

45. Fungus Gnats

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Hosts

There are two families of fungus gnats: the Mycetophilidae and the Sciaridae, or dark-winged fungus gnats. The mycetophilids are associated with fungi as larvae. The sciarids are general feeders, feeding mostly on fungi, but a few species attack a wide range of ornamental and vegetable plants. They can be a real problem on greenhouse plants.

Distribution

Fungus gnats are ubiquitous and occur wherever conditions are ambient for development. Any nursery or greenhouse where damp organic soils are used and overwatering is a common practice is fair game for these insects.

Damage

The maggot, or larva, is the damaging stage. However, the adult flies are usually noticed before larval damage to the plant is apparent. When maggots become numerous, they strip plant roots (fig. 45.1).

Diagnosis

Feeding by fungus gnat larvae results in loss of plant vigor and yellowing and wilting of the leaves.

Adult fungus gnats (fig. 45.2) are slender and about 2.5 mm long. Their coloring is typically dull, most being yellowish, brown, or nearly black. In general appearance the flies, especially the mycetophilids, are not unlike small mosquitoes. They have long legs and antennae. They are weak fliers but can run quite rapidly across the soil surface. The mature larvae

or maggots are about 5.5 mm long with shiny black head capsules and whitish, somewhat transparent legless bodies (fig. 45.3).

Biology

During the female's 1-week lifetime, she lays 100 or more eggs. The shiny white oval eggs are semitransparent and barely visible to the naked eye. They are laid either singly or in stringed groups of 10 or more on the soil surface, usually near host plants. They hatch in 4 to 6 days. The maggot reaches maturity in about 2 weeks, when it ceases feeding, spins a cocoon, and sheds its skin. After about 1 week, the maggot transforms into a

pupa. At the end of the pupal period, the adult fly emerges from the soil and starts the cycle over again. Many overlapping generations are born each year.

Control

Cultural

Fungus gnats live in moist, shady environments with decaying organic material, so cultural practices such as the elimination of dead leaves or other decaying organic material and avoidance of excessive watering will greatly reduce their numbers. The use of a water meter to determine water needs will help in avoiding overwatering.

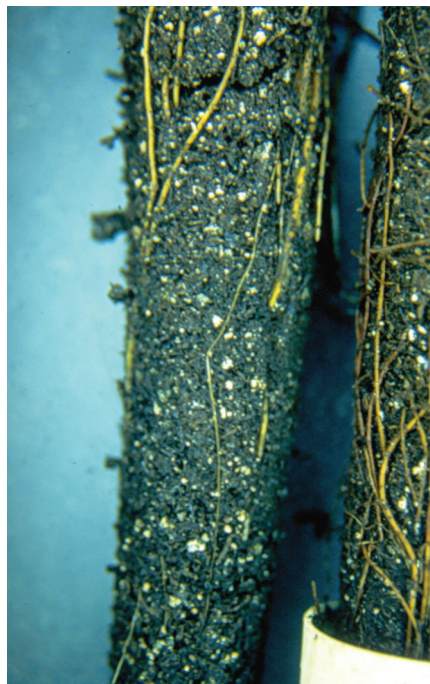


Figure 45.1—Damage to fine roots due to feeding by fungus gnat larvae. Photo by Thomas D. Landis, USDA Forest Service.



Figure 45.2—Adult fungus gnat. Photo by Ken Gray. Image courtesy of Oregon State University.



Figure 45.3—Larva of fungus gnat. Photo by Thomas D. Landis, USDA Forest Service.

Wherever organic material and moisture accumulates, there is potential for fungus gnats to breed. This condition is particularly true of water drains where such debris can accumulate and provide a breeding site for these flies. A regular (at least once a month) cleaning with a gallon of near boiling water poured down the drain, followed by a cup of bleach diluted with water in a 1:5 ratio, should render this hard-to-reach environment fly and maggot free for 2 weeks in most cases.

Chemical

Control of fungus gnats in commercial plant growing operations, such as

greenhouses, can be achieved by using registered formulations of synthetic or biological insecticides.

Monitoring

Successful fungus gnat control depends on a systematic monitoring program for detection of adults. Early detection will result in quicker suppression. For best results, place one yellow sticky trap for every 46 to 93 m² (500 to 1,000 ft²). Check the traps each week, and replace after they become covered with insects.

Selected References

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