

# Grubs: get'em before they grow fat and sassy

Two promising new products—one a molting inhibitor, the other a biological—will soon be available in the battle against turf-damaging grubs, says Ohio State University entomologist Dr. David Shetlar.

by RON HALL / Senior Editor

**T**he best way to control white grubs with chemical products is to get them when they're small and vulnerable.

Attempting to eliminate "big, fat and sassy third-instar grubs," is a lot harder and probably won't result in satisfactory control, says Dr. David Shetlar, landscape entomologist at The Ohio State University.

This is as true for a new material, like imidacloprid (Bayer's Merit), as it is for more familiar chemical controls.

Imidacloprid, explains Shetlar, affects grubs differently than other materials. When a grub ingests imidacloprid, the messages traveling across the grub's nerve synapses are blocked; the grub quits feeding.

This is a catastrophe for a tiny, hungry first-instar grub. But for a plump third instar that's migrating deeper into the soil to overwinter anyway, it's not such a big deal. Products such as diazinon, isazophos (Triumph) and trichlorfor (Dylox, Proxal) are more effective as late-season, curative-type products against these bigger grubs.

But even with favorable conditions, chemical controls aren't always going to be 100 percent effective, cautions Shetlar.

Common reasons for failure:



'Understand which grub you're dealing with, and what size it'll be when you're dealing with it.'

—Dr. David Shetlar, landscape entomologist

- ▶ product wasn't applied at the proper time;
- ▶ unusually heavy grub population;
- ▶ material wasn't watered in;
- ▶ too much thatch;
- ▶ or a combination of any of these or other related factors.

The good news is that turf managers have a growing selection of effective grub control products—and two more are on the way.

One of these is halofenozide, a molecule developed jointly by American Cyanamid and Rohm & Haas Co.

Halofenozide (trade name Raster) is a new class of chemical that interferes with the molting process of grubs, but reportedly has little effect on non-target species. Because of this, and because of its very low mammalian toxicity (LD<sub>50</sub> of 2850), it's on the U.S. EPA's registration fast track. Plans are to make it available for the 1997 season.

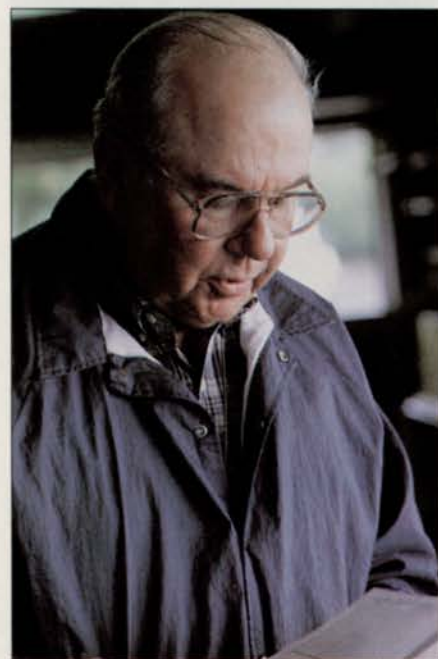
The other product being readied for the turf market is a "buihui strain" of *Bacillus thuringiensis* (Bt) developed by Mycogen. Its trade name is M-Press, and it, too, provided excellent control in test plots monitored by Shetlar and fellow entomologist Dr. Harry Niemczyk.

"For those people who are trying to deliver organic lawn care, there is real hope for grub control. We think this new Bt, M-Press, will be an important material for them," says Shetlar.

While the grub of the Japanese beetle remains the number one target of these products, the root-eating larvae of other large beetles are just as destructive in selected areas of the United States and Canada.

These include the chafers (southern and northern masked, and European), the black turfgrass ataenius

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## Early treatment stops billbugs, too

Although white grubs may be your primary target, an application of imidacloprid (Merit) in May or early June controls bluegrass billbugs, too, says Dr. Harry Niemczyk.

Niemczyk, speaking at the Ohio Turfgrass Conference this past winter, explained that billbugs lay their eggs inside the stems of grass plants in late April-early May in Ohio. As they hatch, the billbug larvae feed within the stems and hollow them out. As they grow, they start feeding in the crowns. Because imidacloprid is taken up by grass plants, the larvae, in eating the grass, take the material into their system and die.

"Maybe it's a week or 10 days before Merit is picked up by the roots of the plant and translocated up into the plant, but it (Merit) is definitely systemic," he said. "If the Merit is there, the little larva is easy to kill."

He suggested that superintendents with billbug problems make applications in early May, although control is generally good with applications through June. Depending on their chemical budgets, they probably should concentrate on tees and greens first, he suggested.

As part of his presentation, Niemczyk showed slides of several golf courses in Ohio where applications of imidacloprid dramatically improved turfgrass on tee banks and around sand traps.

and, to a lesser degree, the Oriental, Asiatic garden, and the green June beetle grubs.

Each variety of beetle has a distinct life cycle but, generally, all can be controlled with properly-timed applications.

In Ohio at least, May, June and July applications of Merit and the experimental Raster provided almost 100 percent control, Shetlar says. But when the products were applied in mid-August, control fell off somewhat.

"You can't wait for remedial treatment for these kinds of materials," he says. "Put them down early to get the best efficacy."

The reason is simple. The larger the grub, the more material it takes to kill it. A third-instar grub can be as much as 70 to 80 times the body weight of a newly-hatched grub, points out Shetlar. It's many times more difficult to control. **LM**

—Dr. Shetlar's comments came from presentations at the Ohio Turfgrass Conference and the OSU Short Course this past winter.

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