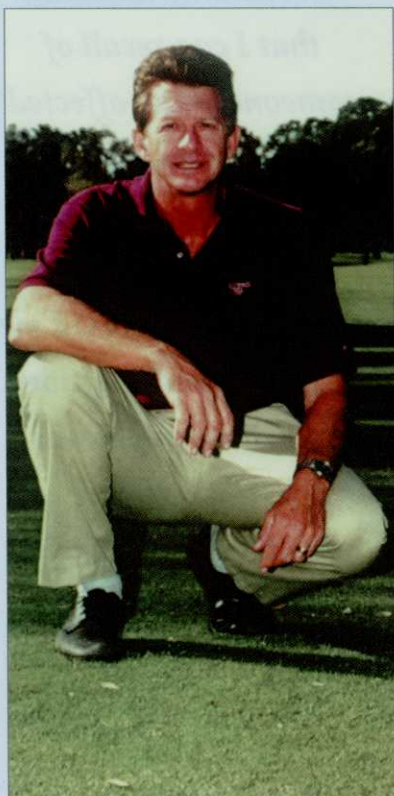




One of the biggest problems with mole crickets is that you get disruption to the root system. The roots and soil dry out, and the ground is not as firm for mowers and people walking, because of all the mole cricket tunnels. Turf quality, in general, decreases.

Chip Fowkes
Frenchman's Creek Golf Course.
Photo by Kenny Brooks.

misrepresentation of — the truth, plus some hard-nosed science. Hopefully, golf courses will not suffer too much, and that new, improved products will continue to be developed for our use.

Keep in mind, however, that it takes approximately 10 years in research and \$50 million to bring a new product to market. It is a lengthy and costly process, and I, for one, am glad that manufacturers are keeping up with the advances in new science and technology.

BILLY DAVIDSON, GCS
Colliers Reserve

Stewards Beware: Mole Crickets Afoot

Say the words "mole cricket" to any superintendent in the Southeast, and you'll likely see him flinch, grimace or simply shake his head. That's because most superintendents in the region have either experienced the devastation and frustration of mole crick-

ets firsthand or know of another superintendent who's been plagued by them.

Mole crickets arrived in Georgia and Florida from southern South America in about 1900.

Currently there are 10 mole cricket species in the United States, but the three major species inflicting the most damage in the South are the tawny mole cricket (*Scapteriscus vicinus*), southern mole cricket (*Scapteriscus borellii*) and short-winged mole cricket (*Scapteriscus abbreviatus*).

The tawny and southern mole crickets reside primarily in the lowlands of Florida, Georgia, Alabama, Mississippi, Louisiana, North and South Carolina; however, there have been reports of the southern mole cricket as far west as Arizona and California. The short-winged mole cricket resides mainly in Florida.

Overstaying Their Welcome

Since their introduction into the

United States, mole crickets have done nothing but wreak havoc on turfgrass and turf soil.

In fact, some have compared the mole cricket to house guests who overstay their welcome — and unfortunately for superintendents, these guests won't leave without a fight.

"Mole crickets caused complete devastation in parts of fairways on both of the Boca Woods courses," says John Gallagher, Boca Woods Country Club superintendent in Boca Raton.

"The way I understand it, the crickets were here before the golf course was. This area used to be a dairy farm. From the moment the course was completed, we spent all summer trying to control crickets. Damage was everywhere."

The damage mole crickets cause to both turf roots and soil with their feeding and tunneling can be devastating. They feed voraciously on roots, stems and ground-level plant leaves. One mole cricket may tunnel and feed several yards each night.

They also disrupt the soil by tunneling underground, loosening the soil and uprooting turf.

The tunneling destroys roots and causes the soil to dry out, placing added stress upon plants. Not to mention, tunnels located just below the ground surface cause soil to bulge above the surface.

The raised tunnels spoil the smooth surface of the greens, affect play and can be hit by mowers or other maintenance equipment.

