



Issues With Ants?

Dr. Vera Krischik, Associate Professor, UMN

Ant mounds on greens can be a nuisance on golf courses, as the mounds create obstacles and dull mower blades. These are secondary nests, while the main nest chamber with the queen is much more likely to be in the natural soil of the roughs. The mounds around the nest openings are the soil carried out by the ant in their mouth as they excavate tunnels and brood chambers under the surface. *Lasius niger* is the most common ant species on roughs, fairways, lawns and other sunny turf sites, according to Dr. Dan Potter of the University of Kentucky, who has studied this pest/beneficial insect for many years.

Ants are social insects that have a division of labor among the queen and workers, and have perennial colonies. The egg laying queen and her larvae are underground and the workers forage for insect larvae, eggs, and adults. The number of mounds increase from spring to fall as the colony grows in numbers and needs more real estate for their tunnels and mounds. In late summer new females and males take flight into the air and mate. The male dies, but the female drops her wings and tunnels into the soil to initiate a nest, but she does not start to lay

eggs until the spring. These new queens produce new nests, while her mother stays in the old tunnels. This process is repeated every fall.

Dan Potter's research demonstrated that 62% of 1,600 newly hatched cutworms placed near *Lasius* nests on collars or putting greens were eaten by ants. In other research, turf grass plugs on which black cutworm moth eggs were laid, were implanted into fairways or roughs at two golf courses, and the mortality of the eggs was monitored. *Lasius* ants consumed as many as 85 percent of the eggs in untreated roughs in 24 hours. In treated fairways where ants were less abundant, many more cutworm eggs survived to hatch. In research, significantly higher numbers of white grubs occurred in turf plots where ants were selectively eliminated. Before it was removed from the market, the organophosphate (class of insecticide) insecticide diazinon that was used to control grubs, also managed ants and caused secondary outbreaks of sod webworms, which we rarely see today.

When the ant mounding starts

getting bad, superintendents should focus control on the collar and a couple of meters beyond it. Controlling ants is difficult because fast-acting insecticides, such as pyrethroids and organophosphates, usually kill only a portion of the workers foraging on the surface, but fail to eliminate the queen. Consequently, the colony recovers and new mounds appear.

Dan Potter recommends treating a 20 to 30 foot band around greens and tees. Mid-season applications are probably the least effective at colony elimination and may require another application. Treating when the mounds first appear in the spring seems to be the best approach but fall treatments were surprisingly effective. Dan has a recent online article at Grounds Maintenance (http://grounds-mag.com/golf_courses/grounds_maintenance_managing_nuisance_ants/). Spraying of a mixture of classes of insecticides may be more effective than solely spraying a pyrethroid. Spray a formulated mixture of a pyrethroid and neonicotinyl insecticide, such as Aloft (bifenthrin and clothianidin), or Triple Crown (bi-

fenthrin, zeta-cypermethrin and imidacloprid) or using your own tank mix (lamda-cyhalothrin and thiamethoxam). Acelepryn (chlorantranilipole) does not have activity on *Lasius*. Superintendents who switch from pyrethroids to Acelepryn for extended control of cutworms may see more ant mounds, as the ants are no longer controlled by the former multiple seasonal sprays of pyrethroids.

Ant baits are too expensive for broadcasting on fairways, but they are cost-effective for spot-treating putting greens. Superintendents who have tried them report good results and the labels allow use on golf courses. A small amount of bait will eliminate a nest in about 2 days. Then, once the mounds are raked or knocked down by mower blades, they will not be rebuilt. Currently Dan Potter's minimum effective rates are about $\frac{1}{4}$ teaspoon of bait per mound. *Lasius* takes baits both day and night, but delay irrigation for 24 h when baiting because they don't take soggy bait. Dan Potter's research demonstrated reduced numbers of ant mounds when spot-treating with Advion Fire

Ant Bait (AI (active ingredient), indoxacarb, Syngenta, available in MN) and Maxforce Professional Insect Control Fine Granule Insect Bait (AI, hydramethylnon, Clorox Co.) which in Minnesota is registered as Maxforce Complete Brand Granular Insect Bait. Note that a similarly named product, Advance Granular Ant Bait, was not as effective. Neither bait is specifically marketed to the golf industry, but their labeling does allow use on golf courses. Spot-treating with bait allows selective control, while preserving beneficial ants in fairways and roughs.

For now, controlling ants with fipronil (class phenyl pyrazoles), which is used for termites, is only available to southern turf managers. The manufacturer is seeking to broaden the fipronil label, so that granular products for nuisance ant control on northern golf courses may be available soon. TopChoice, containing fipronil, is presently labeled for use only in the 13 states: Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennes-

see and Texas, where imported fire ants occur. Fipronil is slow-acting so foraging workers that contact or feed on the material do not die right away. This allows them to return to the underground nest where body grooming and exchange of food among nest-mates transfers the insecticide throughout the colony, including the queen and her brood. Granular fipronil often provides 95 percent control of existing ants within four to six weeks.

Spot treatments of greens may permit ant suppression, while maintaining ant colonies in roughs and fairways may allow the ants to feed on pest insects, thereby lowering your insecticide use and expenses.

Vera Krischik, Associate Professor and Extension Specialist, University of Minnesota, 612. 625. 7044, krisc001@umn.edu

Photo on page 28: Ant can collect honeydew from a scale (this picture), as well as aphids.

Bugwood, University of Georgia,