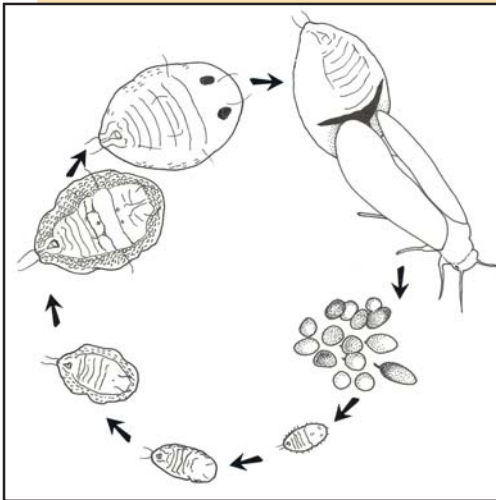




*Q* biotype is visually indistinguishable from the *B* biotype and is resistant or tolerant to many of our commonly used insecticides.



**Figure 1.** Lifecycle of the whitefly. Drawing by: Jane Medley.

For additional information on biology and control information, a good source is Dr. Lance Osborne's website at <http://www.mrec.ifas.ufl.edu/LSO/bemisia/bemisia.htm>. It includes a number of documents that contain information from Florida and other states.



**Figure 2.** Whitefly adults should be collected when sampling. Photograph by: UF/IFAS.

### Why is the Q biotype of whiteflies important?

While *B* out-competes *Q* in the absence of insecticides, *Q* out-competes *B* in the presence of many insecticides, and *Q* can transmit TYLCV at least as efficiently as *B*. The major problem facing growers is that *Q* is resistant or tolerant to many of our commonly used insecticides, including the nicotinoids, the pyrethroids and the insect growth regulators Knack® and Courier®. Thus, if both biotypes are present and we spray heavily, we are selecting for the *Q* biotype. This makes spraying as little as possible and following resistance management recommendations even more critical, including rotation of chemicals and the inclusion of a **crop-free period** into the production cycle.

### What should growers do?

If your current whitefly pesticide program is working, continue using it! If you are having great difficulty controlling whitefly, you may want to consider some other options. Oberon® is effective on *Q*; thus, if you are targeting nymphs, this would be an alternative to Knack® and Courier®. Oberon® is also effective on adults, although it is slow to act. Venom® (Valent) is a nicotinoid that has been more effective on *Q* in greenhouse trials than have other nicotinoids. It is labeled on tomatoes as a foliar spray or drench. This should be a "last resort" treatment. It is recommended that this **NOT** be used on crops where nicotinoids have already been applied this season. Recent work in ornamentals has shown control with a combination of Agri-Mek® and a pyrethroid. Another combination that could be trialed is a combination of Agri-Mek® and oil. Soaps, oils, Prev-Am® and similar materials should still be useful, but remember good coverage is critical.

### Submitting Samples for Q-biotype Testing

Growers are cautioned **NOT** to immediately begin changing their pesticide program if they feel their current one is working. If you feel you are having problems controlling whitefly, it is recommended that you submit samples for *Q* testing.

- A minimum of 20 adults should be sampled from different plants.
- Try and carefully collect leaflets with whitefly adults and put them into a baggie.
- Put them in the freezer to slow them down and then transfer them to vials of 95% ethanol with a cotton swab or artist's paintbrush.
- Do not crush the whitefly.
- Be sure to label the vial, but use a code so that you will know where the sample came from but the identity of the farm will not be known. You can also request a code from Dr. McKenzie.
- Vials should be kept out of heat and carefully packaged and sent via priority mail or overnight to the following address:

Dr. Cindy L. McKenzie  
Subtropical Insects Research  
2001 South Rock Road  
Ft. Pierce, FL 34945  
Phone: 772-462-5917  
Fax: 772-462-5986  
cmckenzie@ushrl.ars.usda.gov

If you are unable to sample, please give your local county extension agent a call and they will try to help.