

GC and national columnist on golf course management, "but Tom Burrows certainly was the right man at the time he was president of the FGCSA.

"He was the first president to really delegate a lot of work and it just so happened that the organization had become big enough to get a lot of things done. He's the only reason I am writing articles for *Golfweek*.

"They asked him if he could find somebody and he immediately saw that it was a great public relations opportunity for the profession. So he told me that it needed to be done and he asked me to do it."

Public relations and continuing education are the two subjects that Burrows brings up whenever asked to comment on the skills needed to become a successful superintendent.

"Having trained more than 90 OJT students, I think I have the experience to comment on turf education programs," Burrows said. "The one area in which students could use more training is in public relations.

"I am not sure how much of it they can teach in the classroom, but it doesn't make a bit of difference how good you

are on the technical side if you don't know how to deal with the public.

"You can be the best turf manager in the world, but if you can't work with golfers, you aren't going to make it as a superintendent. And I don't see too many trainees today who really understand that."

He also advises trainees to "work for as many different superintendents as you can. If you have the chance to work with five different ones, do it. That way, when you are on your own, you will have been exposed to a broad range of problem-solving techniques."

As for continuing education, Burrows, who has seen golf course management grow into a high-tech profession, says it is the second key to success.

"I can't say enough about the GCSAA certification program," he adds. "Twenty years from now, if you are not certified, you are not even going to be considered for any of the top jobs.

"The important thing to learn in school is principles, because one thing you can be sure of: the technology will change.

"And keeping up with the technology is one of the greatest challenges we

face. For me, it's the most fun."

The greatest challenge facing technology today, Burrows says, is finding a better putting surface for the South.

"I don't know whether it will be a bentgrass or a bermudagrass, but what we have today is not acceptable," says Burrows, who plays about once a week and breaks 80 when his game is on.

"The bentgrass we oversee with is fine for four months out of the year, but just about the time it's really established, the members are going back north.

"It's possible to grow bentgrass year-around down here, but it is very, very expensive and it can't stand up to traffic during the summer."

Burrows says he does not miss the political battles of trying to convince willful members of scientific facts they don't want to hear. But some things he does miss.

"When I was a superintendent, my favorite time was early in the morning, when I toured the golf course. You can actually see what you have accomplished and, in Florida, you can do that 12 months out of the year.

"I miss that."

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USGA GREEN SECTION

New Research Projects: F. Morgan Tayler, Green Section Committee

Turf Tips: Green Section Staff

Professionalization of Superintendents: Stanley Metzger, CGCS

Misdirected Good Intentions: James F. Moore, USGA Green Section

The Coming of Public Golf: B.P. Russell, USGA Executive Committee

Mother Nature and Government Regulation: Mark Kienert, CGCS

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GOLF COURSE MECHANICS

Overview: Pat Ryan, Chicagoland Golf Course Mechanics Association

Keeping up with the Times: John Maguire, Chicagoland GCMA

Birth of an Organization: Tino Martinez, Royal Poinciana GC, Naples

A Superintendent's Viewpoint: Bruce Williams, CGCS

Professionalism: Ed Combest, Lake City Community College

Relative Height of Cut: Rich Smith, The Toro Company

(Continued from Page 38)

regulators about the unique situations faced by golf course managers.

The convention is not all work, however.

In fact, the unofficial beginning of the conference is the annual GCSAA Golf Championship, this year being contested by 600 golfers over five courses in the Orlando area (*See story, Page 44*) Feb. 19-20.

Keynote speaker at the opening session, scheduled Feb. 22 at 5:15 p.m., will be Dr. Ken Blanchard, author of *The One-Minute Manager*. A cash bar reception will follow with music for listening and dancing until 8 p.m.

Featured speaker at Sunday morning's prayer breakfast will be Apollo 15 astronaut James B. Irwin, who was the eighth human to set foot on the moon.

