

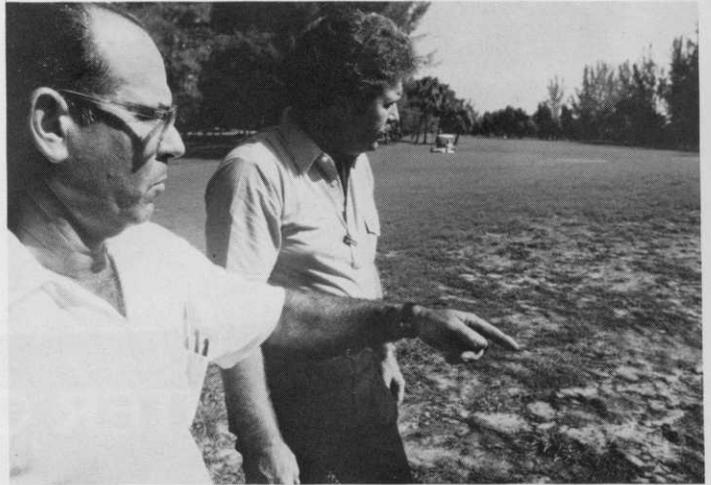
MOLE CRICKETS: YOUR ENEMY BELOW

How To Keep These Prolific Insects From Destroying Your Grass

During the next three months, many Florida golf course superintendents will find their grounds invaded by hordes of destructive visitors—insects barely more than an inch long with shovels for forelegs. Mole crickets are not strangers to Florida, but, more than ever, superintendents are becoming personally acquainted with these pests that chew and tunnel recreational turf to the tune of millions of dollars in damage annually. Golf courses, owing to grasses with shallower root systems, apparently rate highest on the crickets' menu.

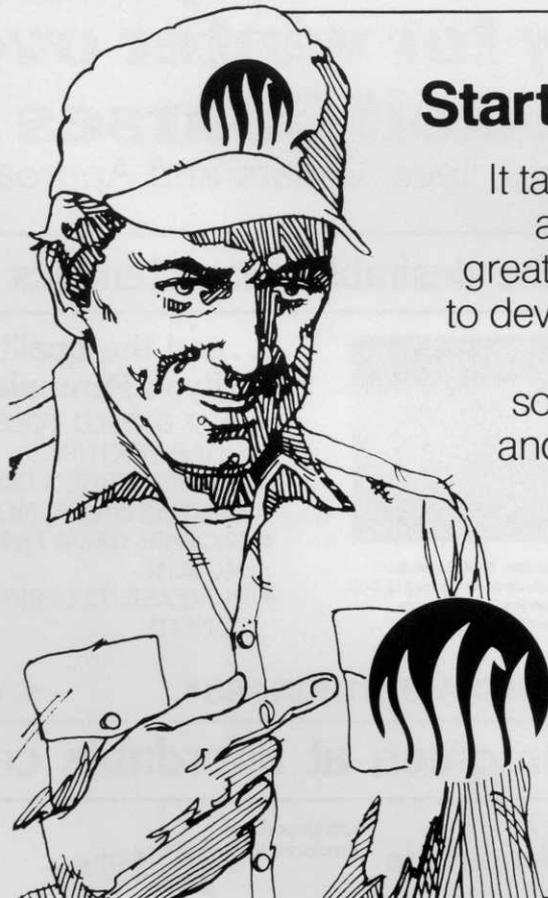
Superintendents and entomologists alike agree that this prolific, mysterious pest has become the state's major insect threat to turf. Yearly, the mole crickets' sphere of destruction reaches further southward: they are common in Jacksonville, Orlando and Gainesville and well-established on many courses in the Fort Lauderdale and Miami areas.

"Next to water problems, insects are our biggest headache. And insects, to us, now mean mole crickets, above all," says Brad Kocker, superintendent at Inverrary Golf Club, Fort Lauderdale. Adds Al Jewett, Vice-President for landscaping and maintenance at Miami Lakes: "Mole crickets keep us alert, and they're our biggest insect problem. We've been fighting this battle from the time the course opened in 1962.



1. **MOLE CRICKET DAMAGE** at Miami Lakes is pointed out by Al Jewett, Vice-President for Landscaping and Maintenance, left, and Richard Bilyard, technical representative, Woodbury Chemical Company. Jewett says mole crickets, a problem ever since the course opened in 1962, require prompt attention to control. He uses Sevin 20% Bait because "it is less erratic" and gives "better uniformity of control."

