



Control of these root-eating monsters depends on careful observation and precise timing

BY FRANK H. ANDORKA JR., ASSOCIATE EDITOR / ILLUSTRATED BY DAN ZOLA

Biblical plagues of locusts have nothing on the "Great Grub Infestation of 1992" that struck the Orinda CC in Orinda, Calif.

Dave Rosenstrauch, then superintendent at the course, says the grubs invaded the course with a vengeance that summer. The saga began when Rosenstrauch noticed small patches of his fairway being eaten away by what he diagnosed as wilt. His crew members spot-watered the affected areas to bring them back, but nothing helped.

Then one day a member of Rosenstrauch's crew returned to the shop with news that as he had backed up the fairway mower, the turf rolled up behind it like carpet.

"I rushed out to the fairway to see what was wrong," says Rosenstrauch, who is now the director of golf for the Alisal Guest Ranch & Resort in Solvang, Calif. "As I peeled

away the turf, I could see I had a grub problem."

Rosenstrauch counted 20 grubs per three feet of turf. The next weeks were spent in what he calls a "Guns of Navarone" mode, spraying practically around the clock in an effort to eradicate the grubs. In the end, despite he and his crew's best efforts, the course lost 10 acres of turf.

Reports from around the country indicate that increased effectiveness of pesticides, combined with increased vigilance on the part of superintendents, means fewer intense grub outbreaks have occurred in recent years. As the case of Orinda CC shows, however, superintendents must never yield to complacency.

"Even once you've killed off a grub population, you may be able to back off the application of pesticides, but you still need to monitor the turf closely," says Stan Zontek, director of the mid-Atlantic region for the USGA. "If you get a

serious grub infestation these days, you've missed something along the way."

Pesticides such as Merit or Mach 2 prevent grubs from forming if sprayed at the right time. Those two products have eliminated many of the grub problems in his part of the country, Zontek says. "You don't hear the horror stories about massive turf loss that you used to hear," he says.

Identification ranks as the most important element in controlling white grubs on a course, no matter which species, according to Timothy Gibb, a professor of entomology at Purdue University in West Lafayette, Ind. The way to tell grubs apart is to examine the number and the arrangement of hairs on its rear end, he says.

Once the species is identified, it will determine the best timing for pesticide application. Understanding the turf-grass site and conditions such as thatch, irrigation, turfgrass variety and use will allow a superintendent to select the insecticide that will be best for that particular area, Gibb says.

"There are enough products on the market that you have a good selection of products to use," Gibb says. "Only superintendents will know exactly what's best for their situations, so I recommend they do their homework so they understand their problems thoroughly."

Pat Vittum, a professor of entomology at the University of Massachusetts in Amherst, Mass., says her recommendation is to put down Merit no earlier than June 15 and that July 1 is usually the optimum time. For Mach 2, Vittum says it should be put on turf between July 1 and the middle of August.

Grubs live in stages called instars, and they develop from one stage to another fairly quickly, Vittum says. The smallest grubs feed for two weeks. In the second stage, they feed for two to three weeks. By the time they reach the third and final stage — a full-grown beetle that will feed for as long as three months — it's too late to prevent them from doing at least some damage to the turf.

Difficult Situation

David Shetlar, professor of entomology at The Ohio State University in Columbus, Ohio, says superintendents should evaluate the following factors if the usual methods aren't killing the grubs:

- Was the application liquid or granular? Depending on which it is, the effects of the sun will cause the product's efficacy to vary.
- Was the turf — and more importantly, the underlying thatch — moist or dry at the time of the application? Dry thatch can create impermeable barriers that will not allow pesticides through.
- How thick was the thatch? Anything over a half inch is going to reduce efficacy of any grub insecticide. Shetlar recommends not treating any turf where the thatch layer is over three-quarters of an inch.
- How heavy was the grub pressure? There may be more grubs than the insecticides are designed to handle. Shetlar says

"During the winter, they burrow down below the frost line because they can't survive in frozen turf," Vittum says. "But they do survive, and if you haven't gotten them by the time winter rolls around, you're going to have problems in the spring."

Vittum also recommends that superintendents rotate Merit and Mach 2 to avoid building up a resistance in the grubs. Though there is no clinical evidence to support a contention that grubs are beginning to resist the insecticides, there is increasing anecdotal evidence to suggest it's possible, she says.

"It's not that there is no control at all," Vittum says. "But I've heard stories about the control becoming less complete after several years of use."

The entry of Novartis' latest product, Meridian, in August will help alleviate potential problems in that area. Both Vittum and Gibb agree that Meridian's biggest impact will be as another option open to superintendents.

"Any time superintendents can add another weapon to combat grubs, it's a good thing," Gibb says. "As long as the superintendents stay vigilant, they should be OK." ■

Peering into the Crystal Ball

Dave Rosenstrauch, director of golf for the Alisal Guest Ranch & Resort in Solvang, Calif., has seen the future of golf course maintenance, and it will be gravely affected by complete pesticide bans.

Rosenstrauch has watched with interest as cities like Seattle eliminate the use of pesticides completely, and he sees movements in cities like San Francisco and Arcata, Calif., to do the same.

"Superintendents better be ready to use alternative methods for situations such as grub control," Rosenstrauch says. "It's inevitable."

Rosenstrauch applies only organic materials to his two courses to keep the pH of the soil perfectly balanced. He uses microbes to keep the soil neutral, which he says keeps the turf healthy. Unhealthy turf attracts insect and weed problems, Rosenstrauch says, so monitoring the soil is important to keeping out pests such as grubs.

He also says he allows natural grub predators like birds handle small infestations. After all, the holes the birds put in the ground are like a mini-aerification, he says.

"It's a little more work than the wholesale spraying of chemicals," Rosenstrauch says. "In the long run, however, superintendents who understand how to use organics will have far more job security than those who only know how to spray chemicals."

superintendents have to monitor their turf closely to avoid running into that difficulty.

SOURCE: DR. DAVID SHETLAR, EXTENSION ENTOMOLOGIST, THE OHIO STATE UNIVERSITY, "GRUBS TOUGH TO KILL", TURFNET MONTHLY, OCTOBER 1999