

Warm-season turf insect control

Mole cricket and spittlebug control is getting most of the research. The future looks bright, thanks to nematodes.

The adult two-lined spittlebug is best controlled in the adult stage, usually in June and August in Florida.

Photo by James Castner



Mole cricket control is improving, due to research with nematodes and sub-surface injection.

Photo by James Castner

by Don Short, Ph.D.

Managing turf insects in the South is a never-ending challenge. Mole crickets continue to be the most troublesome insect pest in Florida and several other southeastern states. Spittlebugs have been causing more concern during recent years, primarily in north and northwest Florida. Tropical sod webworms, chinch bugs and fire ants make their presence known yearly.

Mole crickets—The major thrust of turf insect research in Florida is biologically controlling mole crickets with the nematode *Steinernema scapterisci* and the red-eyed Brazilian fly *Ormia depleta*. These natural enemies of mole crickets, imported from South America, are specific parasites of mole crickets and harmless to non-target organisms. The nematodes cause death by bacterial poisoning, the fly by depositing live maggots on or near the mole crickets.

Efforts with these two parasites seem to be paying off. The red-eyed fly, released in 1988, has spread to 30 Florida counties. The nematode now populates 13 Florida counties. Fifty-three percent of golf course super-

intendents in south Florida counties reported in 1991 either the same or less mole cricket damage than in previous years. None reported more mole cricket activity.

Cultural practices—Cultural practices can greatly influence the susceptibility of turfgrasses to insects and related pests. Here are some tips:

1) Do not over-apply water-soluble inorganic nitrogen fertilizers. They force rapid succulent growth that acts as an attractant and substantially increases the chances of insect attack. Pest damage, especially from chinch bugs and sod webworms, can be greatly reduced by using slow-release nitrogen fertilizers in combination with other nutrients.

2) Mow, water and fertilize properly to prevent thatch, which is an excellent habitat for chinch bugs and turf caterpillars and chemically ties up insecticides, thus reducing their effectiveness.

Proper mowing can make the grass more tolerant to pests and greatly reduce thatch build-up. Proper mowing heights:

St. Augustinegrass..... 3 to 3-1/2 inches
St. Augustine (shaded)..... 4 inches

centipede grass..... 1-1/2 to 2 inches
common bermudagrass..... 1/2 to 2 inches
hybrid bermudagrass..... 1/4 to 3/4 inch
bahia grass..... 3 to 4 inches

Sharpen the mower blade frequently. To minimize stress on the grass and reduce thatch problems, mow often enough so that no more than one-third of the grass blade is removed at each mowing.

3) Do not routinely collect clippings. The only two instances when they should be removed: to prevent the spread of a disease or weed problem, and when the grass has grown excessively tall. Never mow when the grass is wet since this can disperse disease.

4) Do not irrigate until the grass begins to wilt or turns a blue-green color, or footprints on the grass remain compressed for more than a few seconds. Irrigate with 3/4 to 1 inch of water and do not irrigate again until the above symptoms reappear. This encourages a deep, vigorous root system.

Soil injection—Injection or sub-surface placement of both liquid and granular insecticides, is becoming more popular for control

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Soil preparation essential when sodding or seeding, p. 56

