

Brazil, have prospered in their new Florida home.

"Descendants of those flies are now abundant and they occupy an area of at least 78 square miles surrounding the IFAS station," said Howard Frank, director of the mole cricket bio-control research at IFAS.

Red-eyed flies respond to the mole cricket mating call and lay living lar-



Howard Frank

vae on or near that scourge of Florida turf. The young burrow into the mole cricket and kill it as they grow.

Before the experiment could

begin, of course, it had to be demonstrated that the fly would not attack any other Florida creatures, and the proper permissions had to be obtained from U.S. and Florida departments of agriculture.

IFAS biologist Sue Winewriter invented the techniques which allowed her to rear *Ormia depleta* in the lab. It was a first, not only for this species, but for its close relatives, too.

Flies showed up in Manatee County and northern Sarasota when Frank's colleague Tom Walker and grad student John Amoroso set traps to measure the spread of the fly. It is not known how far north and south the fly can establish populations. It comes from a moderate climate in Brazil,

though, and the IFAS scientists hope the fly can cover the Sunshine State.

## Nematodes meet nemesis in battle with bacteria

Nematodes, worms so small they look like fuzz, are a big problem for golf courses in Florida, but an IFAS scientist thinks he's on the trail of some even smaller organisms that can give the tiny worms a big problem of their own.

"It's exciting, but we're a long way from being there," says Donald Dickson, an IFAS nematologist, studying nematode nemeses — two

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bacteria and one fungus — with a \$16,980 grant from the Florida Turfgrass Association. “Florida has a higher rate of infection than any place I’m aware of, except maybe Hilton Head and New Jersey, because of the sandy soils. We have a thousand golf courses and 90 percent are using nematicides on golf greens to control nematodes.”

Nematodes are sneaky little buggers which build up in January and February, destroying grass roots, and you may not see the results until May, Dickson said.

“Nemacur is all the golf courses have to control the nematodes with, and Dr. Ou, an IFAS soil scientist, has found microbes biodegrading



Don Dickson

Nemacur,” Dickson said. The biodegrading microbes build up, giving each application a shorter life span. Nemacur can be used legally twice a year; it’s expensive and there’s no possibility to rotate because there’s no other chemical out there.

“Factors that make good nematicides make chemicals environmental problems. DBCP was suspended in ’77 and we’re still picking it up out of the water; we’re still finding EDB, banned in ’83-84.”

Dickson said that the FTGA-sponsored research into biological controls for pest nematodes is going well.

“In year one, we identified *Pasturia penetrans* bacteria specific to the lance nematode and to the sting nematode, the two major nematode parasites on turfgrass in the state of Florida. Now we are trying to ascertain if they will cross control.”

Using naturally infected nematodes in their lab studies, the team follows population dynamics of the nematodes, taking samples every month. Other experiments track the bacteria and fungus which attack the nematodes. Also under evaluation: whether Temik or Nemacur cause nematodes to be more susceptible to the biologi-

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cal control. Some past data seem to indicate that carbamate nematicides like Temik may do that.

The experiments are tough because it's not easy to grow the organisms in the lab. Some requirements are very particular, like maintaining 25 to 27 degrees Celsius.

## Biocontrol harmless to good nematode

Grover Smart, the IFAS nematologist working on the mole cricket biocontrol project, says the biocontrol for sting and lance nematodes will not hurt the nematode which wears a white hat in the mole cricket wars.

"There would be some real advan-

tages in doing the two of them together," said Smart. "For the most part, in controlling plant parasitic nematodes, we have used chemicals. At the rate the chemicals are put out, however, they will also will kill nematodes put out to control mole crickets."

Smart said FTGA cooperators in the mole cricket project are limiting their nematode sprays to greens. "The hope is that there will be enough infected mole crickets in untreated areas to keep the nematode populations surviving. Where we have put the nematode, in most cases, is in roughs where they would not be treated with the chemical nematicide."

## Lakes doing well near golf courses

Numbers are being crunched this very minute for a final report on the \$5,000 FTGA-sponsored research by Dan Canfield in the IFAS Fisheries and Aquaculture Department in Gainesville. The report is slated for fall publication.

The study of the fish population in Gate and Mountain lakes sampled fish with column nets, gill nets, shock and other methods. A smaller number of the fish were brought back to the lab to be weighed and measured.

Biologist Mark Hoyer said, "We pulled the inner ear bone (it's called

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