Monday afternoon is set aside for politics as the GCSAA conducts its annual meeting, featuring the election of officers. For the first time in anyone's memory, a Florida superintendent is running for GCSAA director. (*See story, Page 42*).

The 61st International Golf Course Conference and Show concludes Monday evening with the annual awards banquet, featuring presentation of the Old Tom Morris Award to Sherwood Moore (*See story, Page 46*) followed by entertainment by Tony Orlando.

Banquet tickets are not included in the registration. If space is available, they may be purchased for \$45 each at the time of registration.

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THE EX STANDS FOR EXCELLENCE

(Continued from Page 46)

just that now you know what poa annua is!"

Both men point to the growing dominance of science and technology as the biggest change to the art of golf course management in the past four decades.

Moore was an early advocate of using technology wherever possible. In fact, Jacobson recalled, he invented

what may have been the world's first powered bunker rake.

"Hollywood was a Dick Wilson course," said Moore, chuckling at the memory prodded by Jacobson. "We had something like 250 bunkers.

"So we put together this contraption that consisted of three components lifting and lowering off the hydraulic system of the tractor. The rake worked like a charm and we used

it extensively.

"Should have had it patented."

The two men were last together in 1988, when Moore toured Jacobson's winter course, Banyan.

They'll be reunited on the dais at the Old Tom Morris banquet.

"I think it's great for Sherwood," said Jacobson. "I am really looking forward to it. They certainly picked the right guy."

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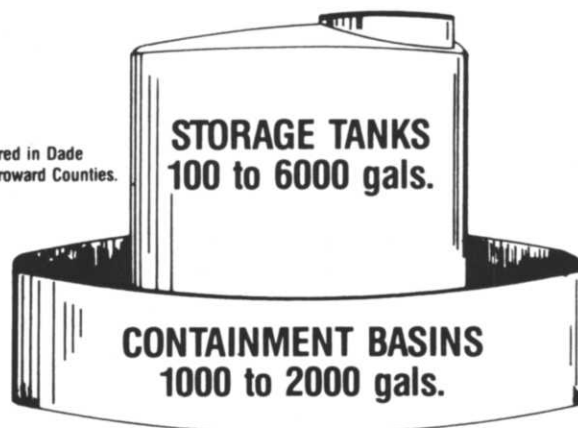
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The early birds got the worms

By
Darcy Meeker

When word went out that the University of Florida had a new way to fight mole crickets, 25 golf course managers stepped right up and contributed \$8,000 each to test the treatment. Eight grand sounds reasonable to people who are already spending \$30,000 to \$60,000 a year to spray mole crickets.

"Mole crickets are probably the biggest pest problem we have," said Bob Yount, who directs the Florida Turf Grass Association Research Foundation. The foundation has invested \$101,500 in the mole cricket fight so far.

That's nearly half of its total research dollars. The state of Florida has also kicked in funds.

Florida's 900-some golf courses aren't the

only places where mole crickets'

endless munching and burrowing turn valuable green to brown. Counting pastures, lawns and the vegetable industry — and golf courses — exotic mole crickets cost Floridians at least \$47 million a year. So estimates Dr. Howard Frank, director of the mole cricket biocontrol project at UF's Institute of Food and Agricultural Sciences (IFAS) in Gainesville.

The pests have spread to Georgia, Alabama, and South Carolina.

Yount is enthusiastic about Frank's

latest project to use one of nature's own tools to kill mole crickets.

Enter the "friendly" nematodes. The microscopic worms attack nothing but mole crickets, and they carry bacteria that help do the pests in. The naturally-occurring bacteria are never found anywhere except in mole crickets and the nematodes, so the U. S. Environmental Protection Agency has no problem with using them as a living pesticide.

Chemical pesticides are not faring so well against the ungainly brown insects on golf courses.

Yount says, "Chemicals are not controlling mole crickets as they should. They're growing immune to existing products, and every year we lose one or two of them." The EPA is not registering new mole cricket chemicals.

"Besides," Yount said, "everybody wants to avoid using chemicals anyway."