(Continued on Page 25)



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(Continued from Page 24)

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University of Florida entomologist Dr. James Reinert points out that mole crickets complete their spring flights in April or May and have set up "housekeeping" in turf. Thus, he says, July is the best time for applying insecticides, because the newly-hatched nymphs are smaller and near the soil surface. While the immature crickets are not yet capable of doing extensive damage, if left unchecked the larger nymphs will soon begin chewing and tunneling, resulting in areas that can appear "roto-tilled."

Caught on the horns of this insect dilemma are the superintendents, who are charged with keeping grounds healthy and playable while, at the same time, battling the one pest that can undo their best work. Golfers, concerned only with avoiding bogeys, expect well-kept tees, fairways and greens and invigorating air not contaminated by insecticide odors.

Not every course has experienced mole crickets, says Dr. Reinert. But he adds that, with cricket populations on the rise, the likelihood of infestations developing on courses with no history of infestation is very probable. Inverrary's Kocker points out that, while "most superintendents are aware of the problem," once it strikes, no part of the course is immune. "We have had large turf areas that were just annihilated. When you see the start of some damage, a week later you find no turf remaining. It's incredible."

Jewett finds the fairways at Miami Lakes hardest hit, with less activity on the dryer slopes. He keeps a close check on the crickets' progress by riding the course each morning, while Miami Lakes superintendent Sam Green goes on cricket patrol once a day. Jewett and Green are especially watchful on their shorter 18-hole par 3 course, because its lights serve as a nighttime lure.

RESEMBLES MOLE, GOPHER DAMAGE

The tunneling leaves mounds of soil resembling miniature ground mole or gopher damage, Reinert notes. He says the loosened soil uproots plants and promotes killing of exposed grass. Damaged turf appears to be cultivated, and crickets sometimes physically drag the uprooted grass into the ground and make a nest of it. The industrious insects can tunnel 10 to 20 feet in a single night.



2. FAIRWAY OR ROUGH? In a short time, mole crickets can transform a section of well-maintained fairway into a "rough," as shown by this damage at Miami Lakes. Al Jewett, Vice-President for Landscaping and Maintenance, says "mole crickets keep us alert."

(Continued on Page 26)



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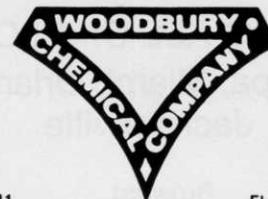
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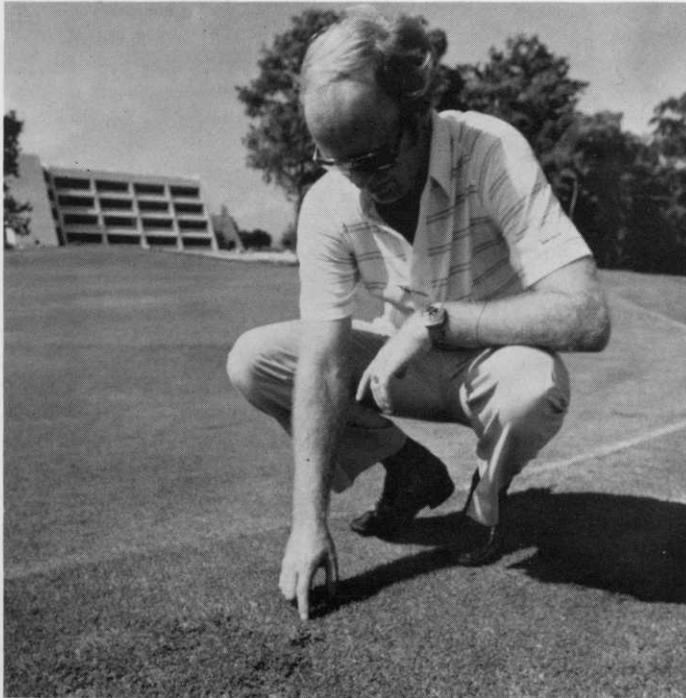
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3. **MOLE CRICKETS** prefer the shallower root systems of golf course turf, as Superintendent Brad Kocher learns while examining the edge of a green at Inverrary Golf Club, Fort Lauderdale. Besides maintaining desired levels of control, non-odorous and safe pesticides should be used to prevent players' discontent, says Kocher. The Inverrary superintendent says Sevin 20% Bait can "pull mole crickets out of the ground in 30 minutes to one hour." ■



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Crickets also put additional strain on weed control programs and increase the need for herbicide investments, Kocher points out: "If you get crickets into an area and you start losing healthy grass, watch out. Before you know it, weeds will start creeping in."

