

Best Management Practices

Whiteflies

Background: Whiteflies are one of the most important pests in greenhouses, nursery and ornamental settings. Several different species of whiteflies occur in greenhouses and on ornamentals and one or more of them attacks a variety of hosts including geraniums, fuchsia, hibiscus, and poinsettia. Most whiteflies are similar in appearance. The adults are small, snow white colored and four winged. Their larvae are very small, oval flat and pale-green to yellow, and are found on the underside of the leaf. The larvae suck the sap from the plant. Infested foliage can be noticed as it lacks vigor, then wilts, turns yellow, and dies. The leaves are covered with a coating of honeydew, a sweet, sticky material on which a sooty-colored fungus often grows, completely covering the foliage.

Description/Biology: The female whitefly deposits 30 - 500 small, cigar-shaped, yellowish eggs during her lifetime. These are attached to the undersides of the leaves by a short stalk and are often laid in a small ring, as the female circles about with her mouth parts inserted in the leaf. Egg hatch is affected by temperature, but generally occurs in 7 - 10 days. Upon hatching the first instar nymphs move a short distance then settle on the leaf to feed, remaining in this position until they become adults. They suck the sap from the phloem tissue of the leaf, feeding greedily on the plant juices for about 3 to 5 weeks, depending on temperature and species. In this space of time they pass through four instars, or immature stages. Greenhouse whitefly nymphs have fine, white, waxy threads, radiating from their greenish bodies. Silverleaf whitefly nymphs are flattened or convex, without these fringes of threadlike hair.

The adult whitefly is very active, four-winged and has the appearance of having been thoroughly dusted with very fine white material. The hind wings are almost equal in size to the front wings, providing an easy character to differentiate them from aphids, psyllids, and similar insects. Both females and males can fly, and they feed, like the nymphs, on the undersides of the leaves. Under most conditions generations overlap and all stages of the insect may be found infesting plants at any time.

There are many whiteflies that can attack greenhouse and nursery crops including:

- Greenhouse Whitefly (*Trialeurode vaporariorum*)
- Sweet potato Whitefly (*Bemisia tabaci*)
- Silverleaf whitefly (*Bemesia argentifolii*)
- Wooly Whitefly (*Aleurothrixus floccosus*)
- Giant Whitefly
- Banded Whitefly

Control Measures:

Important parasites for whiteflies include *Encarsia Formosa*, *Encarsia Transvena*, *Eretmocerus spp.*

Rotation of pesticides is critical for control of whitefly infestations in greenhouses due to their ability to develop resistance to several types of insecticides. It is advisable to rotate modes of action between organo-phosphates, pyrethroids and other modes of action on a regular basis. Applications should be made on a 7-14 day schedule depending on the level of infestation, ambient temperatures and the nature of the crop.

For control of whiteflies apply Talstar® Nursery flowable insecticide/miticide or Talstar® Flowable insecticide/miticide at 10 ounces per acre (10 ounces/100 gallons).

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