



*Insect control programs are necessary so that the turf on the left doesn't get to look like the area on the right (mole cricket and armadillo damage). Photos by Joel Jackson.*

# Insect Control and Top Dressing Programs

**T**he hardest winter of the 1990s is over and it's time turn our attention to growing our warm season bermudagrasses. It only took a few abnormally warm days in February to get the overwintering adult mole crickets to come to the surface and start tunneling, and the armadillos weren't far behind rooting and digging for them.

We're all familiar with the routine: Early Spring - treat for the out-of-control damaging adults; Late Spring - apply broad applications of control products to suppress new nymphs; Summer - spot treat persistent "hot spots" with baits and sprays; Fall - hope for an early cool season!

There is always a lot of variability with success at each stage based on soil temperatures and pH, rainfall and proper timing of control applications.

The development of a new product, CHIPCO CHOICE, may herald a new breakthrough in mole cricket control.

The first Federal Registration is expected during the first quarter of 1996

and will be for golf courses only. The product will be approved for "slit applications" only. Based on trial results, Rhone-Poulenc believes one treatment should provide mole cricket protection for up to six months.

Details of Rhone-Poulenc's new *Insect Control System* will be unveiled at that time. Meanwhile, here are a few comments from folks involved in the testing of the product:

**Tom Alex, Director of Golf Course Maintenance, Grand Cypress Golf Club.** "With CHIPCO CHOICE, we see a clear line of delineation between our treated and untreated plots.

"Our crickets in the untreated plots come right up to the edge of the treated area, and they won't go into that treated area whatsoever. They go right up to the line and absolutely stop. Anything within the treated area — 100 percent clean. With the CHIPCO CHOICE we have a 365-day window. That makes it very flexible, and we can schedule it and get it down with minimal or no disruption to

our guests at all."

**Pat Cobb, Extension Entomologist and Professor, Auburn University.** "I've worked with CHIPCO CHOICE for about five years. Just to show you how it works, in one of our trials we had 36 inches of rain in July. That was followed by an extreme two weeks of 90-degree-plus temperatures, and by the end of October, no retreatment was necessary.

"I'd say that was a pretty rigorous test of CHOICE. We do see a reduction of mole cricket damage with other products if they are well timed. The difference is, with CHOICE the window of opportunity is so much greater. In our tests, one application gave us control throughout the spring and summer — season-long control."

**Leon Stacey, Golf Course Consultant and Research Entomologist.** "I have looked at insecticides for mole cricket control for about 18 years, and CHIPCO CHOICE is without question the most consistently effective product I've ever seen.



“We did test plots on greens, in non-irrigated roughs, on push up tees... in just about any conditions you can imagine. What we have seen is that the product works well in a variety of different soil types and conditions.”

Scott Bell, Ron Miller, Kim Shine and Mike Hamilton were among other Florida superintendents involved in the E.U.P. testing. With these ringing testimonials, we will all anxiously await the arrival of CHIPCO CHOICE to the marketplace so we can try it for ourselves.

In the meantime, here are some current insect control strategies that some of our peers are using. Matt Taylor of Collier’s Reserve sent an excellent IPM-based article and seven more superintendents participated in a fact-sharing questionnaire.



The Forest Country Club uses a Vicon spreader to accomplish their top dressing program. Photo by Rick Tatum.

## TURFGRASS PROBLEMS?

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Table 1 - Insect Control Programs

