners



Often the first reaction on seeing a bug is to get rid of it. However, only a small percentage of insects are harmful to people, homes, or gardens. Some actually benefit us by helping to control harmful pests or by pollinating crops. Beneficial insects can control pests in two ways. **Predators** (which can be adults but are most often larvae) feed on pests. Parasitic insects or **parasitoids** lay eggs on or inside the body of a pest. These eggs then hatch and feed on the host. Some insects are generalists and will prey on a wide variety of insects, both wanted and unwanted, while others require a more specific food source.

Most insecticides are broad spectrum - they kill many types of insects, beneficial as well as harmful. With time and overuse, pests can build up resistance to these chemicals. Insecticides can also be harmful to humans, pets, and the environment. By encouraging beneficial insects to take up residence in your yard and help control pests, you can create a balanced system that is self-sustaining once established.

When trying to reduce the use of pesticides by relying on beneficial insects, it's necessary to accept a certain level of pests. Beneficials won't eliminate every pest - if they did they would either starve or leave in search of another food source. It also takes time to build up beneficial populations and pest levels may actually increase at first. If the damage level is still unacceptable, there are other non-chemical methods that can be used to minimize damage and protect certain plants.

### Attracting Beneficial Insects

An insect's life cycle can be **complete**, with adults laying eggs that hatch into larvae that eventually form cocoons or pupa and emerge as adults; or **incomplete**, when the eggs hatch into nymphs, or smaller ver-

sions of the adults. To keep beneficial insects in your yard, it's necessary to create a habitat that supports them all year long and at all stages of their life cycle. Most need to feed on something other than insects at some point in their life, so it's necessary to provide alternate food sources as well as shelter and water.

Flowers provide pollen and nectar for adults. Many prefer plants with clusters of small flowers. Native plants are a good source. Hybridized varieties or varieties with double flowers are less attractive. Use a variety of flowering plants with different bloom times, colors, forms, and heights to attract a variety of beneficial insects, and place near the plants you are trying to protect.

To protect a vegetable garden, you can place clusters or rows within the garden or plant a wide border around the outside. Plants don't have to be massed to be effective - tuck in a few wherever you have room.

Insects need shelter from heat, cold, and wind. Mulch, leaf litter, dormant ornamental grasses and perennials, groundcovers, hedgerows, and flowerbeds all provide protection. If possible, provide a few undisturbed "wild" areas that are not mowed or tilled. Leave spent plants in the garden until spring if there are no disease or pest problems.

Provide shallow containers filled with water and a few rocks and sticks for insects to perch on. Change water every 2-3 days. The native cup plant has leaves that hold water after a rain, providing a water source for insects.

Many insecticides kill both good and bad bugs. Avoid their use if possible and, if necessary, choose a product that will do the least possible harm to beneficial insects.

### Recommended Plants

There are many plants that will attract beneficial insects. A few include:

**Aster family** - aster, bachelor's button, black-eyed Susan, coneflower, cosmos, golden marguerite, goldenrod, sunflower, yarrow, zinnia

**Carrot family** - angelica, cilantro, dill, fennel, lovage, parsley, Queen Anne's lace

**Mint family** - anise hyssop, basil, lavender, mint, oregano, rosemary

(Note that herbs must be allowed to flower to attract beneficial insects.)

**Others** - alfalfa, borage, buckwheat, chives, clover, comfrey, melons and squash, mustard, sweet alyssum, and any fruit-bearing tree, cane, or shrub

### A Few Beneficial Insects

It can be fun and useful to try to identify some of the beneficial insects. Some are very tiny or active only at night. You may not see all of them but they are hard at work in your garden. Get a good book or look for photos available online. Here are just a few examples.

**Lady beetles** (ladybugs) - many species. Feed on small soft-bodied insects such as aphids, mealybugs, and spider mites. Both adults and larvae eat pests.

**Lacewings** - larva called aphid lion. Prey on a wide variety of small insects.

**Parasitic wasps** - many kinds and sizes. Eggs injected inside or laid on host which provides food for larvae. Prey on caterpillars, flies, beetle larvae, leaf miners, true bugs, aphids, and others.

**Ground beetles** - hide under stones, boards, and mulch during day. By night, prey on root maggots, cutworms, and snail and slug eggs.

**Praying mantis** - a large insect which camouflages itself among garden plants. Will eat anything, including large pests, beneficial insects, and each other.