K-STATE Research and Extension

Greenhouse **PESTS**

Shore Fly

Shore flies are insect pests of greenhouse-grown ornamental and vegetable crops that thrive under moist conditions and are most prevalent during propagation. Although less of a concern than insect and mite pests such as aphids, fungus gnats, spider mites, thrips, and whiteflies that feed on plants directly, shore flies can transmit diseases.

The adult shore fly (*Scatella* spp.) resembles a housefly (*Musca domestica*), except it is smaller, ⅛ inch (3.1 mm) long, with a black body. Each forewing has at least five light-colored spots (Figures 1 and 2). The shore fly adult has short legs and antennae, and a small head (Figure 3). The larvae are opaque, yellow-brown, with no head capsule and are ¼ inch (6.3 mm) long (Figure 4). The adult shore fly is a stronger flier than the adult fungus gnat (*Bradysia* spp.). The life cycle, which consists of an egg, three larval stages, pupa, and adult, can be completed in 15 to 20 days depending on the temperature within the growing medium.

Figures 1-3. Shore fly adults (clockwise from top left) resemble small houseflies with five white spots on their wings. Figure 4. The yellow-brown larvae (bottom left) look like rice grains.

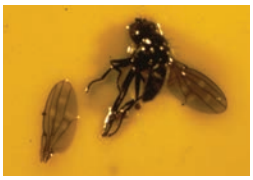

Figure 5. Shore fly adult on yellow sticky card.

Shore fly larvae do not feed on plant roots and cause minimal damage compared to fungus gnats. Adults cause concern because they are more noticeable flying around plants and detected easily on yellow sticky cards (Figure 5).

Large numbers of shore flies can be transported from one greenhouse to another in infested growing medium, and shipments containing adult shore flies may be rejected. Although they are considered a nuisance, adult shore flies may leave black fecal deposits on leaves (Figure 6), which affects the aesthetic quality and marketability of plants.

Shore fly larvae feed on algae and decaying organic matter on the surface of the growing medium (Figure 7). Although they can be found within the growing medium, they do not consume plant roots. Similar to fungus gnats, shore fly adults and larvae can transmit diseases, such as *Thielaviopsis basicola* and *Pythium aphanidermatum,* as well as other soil-borne plant pathogens via their feces. Shore flies can acquire *Fusarium avenaceum* spores (macroconidia) and transmit them to healthy lisianthus (*Eustoma grandiflorum*) plants. However, disease transmission by adults and larvae may be less likely under greenhouse conditions.

Figure 6. Unsightly black fecal deposits can affect the marketability of greenhouse-grown crops.

Figure 7. Shore fly larvae feed on algae on the surface of growing medium.

To alleviate problems with shore flies, greenhouse producers should avoid overwatering plants and deter or eliminate the growth of algae (Figure 8). Disinfectants such as hydrogen peroxide can be used in the greenhouse to reduce algal growth, thereby decreasing populations of shore flies. However, some disinfectants may be harmful to certain plants. Greenhouse producers should scout crops for the presence of shore fly adults. Scouting entails placing yellow sticky cards above the crop canopy (Figure 9) and checking weekly for shore fly adults. Installation of yellow sticky tape near walls or above the crop canopy (Figure 10), especially during propagation (Figure 11), can reduce shore fly populations over time.

Insecticides can be applied to plant leaves and growing medium (as drench applications) to suppress adult and larval populations but should be accompanied by proper watering and eliminating algae. Biological control agents such as entomopathogenic nematodes (*Steinernema* spp., and/or *Heterorhabditis* spp.) have been evaluated under laboratory conditions to determine their ability to regulate shore fly larval populations. Results have been inconsistent with biological controls being more or less effective depending on greenhouse circumstances. In most cases, soil-dwelling predatory mites, including *Stratiolaelaps scimitus* and *Hypoaspis aculeifer*, are not effective in regulating shore fly populations. One reason biological control agents may not be effective is that shore flies can withstand extremely moist conditions, even completely submerged, which is not conducive for the survival of many biological control agents.

Figure 8. Proper cultural and sanitation practices discourage the growth of algae.

Figure 10. Yellow sticky tape mounted above plants captures adult shore flies.

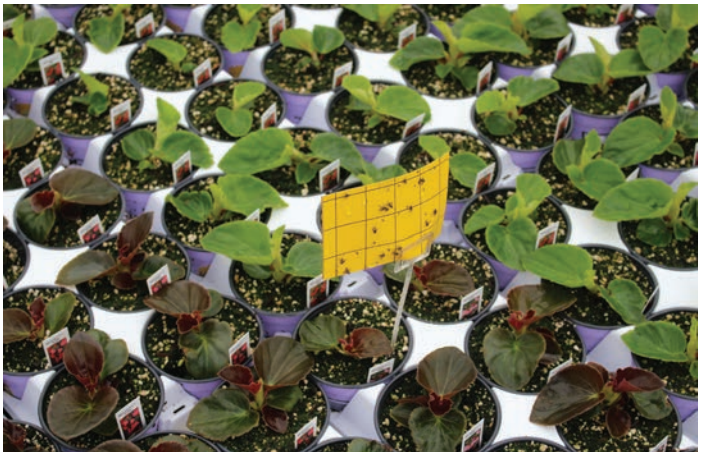

Figure 9. Yellow sticky cards can be used to monitor adult shore fly populations.

Figure 11. Yellow sticky tape can be used to capture shore fly adults during propagation.

Raymond Cloyd
Extension Specialist in Horticultural Entomology/Plant Protection

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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