



# Greenhouse Whitefly

## Pest Fact Sheet 8

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### UNH Cooperative Extension Programs

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### Introduction

The greenhouse whitefly, *Trialeurodes vaporariorum*, feeds on a variety of vegetable and floral crops. Pointsettia, cucumber, tomato, lettuce, geranium, pelargonium, salvia, ageratum, lantana, heliotrope, fuchsia, hibiscus, abutilon, solanum, and coleus are among favorites.

### Description

The eggs of the greenhouse whitefly are very small, oval, light green to yellow-green and typically attached to the undersides of tender leaves by short stalks. The newly-hatched nymph is flat, oval, and nearly transparent. White waxy filaments radiate from the body of the last stage nymph. The adult is a small insect about 1/16" inch long, with four snow white wings and a yellow body.

### Life Cycle

This insect does not overwinter outdoors in New Hampshire; it can only survive the winter in greenhouses. The life stages of whiteflies overlap, so that throughout the year, growers may simultaneously see eggs, nymphs, pupae, and adults. Damage from whiteflies is two-fold. Whiteflies suck the juices out of the host leaves, causing a lack of vigor and wilting. They also secrete a sticky material called honeydew, upon which a black fungus (sooty mold) develops. Sooty mold can eventually cover an entire leaf. This mold interferes with the plant's photosynthetic processes, reduces its vigor, and eventually causes death.

Females lay 150 or more eggs on the underside of leaves, at a rate of about 25 per day. Hatching occurs within 10 days. Upon hatching, the nymph travels for a while. It then inserts its beak into plant tissues and remain there feeding for about a month while passing through four stages of development.



Adult greenhouse whitefly. Credit: David Cappaert, Bugwood.org.

The life stages of whiteflies overlap, so that throughout the year, growers may simultaneously see eggs, nymphs, pupae, and adults.



Adults and nymphs. Credit: Whitney Cranshaw, Colorado State University, Bugwood.org.

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## Did You Know?

**Greenhouse whiteflies do not overwinter outdoors in New Hampshire.**

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Unlike most sucking insects, whiteflies have a resting stage ("pupa") before becoming adults. The adults feed in the same manner as the nymphs. Whiteflies complete their life-cycle in 21-36 days, depending on the temperature.

A second species of whitefly, the Sweet potato whitefly, *Bemisia tabaci*, is also a serious problem in New Hampshire. It is very similar to the greenhouse whitefly. The main difference is that the Sweet potato whitefly lacks the spines (waxy filaments) on the last nymphal stage ("pupa"). Both species have become resistant to many insecticides, making control difficult.

## Management

### IPM Strategies:

- Sanitation — At the end of the growing season, clean the greenhouse thoroughly, eliminating all plant material (including under-bench weeds). You may wish to install screens to exclude insects. Inspect incoming plant material thoroughly before allowing it inside the greenhouse, and reject any that has whiteflies.
- Monitoring — You can use yellow sticky cards and leaf examinations to determine the whitefly population. Inspect the most susceptible plant species often.
- Biological Control — Releases of the parasitic wasp *Encarsia formosa* can be successful in controlling greenhouse whitefly. The wasp will also attack the silverleaf whitefly, but not effectively enough to satisfactorily control this species. Releases must be made early in the infestation, when the whitefly population is low.
- Chemical Control — The key to successful whitefly control is early and frequent pesticide applications before populations build up. All pesticides have the potential to damage sensitive plants. Check with the label and apply the pesticide to a few plants first.

Consult your county Extension Field Specialist for specific recommendations.



**Under-bench weeds are sometimes heavily infested, like this dandelion. Credit: Alan T. Eaton.**



**Underside of a heavily infested leaf. The black spots are whitefly larvae that have been killed (parasitized) by *Encarsia formosa*. Credit: Alan T. Eaton.**

## Summary

Table 1 summarizes key information on the greenhouse whitefly.

**Table 1: Summary**

Summary Table	
Damaging Stage	Adults, nymphs
Part of Plant Attacked	Leaves
Overwintering Stage	Does not overwinter outdoors in New Hampshire; usually remains in greenhouse year-round
Number of Generations Per Year	8-12
Time of Year of Greatest Damage	Year round (greenhouse); summer (outdoors)
Number of Pesticide Applications for Control	3-6 depending upon the chemical used and the number of infestations per year

**Notes:** Refer to the text for more information about the greenhouse whitefly.

**Stop!** Read the label on every pesticide container each time before using the material. Pesticides must be applied only as directed on the label to be in compliance with the law. All pesticides listed in this publication are contingent upon continued registration. Contact the Division of Pesticide Control at (603) 271-3550 to check registration status. Dispose of empty containers safely, according to New Hampshire regulations.

**Updated: June 2016 (Dr. Alan T. Eaton and Rachel Maccini)  
Reformatted: June 2016 (Marie-Eve Jacques)**

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