Mole crickets damage turf across the South

A mole cricket tunneling through the soil, feeding on turfgrass roots produces three types of damage. The first two are rather obvious. The ridges it leaves on the surface look as though a miniature mole has been at work. Rootfeeding can dangerously weaken the turf. The third type of damage is such that you might think it was caused by the crickets actually feeding on the plant. However, while the rootfeeding itself might not critically damage the plant, the tunneling creates an uprooting effect and subjects the plant to dessication. The loosening of the soil causes the plant to dry and turn brown.

Dr. James Reinert, University of Florida at the Agricultural Research Center in Ft. Lauderdale, has been studying the mole cricket and its habits for between three and four years. There are now eight people in the state of Florida working with the mole cricket. It was determined that, over the two year period of 1976-1978, in the state of Florida alone, mole crickets caused $100 million in damage. The damage is not solely to turf, but involves pasture grasses, truck and field crops. Turf is an important crop as any in Florida because the state depends to a great extent on the tourist trade that is drawn by the golf courses.

The mole cricket and its damage is not confined only to Florida, either. While Dr. Reinert has been gathering data for northern Florida, he is not sure whether it holds true for the mole crickets that damage turf throughout the South. Mole crickets have created severe problems along the coast of southern Georgia. Many exclusive courses there are on an intensive mole cricket program just to try to keep their grass. Dr. Reinert noted one superintendent from that area who was planning to spend two-thirds of his pesticide budget against mole crickets.

But while research to date has not moved at the pace the scientists would like, there are promising developments on the horizon. Imagine if you can, a forlorn scientist in the middle of a golf course playing old records of the mole cricket’s mating call. It really doesn’t come off that romantic, does it? However, Dr. Tom Walker with the University of Florida in Gainesville has recorded the mole crickets mating call and can, during the mole cricket’s mating flight, attract large numbers. This will allow scientists to study the crickets in large numbers in their controlled experiments and determine new and/or more efficient ways of combating them.

Mole crickets fly predominantly two times a year. In the Gainesville area, Dr. Reinert says that they fly some in February with the main flight coming in late May or early June. Coinciding, naturally, with the mating flights, egg production begins in the latter part of March with the peak egg-laying period coming in late May through mid-June. Temperature determines the time period before the eggs begin to hatch. Those laid in March typically require about 35 days to hatch while those deposited in May or June require only about 20 days.

The eggs are deposited in hollow "chambers" tunneled in the soil. The chambers are typically in the upper five inches of the soil profile, but may vary from one to twelve inches. Low temperatures and dry soil will cause the mole cricket to dig deeper.

The mole cricket goes through a typical incomplete metamorphosis. It goes from egg to nymph with eight instars, to adult. As indicated, nymphs will begin to hatch in the latter part of April. When it first comes out, the nymph is completely white, but quickly turns brownish-black. The quarter-inch long, first instar will tunnel to the surface approximately nine days after hatching. As the cricket enjoys his turfgrass diet, he grows bigger, finally reaching 1.5 to 1.5 inches as an adult by about mid-September.

Dr. Reinert has found that the crickets feed severely in bermudagrass and bahiagrass, both of which are used in turf culture. Zoysia does not seem to be affected, although, relatively speaking, there is little of it around. St. Augustine is damaged, but due to its mat type of growth, is not affected so much. Dr. Reinert notes that loose knit grasses, such as bahia, are more subject to dessication when the soil is loosened under it. Bermuda-grass is usually cut very short, leaving it without protection and mole cricket damage shows up right away.

Dr. Reinert suggests that we may see switches to new varieties as they are developed. He is doing work looking for host plant resistance to insects. One that proves promising is an experimental variety of bermudagrass that is also 100 percent resistant to the bermudagrass mite. While not resistant to mole crickets, because they do feed on it, the variety is tolerant of the feeding activity. In a controlled experiment, Dr. Reinert set up tests of the grass with and without the mole crickets. The grass with the crickets actually had more root and top growth than the grass without the crickets. "The natural assumption," Dr. Reinert says, "would be that we're actually stimulating more growth by the cricket activity. The bermuda was actually spreading out over the damaged area." The grass hasn't been tested in field plots yet and still has only an experimental number. It will be a year, maybe two before enough data is accumulated to release it to the industry.

The grass itself is coarse and looks similar to common bermuda. It requires low fertility however, and would probably make a good grass for
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