

Organic Solutions for Aphids

A Factsheet from Toxic Free NC

About Aphids

Aphids are tiny, soft-bodied insects. They pierce the leaves and stems of garden crops and suck out the plant juices. There are many species of aphids – some attack only one family of plants, while others like all kinds of plants. Aphids can be pests of all sorts of food crops.

Identifying the exact type of aphid is not important, since they are all treated in the same way. One aphid won't cause much damage, but they multiply quickly into huge groups.

Damage to plant leaves may appear as yellowing or browning. Damage to young plants appears as curling and deformation of leaves, buds, stems, flowers, and fruit. Leaves may fall off the plant, or the entire plant may be killed.

Aphids also make a sticky substance called honeydew. Honeydew can coat plants and make them look shiny, and can cause diseases in some plants. Aphids can spread plant diseases from plant to plant.

The tips below are designed to help you control aphids in your garden without toxic chemicals. Sustainable pest management strategies usually work best when used together. Think about your garden, your resources, and your time, and put several of these tips together into a plan that works for you.

Identifying Aphids

Aphids are very small and may be hard to spot one by one. But they are easy to see after they've multiplied into big groups. They are slow-moving, pear-shaped, and may be yellow, green, pink, brown, black, or gray. They have long legs and antennae and a pair of little tubes sticking out from their rear ends called "cornicles." They sometimes have wings, but usually do not.

Nymphs are similar to adults, but smaller. Aphids are born live for most of the season, so you usually won't see any eggs.



Tiny aphids on a tomato leaf.

Photo credit: Brian Kunkel, University of Delaware.



Adult aphid and various nymph sizes on a lettuce leaf.

Photo credit: Whitney Cranshaw, Colorado State University.

Life Cycle

Eggs are laid late in the year. They spend the winter in woody bits of dead crops, or on nearby trees and shrubs. When the eggs hatch in the spring, only females are born. These females do not need to mate – instead, they give birth to lots of live, fertile female nymphs throughout the season. Each of these matures very quickly and goes on to produce even more. In this way, populations can grow very quickly.

Later in the year, aphids make both male and female. These will mate and lay the eggs that wait out the winter to hatch the following spring. Winged aphids may appear at some times of the year, or when a group becomes overcrowded. Wings then allow them to find a new home in another part of the garden.

Prevention

1) Grow healthy organic plants. Aphids like to eat weak plants rather than healthy ones. Make sure that your crops get enough sunlight and water. Make sure the soil is well-drained, nutrient-rich, and has plenty of organic matter. Too much nitrogen fertilizer can also make plants tastier to aphids. Those plants produce lots more of the tender, nutritious young leaves that aphids love to eat and need to breed, without producing more fruit!

2) Control weeds in and around the garden. Aphids may hang around in weedy areas around the garden early in the season. They then move into the garden once crops are planted. Scout the edges of the garden before planting and kill any aphids you find.

Getting Rid of Aphids Without Toxic Chemicals

1) Scout and destroy. Managing aphids before they get out of control is a key to success. Once you notice aphid damage, it may already be too late to get them under control. Scout the garden several times a week. Take care to check the undersides of leaves, and pay special attention to tender new growth. When aphids are found, you can simply rub them under your finger. They are soft-bodied and easy to crush. If a particular leaf is full of aphids, you may cut that part from the plant and drop it into a pail of soapy water.

2) Use a strong water spray. Aphids can be knocked off your plants with a heavy spray of water from a garden hose and a strong spray nozzle. The slow-moving pest will have trouble finding their way back onto your crops.



Pink and red potato aphid adults.

Photo credit: David Cappaert, Michigan State University.



Turnip aphid mummies are swollen and tan (bottom right).

Photo credit: Alton N. Sparks, Jr., University of Georgia.

3) Attract natural enemies. There are lots of natural enemies of aphids, and they can be very helpful. Tiny parasitic wasps lay their eggs inside aphids' bodies. The larvae eat them from the inside out. When the adult wasp comes out, it leaves behind an "aphid mummy," which is the dried husk of the aphid's former body. If you see these brown or black mummies on your plants, you know that your wasp partners are hard at work!

Ladybug adults and larvae love to eat aphids (and so do the larvae of lacewings, aphid midges, and syrphid flies). All of these helpful bugs can be attracted to the garden. Provide them with small-flowered plants for pollen and nectar, such as wildflowers and herbs.

4) Release predators. Lady beetles, parasitic wasps, aphid midges, and lacewings can also be purchased and released into the garden. Look for them in gardening and seed catalogs.

5) Spray with insecticidal soap. Insecticidal soap will kill the soft-bodied aphid and can be bought from many garden and seed catalogs. It must come in contact with the insect itself to be work. Spray directly onto groups of aphids, rather than trying to cover the plant. Spraying only the areas with aphids will also lower the chances of hurting helpful bugs.

Plants in the cucurbit family (cucumbers, melons, squashes, and pumpkins) can be harmed by insecticidal soap in hot weather, so spray only in the cooler parts of the day.

6) Use organically acceptable insecticides. As a last resort, you might choose to apply other insecticides that appear on the Organic Materials Review Institute's list of products approved for certified organic farms. These include pyrethrin and neem oil.

Even though these sprays are approved for organic farms, they can be hazardous. Be sure to follow instructions on the labels very carefully. Keep in mind, too, that these sprays can kill pollinators and natural predators you want to keep in your garden. Use as little as you can, and spray only in the early morning or late evening when the "good bugs" are less active. Obviously, even "organic" sprays come with risks and problems, so try the other tips here first, and you may be able to skip the sprays altogether.

Sources

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Frank, Steven. 1997, revised 2009. "Aphids." NCSU Cooperative Extension Service, Department of Entomology Insect Notes. Viewed March, 2012: [link].

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Greer, Lane. 2000. "Greenhouse IPM: Sustainable Aphid Control." National Center for Appropriate Technology. ATTRA: National Sustainable Agriculture Information Service. Viewed March, 2012: [link].



Many aphids, showing some with wings, ladybug larva predator, and mummy aphids.

Photo credit: David Cappaert, Michigan State University

Townsend, Lee. 2000. "Aphids." University of Kentucky College of Agriculture, Department of Entomology. Viewed March, 2012: [link].



This factsheet was written with the needs of non-commercial home, school and community gardeners in mind. Certified Organic growers, or those seeking a certification, should check with their certifying agency before using ANY insecticide. Some organically acceptable insecticides are approved for use in Certified Organic systems only against certain pests or in certain situations.
