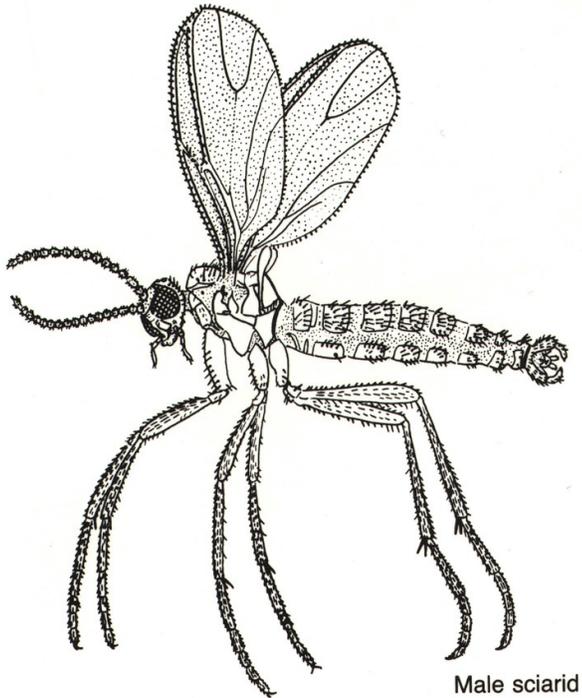


Sciarid Fly

Sciarid flies, *Lycoriella 7nali*, have been the most devastating insect in the Pennsylvania mushroom industry, at least since September of 1979.



Sciarid Fly

Sciarid larvae feed on mycelium, destroy pins of developing mushrooms, and burrow or tunnel into the stems and caps of maturing mushrooms. In addition to destroying mushroom tissue and depositing frass, sciarid larvae may introduce decay-causing organisms which make it necessary to trim and discard sections or whole mushrooms.

Adult (winged) sciarids consume minute quantities of water and other liquids, but do not feed on mushrooms. They can transport pyemotid (pigmy) mites, nematodes, mold spores, and possibly other pathogens.

Sciarid eggs are laid singly or in groups; 15 eggs in a group is the maximum. At 65°F, the incubation period is about 6 days. As the larvae hatch, they move away from the hatching site to feed, and usually feed on mycelium. The larvae have mouth

parts with which they "chew" on the mycelium. Larvae prefer to feed in moist areas and tend to move away from dry areas. They feed for approximately 18 days at 65°F, growing to about 6 mm (0.25 inch) in length. They then go into a resting/developmental period called pupation. In the pupation stage, the "worms" may appear to be dead, but in fact they are undergoing changes within the larval skin. When it breaks out of its old larval skin, the organism still looks like a worm, but a different sort of worm. It is called a pupa, and it moves by convulsive movements of the abdomen rather than the typical wormlike rhythmic movement employed by larvae. The pupal stage lasts only 6 days at 65°F.

There is a tendency for a pupae to work its way up towards the surface of the casing. As it moves, the pupal case breaks and the adult stage emerges – the adult is a winged fly, and at first its wings are folded and extend part way along the abdomen. The adult runs about, and within 30 to 60 minutes its wings are fully expanded. While the adults prefer to run rather than fly, they will fly if wings are expanded and they are disturbed. Mating occurs almost immediately after adult emergence. The life span of a male adult is about 7 days at 65°F, while the female lives about 10 days. Flies of either sex feed on water and other liquids, and tend to live a little longer in moist environments.

At 65°F, the average length of a generation's existence is 35 to 38 days. This period of time varies considerably with temperature and sex differences. The variation can have a dramatic effect on the number of generations per crop and the length of time pesticides may be effectively used for either the larval or the adult stages.

The sequential life stages in a single generation are illustrated in Figure Below. The rate of development of each stage is affected by temperature. As temperature increases, each stage of development requires less time for completion.

Life stages of the sciarid fly.



Larval and adult reactions to light

Larvae tend to prefer darkened areas, which may be why they are seldom spotted on the casing surface. Adults, both male and female, also prefer a darkened area to an illuminated area. This adult response may explain why the kind of light in a monitor affects the number of adults attracted. Mushroom growers generally don't see the adult sciarid fly because the hours during which it flies are limited.

Reference

Wuest, P., and G. D. Bengtson. 1982. Penn State Handbook for commercial mushroom growers. The Pennsylvania State University, University Park.

Contact Information

David Meigs Beyer

Professor Plant Pathology

dmb8@psu.edu

814-863-7059

extension.psu.edu

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