Mole crickets are exotics.

They probably came from South America in the sand ballast of ships, and their natural enemies didn't take hold in their new home. Brazil

was the original source of several Florida

pests: fire ants, water

hyacinth, several weevils, Brazilian pepper, coffeeweed, bristly starbur, cocklebur and milkweed vine. IFAS and the Universidade de São Paulo have a biocontrol research agreement that includes work on mole crickets.

Frank has already tested the nematode in pastures and golf courses in Florida. It's called *Neoaplectana* or *Steinernema* (for classification details see the April 1990 issue of the *Journal of Nematology*). The first releases used worms from Brazil reared in a commercial fermentation vessel. They worked, but now researchers think they have a better bug-battler in a batch of nematodes



A 'friendly' nematode may become the first line of defense against the mole cricket, backed up by a red-eyed fly, a pair of fungi and the bombardier beetle.

from Uruguay.

"It's more virulent against mole crickets," said Frank's co-researcher IFAS nematologist Grover Smart .

Smart is growing the new worms in his lab on dog food and mole crickets.

"We have decided that we would prefer to produce the nematodes ourselves because we feel that the ones we produce are a little better quality. They live longer and are more infective than commercial ones."

Smart explains that the nematodes enter the crickets through their mouths or breathing tubes (spiracles) in their abdomens.

"As the nematode grows, it releases the bacteria. The nematode goes through two complete life cycles, and then the third generation exit as infective juveniles." The mole cricket is dead by then. Smart said nematodes will kill the mole crickets on their own, but it takes longer without the bacteria to give the mole cricket blood poisoning.

How long will the nematodes keep killing mole crickets? Smart says researchers don't have any reason to think they will stop.

"We put nematodes on an experimental plot four years ago. In one year, mole cricket populations fell by 90 percent. We still find a few mole crickets



Howard Frank /IFAS

out there, and about 10 percent of them are infected with the nematodes. We don't know how much longer this will take place."

Smart said the nematodes have now spread 10 miles from the release site.

"We don't know how much effect it's having on mole cricket populations there. We're continuing to monitor those populations, however, and next spring we'll have a better idea what it's doing."

Meanwhile, he is gearing up to deliver 3 million nematodes to each participating golf course, coinciding with mole cricket flight periods, starting in South Florida.

"We wouldn't want the nematodes to starve to death waiting for mole crickets to come along," he said.

Frank said earlier nematode treatments were wall-to-wall and required billions and billions of nematodes. This time, though, a solid state emitter will imitate the mating call of the mole cricket. Those that respond to the siren call will get more than they bargained for.... a dose of nematodes.

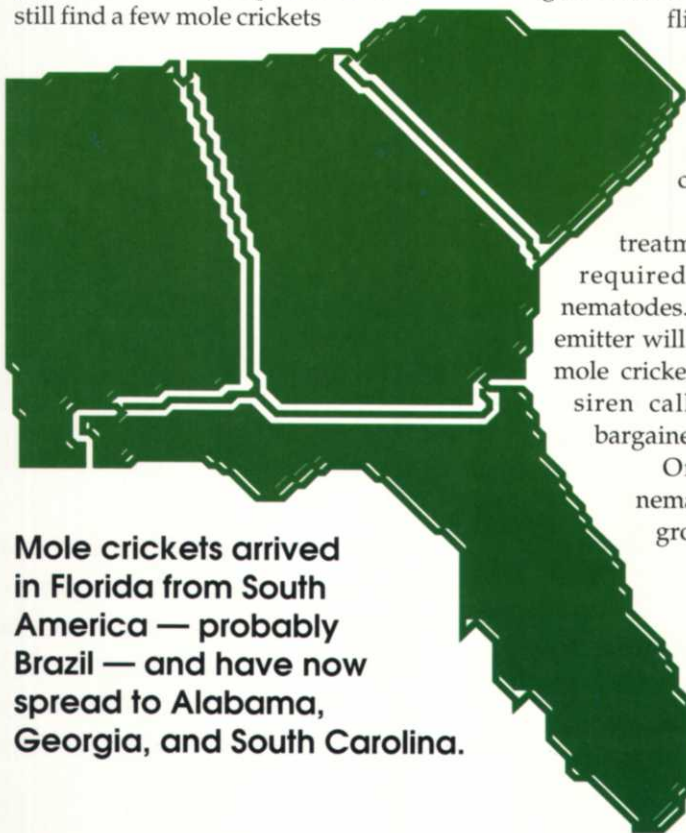
On some golf courses, the nematodes will be poured on the ground under the emitters.

