47. Mole Crickets

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Hosts

Mole crickets are in the family Gryllotalpidae. The forelegs of these insects are modified for digging. Three introduced species—shortwinged mole cricket, *Scapteriscus abbreviatus*; southern mole cricket, *S. borellii*; and tawny mole cricket, *S. vicinus*—are very destructive to seedlings, while the several native U.S. species seldom cause damage. A wide variety of both hardwood and softwood species are killed by mole crickets, either by feeding or by the indirect effect of their tunneling. Seedlings attacked include the southern yellow pine, eastern redcedar, elm, maple, sweetgum, and yellow-poplar.

Distribution

The introduced species are currently found from Texas to New Jersey.

Damage

Mole crickets feed on seedling roots and lower stems. Belowground damage initially results in wilting and if damage is severe, eventual seedling death. The winding tunnels constructed by the insects cause topsoil disturbance, which may result in mortality to very small seedlings when rain splash covers them with soil. Seedlings may also be severed or girdled just above the groundline. When affected seedlings are examined, major and or minor roots may be missing due to insect feeding.

Diagnosis

Adult mole crickets are 2.6 to 5.2 cm (1.0 to 2.0 in) long with large shiny black eyes and range in color from yellowish brown to dark brown (fig 47.1). Their front legs are stout and shovel-shaped with claws for digging. They tunnel underground and spend most of their lives in their tunnels. The tunnels are around 3 mm in diameter and may be visible on the soil surface. Occasional small soil mounds on the ground surface above the tunnels indicate where the insects have surfaced.

Biology

Adult mole crickets lay 25 to 60 eggs in an underground chamber in April or May. One species, the shortwinged mole cricket, however, can produce eggs all year. The eggs hatch into nymphs in 3 to 4 weeks and the nymphs begin to build underground tunnels and feed. Nymphs are similar to adults except that their wings are not developed. They feed on plant roots and stems, earthworms, and other insects. There are one or two generations per year, with two generations occurring in the southern part of their range. After feeding for several months, the nymphs become adults, develop wings, fly to new locales, and construct tunnels. Adults are strong fliers and may fly up to 5 miles. Inside the tunnels, the males produce mating songs or rasps to attract mates. After mating, the female digs a nursery chamber and lays her eggs to begin a new generation. Mole crickets are nocturnal and are seldom seen in daylight.

Mole crickets have many natural enemies. Predators include birds, toads, shrews, moles, rats, skunks, raccoons, foxes, and armadillos.

Control

Biological

A parasitic wasp, *Larra bicolor*, was introduced from South America to control mole crickets. It is established in Florida and appears to be surviving and spreading. A parasitic fly, *Ormia deplete*, also from South America, has been introduced.

In addition, a nematode, *Steinemema scapterisci*, has been introduced and has been effective for control. It is commercially available and has proven to be persistent for up to 8 years.

Figure 47.1—*Mole cricket.* Photo by Richard Grantham, Oklahoma State University.

Chemical

A number of both general and restricted-use pesticides are currently registered for mole cricket control. These chemicals include both liquid and granular formulations, as well as baits. Chemical control is most effective when nymphs are small, late June and early July in the mid-South. Chemical control becomes less effective as the insects age.

Irrigation before insecticidal application may increase effectiveness by driving the insects closer to the surface. Some insecticides require post application irrigation to carry the insecticide to the mole crickets. These requirements are included on the product label.

Most available baits contain a grain-based attractant plus an insecticide. Since mole crickets are nocturnal, baits should be applied in the evening. The effectiveness of the baits that are currently available is decreased if rainfall or irrigation occurs before the insects feed on the bait.

Selected References

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