

Pest Alert

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Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Adam H. Putnam, Commissioner of Agriculture

Detection of *Bemisia tabaci* (Gennadius) 'Q' biotype in southern Florida

Division of Plant Industry, Bureau of Entomology, Nematology and Plant Pathology

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INTRODUCTION: Since the early 1900s, vegetable and ornamental growers, landscapers and gardeners in Florida have battled *Bemisia tabaci* (Gennadius) (sweet potato whitefly, tobacco whitefly) infestations. Research on the *Bemisia* pest problems over the past 25 years has shown that the species called *Bemisia tabaci* is actually a number of 'biotypes' or 'races.' Each biotype has a slightly different genetic make-up and different geographical distribution. Many biotypes have been characterized and several have spread to new locations, but the most important in Florida are the 'B' and 'Q' biotypes. Significant damage is due simply to feeding by innumerable individuals, but the main threats posed by *Bemisia* infestations are through the plant viruses they transmit and resistance to insecticides.

Bemisia tabaci 'B' has been a recurring pest in both the landscape and greenhouses in Florida since the 1980s, but has typically responded to an integrated pest management program (IPM). Until 2016, the 'Q' biotype had not been recorded in the landscape in Florida, and only once in a greenhouse. However, recent reports from landscapers in South Florida indicate that a serious management problem is occurring with *Bemisia tabaci*. Unlike the 'B' biotype, the 'Q' biotype is immune to most of the common pesticides used to suppress outbreaks, such as growth regulators and neonicotinoid insecticides.

The current outbreak was first detected in April 2016 in landscape plantings at a resort community in North Palm Beach. Sequence data from specimens collected on hibiscus and lantana identify this population as *B. tabaci* biotype Q1, which originated in the Mediterranean-Israel region.

SURVEY AND IDENTIFICATION: In response to this new and rapidly evolving problem, a collaborative program comprised of ornamental and vegetable growers, UF-IFAS Extension faculty, UF and USDA scientists, and FDACS-DPI scientists, inspectors and regulators has been established.

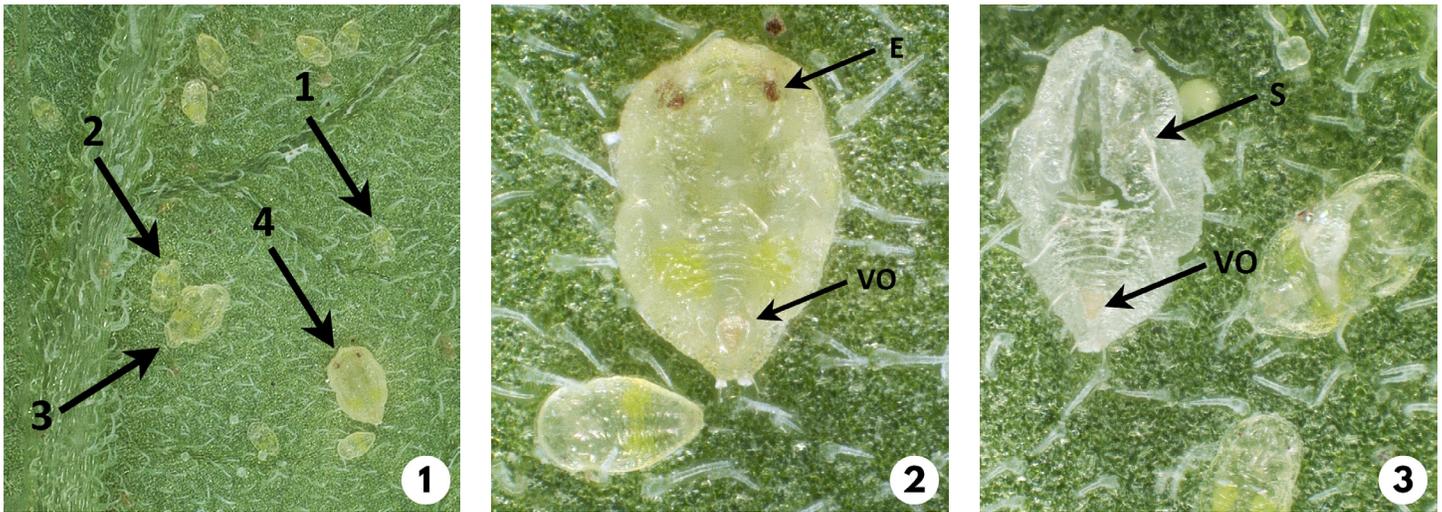
Bemisia species whiteflies, although small, are recognizable with a 10x hand lens (Figs. 1-3). Immature stages are somewhat transparent, yellow-green in color and produce no obvious wax. Individuals that develop on a 'hairy' plant frequently develop long setae. Adult whiteflies cannot be correctly identified in the field, but in Florida, *Bemisia tabaci* is the only species likely to be so abundant that adults form 'clouds' when plant leaves are disturbed. To identify, collect and submit all life stages present for determination. Since management approaches are tailored to each biotype, specimens will be sent to a laboratory for molecular assay. While documenting the occurrence and spread of 'Q' is imperative, the 'B' biotype has also become a management problem. Records of both biotypes will aid in tracking populations that are developing pesticide resistance.

HOST PLANTS: *Bemisia tabaci* has over 900 recorded host species (with approximately 300 recorded species in Florida). Common ornamental and vegetable plants in Florida that are excellent hosts include:

- Euphorbiaceae - *Euphorbia* spp. (17% of host records), especially poinsettia.
- Malvaceae - *Hibiscus* spp. (22% of host records), especially *H. rosa-sinensis*.
- Solanaceae - *Capsicum* spp., *Solanum* spp. (~5% of host records).



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Figs. 1–3. *Bemisia tabaci* immature stages on tomato leaf. **1.** Immature stages 1–4; stage 4 is the puparial stage. **2.** Mature puparium, as indicated by developed eyes (E); VO–vasiform orifice **3.** Puparial exuviae, or empty puparial ‘case’; VO–vasiform orifice, S–seta. Photo credit: Ian Stocks.

REFERENCES:

Hodges, G.H. 2009. *Bemisia tabaci* (Gennadius) (biotype ‘Q’): A potential new biotype for Florida’s vegetable and ornamental crops. (Hemiptera: Aleyrodidae). FDACS-DPI Pest Alert, available at: <http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Plant-Industry-Publications/Pest-Alerts/Pest-Alerts-Bemisia-Tabaci-Gennadius-biotype-Q>

McAuslane, H.J. 2009. Sweet potato whitefly B biotype or silverleaf whitefly. UF-IFAS EDIS Publication Number: EENY-129.

If you suspect you have seen *Bemisia tabaci* (Gennadius) ‘Q’ biotype, please contact:

Division of Plant Industry Helpline
 1-888-397-1517 | (352) 395-4600 (Outside North America)
DPIHelpline@FreshFromFlorida.com

If you have questions about this Pest Alert, please contact:

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