



What's Up with All These Ants?

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Ant mounds on golf courses, especially in high-profile areas such as putting greens, tees and fairways can be problematic and tough to manage! Worker ants are responsible for excavating underground nest chambers, consequently pushing up soil that creates “volcano-shaped” mounds. These mounds, typically 2 - 4 inches in diameter, not only do they disrupt the smoothness and uniformity of putting green surfaces, but they also smother patches of turf as well as dull mower blades. For these reasons, golf course superintendents often get quite frustrated battling these troublesome pests. Consequently, many golf course superintendents often make surface applications of fast-acting (quick knockdown) conventional insecticides to eliminate the nuisance ants that create the unwanted mounds. Unfortunately, this management approach merely reduces the number of worker ants, and does not eliminate the queen (i.e., the source of the problem). Thus, repeated insecticide applications are often necessary.

The reason ants are more abundant in some areas and not in others remains somewhat unsolved. Research evidence does suggest that ants are typically more prevalent where sand-based soil mixes are used. However, this is not to say that ants are not common in fairways or roughs and even putting greens where native soils are prevalent.

The ants that are found in turf on golf courses are commonly referred to as “turfgrass ants,” they are officially recognized as cornfield ants (*Lasius neoniger*). This species of ant is native and occurs throughout the United States and Canada. It is a social insect that lives in colonies that are comprised of thousands of sterile female workers, and typically only one reproductive queen. An individual ant nest is commonly comprised of multiple interconnected chambers approximately 10 - 15 inches deep. Each passage to the surface is capped with a mound. Depending on the time of year (i.e., spring vs. summer), there can be a considerable variation in the number of ant mounds per nest, ranging from 2 - more than 10. Generally, the number of ant mounds steadily increases from early spring to late summer as the colony grows. Previously conducted research has revealed that as food resources become more abundant in the spring, the queen steadily increases egg production. However, once this peak production occurs, the offspring from this brood develop relatively slowly, starting in May and continuing into July. Soon thereafter, new adult workers (all



Ant mounds on putting green can affect ball roll and dull mowers.

females) begin to emerge, after which mound-building activities dramatically escalate. Finally, as ant colonies begin to mature by late-summer and even into early-autumn (late-August - October), a sizable portion of the colony develops into winged-reproductives (swarmers) consisting of new queens and drones.

Once the colony reaches this stage, typically in the late-afternoons, on warm days, new queens and drones typically swarm by the thousands. This event is especially common after rains and thunderstorms. During this swarming process, the new queens and drones partake in a nuptial flight whereby they mate while flying. Soon thereafter, queens seek-out new locations to build chambers. However, before constructing a new chamber, new queens chew-off their wings. Oddly enough, most queens die before making a chamber, however those that do survive typically construct a small chamber in the soil beneath the turf, often creating a small mound of soil approximately 3/8 - 1/2 inch in diameter. Surviving queens typically lay a relatively small number of eggs in the chamber. Within several weeks (< 6), new worker ants (typically about 1/2 the size of normal workers) break open the chamber to forage for food. At this point, colony activity ceases as winter weather prevails. For the colonies that endure and survive the winter, they typically resume activity in the spring as temperatures are favorable and food sources become available.

Based on previous research findings, it is widely understood that each nest has only one queen, thus the future of the colony is dependent on her. This is not to downplay the importance of workers, they too serve a

crucial role by both defending (protecting) and foraging for food for the colony. As far as the types of foods that ant species feed-on, respective ant species have various or different food preferences. *Lasius* ants appear to like foods that contain the three primary nutritional components: protein, carbohydrate (sugar), and fat rich foods. In turf, they commonly forage on the surface for small insects and insect eggs, however they also are known to tend (protect) subterranean root aphids in order to obtain the sugary honeydew that the aphids produce. Because these mound-building ants are important predators of the eggs and small larvae of sod webworms, white grubs, and other insect pests, they are also considered beneficial insects.

Management Options

Unfortunately, ant control is not as simple as we would like it to be, in fact it can be quite difficult, especially at different times during the growing season. Because throughout much of the growing season, the queen ant, with her eggs and larvae (young) are located underground in nests, surface applications of contact insecticides merely only control workers on the turf surface. So, unless the queen is eliminated, more worker ants will continue to be produced. Currently, there are three different recommended approaches for managing mound-building ants: 1) insecticide treatment applications, in the spring when ant mound first appear, with relatively short-residual, contact insecticides such as bifenthrin (Talstar), chlorpyrifos (Dursban Pro), and cyfluthrin (Tempo), deltamethrin (DeltaGard), and lambda-cyhalothrin (Scimitar) may provide up to 4 - 6 weeks of control, 2) applications of long-residual insecticides such as thiamethoxam (Meridian), Arena (clothianadin) or Chipco TopChoice, currently registered in most but not all northern states) and imidacloprid (Merit) may potentially provide several weeks (2-12 weeks) control when applied to mounds as they first appear, or 3) granular ant baits such as Advanced Granular Carpenter Ant Bait (abamectin), Maxforce (hydromethylon), and Firestar (fipronil) may provide 2 - 3 weeks of control. However, because ants are quite sensitive to the quality (freshness) of the bait, it is understood that moisture renders most baits unattractive, likely due to staleness. Therefore, it is critical to apply baits to dry turf; avoid applications prior to anticipated rainfall events and be sure to withhold irrigation for approximately 48 hours.

To further complicate the rather difficult challenge of controlling mound-building ants, during the late-summer and early-autumn months, as described earlier, ants have a distinctively different behavior. During this time, large numbers of winged-swarmer emerge from their nests in the late afternoon. In this situation, the most effective management approach would be to apply a

surface applied, contact insecticide such as bifenthrin (Talstar), chlorpyrifos (Dursban Pro), cyfluthrin (Tempo), deltamethrin (DeltaGard), or lambda-cyhalothrin (Scimitar) to the turf surface with intention of controlling the swarming ants before they have an opportunity to mate and construct new chambers.

Due to the variation in behavior of mound-building ants within a growing season, it is critical that a thorough understanding of the behavior and habits of a pest organism is essential in order to achieve effectively management. More research is needed to better understand the biology of mound-building ants in order to further develop and refine management strategies and tactics. 🌱



6th Annual Wee One Golf Outing Pine Hills Country Club

Monday, September 21, 2009
Pine Hills Country Club
4914 Superior Ave
Sheboygan, Wisconsin

Agenda:

- 10 am - Registration - locker rooms and range open
- 11 am - Shotgun start with lunch served on the course
- 4 pm - Prizes and hors d'oeuvres reception
(cash bar)

Golf Format:

- Two person team - Selective Drive/Alternate Shot
- Tee assignments will be made in six-somes
- You may enter as two-some, four-some, or six-some

Entry Details:

- \$150 / Player
- Guests must be entered by member on same entry form and playing in same grouping.
- Enter early. Field is limited to first 162 PAID players. Last year the event was filled.

Entry Fee Includes:

- Great Golf Prizes
- On course refreshments
- Lunch on the course - Taco Stand and Sheboygan Brat Stand
- Heavy hors d'oeuvres immediately following golf with cash bar reception

Entry Deadline Wednesday, September 16.