Use spray and bait to control mole crickets

Every golf course superintendent in southeastern coastal areas is familiar with the damage associated with mole crickets. They are even more aware of the expense it takes trying to keep the pest under control.

In the past, an application of the chlorinated hydrocarbon insecticide Chlordane did an effective and economical job of keeping mole crickets from completely taking over a course. As time wore on, and the use of Chlordane increased, the mole cricket developed a biological resistance to this insecticide. Since then, the EPA has taken the product off the market.

Removing Chlordane didn't hurt golf course managers as much as did the question of what was going to replace it before complaining golfers replaced them. Since the removal of Chlordane from the golf course superintendent's chemical arsenal, little in the way of new product research has been reported. In addition, there have not been many published reports that tell managers of the application, timing and effectiveness of chemicals presently labeled for control of mole crickets.

According to Leon Stacey, an Extension Entomologist with the University of Georgia, there *is* an economical means of controlling mole crickets. As a matter of fact, Stacey even claims that their four-year research and demonstration program has found the right product at a reasonable price, and can even tell you the correct time to apply it for optimum results information golf course managers in the Southeast have needed for 15 years.

Mole crickets are also known as "cricket moles" or "ground puppies". They may damage practically any kind of crop by feeding on the roots, tubers or fruits of the plant, and by burrowing in the upper inch or two of the soil about the roots, uprooting and causing them to dry out excessively. Seedlings or transplants are especially subject to injury when they are fed upon or uprooted. Grasses are a favorite food. Mole cricket damage is especially severe in newly planted or sprigged areas; however, established grasses also can be destroyed if the infestation is not controlled.

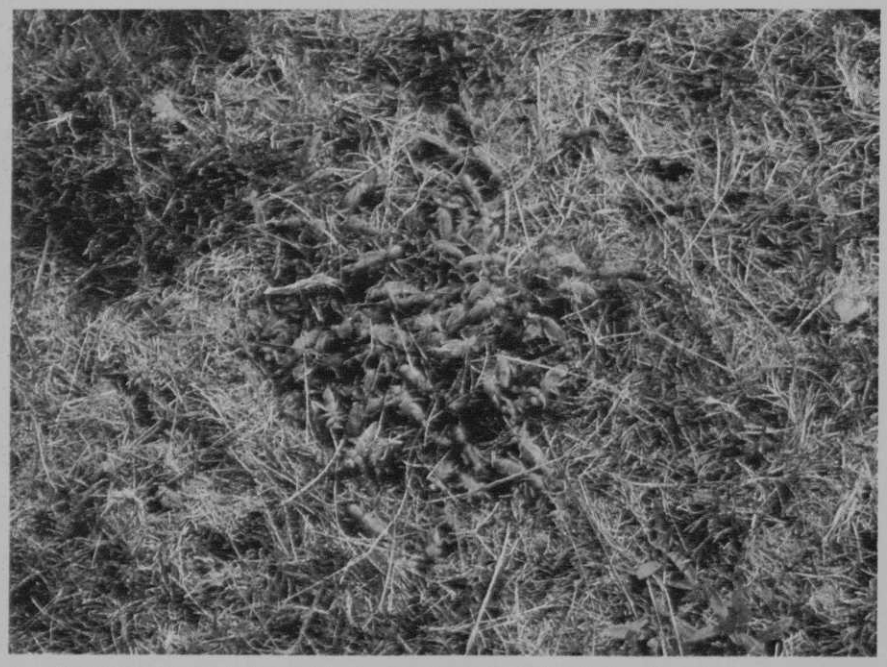
Infestations on turf are first detected by walking over an infested area and sensing a fluffiness of the soil. Closer examination usually will reveal grass dying with partially destroyed root systems, holes in the ground about the diameter of a pencil that are exits and entrances to mole cricket tunnels, and burrowing trails.