Name	Mole Crickets	Worms	Grubs	Fire Ants
<b>Buck Bunkner, CGCS</b> Isleworth CC	Late February to early March treat all "hot spots" with Talstar or Dursban Bait. May 20th - Slit inject Dursban 2-Kote on back nine June 3rd - apply Fertilizer with Oftanol on front nine October - apply parasitic nematodes wall to wall Treat persistent "hot spots" with Molasses and Orthene or Gamma Mean.	Treat as needed with Orthene or Dursban 4E	New problem for us. Merit looks promising.	Apply Award Fire Ant Bait in October and March
<b>Tim Cann, CGCS</b> Harbour Ridge Y&CC	#1 problem pest. Curative treatments during course renovation closings. Initial treatment wall to wall in May and June. Oftanol 2L @ 1 gal/Acre. Follow up til Fall for "hot spots." Orthene (5lbs/Acre) plus Coax (64 oz/Acre.) Not happy with results. A reduction, but not satisfied	Can be severe on steep bunker faces. Curative applications as needed. Sevin (7-10 lbs/Acre) or Orthene (3 lbs/Acre). Good results.	Not a bad problem	Severe. Mounds flagged. Golfers helped. Spot treat with Amdro Bait. Some success. Last fall blanket treatment with Award. Better control. Fewer mounds
<b>Darren Davis, CGCS</b> Olde Florida GC	Individual burrows injected with Triumph on greens, tees and approaches and on fairways with Dursban Pro. Preventive only. If adult activity in an area becomes excessive, a soap flush is done for nymphs. Over the top application of Dursban Pro watered in. Record these areas in IPM file.	Sod web worms. Spot treat. Orthene or Dursban. Preventive only.	None	Preventive only. Treat individual mounds w/Triumph. Apply Award around clubhouse.
<b>Wayne Kappauf, CGCS</b> Island CC	Soap flushes to indicate nymph activity. Early May. Wall to wall apply either Oftanol, Talstar, Poly-coated Dursban. Mid-summer. Orthene on "hot spots." Late summer & early fall. Apply .5% Dursban bait as needed. Late winter. Apply parasitic nematodes.	At first sign of infestation, greens & tees spray Talstar, Orthene, Dursban 50W or Pageant. Fairways and roughs are treated only if damage exceeds acceptable levels.	Most grubs are controlled with the mole cricket treatments	Award applied spring & fall at 2.5 lbs/Acre.
<b>Mike Mongoven, CGCS</b> Ft. Myers CC/Eastwood	I have used Oftanol sparged on fertilizer in even-numbered years. We will be applying this material in May. We have used other granular materials: Mocap, Turcam, Crusade in fairways. For hot spots we use Orthene TTO or Orthene TTO with Gamma-Mean.	Our biggest problem is all army worms. We treat only greens and bunker faces. We use Orthene TTO, Dursban 50W and Proxol 80.	No success treating grubs. I hope to get some ideas from this article.	Our control has improved by using Award. We apply 2 lbs/Acre in April and Sept. Applied to dry grass. Irrigation limited for 2 days.
<b>Joe Ondo, CGCS</b> Winter Pines GC	Early spring - spot treat adult activity with Orthene or Talstar. Aerify greens, tees, fairways and roughs before full moon in June. Then apply fertilizer with Oftanol to greens. Alternate Orthene and bait during summer and fall on "hot spots." Spot treat Mocap on new hatches where needed.	The Oftanol treatment controls the worms till the rainy season. Then greens and tees are treated as needed with Orthene, Dursban, or Scott's Turplex. A preventive application may be applied before a tournament during peak insect activity. We have also applied Turcam for worm control	Oftanol controls most of them. Last year some fairways and slopes aerified & granular Sevin applied. We have used Turcam if going after a wide variety of insects in an area.	Not a big problem for us. Landscape person spot treats with Orthene at label rate as he goes around during the day.
<b>Mark Richard, CGCS</b> Ft Walton Beach GC	1995 was quite severe. Usually treat curative. The mainstay of treatment has been Orthene at label rate with .5 lb of Sevin per 200 gal. tank. Results good. Only 2-3 weeks. Triumph has worked well on greens at label rates. Turcam & Talstar granular was used on fairways at label rates. Control fair to poor. Mocap is used on small hot spots. Good results.	Not much of a problem recently. Curative treatments Orthene or Proxol as needed. So much effort goes into mole crickets that worms didn't seem to be a problem anymore.	Have never treated for grubs	Moderate infestation. Treat with Drione insecticide as needed. Results positive.

