

WASPS and NEMATODES

Used in Arsenal Against Turf-Chomping Mole Crickets

By Edith Hollander

Biological control may produce an inexpensive and ecologically sound answer to a \$30-million-a-year problem with mole crickets.

Mole crickets damage thousands of acres of private and commercial property throughout Florida each year, destroying root systems and seedlings while feeding and tunneling underground. Spring and summer are their most active seasons.

Scientists with the University of Florida's Institute of Food and Agricultural Sciences (IFAS) are focusing on biocontrol — using the mole crickets' natural enemies to

control the problem.

Biological control of the cricket is the cheapest and most permanent solution, said Dr. J.H. Frank, mole cricket research coordinator with IFAS. Once established, the natural enemy becomes a part of the environment, continuously killing mole crickets and controlling their numbers, Frank said.

However, because of Florida's diverse climate, no one solution will work everywhere in the state. Researchers are working with a number of natural enemies in an effort to address the problem complicated by the different conditions.

"At the present time, insecticides and baits are the best way of controlling mole crickets," said Dr. Don Short, an IFAS entomologist. When used properly, these will provide some control, he said. This is the only method used presently.

Most of the biocontrol research focuses on two natural enemies — a nematode and a parasitic wasp. Because the natural enemies, like the mole crickets, are native to South America, arrangements have been made with South American researchers to provide samples and data.

The nematode research is nearest to completion, with final testing to begin this spring. Nematologist Dr. Grover Smart is trying to determine the best method of introducing the nematode into the environment. Smart is testing two methods — incorporating nematodes instead of poison into mole cricket bait and injecting nematodes directly into the ground with a water injection system. Smart hopes the baits work best as this would produce immediate contact between the two when the mole cricket eats the nematode bait.

The main problem with the nematode is keeping it in a moist environment long enough to ensure contact with the mole crickets. Smart is trying to create a moister bait solution to prolong the nematode's life from 24 hours to 48 hours.

Dr. Fred Bennett, graduate research professor and entomologist, has been working with parasitic wasps, in particular the *Larra bicolor* species. This wasp, which was established through a 1981 Ft. Lauderdale area release, has not yet survived in colder regions of the state.

Bennett will be in Bolivia this spring to study this and other species of parasitic wasps. The wasps have been supplied to Bennett through a cooperative agreement with a researcher in Bolivia. Research has been difficult, however, because of seasonal differences and lab problems. "We hope to get additional strains and species of *Larra* and any other information on mole crickets," he said. "Releases will not happen until we are certain that the organisms won't adversely affect the environment," he adds.

A tachinid fly, various fungal pathogens, viruses and a bombardier beetle are some other hopefuls. ■

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