Full-grown mole crickets are about 1-1/2 inches long and 1/4 inch wide. They are light brown, the lower surface being much lighter than the upper and often slightly tinged with green. The insect's most striking features are the large, beady eyes and the short, broad front legs, which bear shovel-like feet well adapted for digging. Only the adults have wings and are capable of flying.

Mole crickets spend most of their time in burrows several inches deep in the soil. During cold weather these burrows are dug deeper, so freezing has little, if any, effect upon these insects. They are most active at night, particularly when the soil is wet and when evening temperatures are above 60°F. During such times, activity increases and the crickets will tunnel the upper inch or two of the soil. It is on such occasion that bait, if available, will be taken.

"We have conducted the majority of our testing at the golf courses on Jekyll Island, just off the Georgia coast near Brunswick," says Stacey. "In 1978, superintendent Leslie Getchell was facing perhaps one of the worst populations of mole crickets seen in the Southeast. The first thing we did was eliminate the products for mole cricket control that, for one reason or another, were ineffective. Our extension research over the past few years shows that general products like spray formulations of Malathion, Sevin carbaryl and Proxol or Dylox were just not very effective for mole cricket control. We eliminated them after our inital tests and went with what was left for further research.

"The four products that passed extensive testing were the Knoxout formulation of Diazinon; Bagon 70% wettable powder; Dursban Bait; and a newly registered product, Sevin 20% Bait. All four products gave excellent mole cricket control. The only variance we noticed in the testing was the new Sevin 20% Bait," Stacey notes. "It was very effective when used at only one pound of active ingredient per acre and was the only product that reduced per-application cost. It averaged out to be at least one-third less expensive



An effective bait, used when crickets are active in the Fall, will draw them to the surface.

Mole crickets *from page 30*

than the other products tested.

Stacey's research also confirmed that a reliable spray like Bagon or Diazinon yields effective results when used early in the mole cricket cycle. "By applying a spray with plenty of water in May or June, there is a much better chance of getting the insecticide to the overwintered crickets. Then in the summer months, like August and September, when the adults are more active, a bait is the best and most economical means of controlling mole crickets.

"Preventive insecticide treatments are generally discouraged, but that is not the case with mole cricket control. One can bet he will have to treat for mole crickets at least twice a season in this part of the country. Sometimes three applications of an insecticide are needed. I don't think the preventive approach is the complete answer," he adds, "because a lot of times in July and August we have seen mole crickets nymphs maturing early, causing severe damage to unprotected fairways and greens. This is a problem management can help solve. A manager should keep a close eye out during this period to see that mole cricket activity and flight is not occuring.

"In early summer, mole cricket damage may not be noticed when managers follow a good irrigation and fertilization program, but later in the season when the grass growth is slowing down, the adults are most active and need to be watched very closely or they can get out of hand. It is at this time a lot of managers make the mistake of spot treating mole cricket flare-ups. This could get a manager in a lot of trouble."

Stacey explains, "A lot of time a manager will see an area that is heavily infested and will go in with a bait or spray to get the populations under control. But, during their adult stage, the crickets are very mobile and can be in one spot for a while, and completely destroy the area and fly off before one can treat. So, treating an area like that is not only a waste of time, but a waste of chemical as well. If flare-ups are occuring, that generally means it is happening all over the golf course. Then it becomes expensive. By comparing prices, a manager may 'blanket' treat the whole course for the price of spot treating.

"This research, by the way, was conducted exclusively in Georgia, and populations and different species of mole crickets may react differently," notes Stacey. "But, it has been our experience in the past that what works here in Georgia usually works well in Florida and the Carolinas. Response may vary a little from state to state."

Stacey's conclusion: Treat with a reliable spray in the early months of mole cricket activity in May and early June. Then, when the mole cricket adults become active again in the fall, around August and September, use a bait to draw the crickets to the surface. He adds, "Proper management that takes advantage of the right chemicals at the right time is the key to effective mole cricket control. Golf course managers have to weigh the facts and their budget and use their best judgment." **GB**