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Practical Suggestions for Managing Fungus Gnats in the Greenhouse

Bradysia spp.

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Fungus gnats are a common problem in ornamental and vegetable greenhouses. While they are often considered only a nuisance, both adults and larvae can transmit fungal root diseases such as *Fusarium* and *Thielaviopsis*. High populations of larvae can result in sufficient feeding to damage the plant, particularly on seedlings and unrooted cuttings.

Identification:

- **Adult:** small (1/8 in) grey-black gnat-like flies with long legs and long antennae and transparent wings with a Y-shaped vein near the wing tip.
- **Larva:** Transparent/white, legless with shiny black head, 1/4 in long or less

For more information on life cycles and identification, see references below.



Photo: J.P. Sanderson

Figure 1. Adult fungus gnat.

Monitoring

Fungus gnat populations can be effectively monitored through yellow sticky cards placed just above the media surface.

Four factors to consider when planning fungus gnat control:

1. Media

Fungus gnat adults are attracted to media with higher levels of microbially active components to lay eggs because the larvae feed on fungi and other microbes. Microbially active components include such things as compost, vermicompost, blood meal, kelp, and poultry litter that support an active community of microbes.

Research support: Two to five times as many fungus gnats emerged from pots of media containing compost and other microbially active components as from those of conventional soilless media when they were infested with fungus gnats in a Cornell trial.

Tests of fungus gnat emergence from a variety of commercial media stored at the Cornell greenhouses resulted in very few fungus gnats from bagged media but high numbers from media stored in open bins in the headhouse potting area.

What you can do: If you use media with higher levels of microbially active components, plan your management strategies for higher fungus gnat populations.

Store media so fungus gnats cannot get access to it. Cover and keep bales dry, avoid holes in bags, close media containers when not in use.

2. Water content of soils

Fungus gnat adults are attracted to wetter media to lay eggs. Our assumption is that wetter media also encourage the growth of the microbes on which the larvae feed.

Research support: Our research shows a trend of increasing numbers of fungus gnats with higher moisture content—almost twice as many in soils at 90% moisture content (poorly drained media, watered frequently) than at 30% moisture content (well drained media watered only when necessary).

What you can do: Keep the media as dry as your crops allow during plant production.

Use media that have drainage characteristics appropriate to the season and the crops you are growing.

3. Growing temperature

Cooler growing temperatures result in fewer fungus gnats and slower development of fungus gnats.

Research support: Research shows that fungus gnat populations peak approximately 3 weeks later at 55°F than at 75°F and the peak population at 55°F is about half that of the peak at 75°F.

What you can do: Grow plants at the lowest temperatures that they can tolerate to reduce fungus gnat populations, especially in the early part of the season.

4. Biological control with nematodes

Nematodes applied to the soil will feed on fungus gnat larvae.

Research support: Growth chamber studies showed that populations of fungus gnats were reduced 40-75% at 75°F and 70-90% at 55°F with weekly applications of *Steinernema feltiae* nematodes as a drench.

Research results referenced in this report are based on a series of greenhouse/growth chamber experiments done at Cornell University and in on-farm trials.

What you can do: Apply nematodes as a drench or a sprench at a rate and frequency based on sticky card counts of fungus gnat adults.

Other resources:

- **UMassAmherst Floriculture Fact Sheets: Fungus Gnats and Shore Flies** <http://extension.umass.edu/floriculture/fact-sheets/fungus-gnats-and-shore-flies>
- **UC IPM Fungus Gnats Management Guidelines** <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7448.html>
- **University of Florida IFAS Extension Management of Fungus Gnats in Ornamentals** <http://edis.ifas.ufl.edu/ig125>
- **UConn Integrated Pest Management Fact Sheets: Fungus Gnats** <http://ipm.uconn.edu/documents/raw2/Fungus%20Gnats/Fungus%20Gnats.php?aid=207>

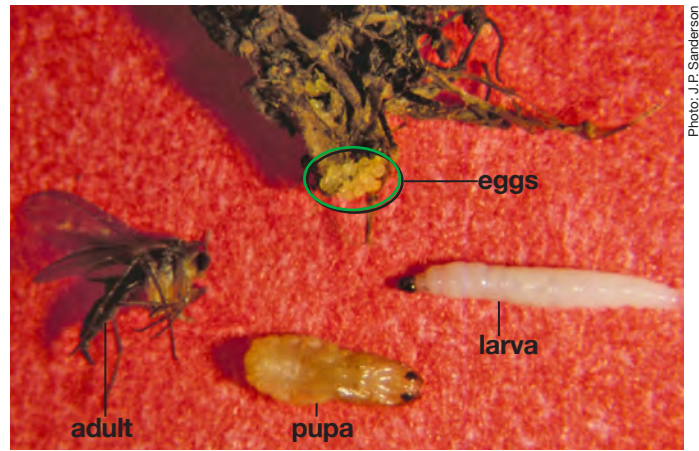


Figure 2. Fungus gnat life stages.

Photo: J.P. Sanderson

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