

Grubs: digging for answers

by RON HALL / Senior Editor



Dr. Harry Niemczyk, standing, gives volunteers data arising from the second day's dig at the Valley View Golf Course in Akron.

There's nothing fancy about a Harry Niemczyk grub dig. I can say that from first-hand experience.

But you should be excited about what we "diggers" learned this past fall: several new chemical products and one strain of BT show excellent promise as grub controls.

Some of the control products, the "dig" indicated, provide excellent control in these particular plots. Notable were Bayer's Merit, a strain of *Bacillus thuringiensis* (Bt) being readied for market by Mycogen Corp., and a compound submitted jointly by American Cyanamid and Rohm & Haas Co. This last molecule is being described as a molting inhibitor and is scheduled to receive an EPA experimental use permit next season, say sources at the dig.

Here's the discovery process we used:

1) Spade out a small square of earth.

2) Get down on your knees and start crumbling soil from the small chunk of sod.

3) As the soil falls into the plastic kitchen tub, pluck out the plump gray grubs and drop them into what looks like an empty cottage cheese container.

4) Count the grubs, some no larger than the head of a wood match.

"Rep 1, plot 3, no grubs," shouts one of the 15 volunteers, both men and women.

"Rep 1, plot 6, two grubs," shouts another. For two full days, that's the language of the grub dig. Some plots contain many grubs; some contain just a few; some contain none. Diggers yell out what they've found in each square plot.

Dr. Niemczyk records on a clipboard our numbers as he walks among the wooden stakes marking the boundaries of the individual test plots. We're digging to determine the effectiveness of various control products. Technicians applied the products in different formulations and rates to the test plots weeks prior to the dig.

What does what

Some of the products applied to the plots are familiar to us—Dursban, Merit, diazinon, Sevin; some aren't because they've not yet come to market. But as we work, we're not aware which products were applied to which plots. (Nor do we care. We just dig, count, and shout out the number of grubs we've turned up.) Control plots,



About 15 volunteers, including representatives from companies testing products in the plots, dig and count grubs. Some make the dig an annual event.



It wasn't hard to find Japanese beetle grubs in some test plots. They'd grown fat in the roots of turfgrass plants, particularly in the controls.

because of the large number of grubs they contain, virtually announce themselves.

At lunch, over burgers and fries, we do finally learn what products were used. That's when Harry and Dr. David Shetlar tabulate the number of grubs found in each replication.

We find two types of white grubs basically, Japanese beetle grubs and masked chafer grubs. They're easy to tell apart. The "mc" grubs are further in their development and about twice the size of the "jb" grubs. They also have a light brown head and there are much fewer of them. We find most of the grubs in the turfgrass roots, and at the thatch layer, but a significant number perhaps an inch, in some cases about two inches, in the soil.

Harry's been directing the digs for more than 25 years at various northeast Ohio locations. This year we work on plots on the 15th fairway of the Twin Lakes Golf Course in Mansfield, Ohio, and in a rough

at the Valley View Golf Course in Akron. Both afternoons we dig in a commons area at the OARDC in Wooster. A dig has never been rained out, says Harry, although once a wet snow briefly covered the plots.

Growing fat

Grubs are the most damaging insect pests of turfgrass in the northeast and a major problem in the midwest too. By the time they reach the third instar they've grown fat on turfgrass roots and thatch. Then, when heat or drought of late summer stresses the grass, it dies in irregular patches. Peel off the dead layer of turf like you're peeling an orange, only the turf comes off much easier. Sometimes, skunks and crows find the grubs and eat them. They worsen the turfgrass damage.

None of this is probably news to you. But what might surprise you is the amount of money Americans (both professionals and homeowners) spend to control grubs. A representative of a major chemical com-

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box," says Christi Ballard of Four Corners. "But everyone felt three 'nines' would be more appropriate—one for the front, one for the back and one for good luck."

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pany at the dig estimated the "grub market" at \$50 million annually.

Dr. Niemczyk will provide a detailed look at grubs and their control, and what the 1995 grub dig uncovered on the opening day of the Ohio Turfgrass Conference, Tuesday, Dec. 5, in Columbus, Ohio. Look for our report of his findings in LANDSCAPE MANAGEMENT's spring insect control issue.