"One of the biggest problems with mole crickets is that you get disruption to the root system," says Chip Fowkes, superintendent at Frenchmen's Creek in Palm Beach Gardens. "The roots and soil dry out, and the ground is not as firm for mowers and people walking, because of all the mole cricket tunnels. Turf quality, in general, decreases."

Biological Controls

Since mole crickets have no native insect parasites in the United States, scientists have researched what insects



Mole crickets caused complete devastation in parts of fairways on both of the Boca Woods courses... the crickets were here before the golf course was. This area used to be a dairy farm. From the moment the course was completed, we spent all summer trying to control crickets. Damage was everywhere."

John Gallagher
Boca Woods C.C.
Photo by Kenny Brooks.

are available from the mole cricket's native continent of South America. Currently, they have experimented with two such pests — the Brazilian red-eyed fly (*Ormia depleta*) and the *Steinernema* nematode.

The red-eyed fly is a natural enemy of the tawny and southern mole crickets. Adult flies lay eggs on mole crickets.

After hatching, the larvae eat the mole crickets. However, because the red-eyed fly is accustomed to the warm, humid, subtropical climate of Brazil, it is unlikely that it will spread anywhere outside of Florida.

Nematodes, the other biological control, can be applied with spray equipment. The nematode waits in the soil until a mole cricket tunnels by, it then crawls inside the cricket's mouth or breathing tubes

It then releases bacteria that kills the crickets. The nematodes feed on that bacteria, reproduce and the cycle begins again. Nematodes eat the adult mole crickets in the spring before they lay their eggs or in the fall when larvae have matured to adults.

Both of these methods are still being researched. Neither the red-eyed fly nor nematode eliminates mole cricket problems. One difficulty of using the parasites (red-eyed fly, nematode) as a sole control option is that when the host mole cricket population is reduced, the parasite population also declines.

The red-eyed fly and nematode will not naturally regenerate later to populations necessary for control. As a result, the parasites serve to help keep populations in check, not as a complete control option.

Chemical Controls

Superintendents have tried most of the chemical control products available in an attempt to control or slow down mole cricket populations. Common mole cricket controls include:

- Acephate - Orthene TTO, OTTO 97 and Pinpoint
- Bendiocarb - Turcam
- Bifenthrin - Talstar
- Chlorpyrifos - Dursban
- Deltamethrin - DeltaGard
- Ethoprop - Mocap
- Fipronil - Chipco Choice
- Imidacloprid -
- Lambda-cyhalothrin - Scimitar

Using strategic combinations of these products has proven to limit populations, at least on a temporary basis.

"I've used Orthene, Oftanol, Mocap, Turcam and the list goes on," says Gallagher. "We've gotten some good results out of all of them, but it was limited because the mole crickets are not surface feeders.

"It all depends on timing. If the crickets are near the top, we get contact. Those down deep are not affected."

Mole crickets are so difficult to control that the only product Gallagher feels he's had success with is fipronil — available as CHIPCO® CHOICE™ brand insecticide.

"After we applied CHIPCO CHOICE for the first time, we expected to have to go back in and spot-treat, as we have with past products," says Gallagher. "What I noticed was that there wasn't any mole cricket activity — the fairways were clean."

CHIPCO® CHOICE™ has become the standard in mole cricket control since its registration four years ago. With its consistency, residual control and flexible application window, the product dominates the mole cricket control market.

While some superintendents do rotate with other chemistries such as bendiocarb and acephate, they usually have to come back with spot treatments throughout the summer season.

Timing is the Key



Whether it is biological or chemical, the key to effective pest control is timing. The best control is achieved when the eggs have just hatched and the mole crickets are most vulnerable. Larger nymphs and adult mole crickets, on the other hand, are increasingly more difficult to control.

As a result, closely monitoring the lifecycle of mole crickets is necessary. In general, hatching occurs around the end of May to the first of June, depending on the season's temperatures.

CHIPCO and MOCAP are registered trademarks of Aventis. CHOICE is a trademark of Aventis. Oftanol is a registered trademark of Bayer. Orthene is a registered trademark of Valent. Turcam is a registered trademark of AgrEvo. Always read and follow label directions.

