

Whiteflies

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Whiteflies are not true flies although they look fly-like. They actually belong to the same order of insects as scales, aphids, and mealybugs: the order Homoptera. There are several species of whitefly that can infest greenhouses including the greenhouse (*Trialeurodes vaporariorum*), sweet potato (*Bemisia tabaci*), silverleaf (*Bemisia argentifolia*), and bandwing (*Trialeurodes abutilonea*) whiteflies. Of these, the greenhouse whitefly is the most common in northern areas. The silverleaf whitefly is responsible for causing phytotoxemia in poinsettia as this species extracts more sap than the other species. Bandwing whiteflies can enter the greenhouse in late summer or early fall but are not as much of a problem as previously mentioned species. Host plants include fuchsia, geranium, hibiscus, gerbera daisy, and poinsettia. Vegetable hosts include cucumbers, tomatoes and eggplant.

Appearance

Whitefly adults resemble tiny moths and are covered with a whitish powder. Species identification can be made by examining the wing markings. The first instar nymphs resemble scales but they become a transparent yellow-green and settle once they reach the second and third instar stages.



Symptoms and Effects

Like all other Homopteran insects, whiteflies have piercing-sucking mouthparts and feed on plant juices. Damage consists of chlorosis and wilting of the foliage. In severe cases plant death may occur. Whitefly infestations in vegetable crops will produce a noticeable yield reduction. Honeydew and sooty mold may also be present if populations are large enough. Whiteflies are capable of transmitting viruses to some hosts but at the present time, this is not a major concern.

Life Cycle

Female whiteflies lay 6-20 eggs a day on the lower leaf surface of desirable plants. The eggs are white initially but become dark brown as they mature. The eggs hatch in 7-10 days and the mobile, first instar crawlers resemble scales. Within several hours of hatching, these crawlers will seek out a suitable place to settle whereby they will pass the next two instars. The final instar is often referred to as a pupa although the species undergoes simple metamorphosis in which a true pupa stage is absent. There can be several generations per year with each generation taking 1-3 months to complete depending on the temperature of their environment. At 82°F it takes 18 days for a whitefly to develop from egg to adult.



Scouting Suggestions

Check hanging baskets frequently and monitor any weeds that may be growing beneath the benches. Begin monitoring susceptible crops like fuchsia and poinsettia at planting. Yellow sticky traps placed just above the crop canopy will monitor adult whiteflies as will a gentle shaking of the foliage while a more thorough visual inspection of the foliage is necessary to detect the immature nymphs. Placing trap crops such as fuchsia near doors and air-intake vents can signal when whiteflies are moving into the greenhouse.

Control

Non-Chemical

There are no established treatment thresholds but plants can handle more whiteflies than the plant managers can tolerate. Typically a mature poinsettia plant can tolerate up to 50 whiteflies per leaf before damage occurs.

Good sanitation and exclusion are critical for whitefly management. Eliminate all plants including weeds and “pet” plants for at least 1 week before starting a new crop. Inspect all new shipments. Screen vents to keep bandwing whiteflies from entering the greenhouse in the fall. Avoid excessive fertilization and irrigation.

There are several parasitic wasps that control whiteflies. The most common is *Encarsia formosa* which is commercially available. Other available natural enemies are *Encarsia luteola*, *Eretmocerus eremicus*, *Chrysoperla comanche*, *Chrysoperla rufilabris*, *Delphastus pusillus*, and several minute pirate bugs (*Orius* spp.).

For additional information on biological control, refer to NCR publication 581 “Biological Control of Insects and Other Pests of Greenhouse Crops”.

Chemical

There are several insecticides available for control of whiteflies. Refer to UWEX publication A3744 “Insect Pest Management for Greenhouses” for a complete listing of available products. Whitefly management is difficult without pesticide use. It’s critical that you rotate chemical classes to prevent an outbreak of resistant populations. Start any chemical control program early and treat every 5-7 days for a total of three treatments to control all stages of overlapping generations. Watch closely and evaluate for the development of resistant populations. If you find you aren’t getting suitable control with one class of insecticide, switch to another.

For pesticide recommendations: See UW-Extension Bulletin A3744 or contact your County Extension Agent.