

THE PESTS UNDER YOUR FEET

by

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Leaf and stem-feeding insects are at work above ground. They can quickly devastate a lawn and they, as well as their damage, is readily apparent to everyone. However, just because below ground feeders usually go unnoticed, don't discount the adverse effects that these tricky below-ground lawn mowers can dish out to turfgrass areas. Two of the toughest, most damaging below ground feeders in Florida are the mole crickets and white grubs.

MOLE CRICKETS

Believed to be imported from the ballasts of ships arriving from Argentina into the port of Brunswick, in southern Georgia at the turn of the 20th century, mole crickets have become a major pest of warm-season turfgrasses in the southeast. With no native insect parasites in the United States, mole crickets quickly spread throughout the southern states and are now reported from time to time in more northern coastal locations such as Long Island, NY, coastal New Jersey, and around the Philadelphia area.

There are three important species of mole crickets in the Southeastern U.S.: the tawny (*Scapteriscus vicinus*), the southern (*S. borellii*), and the short-winged (*S. abbreviatus*) mole crickets. The short-winged is, as its name infers, a shorter-winged, non-flying version of the tawny and southern mole crickets. The distribution of the short-winged mole cricket is confined to southern coastal Florida. Southern and especially tawny mole crickets are major pests of turfgrass causing over \$75 million in damage per year.

Adult mole crickets are about an 1.5 inches in length and vary in color from light (tawny mole cricket) to dark (southern mole cricket) brown in color. All mole crickets possess spade-like front legs that are adapted for digging and tunneling through soil.

Mole crickets can cause extensive damage to turf. They are burrowing insects and their digging can uproot turf, exposing roots to drying and ruin smooth playing surfaces. Secondly, tawny and short-winged mole crickets actively feed on turf roots and subsequently weaken turf areas. Bermudagrass and bahiagrass most often damaged by mole crickets. St Augustinegrasses can be damaged, but often the damage is less noticeable and St. Augustinegrass root damage is less severe. The southern mole cricket is predacious. Mole crickets lay their eggs in tunnels during the spring through summer

which hatch within a month during early summer. Feeding by young nymphal through adult stages occurs at night. Problems can quickly spread by mole crickets moving into adjacent areas during the spring flights. Flights cause considerable difficulty in implementation of pest control strategies.

WHITE GRUBS

Another important group of below-ground feeders is the white-grub complex. White grubs are actually "C"-shaped larvae of several scarab beetles including chafers, and June beetles. Grub larvae mature to a length of about one-half to 2 inches (depending on the species) and are white to tannish in color with brown head capsules. White grub life cycles vary depending on your geographical location and the grub species. As a general example, larvae that have fed through the summer and fall overwinter in lower soil profile and migrate upwards to feed on grass roots near the soil surface in the spring. Larvae pupate a few inches below the soil surface and adults emerge in late spring to early summer. Adults feed on various ornamental vegetation and lay eggs in the soil, which hatch and develop into smaller grubs that feed once again on grass roots throughout the summer and early fall. Depending on the species, generation times range from 6 months to 4 years. Spotting white grub feeding activity can be difficult. When grass wilts quickly, does not respond to frequent irrigation and fertilization or if the grass becomes thin and exhibits signs of poor knitting, suspect below-ground white grub activity. Another sign of white grubs is evidence animals digging holes in the yard in pursuit of their next grub snack.

INSECT VERIFICATION

Seeing is believing. Before implementing effective control strategies, verify the existence of the insect. Mole crickets leave a nice sign, tunnels. Sampling can be accomplished by soaking a 4 square foot area with a soap-water solution. Mix 2 gallons of water with 1 - 2 ounces of detergent, or dish soap. Mole crickets are agitated by the soap solution and come to the soil surface where they can easily be counted. If more than 1 - 2 mole crickets are found per square foot, it is time to take action against them. If you suspect white grub activity in an area, cut out a small (1 square foot) patch of turf and inspect for grubs or signs of feeding (chewed off roots). The threshold for implementing control strategies against white grubs is 3-4 grubs per square foot. Sampling should be conducted at several locations near damaged areas.

CONTROL

Growing healthy turf is the first step towards reducing stress from the presence of pests. Prudent mowing, fertilization, and watering encourages stress tolerance and recovery. Biological control organisms are being imported from South America and introduced in mole cricket infested areas. This includes a parasitic nematode and the red-eyed Brazilian fly, *Ormia depleta*.

Chemical control of mole crickets is most effective when sprays or granular formulations are aimed towards the nymphal stages, usually between late May and early July. Late season applications can be made but the increasing size of the mole crickets reduces insecticide efficacy. A number of products are labeled for mole cricket management including Talstar, Orthene, Sevimol, Triumph, Tempo 2, and Oftanol 2 (the latter three are restricted-use pesticides to be applied by certified pest control operators). Scatter baits containing Dursban or Sevin have also proven to be effective. Sprays and granules should be applied to moist turf and watered in with about ½ inch of irrigation. Apply baits evenly and lightly over tunneled areas in the late afternoon on days when rain is not expected. Do not water-in baits. Similar chemical control methods are available for white grubs and should also be watered into moist soil. If you choose to manage pests with an insecticide, always follow label instructions and check with your local county cooperative extension office for product restrictions as well as additional product options.

Mole Crickets



Southern Mole Crickets (*S. borellii*) (left) and Tawny Mole Crickets (*Scapteriscus vicinus*) (right)



Spade-like front legs



Extensive damage to turf



Egg and nymphal stages of mole crickets



Parasitic nematode



Red-eyed Brazilian fly, *Ormia depleta*

White Grubs



Larvae and adults
of common grubs found in turf



White grub damage to turf



Damage to turf from armadillos digging for grubs



Sampling for turf pests with soapy water solution



Sampling for white grubs