TREATING WARM-SEASON TURF FOR INSECTS

PEST	SUGGESTED PESTICIDE	TIMING	APPLICATION
Mole Crickets	Crusade 5G Mocap 10G* Oftanol 2 Oftanol 5G Orthene turf, tree and ornamental spray Pageant DF Triumph 4E*** Turcam 2.5G Dursban bait	In large turf areas, map and make note of tunnelling (egg-laying) activity during spring months for treatment after nymphs hatch. Middle to late June after most nymphs have hatched and are still small is the optimum time for pesticide application. Spring treatment is optional. Orthene may reduce adult tunnelling somewhat. It is more important to keep damaged areas packed down and grass roots in contact with the soil. Irrigate and fertilize as recommended for grass variety.	Irrigate before treatment if turf is not moist. Treat as late in the afternoon as is practical. Follow label for post-treatment irrigation directions.
Sod webworms	<i>Bacillus thuringiensis</i> Crusade 5G Diazinon 4E** Dursban Pageant DF Proxol Orthene Tempo 2 Triumph 4E*** Turcam	In Florida, the major species is the tropical sod webworm. Populations usually do not build up until June in south Florida, July in central, and August in north Florida.	Delay mowing and irrigation for 24 hours after treatment.
Spittlebugs	Diazinon 4E** Dursban	Control is usually more successful when most of the population is in the adult stage. Usually June and August in Florida. Damage usually begins in shaded areas.	Mow and dispose of clippings before applying a pesticide. Irrigation several hours before treatment will improve control.
Chinch bugs	Crusade 5G Diazinon 4E** Dursban Oftanol Orthene Pageant DF Tempo 2 Triumph 4E***	Replace turf with resistant variety. More of a problem in dry weather. Monitor St. Augustinegrass weekly, concentrating on sunny areas. Treat when damage begins to appear.	Apply additional spray volume if thatch is present. In limited experiments, granules appear to be more effective in heavily-thatched turf.
Grubs	Crusade 5G Diazinon 4E** Proxol Mocap 10G* Oftanol Sevin Triumph 4E*** Turcam 2.5G	Early June is probably the optimum time for most species.	Keep the soil moist for several days before treatment to encourage the grubs to come close to the soil surface. Apply as late in the p.m. as possible and irrigate before the insecticide dries on the grass blades.
Billbugs	Crusade 5G Diazinon 4E** Proxol Mocal 10G* Oftanol Sevin Triumph 4E*** Turcam 2.5G	Most effective control is obtained in late spring or early summer.	Same as for grubs.
Ground pearls	None have been found to be effective.	When approved fertilization, irrigation, mowing and nematode management practices are followed, grass will usually not be obviously affected.	
Fire ants	Amdro bait Logic bait Dursban Orthene	Treat only when soil surface temperatures are between 60-80 degrees F. Do not apply during the heat of the day.	Irrigate before application. Use one bait and follow with Dursban or Orthene in 5-7 days. Be sure baits are fresh.

*Mocap 10G is labelled for commercial turf only (golf courses, sod farms).

**Diazinon is not labeled for use on golf courses or sod farms.

***Triumph 4E is restricted to certain soil types and several application techniques must be followed. It is labeled for use on lawns, sod farms and golf courses (only tees, greens and aprons). A maximum of one application per year is permitted for the higher surface insect rate and a maximum of two applications per year at least 60 days apart for the lower surface insect rate.

Source: Dr. Don Short

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of mole crickets, other soil insects and nematodes in large turf areas.

The benefits are obvious: (1) lower rates; (2) reduced risk to human and animal exposure; (3) less odor; (4) reduced run-off and drift; (5) minimal ultra-violet degradation; (6) less pesticide bound up in thatch; (7) greater exposure to the pests; and (8) longer residual activity.

Liquids are injected at up to 2,000 psi, depending on soil type, as pesticides are forced 1/8 to 1-1/2 inches into the soil. In Florida, we conducted mole cricket field tests on golf courses, injecting at 1,200 psi and getting 1/2- to 3/4-inch penetration on bermudagrass fairways.

Excellent results were obtained with Dursban at 2 lbs. Ai/A compared to poor control at higher rates when surface-applied with a conventional boom sprayer.

On home lawns, we have experimented with the Nemajet, a hand-held injection device that was used several years ago to inject nematocides. Excellent mole cricket control was obtained with only 100 to 150 psi at the nozzle. It is somewhat more time-consuming than a hand gun, but control is much better and the same benefits are realized as with the larger machines. Landscape managers should seriously consider this method of application on small turf areas for control of mole crickets, grubs and billbugs.

Probably the most common equipment for sub-surface granular application on large turf areas is the Dol Overseeder, originally developed for seeding small grain and grass. The seeder puts the insecticide 1/2-inch below the soil surface where the mole crickets are active. There is no dust, and little—if any—odor. Several insecticides now include label directions for sub-surface applications, including Dursban, Turcam and Mocap.

—The author is professor and extension entomologist for the Department of Entomology and Nematology, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Fla.

New insecticides

■ At least two new insecticides are hitting your distributor's shelves this year: Merit from Miles, Inc., and Mainstay 2G from Lesco, Inc.

Merit (test code NTN-33893) features totally new chemistry, according to Jim Dotson, Miles' turf and ornamental research product manager. Its common name is imidacloprid, a member of the chloronicotinyl group of chemicals. Merit, which will carry a label for soil insects, has shown to be very effective against white grub species. According to Dotson, it may also have "outstanding potential for mole cricket control."

When Merit's label becomes EPA approved, it will be available on a limited basis.

Mainstay is a 2% formulation of fonofos, which is also the active ingredient in Crusade. It is labelled for use on mole crickets, grubs, chinch bugs, billbugs, sod webworms, fire ants and other turf pests. Lesco is now taking orders for Mainstay.

New formulations of other insecticides include a Dylox 6.2 from Miles and a dry flowable (DF) formulation of DowElanco's Pageant.

—Jerry Roche

Q: We've got good news for turf, bad news for bugs and worse news for weeds. Which would you like first?

NO JOKE!

A: How about all three at the same time?



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