

## Sweetpotato/Silverleaf Whitefly Life Stages and Damage <sup>1</sup>

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- **Sweetpotato whitefly, *Bemisia tabaci* (Gennadius)**, is now also known as the silverleaf whitefly, *Bemisia argentifolii* Bellows and Perring. It was first found in Florida about 1900. The adult is a mothlike insect about .8 mm (1/32") long (Plate 1). It lives on leaves and feeds on the undersurfaces by penetrating the tissue and removing plant sap with its piercing-sucking mouthparts. The insect's snow-white color is attributed to the secretion of wax on its body and wings.
- **Adults and eggs** (Plate 2). The adults fold their wings over their bodies when at rest or while feeding. The females deposit their eggs on the undersides of leaves, usually clustered in groups. The number of eggs laid by females ranges from about 50 to 400 with an average of about 160.
- **Eggs** (Plate 3). The eggs are very small, about .2 mm (1/125") long, and .1 mm (1/250") in diameter. Each egg is attached by a stalk to a leaf and is somewhat elliptical, tapering towards the unattached end. Newly laid eggs are smooth and whitish-yellow. As the eggs approach hatching in about five to seven days, they turn brown.
- **Nymphal stages** (Plate 4). The pest goes through four nymphal instars, ranging from about .3 mm (1/95") as first instars, or crawlers, to .6 mm (1/40") as fourth instars. The immature stages are thin, flat, elliptical and greenish-yellow. In most infestations, all stages of the life cycle are present.
- **Pupal stage** (Plate 5). At the end of the nymphal cycle, it enters what is commonly called the pupal stage. The pupa has two conspicuous red eyes and the body is raised, or convex. It is yellow and about .7 mm (1/35") long.
- **Nymphal infestation** (Plate 6). The nymphal stages are sedentary, with the exception of the crawler, which after hatching moves only a very short distance. Once a feeding site is selected the nymphs do not move. They suck juices from the plant with their piercing-sucking mouthparts. Nymphs live on the undersides of the leaves and can become so numerous that they almost cover the entire undersurface.

1. This document is SP 90, one of a series of the Department of Entomology and Nematology, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. This document is available for sale as a high-quality, color publication. For ordering information or to order using VISA or MasterCard, call 1-800-226-1764. Date first printed: May 1991 as ENY-504. Reviewed: May 1996. Reprinted: February 1997. Revised: June 2005. Please visit the EDIS Website at <http://edis.ifas.ufl.edu>.

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- **Molting** (Plate 7). As the life cycle progresses from stage to stage, molting occurs and the cast skins (particularly from the pupae) remain on the leaves. These empty structures are silver and resemble small fish scales on the leaves.
- **Adult infestation** (Plate 8). Adults congregate, feed and mate primarily on the undersurfaces of the host plant's leaves. They can occur in such numbers as to create "clouds" when disturbed. They appear to be more active during sunny daylight periods, and do not fly as readily in the early morning, late evening or at night.
- **Host plants** (Plate 9). The sweetpotato/silverleaf whitefly is known to attack more than 500 species of plants representing 74 plant families. They have been a particular problem on tomatoes, members of the squash and cucumber family, eggplants, okra, beans, cotton, peanuts, gerbera daisies, hibiscus and many other ornamental plants. The poinsettia is a favored host, and typical color loss and leaf damage can be seen in the photo at bottom left.
- **Damage** Feeding damage by both the nymphs and adults results in the accumulation of honeydew on the leaves and the subsequent growth of sooty black as well as other molds (as evidenced by the bean leaves in Plate 10). Other forms of damage include the removal of plant sap; vine, leaf and plant breakdown; chlorotic spots; yellowing; leaf shedding; and abnormalities of fruiting structures. It is believed that the pest injects foreign enzymes into the host plant while feeding, affecting the normal physiological processes. The pest is also known to vector virus diseases to many crops.



Plate 1 .



Plate 2 .



Plate 3 .



Plate 4 .



Plate 5 .



Plate 6 .



Plate 7 .



Plate 8 .



Plate 9 .



Plate 10 .