GROWERTALKS

Pest Management

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A Refresher on Aphids

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Aphids are common greenhouse pests. There are many species that feed on greenhouse crops, including green peach aphid, melon aphid, potato aphid, foxglove aphid, rose aphid and chrysanthemum aphid.

If you grow plants (which of course you do), you probably have aphids of some sort right now. Like most pests, they're tiny, camouflaged and reproduce quickly. We'll cover identification and life history of three common species in this article. Why do you need to know one species from another? Because they infest different plant species, which could affect where you put your scouting effort. They're also susceptible to different biological control agents; without proper identification you could purchase the wrong predators or parasitoids, which could be an expensive mistake. Of course, we can't cover them all and, like I said, they're tiny. Thus, seek help from other growers or extension personnel if your management tactic depends on it.

Pictured: Potato aphids (Macrosiphum euphorbiae) on tomato.

Aphid adults can be winged or wingless, so wings aren't a feature that will help you sort out different species. They usually form wings when the population is high. So by the time you see wings, you probably have a lot of aphids! Most species of pest aphids in greenhouses only have females. They give live birth to genetically identical daughters. This is one reason their populations grow very quickly. It also means you don't have to worry about trying to see aphid eggs; there aren't any in most greenhouse situations.

Aphids have needle-like mouthparts they use to pierce plants and suck phloem. Phloem contains the sugars plants produce by photosynthesis, but isn't very nutritious. Thus, aphids and other phloem feeders, like

whiteflies and mealybugs, have to drink a lot of phloem to get enough nutrients. They excrete all the excess phloem as drops of honeydew, which can make leaves shiny or sticky. Honeydew is also a substrate for sooty mold, a black fungus that feeds on the sugars in honeydew. Sooty mold isn't a plant pathogen, but is obviously ugly and reduces photosynthesis by covering leaves. Aphid colonies also leave white cast skins that stick to plant tissues. Some aphid species transmit plant viruses.

Depending on how tightly your greenhouse is sealed, aphid colonies will attract many natural enemies, including parasitoid wasps, syrphid flies, aphid midges and ladybird beetles. These endemic natural enemies rarely provide adequate control in greenhouses, but many of the same organisms are available from commercial suppliers. But again, the biological control agent depends on the aphid species you're dealing with.

Chrysanthemum aphid *(Macrosiphoniella sanborni)* winged adults are 2 to 2.5 mm long and dark brown. Wingless adults are 1.5 mm long. They have black cornicles. (Cornicles are the two appendages that point out from the back of aphids like tail-pipes.) Cornicle length and color are often useful in identifying aphid species. Nymphs have dull, brick-red bodies with relatively long legs and antennae. The outer two-thirds of the legs and antennae are gray to dark gray.

Chrysanthemum aphids are found throughout the world wherever chrysanthemums are grown. Chrysanthemums are the only known hosts in North America. Chrysanthemum aphids gather around terminal buds to feed on new growth. Feeding on new growth and buds causes leaves to become distorted as they grow. Chrysanthemum aphids can transmit chrysanthemum vein mottle virus and chrysanthemum virus B. Chrysanthemum aphids can be present throughout the year in greenhouses, but, of course, only on chrysanthemums.

Green peach aphid *(Myzus persicae)* adults are light to dark green or pink with red eyes. Cornicles are the same color as their body, but with dark tips. Wings may or may not be present. The tobacco aphid Myzus nicotianae is similar and can be either red or green. Nymphs resemble adults and usually all stages will be present together.

The green peach aphid is a pest throughout the world. Green peach aphids have been collected from hundreds of plant species, including most vegetable crops and ornamental crops. They feed preferentially on new growth, but can live on most plant parts, including flowers. They're also vectors of many plants viruses, including tobacco, tomato, lettuce, dahlia, canna and beet mosaics.

In greenhouses, green peach aphids produce live nymphs continuously and do not lay eggs. Up to 30 generations per year may take place in its southern range. Green peach aphids will also feed on chrysanthemums, but their green or pink bodies are pretty easy to distinguish from the dark chrysanthemum aphids.

Melon Aphid *(Aphis gossypii),* also called cotton aphids, have two color morphs. The light morphs are pale yellow with black cornicles and 1.0 to 1.5 mm long. The winged adults are about 1.25 mm long and yellow to dark green with a black head and thorax. Wingless adults tend to be pale yellow. The dark morphs are dark green to black and much larger. The melon aphid is distributed throughout the world. It's more of a problem in

the southern portions of the United States.

Melon aphids are pests of many greenhouse crops, including melons and other cucurbits, beans, peppers, tomatoes, bedding plants, chrysanthemums and many weeds. Melon aphid feeding causes distorted growth, decreased yield of vegetables and reduced quality of yield—as fruit may be covered by honeydew and cast skins. Melon aphids also transmit several important plant viruses, including cucumber mosaic. In greenhouses and in the South, melon aphids are present year round and give birth to live female nymphs. Adults live about 15 days and produce 70 to 80 nymphs.

Management

Most pest aphid species can be present year-round in greenhouses as long as a host plant is present. Green peach and melon aphids feed on hundreds of plant species, so this isn't a problem for them. Included in their host range are many weeds that grow inside and outside of greenhouses. Therefore, sanitation and removal of weeds and old plants is critical to reduce infestations. They can enter greenhouses through vents or on incoming cuttings and plants or on clothing and tools.

Since aphids reproduce quickly and feed on many plant species, they can quickly infest large areas of a greenhouse. Monitor by inspecting the undersides of leaves and looking for shiny patches of honeydew on leaf surfaces. Since aphids don't fly until they reach high populations, sticky cards will not be very valuable monitoring tools.

Many biological control agents are commercially available to manage melon aphids, green peach aphids and other species, including several parasitoid wasp species, the aphid midge, Aphidoletes aphidimyza, generalist predators and fungi such as Beauveria bassiana. Check with your biological control supplier for specific advice. Since aphids are weak, soft-bodied insects, horticultural soaps and oils will be more effective than for other pests. A suite of other insecticides is available that kill aphids, so check with extension or industry personnel for specific recommendations in your system. **GT**

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