Table 2 - Topdressing Programs

Name	Planning	Top Dressing Material	Frequency and Rate	Equipment	Benefits
<b>Buck Buckner, CGCS</b> Isleworth CC Orlando	A tentative schedule is made up a year in advance. Updates mostly via meetings with Head Pro. Golfers informed through newsletter and postings in Pro Shop or on Carts	Florida Potting Soil Mix No. 4	Warm Season - every 3 weeks if possible. If we verticut at the same time, we will use a moderate amount of sand. If not, then a light amount. Following aerification, a heavy amount of sand to be sure the holes are filled. Drag with Steel mat. Cool Season - once the overseed is established every 3-4 weeks. This year we only top dressed once in January. If it's too cold, the sand just seems to sit there and aggravates everyone.	Toro - used for medium to heavy topdressings. Vicon for very light topdressings. Steel drag mat. 3.5x6.5 feet. Brushes - usually used for light topdressings but really isn't any better than the steel mat.	Reduces the grain effect. Smooths the putting surface
<b>Tim Cann, CGCS</b> Harbour Ridge Y&CC Ft. Pierce	Pro, Manager and Green Chairman are all involved. Always searching for a better method (time). Pro Shop is responsible for communication of the project.	Straight sand - PM200	Every 2 weeks on Thursdays between 11 a.m. and 3 p.m. The Pro Shop provides a 1-hour gap from 11 a.m to noon. We follow the 11 a.m. foursome the entire round until complete.	Light applications - Terra Topper Wide open. Cushman vehicle - 1st gear, high range. Heavy applications - Cushman topdresser. MeterMatic ground drive also used. Turfline rollers on triplex used to smooth any disruptions to surface	Later morning applications brush in easliy. Past experience - only morning top dressing caused sand balls and stuck flags in cups. Smoother greens resulted from new method.
<b>Darren Davis, CGCS</b> Olde Florida GC Naples	Topdressing based on turf/thatch conditions and climatic conditions. Golfers are always given the utmost respect.	Greens - Standard Sand's "Ideal Topdressing." Tees & Fairways - DOT from GASH	Greens - every 2 weeks. Light. Tees - every 2-3 weeks. Moderate. Never bury them.	Greens - Terra Topper. Tees & Approaches - Toro Workman & 2300 pull behind. Fairways - outside contractor 2 times a year. Greens - drag with hand brooms after light applications. Terra Broom after aerification's heavy applications. Tees & fairways - Sisis 2 brush	
<b>Kevin Downing, CGCS</b> Willoughby CC Stuart	Notify Pro Shop and members on first tee seven days in advance.	85/15 mix with Canadian Peat. Charcoal sand 3 times in winter.	Nine times per year. 1/8 setting. Done in the afternoon	Vicon - light 7 times per year. MeterMatic - heavy 2 times per year. Drag brush. Push brooms. Levelor drag mat in summer.	Smoother surfaces. Greens speeds 8.75-9.0. Not sure of going to 14 times per year because of disruption to play.
<b>Wayne Kappauf, CGCS</b> Island CC Marco Island	We try to stay on a schedule and inform Pro Shop a week in advance. We adjust for key tournaments. We also warn our mechanics so they can adjust their backlapping schedules	GASH's 85/15 with Canadian Peat	Summer every 3 weeks spaced around aerification. Winter every 4 weeks. 2 weeks prior to big events. Any time after aerification. Very light in winter. Approx 2.8 cu ft/1000 sq ft. Moderate in summer, approx 6 cu ft/1000 sq ft.	Terra Topper for light applications. Toro (belt drive) after aerifications. No dragging required for winter light applications. Drag mat in summer for lighter applications. Drag brush after heavy applications.	Greens are consistently smoother and quicker.
<b>Mike Mongoven, CGCS</b> Ft Myers CC/Eastwood Fort Myers	We advise the golf pros at each course when we plan to topdress. We vary the day of the week so we won't upset golfers that only play certain days.	Straight sand FM 200. In winter we add 4 pounds of charcoal to the FM200	Biweekly starting at 5:30 a.m. behind the mowers. This allows us to finish ahead of the golfers. We share equipment between the courses.	Because we topdress when the turf is wet, we apply light amounts of sand with a Terra Topper and drag it in with a carpet. After aerifications and for the tee tops we use a Turfco Topdresser to apply heavier amounts of sand. If we topdress when it's dry (rarely), we drag with a brush.	Greatest benefits are improved smoothness and enhancing the turf's ability to cover an open area. We have not overseeded the last two years. The charcoal sand has helped the Tidwarf retain its green color.
<b>Mark Richard, CGCS</b> Ft Walton Beach GC For Walton Beach	Aerification topdressing is scheduled in the fall for the following year and is communicated to the Men's and Ladies' associations and posted for the public 7-10 days in advance.	USGA Spec sand	3 times per year after aerification to fill holes. Every 2 weeks in the growing season to reduce thatch and smooth the greens. Heavy rates = approx 1 cu yd per 1000 sq ft to a light dusting every 2 weeks.	Turfco MeterMatic III for all applications. Sand is brushed with Standard's drag brush and watered in.	Smoother greens. Less thatch - less disease.
<b>Rick Tatum, CGCS</b> The Forest CC Fort Myers	Summer topdressing on closed Mondays. Winter more difficult. Block tee times 1 hour starting around noon. Topdress & brush. No interruptions. Also apply amendments or fertilizers at this time. Never had a complaint from players playing behind our topdressing program.	1-220 sand	Frequent light applications. Alternate between the Bear & Bobcat courses every week. This program is followed year round except after aerification.	John Deere 955 tractor Speed 1.5 mph. Vicon set wide open. Brush one time over entire green. 10 minute syringe. Support - Ford tractor and Rayside trailer to haul sand. ClubCar with Jacobsen Drag Brush	Consistent, healthy putting surfaces.



# ICP equals IPM

BY MATT TAYLOR

*Assistant Golf Course Manager  
Collier's Reserve Country Club*

The foundation of our Insect Control Program at Collier's Reserve is an aggressive Integrated Plant Management (IPM) Program. By maintaining a strong, healthy, dense turf, you can more easily overcome minor insect, disease and weed pressures.

Our cultural practices for promoting a healthy turf include verticutting, aerifying, topdressing and mowing with sharp, well-adjusted reels, as well as utilizing a computerized irrigation system that delivers proper amounts of water based on evapotranspiration rates.

