



BUG BIZ

Pest Management and Insect Identification Series



***Bemisia tabaci* Middle East Asia Minor 1 (MEAM1) species , Silverleaf whitefly (Hemiptera: Aleyrodidae)**

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Description

Bemisia tabaci is a multispecies complex comprising at least 34 species that are morphologically identical to each other. However, they can be distinguished by molecular techniques. The silverleaf whitefly, previously known as *Bemisia tabaci* biotype B, is now known as *Bemisia tabaci* Middle East-Asia Minor I. This biotype differs from other members of the complex by the immature's ability to induce a phytotoxic "silverleaf" disorder in squash.

Silverleaf whitefly adults are 1/25 of an inch (1 mm) long, with females larger than males. Adults' bodies and wings are covered with a powdery, waxy secretion. The silverleaf whitefly has four nymphal stages. The first nymphal stage is the only one capable of limited movement and is called the crawler. It is oval in shape and measures approximately 1/75 of an inch (0.3 mm) in length. Remaining nymphal stages are flattened and oval, greenish-yellow in color and range from 1/60 (0.4 mm) (second instar) to 1/35 of an inch (0.7 mm) (fourth instar) in length. Eggs are 1/125 of an inch (0.2 mm) long and are white to light beige.

Life Cycle

The silverleaf whitefly undergoes incomplete metamorphosis, also known as hemimetabolism. True pupation within the silverleaf whitefly life cycle does not occur, although the last (fourth) nymphal instar is typically referred to as a "pupa" or "red-eyed" nymphal stage. Life cycle duration varies depending on temperature, humidity and host plant. Adult female longevity can range from 10 to 60 days. An adult male's life span is generally much shorter, between nine and 17 days. The first three nymphal stages require two to four days each. The last nymphal stage requires five to six days. Under ideal conditions, 11 to 15 generations can occur annually.

Whiteflies are piercing-sucking insects that ingest plant fluids through a short, strawlike proboscis.



Adult silverleaf whitefly (W. Billen, Pflanzenbeschaustelle, Weil am Rhein, Bugwood.org).

Injection of salivary fluids to facilitate this process provides an effective means of inoculating plants with disease-causing pathogens and toxins.

Ecological Significance and Pest Status

Silverleaf whiteflies' importance as a pest is due to their ability to induce a phytotoxic response and transmit viruses to a wide range of crops. These factors can affect the yield and quality of the produce. Silverleaf whiteflies are widely distributed throughout the world's tropical regions and are also present in greenhouses at more temperate latitudes. This polyphagous species feeds on over 600 species of agricultural and ornamental crops. In the United States it is found throughout the southern United States (Arizona, California, Florida, Georgia, Hawaii, Louisiana,



Whiteflies feeding on squash, *Cucurbita pepo* L. (David Riley, University of Georgia, Bugwood.org).



Whiteflies feeding on cotton, *Gossypium hirsutum* L. (Phillip Roberts, University of Georgia, Bugwood.org).

Mississippi, South Carolina, Tennessee and Texas) and has been reported from greenhouses as far north as New York.

Management

Lacewing (Neuroptera: Chrysopidae) larvae, lady beetles (Coleoptera: Coccinellidae), mites and spiders naturally manage silverleaf whitefly populations. Several species of parasitoids in the order Hymenoptera have also shown to be useful in reducing silverleaf whitefly populations.

Their rapid generations, which lead to insecticide resistance and the difficulty of reaching the insect with insecticide sprays, make silverleaf whitefly populations difficult to manage. Systemic insecticides may facilitate management. Please see the Louisiana Insect Pest Management Guide (LSU AgCenter publication No. 1838) for currently approved insecticides for management of these insects.

Contact Us: For advice about arthropod identification or diagnosis, contact the LSU AgCenter Department of Entomology. Reach the department through the Contact Us webpage: <https://bit.ly/36c4awm>.



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