



Aphids

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Description

Aphids, also called plant lice, are small, soft-bodied insects (Fig. 1). There are hundreds of different species of aphids, some of which attack only one host plant while others attack numerous hosts. Most aphids are about 0.1 inch (2.5 mm) long. Generally green or black in color, aphids can also be gray, brown, pink, red, yellow, or lavender. A characteristic common to most aphids is the presence of two tubes, called the cornicles, on the back of their bodies. The cornicles secrete defensive substances to protect against predators. In some species the cornicles are quite long, while in others they are very short and difficult to see. Aphids feed in clusters and generally prefer new, succulent shoots or young leaves (Fig. 2). Some species are called woolly aphids; they are covered with white, waxy filaments produced from special glands.

Order: Homoptera, Family: Aphididae



Figure 1. Green peach aphid. (Scott Bauer, USDA ARS, Bugwood.org)



Figure 2. Cluster of orange-colored oleander aphids feeding on milkweed. (Jim Occi, BugPics, Bugwood.org)

Habitat

Aphids are common pests of nearly all indoor and outdoor ornamental plants, as well as vegetables, fruit trees, and field crops throughout the U.S. and the world.

Life Cycle

Aphids have unusual and complex life cycles that allow them to build up enormous populations in relatively short periods of time. Most species overwinter as fertilized eggs glued to stems or other parts of host plants. Nymphs hatch from these eggs and develop into wingless females known as "stem mothers." There are no male aphids present at this time and the stem mothers reproduce parthenogenetically (without mating). Eggs are held within the bodies of the stem mothers until they hatch, so those young are born alive. All of the offspring are females, which soon mature and begin to reproduce in the same manner. This pattern continues as long as conditions are favorable. A dozen or more generations of parthenogenic generations are typical in Virginia. Periodically some or all of the young develop wings and migrate to other plants. Some aphid species always settle on

the same species of host plant, but others have one or more alternate host plants. Male offspring appear in the fall when days are shorter and temperatures are cooler. After mating, females in the fall generation lay fertilized eggs that overwinter and hatch stem mothers the following spring.

Certain species of ants sometimes protect colonies of aphids (Fig. 3). The ants gather up aphids or their eggs and keep them through the winter sheltered in their nests. In spring, the ants transport these aphids to appropriate food plants where the ants protect the aphids from enemies and transport them to new plants at intervals. In return, the aphids provide the ants with honeydew, a sugary substance that aphids secrete as a waste product.



Figure 3. An ant tending an aphid colony. (David Cappaert, Bugwood.org)

Damage

Aphids feed by sucking up plant juices through their beaks, which they insert in plant tissues. Light infestations are usually not harmful to plants, but heavier infestations may result in leaf curl, wilting, stunting of shoot growth, delay in production of flowers and fruit, as well as a general decline in overall plant vigor. Some aphids create galls, abnormal growths of plant tissue that generally do not harm the plant even though they are highly noticeable (Fig. 4). Some aphids are also important vectors of plant diseases, transmitting pathogens to the plant via the saliva injected into the plant during feeding.

Aphids secrete honeydew, which may collect on lower leaves, outdoor furniture, cars, and other objects below where aphid colonies feed. Honeydew

may attract ants, bees, or flies that feed on the sugary material. Honeydew also encourages the growth of fungi known as sooty molds (Fig. 5). Dark crusts of sooty mold are unsightly on objects and can interfere with the photosynthesis of any covered plant leaves.



Figure 4. Colorful galls created by the elm cockscomb gall aphid. (Howard Ensign Evans, Colorado State University)



Figure 5. Sooty mold on plant leaves. (Joseph Obrien, USDA Forest Service, Bugwood.org)

Common Aphids in Virginia

White Pine Aphid: Black or gray aphids with long legs and most commonly found on white pines. This is a common pest of eastern white pines. Severe infestations reduce the growth and may even kill small trees. Colonies occur most commonly on twigs and stems where their feeding may kill patches of the bark. Needles and twigs are sometimes completely covered with sooty mold. White pine aphid eggs are laid in straight lines on needles. These may hatch when infested white pines are brought indoors as Christmas trees.

Rose Aphid: Green or pink aphids with black legs. A widespread and common pest of all cultivated roses, this species may also damage pyracantha. Feeding damages stems, buds, and young tender leaves.

Giant Bark Aphid: Ash-gray aphid with black spots. This is our largest aphid species at nearly 0.5 inch (13 mm) long, including the legs. It attacks willow, maple, elm, oak, birch, and several other common shade trees. It feeds on the bark of twigs and small branches. Bees, wasps, and flies are attracted to the honeydew they secrete.

Green Peach Aphid: Pale yellow-green aphid (Fig. 1). This species attacks dozens of different hosts including aster, catalpa, crocus, dahlia, English ivy, iris, lily nasturtium, pansy, rose, snapdragon, tulip, and violet, as well as many garden vegetables and some fruit trees. It is capable of transmitting over 100 different plant viruses.

Chrysanthemum Aphid: Shiny dark brown aphid with short cornicles. Common and widespread on chrysanthemum where they cause stunted growth and slightly curled leaves.

Woolly Alder Aphid: Plump and blue-black aphid, but completely covered with white waxy filaments (Fig. 6). Silver maple is the primary host plant, but these aphids migrate to alder in mid-summer, then return to silver maple in late fall. This aphid is not particularly injurious to either host, but it becomes a cosmetic nuisance when waxy filaments accumulate under heavily infested trees.



Figure 6. Woolly alder aphid on a leaf. (Clemson University-USDA Cooperative Extension Slide Series, Bugwood.org)

Non-toxic and Least Toxic Control

Natural enemies play a very important part in controlling aphid populations. Lady beetles, lacewings, damsel bugs, flower fly maggots, certain parasitic wasps, birds, and fungal diseases all attack aphids. Without them, these pests would be much more destructive. Gardeners should avoid the use of insecticides, which are harmful to beneficial organisms in the garden. Instead, wipe down the stems and leaves with aphids on them, physically crushing and removing the insects. For strong, sturdy plants, use a strong stream of water to knock the aphids off stems and leaves. Gardeners should keep their plants healthy and growing vigorously since migrating aphids are attracted to the unhealthy yellow-green color of struggling plants.

Chemical Control

Horticultural oil or soap may be used against aphids. When large numbers of overwinter eggs are found, soaps and oils are effective controls. Ask your Extension agent for information about appropriate pesticides, including when sprays should be made.

A large number of contact and systemic insecticides are labeled for control of aphids; see the Virginia Pest Management Guide for the most current recommendations. Again, it is often best to leave control of aphids to natural predators to minimize damage to host plants.

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