

## Whiteflies

Whiteflies are not true flies, but are related to psyllids and aphids. There are several species. Their name is derived from the mealy white wax that coats the adult's wings and bodies. Tiny, oblong eggs are most often laid on the underside of host plant leaves. Eggs hatch into barely visible nymphs or crawlers. Nymphs find a desirable location, then insert their mouthparts into the leaf where they stay until they reach adulthood. They feed on phloem sap (the sugars produced during photosynthesis). When the nymphs mature, they become dormant for a short period. This is not a true pupal stage because whiteflies, like other homopterans, have incomplete metamorphosis. Adults emerge after a short period and begin to breed new generations. The time for a single generation varies from several months during the winter to a few weeks in the summer.



Whiteflies. John C. French Sr., Retired, Universities: Auburn, GA, Clemson and U of MO, Bugwood.org

Like aphids, whiteflies excrete honeydew, which collects dust and leads to the growth of sooty mold. The honeydew also attracts ants, which disrupt biological control organisms. They really don't do that much damage to shade trees, but can cause some defoliation given the proper conditions. In greenhouses, whiteflies can be devastating.

Whiteflies are not easily managed using insecticides, so consider the biological control systems already at work. Outdoors, natural enemies can offer satisfactory whitefly control. Minute pirate bugs, lacewings, lady beetles, and bigeyed bugs are important whitefly predators. Parasitic wasps, such as *Amitus*, *Encarsia*, and *Eretmocerus* species control many whiteflies by laying eggs on nymphs. Ants disrupt these wasps, so control them by using sticky material barriers (i.e. tanglefoot) and/or baits. Insecticidal soaps or narrow range oil sprays kill adult whiteflies on contact and can provide temporary control. Thorough coverage on the undersides of leaves is critical if these sprays are to be used. If applications are made only on upper leaf surfaces, then beneficial insects will be killed and whiteflies will be spared. You can see how this would do more harm than good. Persistent pesticides are also harmful to beneficial insects and do more harm than good when trying to control whiteflies. Adult whiteflies are attracted to bright yellow surfaces. Yellow sticky cards are primarily used for monitoring, but can be used to control whiteflies in small, isolated situations.

Sticky traps are most effective when used in vegetable gardens. Homemade sticky traps can be built from ¼ inch masonite attached to a stake that can be driven into the soil. Paint the masonite with bright yellow paint. The adhesive can be mixed using one part petroleum jelly or mineral oil and one part household detergent. When the stickiness wears off, simply wash with soap and water, dry, and reapply homemade adhesive. Use one sticky trap for two plants and face the yellow, sticky side toward the shade.

On young garden plants, aluminum foil mulch on the soil surface will discourage whiteflies. Hand operated vacuums have also been used to control adult whiteflies. Vacuuming must be done in the early morning or other cool times when whiteflies are sluggish. Kill vacuumed insects by placing the vacuum bag in a plastic bag and freezing overnight. Dump the contents the following day.

**June 18, 2024**

Adapted from original Backyard Gardener publications by Jeff Schalau, Agent, Agriculture & Natural Resources, University of Arizona Cooperative Extension, Yavapai County

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