Fungus Gnats

Diptera: Sciaridae
Potential Concerns Associated with Fungus Gnats

• Nuisance problems with adults in vicinity of infested plants
• Some root feeding by larvae
  – Wounding may allow colonization of roots by rot rotting fungi
Adult fungus gnats
Fungus gnats on sticky card
Figure 1. Fungus gnat life cycle

Figure credit: Raymond Cloyd, Kansas State University
Adult fungus gnats usually live for only 4-5 days. Females lay eggs in soil cracks along surface.

Photograph courtesy of Raymond Cloyd, Kansas State University
Fungus gnat larvae require 3-4 weeks or more before being full grown. They primarily eat fungi and decaying plant matter.
Fungus gnat larvae on a potato slice
Springtails
Fungus Gnat – Cultural Controls

- Reduce watering frequency
- Eliminate sources of decaying vegetation
Fungus Gnats

Biological Controls (Larvae)

- Soil predator mite (*Stratiolaelaps scimitus*)
- Entomopathogenic nematodes (*Steinernema feltiae*)
- *Bacillus thuringiensis* var. *israelensis*
Fungus Gnats
Biological Controls (Larvae)

• Soil predator mite, *Stratiolaelaps scimitus* (= *Hypoaspsis miles*)
Bacillus thuringiensis

- Derived from a widely distributed soil bacterium
- Active ingredient a toxic protein crystal that destroys cells of the midgut
- Used as a stomach poison
Several strains are present, each with specific activity

- *kurstaki, aizawi* strains (leaf feeding Lepidoptera larvae)
- *tenebrionis* strain (leaf beetles)
- *israelensis* strain (mosquito, gnat, black fly larvae)
Bacillus thuringiensis israelensis strain

Can be used as a soil drench to suppress populations of fungus gnat larvae
Insect Parasitic Nematodes

Steinernema feltiae is a species of nematode that can be used to control soil dwelling fly larvae.
Steinernema feltiae

Used as a soil drench for control of fungus gnat larvae
Fungus Gnats

Chemical Controls (Larvae)

- Imidacloprid
- Neem products with azadirachtin (Ornazin, Azatin, Bio-Neem)
Small Flies Incidentally Associated with Growing Plants

- Fungus gnats (Family Sciaridae)
- Shore flies (Family Ephydridae)
- Drain flies (Family Psychodidae)
Shore Fly (left) versus Fungus Gnat (right)
Shore Flies
‘Fly specks’ associated with shore flies
Algae is the food of larval stages of shore flies
Some Differences Between Fungus Gnats and Shore Flies

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<tr>
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<th>Fungus Gnats</th>
<th>Shore Flies</th>
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<tbody>
<tr>
<td>Food</td>
<td>Fungi</td>
<td>Algae</td>
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<tr>
<td>&quot;Fly Specks&quot;</td>
<td>No</td>
<td>Yes</td>
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<td>Bt - Susceptible</td>
<td>Yes</td>
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Psychodidae – Moth Flies aka Drain flies

Associated with bacterial slime coating surfaces with high amounts of fertilization
Phoridae –
Humpbacked Flies
aka “Drain Flies”

Associated with all manner of moist decaying organic matter
Small Flies Incidentally Associated with Growing Plants

- Fungus gnats (Mycetophilidae, Sciaridae)
- Shore flies (Ephydridae)
- Moth flies (Psychodidae)
- Humpbacked flies (Phoridae)