



URI COLLEGE OF THE
ENVIRONMENT AND LIFE
SCIENCES (CELS) OUTREACH
CENTER

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Call:

In RI: URI MGA Hotline
1-800-448-1011
Mon.-Thurs. 9:00 a.m.—2:00 p.m.

In MA and CT: 401-874-2900

Outside New England please
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Websites:

URI Master Gardener Association
www.urimga.org

CELS Outreach Center
www.uri.edu/cels/ceo

APHIDS

Aphids, or plant lice, are small, soft-bodied insects. They are one of the most common pest groups of ornamental plants, as well as vegetables, field crops, and fruit trees. There are hundreds of aphid species; almost every plant has one or more aphid species that occasionally feed on it. Some species always settle on the same type of plant; others have one or more alternate hosts. Although they may be found singly, aphids most often feed in clusters and generally prefer new, succulent shoots or young leaves. Most aphids do not disperse rapidly when disturbed.

Description

Aphids are very small, pear-shaped insects. They may be green, yellow, brown, red, or black depending on the species and the plants they feed on. Some species, known as woolly aphids, are covered with a protective coat of white, waxy filaments which they produce from special glands. Adult aphids are generally wingless, but most species also occur in winged forms, especially when populations are high or during spring and fall. (The ability to produce winged individuals provides the pest with a way to disperse to other plants when the food source gets scarce.) Aphids have long, slender mouthparts with which they pierce stems, leaves, and other tender plant parts to suck out plant fluids.

Life Cycle

Aphids have unusual and complex life cycles which allow them to build up tremendous populations in relatively short periods of time; each adult aphid can produce up to 80 offspring in a matter of a week. Most species overwinter as fertilized eggs glued to stems or other parts of plants. Nymphs that hatch from these eggs become wingless females known as stem mothers. There are no males present at this time. Stem mothers reproduce without mating and their eggs are held within their bodies until they hatch so that young are born alive. All offspring are females that mature quickly and begin to reproduce in the same manner. This pattern continues for as long as conditions are favorable. With the return of autumn's shorter days and cooler temperatures, a generation appears that includes both males and females. After mating, these females lay the fertilized eggs which overwinter and the cycle begins again.

Damage

Aphids feed by sucking up plant juices; at the same time, they inject saliva into the plant. Light infestations are usually not harmful to plants, but higher populations can result in leaf curl, wilting, stunting of shoot growth, and delay in production of flowers and fruit, as well as a general decline in plant vigor. Some aphids are also important vectors of plant diseases, transmitting pathogens, particularly viruses, in the feeding process. Squash, cucumber, pumpkins, melons, beans, potatoes, lettuce, beets, chard, and bok choy are all common hosts of aphid-transmitted viruses.

PESTICIDES ARE POISONOUS!! Read and follow all safety precautions on labels. Handle carefully and store in original containers out of reach of children, pets, or livestock. Dispose of empty containers immediately, in a safe manner and place. Pesticides should never be stored with foods or in areas where people eat.

When trade names are used for identification, no product endorsement is implied, nor is discrimination intended against similar materials. Be sure that the pesticide that you wish to use is registered in the state of use.

The user of this information assumes all risk for personal injury or property damage.

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Note: The Hotline is open Monday—Thursday, 9:00 a.m.—2:00 p.m. from March 1 to November 1.



Aphids can also produce large quantities of a sugary waste product known as honeydew, which often turns black when a sooty mold fungus grows on it. Some aphid species inject a toxin into plants, which further distorts growth. A few species cause gall formations. A few aphid species attack parts of plants other than leaves and shoots. The woolly apple aphid, for example, infests woody parts of apple roots and limbs, often near pruning wounds, and can cause overall tree decline if roots are infested for several years.

Monitoring

Stunted plants, plants that have lost vigor, and plants with curled or deformed leaves are likely to have aphid infestations. Feeding aphids usually occur in clusters on succulent shoots, under leaves, or in other suitable feeding sites. The presence of honeydew or sooty mold is an excellent clue that aphids are present. Plants should be examined closely on a regular basis, at least twice weekly when plants are growing rapidly, to detect aphids before damage is evident. Many aphid species prefer the undersides of leaves. On trees, clip off leaves from several areas of the tree to check for aphids. Aphids tend to be most prevalent along the upwind edge of the garden and close to other sources of aphids, so make a special effort to check these areas.

Many species of aphids cause the greatest damage when temperatures are cool (65-80°F). Once aphid numbers are high and plants have begun to show signs of damage it is often hard to control them because the curled leaves shelter aphids from treatment or natural enemies.

Control

Although aphids seldom kill a plant, the damage and unsightly honeydew they produce usually warrant control. Consider the nonchemical (i.e., biological and cultural) controls discussed below; most insecticides (organophosphates, carbamates, and pyrethroids) will destroy beneficial insects along with the pest. Selective insecticides such as oils and soaps are safer to use than insecticides and may provide more effective long term control because they do not kill the natural enemies of the aphids.

Biological Control: Usually, natural enemy populations do not appear in significant numbers until aphids begin to be numerous. Among the most important natural enemies are various species of parasitic wasps that lay their eggs inside aphids. Many predators also feed on aphids. The most well known are lady beetle adults and larvae, lacewing larvae, and syrphid fly larvae. Aphids are very susceptible to fungal diseases in humid weather.

Cultural Control: One of the best ways to reduce aphid populations on sturdy plants is to knock them off with a strong spray of water. Most dislodged aphids will not be able to return to the plant and honeydew will be washed off as well. Using water sprays early in the day allows plants to dry off rapidly in the sun and be less susceptible to fungal diseases.

1. Pruning. Where aphid populations are localized on a few curled leaves or new shoots, the best control may be to prune these areas out, drop the infested plant parts in a bucket of soapy water, and dispose of them. In large trees, some aphids thrive in the dense inner canopy; pruning these areas out can make the habitat less suitable.

2. Ants. In some situations ants tend aphids and feed on the honeydew aphids excrete. At the same time, they protect the aphids from natural enemies. If you see ants crawling up aphid-infested trees or woody plants, put a band of sticky material (e.g., Tanglefoot) around the trunk to prevent ants from getting up. Wrap the trunk with fabric tree wrap or duct tape and apply sticky material to the wrap. Alternatively, ant stakes, dusts, granules, or baits may be used on the ground. Prune out other ant routes such as branches touching buildings, the ground, or other trees.

3. Nitrogen. High levels of nitrogen fertilizer favor aphid reproduction, so never use more nitrogen than necessary and use less soluble forms of nitrogen, applying it in small portions throughout the season rather than all at once. A urea-based, time-released formulation (most organic fertilizers can be classified as time-release products as compared to synthetically manufactured fertilizers) is ideal.

4. Vegetables. Before planting vegetables, check surrounding areas for sources of aphids and remove them. For example, aphids often build up on weeds such as sowthistle and mustards, moving onto crop seedlings after they are planted. Also, check transplants for aphids and remove them before planting. Because many vegetables are primarily susceptible to serious aphid damage during the seedling stage, losses can be reduced by growing seedlings under protective covers in the garden or in a greenhouse, or growing them inside and then transplanting them when they are older and more tolerant of aphid feeding. Aluminum foil mulches have been successfully used to repel invading aphid populations.