"The mole crickets will land on the ground and tunnel in," the IFAS entomologist said.

"Some will die there and maintain the inoculum, and some will spread out to other areas. The idea is to start an epidemic among the mole crickets."

In a second test method, a five-gallon bucket is packed with

Using solid state electronics, researchers from the University of Florida's Institute of Food and Agricultural Sciences call mole crickets to their fate: to be a tasty meal for nematodes. Calling/collecting stations are placed in the rough.



Mole crickets arrived in Florida from South America — probably Brazil — and have now spread to Alabama, Georgia, and South Carolina.



Susan Winewriter developed the process for raising the Brazilian fly in the laboratory.

foam sponge, soaked with a nematode solution, and stashed under the emitter.

"The point is that the nematodes will be more concentrated than those poured on the ground," Frank explained. Golf course workers will store the bucket in the fridge during the day to keep the tiny worms from cooking in Florida sunshine.

A third method also uses a bucket. This time it's filled with sand impregnated with nematodes.

"After the mole crickets have had time to infect themselves, they can be scooped out of the bucket by golf course personnel and distributed in problem areas." An infected mole cricket will serve as a Typhoid Mary wherever it is placed.

Clients and neighbors shouldn't notice the sounds the emitters make because they'll just blend in with natural mole cricket mating calls, he said.

"Next fall and in the fall of the following year, we'll convert the inoculating stations into sampling traps," he said. "The trapped mole

crickets will be shipped to us in Gainesville and we will see what proportion is infected with nematodes."

Frank and friends will supply nematodes and regional training sessions. The golf courses will run the releases themselves and monitor their progress.

Among the golf courses involved are the Royal Poinciana Golf Course in Naples, Sun City Center in Sun City, Bay Hill Club in Orlando, Fiddlesticks Country Club in Ft. Myers, Waterford GC in Venice, Riviera GC in Ormond Beach, Cypress Creek CC in Orlando, Quail Ridge GC in Spring Hill, Interlachen CC in Winter Park, Cypress Run in Tarpon Springs, Countryside CC in Clearwater and Woodfield CC in Boca Raton.

The Gainesville G&CC is participating in wall-to-wall nematode experiments. Two other golf clubs and three pastures will also receive the treatment and be monitored for mole cricket populations and grass cover.

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And the bent goes on...

Dan Jones, CGCS, photographs some newly germinated bentgrass on his test plots at Banyan GC in West Palm Beach.

Jones is one of 12 superintendents taking part in the national trials of some strains developed by Dr. Milton Ingleke at the Texas A&M research center in Dallas.

"We're not supposed to do anything special with it," says Jones, mindful of the effort required to keep the current strains of the cool-season grass alive in Florida's long, hot, humid summers.

"If it requires special treatment, it won't be suited for



KIEFFER/JANLARK

Florida. That's the point of the trial."

Looking on is Jones's assistant, Tim Echols. A full description of the test will be reported in the Spring issue.

further research: How can golf courses control for nematodes that hurt grass without upsetting the usefulness of the nematodes that attack mole crickets?

During the course of the two-year test of the nematodes, participating golf courses will receive a bonus: another biological control agent for the mole

cricket. This one is a red-eyed fly from Brazil that answers the mole cricket's mating call. Its young, laid on or near mole crickets, burrow into the cricket.

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