



Pest Control: Growing Plants to Attract Beneficial Insects

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Just as human babies eat different food from adults, the same is true with many beneficial insects.

Adult lacewings, flower (syrphid) flies and parasitic wasps, for example, feed on flower nectar and pollen. Their young devour some of the insect pests that can make a gardener's life miserable. Maintaining this workforce, however, means providing food for both.

Research shows that ample flowers not only sustain adult beneficial insects, but also allow longer survival and production of more progeny, thus increasing the biological control of undesirable insects.

Most insects go through four very different life stages: egg, larva, pupa and adult.

Only the larval and adult forms are active feeders.



Lacewing egg



Lacewing Larva



Adult Lacewing

The larvae of lacewings (above), called aphid lions, use hooked jaws to pierce and kill aphids. Flower fly larvae (below) look like maggots as they crawl over foliage, feeding on dozens of soft-bodied insects.



Syrphid Fly



Syrphid fly larva

Parasitic wasps (below) lay their eggs on insect prey. The eggs hatch into larvae that devour the prey.



© Agriculture Western Australia
Parasitic wasp preparing to lay egg in aphid



© Agriculture Western Australia
Parasitic wasp laying eggs in armyworm larva



© Agriculture Western Australia
Parasitic wasp larvae emerging from armyworm larva

Predatory pirate bugs are a little different in that the larval stage is a miniature version of the adult insect and both eat the same food: spider mites, thrips and insect eggs. Only one-eighth of an inch long when mature, predatory pirate bugs are one of the most important controls of these undesirable insects.

What flowers are most often used to sustain adult beneficial insects? To answer this question, Whitney Cranshaw, Colorado State University entomologist, surveyed Front Range flower collections, including the Denver Botanic Gardens. The accompanying list shows flowers that are most visited and relied on as nectar or pollen food sources.

Including early blooming flowers such as Basket of Gold (*Aurinia saxatilis*) followed by midseason bloomers such as English lavender (*Lavandula angustifolia*) and late blooming goldenrod (*Solidago virgaurea*) you'll have a season-long food source for beneficial insects.

If you don't provide food for adult beneficials, it's likely they won't inhabit the garden and you'll inherit their work. Plant a wide range of plants that bloom throughout the growing season to gain the benefits of natural insect control in your garden. Note that this approach must include minimal pesticide use or at least use of pesticides "friendly" to beneficials.

Flowers used by beneficial insects:

Early blooming

Basket of Gold *Aurinia saxatilis*

[Rocky Mountain penstemon](#) *Penstemon strictus*

[Native potentilla](#) *Potentilla verna*

[Creeping thyme](#) *Thymus serpyllum*

[Sweet alyssum](#) *Lobularia maritima*

[Columbine](#) *Aquilegia x hybrida*

Carpet bugleweed *Ajuga reptans*

Midseason blooming

[Common yarrow](#) *Achillea filipendulina* 'Coronation Gold'

Dwarf alpine aster *Aster alpinus*

[Spike speedwell](#) *Veronica spicata*

[Wine cups](#) (Poppy mallow) *Callirhoe involucrata*

Cilantro (Coriander) *Coriandrum sativum*

[English lavender](#) *Lavandula angustifolia*

Sulfur cinquefoil *Potentilla recta* 'Warrenii'

Edging Lobelia *Lobelia erinus*

[Mint](#) *Mentha sp.*

[Stonecrop](#) (various) *Sedum sp.*

Late blooming

Fernleaf yarrow *Achillea millefolium*

Lavender globe lily *Allium tanguticum*

Dill *Anethum graveolens*

Dyer's camomille *Anthemis tinctoria*

Fennel *Foeniculum vulgare*

Sea lavender *Limonium latifolium*

[Wild bergamot](#) *Monarda fistulosa*

European goldenrod *Solidago virgaurea*

Other beneficial insects in the garden include the lady beetle and its larvae:



lady beetle eggs



lady beetle



lady beetle larva



lady beetle larva

The Denver Botanic Gardens has taken an active approach to natural pest control. They have released a number of beneficial insects into the newly re-opened conservatory in an attempt to control many different types of pests including aphids, spider mites, whitefly, mealybugs and thrips. The beneficial insects released include lacewings (*Chrysoperia rufilahris*), the "Mealybug Destroyer" (*Cryptolaemus montrouzieri*), and several types of parasitic wasps including *Aphidius colemani*. The "Mealybug Destroyer", a beetle native to Australia, has now established itself in the conservatory and is doing an excellent job of controlling the mealybug population.

To learn more about beneficial insects, request *CSU Fact Sheets, "beneficial insects in the yard and garden-5.550" and "Friendly pesticides for home gardens--2.945"* from any county office of Colorado State University Cooperative Extension.

Photos: Judy Sedbrook, CSU, Agriculture Western Australia

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