However, even doing all the right things to keep a healthy turf does not guarantee that you will not have some turf areas susceptible to insects.

## **Mole Cricket Control Program**

In our area, mole cricket control must begin in February and March before overwintering adults begin to mate. We apply beneficial nematodes on problem areas to knock down the mole cricket population.

The nematodes are applied at dusk or during the dark to pre-watered turf (pre-watering cools the turf) with a flood jet nozzle at 50 gallons of water per acre. After the nematodes are applied we water again to ensure they get into the soil.

The application of beneficial nematodes has worked well but does not guarantee 100 percent control of the mole cricket. In May we begin soap flushes, which allows us to monitor the nymph hatch.

With evidence of the nymph hatch, we begin applying conventional insecticides at the lightest rate indicated for mole crickets.

In 1995 we tried Merit on 4 acres of turf at the very onset of the nymph hatch.

Our results were excellent, and we will be using it again this year. Also, we will continue to treat for adult mole crickets that were missed as nymphs throughout the summer using a variety of products.

In the past, we have used Crusade 5 G, Talstar Flowable and Orthene with good results on the nymphs and smaller crickets. We also apply mole cricket bait to the turf during the late summer and early fall to actively feeding crickets. Applications are made late in the day or on nights with a full moon and no irrigation scheduled.

Another program we have for mole crickets is to treat individual mounds with a one-gallon B&G sprayer fitted with a 12-inch brass tube which allows us to inject Lemon Joy and water directly into the mole cricket tunnel.

We usually assign our golf course setup person this task. Greens are treated when cups are cut, tees when tee markers are moved, and fairways as they are checked and cleaned of debris. You must take care to keep the soap mixture off the turf surfaces to avoid burning the turf.

A polycoated Dursban is also used when there is increased pressure from young mole crickets on greens, collars and approaches. When the mole crickets reach the third to fourth instar, we once again apply the beneficial nematodes,

following the same application methods used in the early spring.

## **White Grub Control Program**

We have been fortunate that white grubs have not been a severe problem here. Problem areas are treated as needed. Those turf areas that resemble grub damage are checked by removing a piece of sod with a flat shovel and visually inspecting the root zone for grubs. In May and June, areas with evidence of grub activity have been treated with Turcam 2.5 G at the labeled rate and then watered in.

## **Fire Ant Control Program**

Fire ants are one of our most serious insect pest problems. Not only do they inflict painful stings to golfers and the maintenance crew, but they are extremely damaging to turf as they build their mounds. In out-of-play areas their mounds cause damage to plant material as they build around the stems.

We treat wall-to-wall with Award once in the spring and again 4-6 months later if needed. Using a Hurd spreader mounted on a Cushman Truckster, we apply at 1 pound of material per acre. Application is done late in the afternoon when the ant population is more active,

*However, even doing all the right things to keep a healthy turf does not guarantee that you will not have some turf areas susceptible to insects.*

and when no rain is forecast. The irrigation will be turned off that night. Water tends to reduce Award's efficacy.

In addition to the broadcast method of Award, the course setup person, the IPM Specialist and myself will treat specific areas that are likely to cause problems for golfers and crew (i.e., green slopes, tees, etc.) with Orthene or Award. Also, out-of-play mounds that need specific attention are treated with Award sprinkled around the mound.

### Worm Control Program

Sodweb worms, army and cutworms are treated preventively and curatively as needed. Areas such as trap faces and shadowboxes on fairways that have higher cuts of grass make it easier for larvae to go undetected until after damage has occurred.

For this reason, during the summer months we will treat with Vector TL as a preventive control. When conditions are right for worm activity on greens and tees

(i.e., cloudy days with rainfall) we will apply preventive treatments of M.V.P., which is a microencapsulated form of *Bacillus thuringiensis*.

This product has given us a 4-7 day control for sodweb worms as opposed to regular Dipel, which is 1-2 days at best. Greens are closely monitored during spring, summer and fall months. If treatment is needed, it is usually Dipel and a light rate of Orthene or Astro. Astro, a pyrethroid, has provided us excellent quick knockdown of worms.

### Summary

A good IPM program, as the foundation to the insect control program, will ensure that you will remain in control of your turf insect problems and also control disease and weeds.

Nothing will substitute for developing and maintaining good cultural practices, keeping in mind that sound cultural practices and a good insect control program can mean dollar savings to you in the overall maintenance of your golf course for both time and material.

# Turf Trivia

### Oxygen Generation

Plants, including turfgrass release significant amounts of oxygen into the air. A turf area 50 feet x 50 feet produces enough oxygen to meet the needs of a family of four [Huffine and Grau 1969]. An acre of turf would support 174 people, and a 100 acre golf course would provide enough oxygen for 17,400 people.



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