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Aphid identification and control

Now that spring has arrived, our little insect friends have arrived, too. One insect that just loves spring is the aphid. This pest belongs to the order of insects called Homoptera. All insects in this group have mouthparts that pierce and suck fluids; they do not cause chewing damage. Spring especially can be tough because many species of aphids cause the greatest damage when temperatures are warm, but not hot (65° to 80°).

Identifying aphids is easy. They are 1 to 10 millimeters in length and pear-shaped. Their color varies by species; however, the most common colors are green, yellow or black. The best diagnostic features are their cornicles, the two "tail pipes" that extend from the tail end of their bodies and secrete chemicals for defense.

All aphids feed on the phloem sap of plant material. They have mouthparts that are like long needles, piercing and then sucking out plant sap. When aphid populations on plants are low, they are not too damaging, but as populations grow, they can cause leaf curling, stunted growth and even yellowing. While feeding, aphids take in large amounts of sugars. The excess sugar is excreted as droplets of "honeydew" from the rear of the aphids and often falls on lower leaves and stems of the host plants. The honeydew may give the appearance that the plant surfaces are wet. If the aphids go untreated, this substance will continue to build up. Often, an opportunistic mold will begin to grow on these sugars. This sooty mold does not harm the plant, but is an aesthetic problem. With treatment of the aphids, the black mold will not have sugars to feed on, and it simply can be washed off the plant. There is no need for a fungicidal treatment.

Another problem that aphids can cause is the vectoring, or spreading, of plant viruses within a crop. They do this by feeding on one crop and pick up the pathogen, then moving to a new plant and infecting it while they feed. This occurrence typically is more of an agricultural and greenhouse problem than a nursery one.

Aphid colonies are made up of mostly parthogenetic females, which can reproduce without mating and give birth to live offspring. The newly born, wingless aphids are clones of their mothers. These aphids will feed, and they molt four times before becoming adults. When they molt, the pests leave behind their old skins on the surface of the plant material, which look like white flakes. Sometimes these empty skins are mistaken for whiteflies.

Most aphids in a colony never will have wings because usually aphids do not need them. Over time, as populations grow on a plant and start to get crowded, some aphids will develop wings on the final molt and fly to new plants to start new colonies. Another reason aphids may develop wings could be in response to sensing chemical cues from one of their natural predators, ladybug larvae. Chemical tracks left behind by a ladybug larva's feet can trigger aphids to become more mobile. Wings allow them to escape these predators. Winged aphids are called alates.

One nice aspect of aphids is they have a lot of natural enemies. Ladybugs, lacewings, fly larvae, wasps, true bugs and many others love to feed on these soft-bodied insects. Tiny, parasitic wasps are among the most commonly occurring beneficials for controlling aphids — and often are misidentified. The adult female wasp is not much larger than an aphid, and it has clear wings. Once she finds her prey, she deposits an egg inside of the prey's body. Then the egg hatches, and the wasp larva eats the aphid from the inside out, starting with the nonessential parts. After approximately seven days, the aphid begins to swell and turn brown. This is called an aphid mummy. Approximately four days after that, the wasp inside the

Beneficial insects for control of aphids

Common name	Latin name
Ladybird beetle	Many species
Parasitic wasp	Aphidius colemani*
Parasitic wasp	Aphelinus abdominalis*
Predatory fly	Aphidoletes aphidimyza *
Lacewing	Chrysoperla sp.*

* commercially available

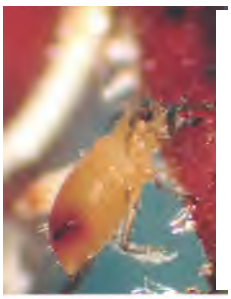
A syrphid fly larva feeds on an aphid.

This aphid mummy exhibits a hole where an aphid parasite chewed through to exit.

Chemical pesticides for control of aphids

Class	Products
Neonicotinoids	TriStar, Flagship, Marathon, Safari
Biopesticides	Azatin XL, Ornazin, Neemazad
Feeding disruptor	Endeavor
Insect growth regulators	Enstar II, Preclude TR, Distance
Oils	Triact 70, K+ Neem, Ultra-Fine Oil, Target, Organocide
Soaps	M-Pede, Safer's
Pyrethroids	Astro, Decathlon, Talstar, Tame
Botanicals	DIATECT V, PyGanic, pyrethrum

An aphid parasite hatches out of the back of a parasitized aphid.



Not only do aphids attack the foliage of plants, but they also can attack the root system. This is a rice root aphid on the roots of a *Juncus* sp.

mummy chews a hole in the back of the aphid, climbs out and flies away.

Another parasitic wasp, *Aphelinus abdominalis,* not only will parasitize aphids, but it also will "host feed." The female wasp will sting and paralyze the aphid and then stab holes in the body. The holes will leak body fluids, and the adult wasp will drink them up.

Often, you see ants in conjunction with aphids. These two insects have developed a special relationship. Ants have learned that honeydew excreted by the aphids is a delicacy, so it's to the ants' advantage to protect the aphids. The ants defend the aphids from predators and even move the aphids to new plant material. This relationship is called "aphid farming." Being that the ants are moving aphids to new nursery stock, it can be hard to keep up with their movement.

If you do not have some of the beneficial predator insects to help naturally eradicate aphids, there are many pesticides labeled for this pest. Aphids do not have hard bodies like many other insects, so they are easier to kill. Softer products, like insecticidal soaps and oils, kill aphids on contact easily, but you must get complete coverage, which can prove to be a problem. Complicating the coverage issue, aphids can cause foliage to cup, thus protecting themselves on the undersides of cupped leaves. Remember, leaving just one aphid can lead you right back into problems; she does not have to mate to have babies.

Aphids are a very common problem. They can be easy to control with pesticides, but before you treat, make sure Mother Nature has not already taken care of the problem. Check that what you are looking at are not the left-behind skins or the dead bodies of aphids, which can look like other pests. If you approach aphid management with a chemical treatment, make sure you kill them all, or they will come back. Before you pull out the bug guns, remember softer solutions work great on aphids. Soaps and oils will have a minimal impact on your native beneficials, making your long-term solution less costly and labor intensive.

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