*KERRY BROOKS
Gibbs & Soell, Inc.
For Aventis, Inc.*

Mole Cricket Scouting Program

Editor's note: This article is about a program developed specifically for the Bayer Corporation by Dr. Pat Cobb, professor emeritus from Auburn University, for the timing of MERIT™ insecticide applications for the control mole crickets and white grubs. This article is presented because the concepts and methods for determining the mole cricket egg hatch will determine the window of opportunity for optimum insect control regardless of the product used.

MERIT Insecticide is a broad-spectrum systemic insecticide that is effective at low-use rates with properly timed application against mole crickets. It is available in several formulations (MERIT 75 WSP, MERIT 75 WP and MERIT 0.5 G).

Merit Insecticide also offers value-added insect control for the white grub complex, while providing control of mole crickets. It is common for both

pests to cause damage in the same stand of turf. With one properly timed, self-applied application per year, this two-in-one control is a smart value and time-saver compared to making two separate applications.

MERIT provided the best results when properly timed. Scouting for adult mole cricket activity is the first step for determining optimal Merit application timing.

Scouting Instructions

Begin by looking for active mole cricket tunnel damage, especially on

sunny southern slopes, tee boxes or areas damaged the previous year. Using a soap flush mixture of 1 to 2 tablespoons of lemon-scented liquid detergent in 1 gallon of water, flush active mole crickets to collect adults. Try to avoid overmixing. If the soap solution is too foamy, it can be difficult to detect the mole crickets.

The best time to flush is during the early morning or late afternoon. Pour approximately 1 quart of soapy water per square foot over fresh active tunnels. Multiple locations in a 20-foot area can be flushed at the same time. Marking with a flag makes a good reference to

Product Clarification – Less Is More

May 22, 2000

To: All Florida golf course superintendents, distributor reps and other end users of ORTHENE™ Turf Tree & Ornamental Spray (75% Powder and/or New 97 Pellet)

From: Peter Blum, Technical Sales Rep., Professional Products Group, Valent U.S.A. Corporation

I would like to clarify a few issues that several superintendents have raised regarding ORTHENE Turf, Tree & Ornamental Spray (75% powder) vs. our new formulation, ORTHENE Turf, Tree & Ornamental Spray 97.

The new OTTO 97 is a 97% pure, high-grade pelletized product and is a totally dust-free, low-odor formulation. This new generation of ORTHENE addresses worker exposure issues - issues the industry remains concerned with on all products being sold in a dusty, powder formulation.

The new OTTO 97 is packaged in a .773 lb. can and a 7.73 lb. plastic resealable zipper-lock bag. These package sizes are equivalent in active ingredient to our 1 lb. and 10 lb. OTTO 75, respectively.

In other words, 1 lb. of OTTO 75 is equal to .773 lb. of OTTO 97. Furthermore, the price of OTTO 97 in a .773 lb. can is the same as the price of the 1 lb. OTTO 75. And the price of OTTO 97 in the 7.73 lb. bag is the same as 10 pounds of our OTTO 75. Thus, OTTO 97 will be the same cost per 100 gallons of tank mix or per acre as the OTTO 75. It simply takes less of the OTTO 97 to do the job as it is almost 25% stronger.

Distributors have the option of pricing OTTO 97 to the users on a per pound basis or on a per unit basis. If they price the OTTO 97 on a per pound basis, the cost per pound will be higher than a pound of OTTO 75. But if they price OTTO 97 on a per unit basis by container size (.773 lb. or 7.773 lb) vs. OTTO 75 (1 lb. or 10 lbs.), they should be of equal value.

One last point: The new OTTO 97 is available only under the product brand name ORTHENE Turf, Tree & Ornamental Spray 97 by Valent U.S.A. Corp.

I hope this addresses the questions you have had regarding these issues. Valent U.S.A. appreciates your business and your interest in our products. If I can be of further service, feel free to contact me. Thank you.

Sincerely,
Peter Blum
Valent U.S.A. Corp.
Boca Raton, FL
(561) 995-9603