

Pest Alert

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Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner of Agriculture

***Bemisia tabaci* (Gennadius) (biotype 'Q'): A potential new biotype for Florida's vegetable and ornamental crops. (Hemiptera: Aleyrodidae)**

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INTRODUCTION: The biotype problem--The *Bemisia tabaci* (Gennadius) biotypes are some of the most prolific pests of vegetables and ornamental crops around the world. The sweetpotato whitefly *Bemisia tabaci* (Gennadius) was first reported as occurring in the United States as early as the late 1800s, but was only listed as an occasional pest. It wasn't until 1986 that it became an economically important species (Hamon and Salguero 1987). Now this insect has been found attacking plant species that it had not been reported on previously, and in many cases appeared to be resistant to many of the currently used pesticides. This particular strain was labeled as the 'B' biotype or 'poinsettia' biotype (Brown *et al* 1995). In 1994, the 'B' biotype was described as a new species, *Bemisia argentifolii* Bellows & Perring, and became known commonly as the silverleaf whitefly. Currently, this new species designation is under some dispute with many taxonomists considering it as a synonym of *Bemisia tabaci*.

THE Q BIOTYPE: In March 2005, Drs. Judy Brown, Tim Dennehy (University of Arizona) and Dr. Frank Byrne (University of California) independently identified the 'Q' strain of *Bemisia tabaci* on poinsettia plants some months ago that originated from a nursery in California. This is the first time this particular strain has been found in the United States. The Q-biotype is thought to have originated from the Mediterranean region and has been associated with whitefly control problems. This strain is known to have resistance to pyriproxyfen (Horowitz *et al* 2003), buprofezin and reduced susceptibility to the neonicotinoid insecticides imidicloprid, acetamiprid and thimethoxam.

DESCRIPTION: In the field or greenhouse situations, infestations of whiteflies can be easily spotted by the presence of: plant damage (chlorosis, stippling, etc.); whitefly immatures (Fig. 1) located on the underside of foliage and the presence of adults (Fig. 2-3) which will readily fly when the plant material is disturbed. In Florida, there are a number of whitefly species, but the most commonly encountered species occurring on ornamentals and vegetables are *Bemisia tabaci* and *Bemisia argentifolii*. A complete description of the adults and immatures of this species can be found at the following internet address: <http://www.doacs.state.fl.us/pi/enpp/ento/tabac.html>.

WHAT TO DO IF YOU SUSPECT YOU HAVE THIS NEW BIOTYPE: If you notice whitefly populations that appear to be showing some pesticide resistance, please contact your local Division of Plant Industry office on the Web site or by calling the following number 1-888-397-1517. Samples can also be sent to the University of Florida IFAS extension service or directly to Dr. Greg Hodges, Division of Plant Industry, FDACS, P.O. Box 147100, Gainesville, FL 32614.

SAMPLE PREPARATION: Collected samples should be wrapped in a dry paper towel and placed in a ziploc bag and then in an envelope with a letter containing the collection information (location, type of plant infested, number of plants involved and collector's name).

ECONOMIC IMPORTANCE OF Q BIOTYPE: *Bemisia tabaci* and its biotypes have a host range of over 500 species of plants from 74 families. Hosts include vegetable (cucumber, beans, eggplant, cabbage, peppers, squash, and tomatoes), field (cotton, potato, peanut, and soybean) and ornamental crops (poinsettia, hibiscus, etc.). High population densities can cause death of seedlings, reduction of vigor, photosynthesis inhibition and defoliation. The biotypes are also known



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vectors of serious plant pathogenic Gemini viruses such as tomato yellow leaf curl virus (TYLCV), tomato mottle virus (TMoV) and bean golden mosaic virus (BGMV) (Maynard and Cantliffe 1990).

DISTRIBUTION OF *Bemisia tabaci* and *Bemisia argentifolii*: both considered cosmopolitan in the United States.

DISTRIBUTION OF Q BIOTYPE: China, Egypt, France, Israel, Japan, Morocco, The Netherlands and Spain.

U.S. DETECTIONS OF Q BIOTYPE: Single detections in Arizona and California.

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- Brown, J., D. Frolich, and R. Rosell.** 1995. *The sweetpotato or silverleaf whiteflies: biotypes of Bemisia tabaci or a species complex? Annual Review of Entomology* 40: 511-534.
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- Horowitz, A., K. Gormon, G. Ross and I. Denholm.** 2003. *Inheritance of pyriproxyfen in the whitefly, Bemisia tabaci (Q biotype). Arch Insect Biochemistry and Physiology* 54 (4): 177-186.
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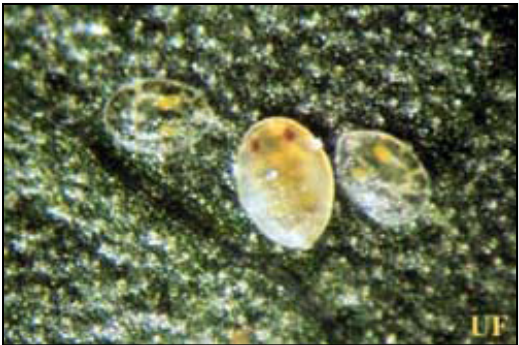


Fig. 1. Silverleaf whitefly immatures.
Photo credit: Lyle Buss, UF Entomology



Fig. 2. Infested leaf with silverleaf whitefly adults
Photo credit: Avas Hamon, DPI



Fig. 3. Silverleaf whitefly adult
Photo credit: Avas Hamon, DPI