

## Biological mole cricket control also checks sting nematode

COLUMBIA, Md. — Golf course superintendents who've successfully used a biological control material to combat mole crickets have discovered an additional benefit to using the product: They are getting significant suppression of the sting nematode, *belonolaimus longicaudatus*, as well.

Native to the Southeast, the sting nematode thrives in sandy soil under warm temperatures. It has a cosmopolitan appetite for nearly all agricultural and horticultural crops. Golf course superintendents in this region have been battling it for years and, recently, the pest has been discovered at 11 golf courses in California's Coachella Valley.

The biological control material showing activity against the sting nematode is a beneficial nematode, *Steinernema riobravis*, sold under the trade names Vector MC (from Lesco, Inc.) and Devour (from United Horticultural Supply). *S. riobravis* is an entomopathogenic, or insect-killing, nematode with low environmental impact in sensitive areas such as pond and lagoon banks, or near clubhouses and homes on golf courses.

*S. riobravis* has been developed and commercialized by biosys Inc., a biological pest control company based here. Researchers have not yet discovered exactly how *S. riobravis* suppresses plant parasitic nematodes (PPN) such as the sting nematode. They only know that it shows positive results in commercial and research trials.

One researcher, Dr. Bruce Martin, turfgrass plant pathologist at Clemson University in Florence, S.C., has been evaluating the efficacy of the beneficial nematode against sting nematode. Preliminary results of these trials show that "suppression is occurring" and that

"there is a linear response with higher use rates," he reported.

Last year, Martin tested both the liquid and the water-dispersible granule (WDG) formulations applied at rates from 0-6 billion nematodes per acre (the label calls for 2 billion per acre).

"In this trial, the more we put on, the greater suppression of sting nematode we got," Martin said. "We were cutting the numbers [of sting nematodes] in half with progressively higher use rates, which was a significant regression."

Martin points out that golf course superintendents and other turfgrass professionals are in need of alternative materials to combat nematodes. Standard nematicides are limited in efficacy, and can't be used in environmentally sensitive areas. "We are still looking for alternatives [to standard materials]. With this *riobravis* nematode, it looks like we have one," he said.

The economics of using the beneficial nematode against sting nematodes are favorable as well. The 2-billion-per-acre rate of Vector MC or Devour cost about \$140-\$145, according to the manufacturer.

Dr. Leon Stacey, a consultant to golf courses in Florida, Georgia, and South Carolina, has been conducting commercial trials with *S. riobravis* on plant parasitic nematodes in these states. He has made the observation that the beneficial nematode product "appears to be much more effective at suppressing plant parasitic nematodes (sting and root knot) when applied prior to or at the time that

PPNs reach their action threshold."

In the Southeast, the treatment threshold for sting nematode is 10 per 100 cc of soil. For root knot nematode, it is 80 per 100 cc of soil. Seasonal development depends on several factors, but age of a golf course is most significant, according to Stacey.

"On younger courses, there will be a gradual seasonal growth of PPNs that will spike in October," he said. "On older courses there will be three spikes — in May, July, and October — and it's not unusual to see counts of sting nematodes get as high as 250 per 100 cc on some older courses," he explains.

Under these conditions, superintendents must still rely on standard nematicides for suppression, Stacey said. "However, if you can make applications of *S. riobravis* when counts are low, this will gradually bring about suppression of PPNs and you do see a visual improvement in turf quality-in density and color," he said.

The first to discover sting nematode in California was Richard Sall, superintendent at Tamarisk Country Club in Rancho Mirage. He believes the pest has been in California for years, arriving in imported soil and sand, and

that the damage it has caused in turf has been misdiagnosed as moisture stress, atenius grub damage, or poor spring transition.

Once he discovered the real problem, he began a treatment program with standard nematicides plus heavier overseeding and fertilization in trouble spots. And last March, he also applied *S. riobravis* to a 5000-square-foot section where sting nematode pressure was exceedingly high.

"We applied the material at a rate of 3 billion per acre, and you could see the area where we sprayed," he reports. "In those areas, nematode counts went down by 30 to 50 percent."

This spring, Sall said he will continue experiments with *S. riobravis*, making applications earlier in February before sting nematodes are active to see if he "can get a jump on them."

Both Martin and Stacey believe *S. riobravis* will play an increasing role in nematode control programs. "I suspect it will be better as a preventive approach to nematode control," Stacey said. "But I also think it will fit well in an overall IPM program where you're trying to use all practices and methods of control."

"You might, for example, apply *S. riobravis* in the spring when counts are gradually building, followed by a nematicide treatment in the fall. There may also be other options. Additional research will tell," he concluded.

## 1,500 supers have earned certification

A new record has been set by the Golf Course Superintendents Association of America (GCSAA) membership: more than 1,500 individuals have achieved the title of Certified Golf Course Superintendent (CGCS). The 1,500 mark represents approximately 22 percent of GCSAA's current class A and B membership.

First instituted in 1971, GCSAA's certification program recognizes outstanding and progressive superintendents. The CGCS designation indicates that the recipient has achieved high standards of professional excellence.

"The importance of our certification program is twofold," said GCSAA President Bruce R. Williams. "First is the education itself — staying informed about industry practices and developments, and

keeping that professional edge. Second is the acknowledgment by one's peers and others in the industry, that a commitment to quality has been made. I'm extremely pleased that the members of GCSAA have shown the self discipline and drive it takes to achieve this goal."

GCSAA's certification program will celebrate its 25th anniversary on Sept. 1. Over that time, requirements for certification have been modified to keep pace with changes in the industry. Currently, a sliding scale is used to balance on-the-job experience with educational requirements. To become certified, a candidate must have a minimum of three years' experience as a superintendent, be employed in that capacity and meet specific educational requirements of college credit or continuing education units.

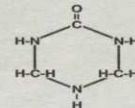
The candidate must then pass a rigorous six-hour examination covering knowledge of GCSAA and its certification program; the rules of golf; turfgrass management; pest control, safety and compliance; financial management; and organizational management. As part of the certification process, an on-site inspection of each superintendent's golf course operation is conducted by two certified golf course superintendents. Certification must also be renewed every five years.

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