

# Insects

## Fungus Gnats

Frank A. Hale, Associate Professor  
originally developed by Harry E. Williams, Professor Emeritus, and  
Jaime Yanes, Jr., former Assistant Professor  
Extension Entomology and Plant Pathology

The fungus gnat has recently been recognized as an important pest in greenhouses. Although greenhouse plants are commonly attacked, house plants may also become infested. Several genera in the family Sciaridae are of economic concern, such as *Sciara*, *Orfelia*, *Lycoriella* and *Bradysia* species.

### Damage

Damage is caused when the larvae, which feed in highly organic soils, infest the roots of African violets, poinsettias, carnations, Easter lilies, geraniums, cyclamens, bedding plants and foliage plants. Symptoms first appear as a loss in plant vigor. As the damage progresses, the plants may fade, begin to wilt suddenly and finally lose foliage.

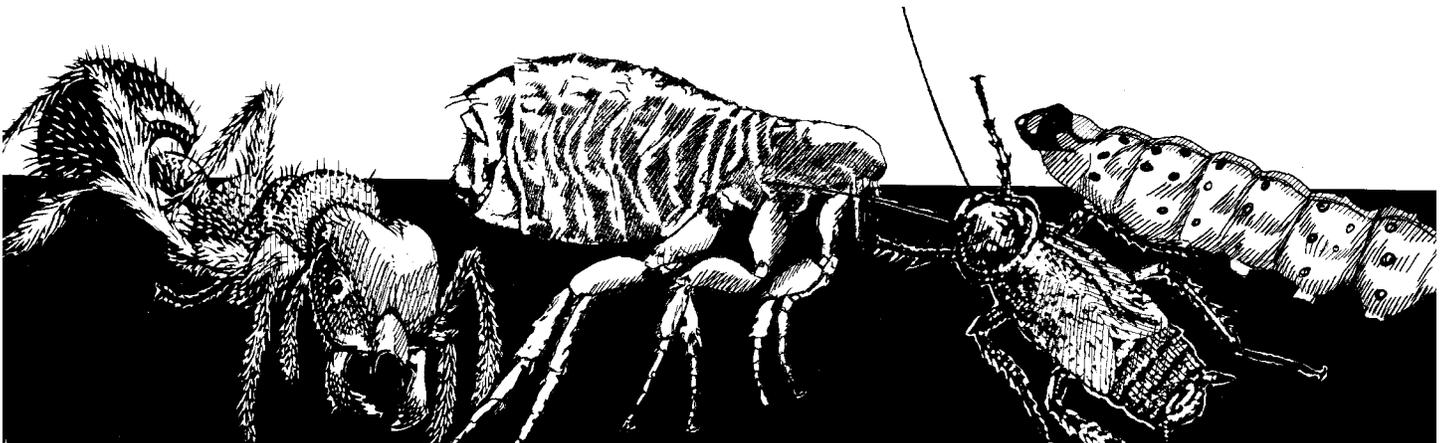
### Description and Life Cycle

The adult fungus gnat (Fig. A) is about 1/8 inch long and is grayish-black. Its slender body with delicate, long legs and antennae resembles a mosquito. The adult has one pair of clear wings. In the winter and spring, this insect becomes most abundant in greenhouses. Fungus gnats complete development in moist, shady areas in decaying organic matter, such as leaf litter. The adults, which live for seven to 10 days, may deposit up to 150 eggs on the moist soil surface or adjacent to the plant stem. Eggs, laid in strings of three to 40, begin to hatch in four days.

The larvae or maggots (Fig. B) have shiny black head capsules, threadlike white bodies and are up to 1/4 inch long. Larvae feed primarily on fungi and decaying organic matter. After their normal food supply is exhausted and/or populations become very high, larvae may begin to feed on fine root hairs or other tender tissues. Chewed roots and underground parts of the injured stem possess brown scars. Major problems occur when root rot organisms have begun to damage roots. Fungus gnat larvae will then begin to attack the rotting tissues and can greatly increase the amount of damage by their feeding. After 14 days, they construct a pupal case made of silk and debris in the soil.



Figures A and B. Fungus gnat adult and larvae.



The pupal stage lasts about three days. Adults are weak fliers and are normally seen running rapidly across the surface of the soil when disturbed. All stages of the life cycle may be present because of overlapping generations.

## Control

Prevention and sanitation are two of the best control measures. Avoid overwatering, since fungus gnats prefer abundant moisture. Poor drainage and water leaks may also increase populations. Plants should be inspected carefully for signs of infestation before purchase. Sterile potting mix should be used to prevent introduction of fungus gnats. Houseplants taken outdoors when the weather is warm may

become infested before being brought indoors. Inspect plants carefully, destroying those plants that cannot be saved. Old plant material and debris in and around the greenhouse should be removed.

Decoy pots of sprouting grain may be used to attract adult females, which lay their eggs in these pots. Afterwards, decoy pots should be submerged in boiling water every two weeks to destroy eggs and maggots.

Insecticides may be necessary if populations become unmanageable. For effective control, it is necessary to control both the adults and the larvae. Adult fungus gnats are easily killed with aerosols or sprays. To control larvae, soil drenches or coarse sprays should be applied to the soil surface. Make applications to moist potting media so that at least the top 2 inches of media are treated.

## Control of Adult Fungus Gnats:

- acephate (1300 Orthene TR) — greenhouse
- cyfluthrin (Decathlon 20WP) — greenhouse and interiorscape  
(Tempo 20 WP) — interiorscape
- beta-cyfluthrin (Tempo SC Ultra 1 SC) — interiorscape
- permethrin (Astro 36.8 EC) — greenhouse and interiorscape
- resmethrin (Resmethrin EC 26 Insect Spray) — greenhouse and interiorscape
- chlorpyrifos (DuraGuard 20 ME) — greenhouse and interiorscape
- chlorpyrifos plus cyfluthrin (PT Duraplex TR) — greenhouse and commercial garden center
- pyrethrin plus PBO (Pyreneone, Natural Pyrethrin Concentrate) — greenhouse and interiorscape  
(1100 Pyrethrum TR) — greenhouse  
(PT 1600 X-clude) — hobby greenhouses, homes, interiorscape
- bifenthrin (Talstar 7.9 F, Attain TR) — greenhouse

## Control of Fungus Gnat Larvae:

- cryomazine (Citation 75 WP) — greenhouse and interiorscape
- kinoprene (Enstar II) — greenhouse and interiorscape
- fenoxycarb (Precision 25 WP) — greenhouse and interiorscape
- diflubenzuron (Adept 25 WSP) — greenhouse
- pyriproxyfen (PYRIGRO 1.3 ME) — greenhouse and interiorscape  
(DISTANCE 0.86 EC) — greenhouse
- *Steinernema feltiae*, parasitic nematodes (X-GNAT, Nemasys) — greenhouse and interiorscape
- *Bacillus thuringiensis* subsp. *israelensis* (Gnatrol) — greenhouse and interiorscape
- azadirachtin (Azatin XL Plus 0.265EC, Ornazin) — greenhouse and interiorscape

### Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label. Persons who do not obey the law will be subject to penalties.

### Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticide registrations are continuously reviewed. Should registration of a recommended pesticide be canceled, it would no longer be recommended by The University of Tennessee.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

SP341C-1M- 3/03(Rev) E12-4615-00-026-03

The Agricultural Extension Service offers its programs to all eligible persons regardless of race, color, age, national origin, sex, veteran status, religion or disability and is an Equal Opportunity Employer.  
COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS  
The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture,  
and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914.  
Agricultural Extension Service  
Charles L. Norman, Dean