

## Spring is the Best Time for Ant Control

Daniel A. Potter

**L**ately, my research team has been investigating new approaches to managing mound-building ants on golf courses. **The results have been promising and may be helpful to superintendents who need to control ants on their putting greens and tees.**

Surveys of mound-building ants on putting greens in Kentucky revealed that virtually all of the problems are caused by one species, *Lasius neoniger*. This also seems to be the main nuisance ant on golf courses throughout much of the U.S. Workers of this ant excavate underground nest chambers, pushing up small mounds of soil that deflect golf balls, dull mower blades, and smother patches of turf. This ant is also common in roughs, fairways, and other sunny turf sites, although the mounds are less conspicuous in such areas.

**Ant problems in turf seem to be increasing nationwide.** One theory to explain this is that residues of chlordane and other highly persistent turf insecticides used in the 1960s and early 1970s have finally declined. Another theory is that replacement of diazinon—which is highly active on ants—with newer, more target-selective grub control products has allowed ants to gain a foothold on golf courses. Whatever the reason, I'm getting more inquiries about ant control than ever before.

Effective management of these pests starts with understanding their habits. *Lasius neoniger*, like all ants, is a social insect. It lives in colonies that consist of 100s or 1,000s of sterile worker ants, but only one reproductive queen. The nest consists of shallow, interconnected chambers, seldom more than 10 to 15 inches (25–38 cm) deep. **Passages to the surface are topped by small mounds, each with a central opening. The number of mounds varies from just a few to 10 or more per nest, and generally increases as the colony grows.** The queen ant, with her eggs and larvae, remains underground to be fed and tended by worker ants. The workers forage on the surface for protein foods, especially small insects and insect eggs, and may also tend subterranean root aphids for honeydew, a watery, sugar-rich fecal material. These ants are beneficial, except in close-cut creeping bentgrass, because they prey upon cutworms and other pests.

Where do ants on putting greens originate from? As colonies build up in late summer, new virgin queens and males are produced. These winged reproductive ants swarm out of the nests in late summer or autumn (August to October). After mating, the young queens shed their wings and enter small, self-made cavities in the ground. They remain there over the winter, and normally don't start to

lay eggs until spring. Successive broods are produced until the colony is large enough to produce new males and queens. Individual queens and colonies may live for several years.

**Controlling ants is difficult because fast-acting insecticides usually kill only a portion of the workers foraging on the surface, but fail to eliminate the queen.** Pyrethroids, such as bifenthrin (Talstar®), cyfluthrin (Tempo®), deltamethrin (DeltaGard®), and lambda-cyhalothrin (Scimitar®), and organophosphates such as chlorpyrifos (Dursban) often will suppress mound-building for a few weeks after treatment. Treating for cutworms usually reduces the buildup of ants, too.

Several commercial **ant baits** are highly effective for controlling ants infesting homes and other structures. These baits contain delayed-action insecticides formulated on granules with food substances that attract the foraging ants. **The workers carry the bait back to the nest, where it is fed to the queen and her brood. Once the queen is eliminated, the colony dies out and the mounds are not rebuilt.** Last summer, we tested a range of these baits against ants on golf courses.

Our research showed that **Maxforce Granular Insect Bait®** (Clorox Co., Oakland, CA) and **Advance Granular Carpenter Ant Bait** (Whitmire Micro-Gen, St. Louis, MO) are highly effective against *Lasius neoniger*. **Sprinkled around the mounds, a small amount of either bait will eliminate a nest in about 2 days.** Once the mounds are raked or knocked down by mower blades, they will not be rebuilt. Minimum effective rates are still being tested, but about 1/8 teaspoon of bait per mound worked well in our trials. Withhold irrigation for at least a few hours to allow the ants to take the bait. Both baits worked equally well, but Maxforce is less noticeable on putting greens because of its smaller granule size and dark-brown color.

Maxforce bait is marketed in 10 oz. shaker cans, 6 lb jugs, and 25 lb bags. One 6 lb jug contains enough bait to spot-treat about 4000 mounds. Combined retail cost of a jug and a shaker can is only about U.S. \$70.00. The shaker can is useful for application. I recommend purchasing both, and refilling the shaker can as necessary.

These baits are too expensive for broadcasting on fairways, but **they are cost-effective for spot-treatment on putting greens. Several golf superintendents who have tried them also report excellent control.** Neither of these baits is specifically marketed for use against ants on putting greens. However, registrations of both products list

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turf and golf courses as approved sites, and do not specify that they cannot be used against *Lasius* ants on putting greens. Thus, their use is allowed under Section 2ee of the Federal Insecticide, Fungicide, and Rodenticide Act, so long as labeled rates are not exceeded. As with all pesticides, specific restrictions may apply in some states (e.g., California). Questions regarding labeling of these baits should be directed to their manufacturers. (Maxforce: 1-800-322-2802, ext. 8824; Advance: 1-800-777-8570.)

Maxforce Granular Insect Bait and Advance Granular Carpenter Ant Bait are available through pesticide distributors who carry products for the structural pest control industry. Note that a similar-sounding product, Advance Granular Ant Bait, was not as effective in our tests. So, if you try the Advance bait, be sure to specify the Granular **Carpenter** Ant Bait.

**Regardless of the method, ants are usually easiest to control in spring, soon after the mounds appear. At that time, the colonies founded by new queens are still small, and nests that persist from the previous year are weakened from overwintering.** By getting the jump on them, you can avoid the rapid expansion of colonies and mounds that normally occurs in late spring and summer. 

Daniel A. Potter is Professor of Turf and Landscape Entomology at the University of Kentucky. His new book, *Destructive Turfgrass Insects: Biology, Diagnosis, and Control*, is available from Ann Arbor Press.

## RESEARCH SUMMARY

### ASSESSMENT OF CURATIVE CONTROLS FOR SURFACE ALGAE ON GOLF GREENS

An assessment of curative chemical controls for algae was conducted on an 8-year-old turf of Penncross creeping bentgrass (*Agrostis stolonifera*) at Griffin, Georgia, during the summer of 1998. The turf was maintained at a cutting height of 5 mm and a mowing frequency of 5 times per week. Plot size was 3 by 3 feet in a randomized complete block design with four replications. The blue-green algae, primarily *Oscillatorie* species, were induced on the surface of the root zone, by pretreatment with two DMI fungicides that have a growth suppression effect on the grass shoots, which allows sunlight penetration to the soil surface. The fungicide and algicide treatments were applied on August 12, 1998. Estimates of the percent algae present were made at 7-day intervals following the initial treatment. Mancozeb + copper hydroxide, (Junction®) at the 4 and 8 ounce per 1,000 ft<sup>2</sup> rates and copper sulfate at 2 ounces per 1,000 ft<sup>2</sup> were the only treatments that provided acceptable suppression of less than 3% algae for the duration of the study. Daconil Zinc, Consyst, and calcium hydroxide provided marginally acceptable control of less than 10% algae. Fore 80, Daconil Ultrex, Heritage, ProStar, BannerMAXX, potassium sorbate, and QuickStop did not provide acceptable levels of algae suppression. At the peak algae coverage of August 19th through September 2nd, all treatments except the potassium sorbate provided significant suppression of this algae. Editor's note: More than six different algae species may occur on putting greens during a single growing season. It is possible that a chemical that controls certain algae species may not control a different algae species. **Source: Curative Control of Surface Algae on Golf Greens, 1998, by L.L. Burpee and S.L. Stephens.** 1998 University of Georgia, Turfgrass Pathology Research Report, pp. 1-4. 

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