



## Aphids on Trees and Shrubs

Aphids are small (1/16-1/8 inch long), soft bodied insects commonly called plant lice or ant cows. Virtually every plant has at least one aphid species that attacks it. These small insects are masters of reproduction and are often found in great numbers on stems or leaves. Some species even feed on the roots of plants. They range in color from green to brown, red, black or purple. Some species may even have different color forms in the same colony. Most have the soft exoskeleton exposed, but some species produce waxy, cottony strands which cover the body. These are often called woolly aphids.

### Pea Aphids (female)



**Wingless**



**Winged**

Aphids are identified by their sucking mouth parts, long, thin legs, long antennae, pear-shaped body and pair of tube-like structures (called cornicles) arising from the posterior of the abdomen. A hand lens may be needed to see the short cornicles of some species. These cornicles apparently are the ducts of glands that produce alarm odors. Aphids may be winged or wingless and colonies often have both forms. Aphids excrete a sugary liquid called honeydew. This honeydew drips onto plant foliage or other structures and provides a suitable place for black sooty molds to grow. Ants often tend or care for aphids in return for the honeydew. Therefore, if ants are running over a plant, look carefully for aphids.

### **Types of Damage**

Each plant reacts differently to aphid attacks. Some plants show no response to the aphids, while other plants produce distorted (twisted, curled or swollen) leaves or stems. Occasionally, aphids may actually kill leaves or small shoots. Since aphids may move from one plant to another, they may transmit plant diseases which contaminate the sucking mouth parts.

Probably the most common disturbance caused by aphids is their never-ending production of honeydew. This sweet liquid drips onto plant foliage and stems and is soon covered with black sooty mold. Cars, sidewalks, and lawn furniture under trees with aphids are also covered with this sticky fluid. Ants, flies and wasps appreciate the sugary meal and can become a nuisance of their own. Even though plants may look bad from the growth of sooty molds, these fungi do not damage the plant tissues. Once the aphids disappear, the sooty mold often dries up and falls off the plant.

### **Life Cycles and Habits**

Though aphids belong to the group of insects with simple life cycles, many species have very complex life histories. They can be conveniently grouped into three types: 1) those with single hosts and asexual reproduction, 2) those with single hosts and asexual alternating with sexual reproduction, and 3) those with alternating hosts and alternating asexual and sexual reproduction.

Aphids with simple life histories live on one plant species or a group of related plants. The females give live birth (ovoviviparous) to tiny female nymphs that start sucking sap immediately. After shedding their skin several times, the nymphs reach adulthood and soon produce new aphids. A complete cycle may take only 10-14 days. As the colonies grow, winged forms may be produced that seek out additional host plants. Some of these species may lay eggs, asexually, in the fall, which over winter.

The next group again lives on one plant or group of plants, but alternates from the spring asexual form of reproduction to a fall sexual cycle. Generally, these aphids over winter in the egg stage. The egg hatches in the spring into a female called the "stem mother." This female gives live birth to female aphids. Asexual reproduction continues with wingless or winged forms being produced. In late summer or fall, the asexual reproducing females produce sexual, males and females. These sexual forms mate and lay eggs for over wintering. The most complicated aphid life cycles include not only alternation from asexual to sexual reproduction but also a switch of host plants. The spring and summer asexual forms live on one host but fly to an alternate plant for the production of the sexual forms. The sexual forms, after mating, return to the spring host plant to lay eggs.

The important things to remember about aphids is that they are tremendous reproducers, and with their ability to fly, tend to constantly reinfest plants.

### **Control Tactics**

Most aphid attacks merely cause temporary aesthetic damage to plant material. In fact, most of the species with complicated life cycles use the alternation of hosts to escape the numerous predators, parasites and diseases associated with a sedentary life.

**Strategy 1:** Cultural Control- Syringing Use a hard jet of water from the hose to dislodge the aphids. Periodic syringing will keep the populations from doing much damage and allow the parasites and predators to build up to effective levels.

**Strategy 2:** Cultural Control - Plant Resistance Many trees, shrubs and flowers have resistance to aphids. Observe those plants in the neighborhood to identify those that seem to be annual "aphid food" and those that never seem to be bothered. Select the resistant types for your own yard.

**Strategy 3:** Biological Control- Encourage Predators and Parasites Lady beetles, green lacewings, hover flies, and parasitic wasps commonly do a good job of aphid control if they are not killed with insecticide applications or if ants are not allowed to tend the aphid colonies. If ants are tending aphids on a plant, place a ring of insecticide dust or diatomaceous earth around the base of the plant.

**Strategy 4:** Chemical Control - "Soft Pesticides" Since most aphids are soft-bodied insects, horticultural oils and insecticidal soaps seem to provide good control. Thorough coverage is needed since these products have contact activity only.

**Strategy 5:** Chemical Control - Contact Insecticides Numerous contact insecticides are registered for aphid control. Since aphids are often placed under considerable pesticide pressure in field crops and greenhouses, they may be resistant to certain categories of insecticides. Therefore, if you do not obtain reasonable control, consider rotation to another insecticide.

**Strategy 6:** Chemical Control - Systemic Insecticides Several systemic insecticides are useful in aphid control. Aphids have sucking mouth parts and are thus very susceptible to pesticides located in the plant vascular system.

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