Close-cropped Bermuda grass, with shallower root depths, are especially susceptible to feeding, says Reinert. Bahia grass also invites damage, owing to its open growth habit, he adds. St. Augustine grass can also be attacked, but doesn't show damage as readily because of its more canopy-type growth habit, says Reinert. Pastureland, football fields, baseball diamonds, home lawns and vegetable gardens and farms also can become targets of mole crickets, says Reinert.

SPOT TREATMENT BEST

The university of Florida researcher says insecticide treatments usually produce desired results, once superintendents have ascertained the extent of infestations.

"I discourage anything but spot treatment," says Reinert. "It makes no sense to treat wall-to-wall for mole crickets. Eighty to ninety percent of the population is confined to the area where you are seeing the damage."

One way to test for crickets' presence, he says, is to use a soap flush; mix one fluid ounce of liquid detergent in two gallons of water and apply over four square feet of turf. If the irritant drives more than two mole crickets to the surface within three minutes, then control probably is needed, he says. The entomologist stresses that this method is only an indicator. A more accurate method, but one not usually practiced on golf courses, he says, is to physically remove a soil ball, go through it and get an accurate count of crickets. A single cricket per square foot is indicative of a dangerous infestation, says Reinert.

The seriousness of the problem has wrought havoc with budgets. "I'm spending thousands of dollars trying to control crickets," says Kocker. "I can no longer say that I have so many dollars for a chemical budget. You have to spend what it takes to control the pest, even if it means cutting out something else."

Kocher and Jewett say they have obtained best control of mole crickets with Sevin carbaryl 20 Percent Bait at the maximum recommended label rate of 10 pounds per acre (four ounces of bait per 1,000 square feet). The label for Sevin 20 Percent Bait specifies treatment of two to four ounces of bait per 1,000 feet (five to 10 pounds per acre.)

Kocher suggests a thorough watering of the area 15 to 20 minutes before application. "Let it dry just a little before putting out the Sevin bait and hope it doesn't rain that night. Rain is our biggest problem during our control season, so it helps to keep an eye on the weather forecast."

Reinert points out that an insecticide bait applied when the soil is dry will not be consumed, because the crickets are deep in the soil and not feeding at the surface. "So, irrigate before the bait goes on to draw them to the top. However, a sudden heavy rain after treatment can leach the bait and render it ineffective," he warns.

(Continued on Page 27)

(Continued from Page 26)

Jewett stresses that prompt attention is necessary: "You can't say, 'I'll get this area on the way back'—you have to get it in now. Something may happen that keeps you from returning." The Miami Lakes superintendent says he likes Sevin 20 Percent Bait's control because "it is less erratic. You get better uniformity of control."

GOLFERS DISLIKE ODORS

Kocker says respect for the playing members cannot be overemphasized: "We have a lot of traffic at Inverrary and that always creates problems in pest control. You try to use treatments during times that won't interfere with golfing. I don't want players smelling pesticides or tracking through any of it, safe as it may be. Some insecticides labeled for crickets pose an odor problem. Sevin has no odor. What's more, with Sevin, it takes 15 times less material (at the 10 pound rate) to cover the same space as Dursban. In a heavily infested area, I've seen Sevin pull mole crickets out of the ground in 30 minutes to one hour. You see dead ones all over the place, but, more importantly, you know there are many more dead ones underground that won't come up."

"The baits all do a good job in certain situations," says Reinert. "There will always be failures, no matter what. Sometimes you get a good treatment, at other times not so good. It just happens. Spray applications using high-pressure injections have been used successfully by several people, but we have no research experience to support this method of application."

While cricket populations are typically higher in late summer, a lesser peak of egg-hatching occurs in late January to mid-February, says Reinert. This is the result of a second flight, usually in September to November, he adds. Thus, golf course superintendents who may enjoy a late fall respite may experience a return of their problem in springtime. But in many cases, says Reinert, the cycle appears unbroken: Nymphs of crickets can be found year-round.

MOLE CRICKETS: YOUR ENEMY BELOW (cont)

Fortunately, all hatchlings do not survive, Reinert says: The insects are cannibalistic and often are preyed upon by fire ants, ground beetles, earwigs, spiders, birds and small animals. A parasitic wasp, credited with reducing mole cricket populations in Puerto Rico, has been introduced to Central and Southern Florida, but several years of testing remain before its controlling effect will be known.

The bad news is, Florida probably has not seen the worst of its mole cricket problem, says Reinert. He points out that, as an "imported" insect, no natural predator sufficient for ideal levels of control exists in this country. Also, pastures, gardens, lawns and local ball fields may continue to "warehouse" future generations owing to lack of adequate control information or resources.

But the good news is, Florida's golf course superintendents, by addressing the seriousness of the problem, can continue to keep their grounds in enviable shape—with help from insecticides, their weatherman and the club treasurer. ■



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