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MARY CORCORAN

When Latshaw arrived at Oak Hill, the club decided to sink some major money into improved drainage and irrigation, among other things.

Continued from page 30

favors from his father or anyone else for that matter.

"Paul has very high expectations, and he doesn't want anything handed to him," Zimmers says. "He wants to prove himself. It's not fair for people to take pot shots at him."

Paul B. has wanted to be a superintendent since he was 12. That's when he started taking an interest in his father's career — and became enamored with it.

It was the late 1970s when the Latshaw family was living in Pittsburgh and Paul R. was superintendent at Oakmont, one of the greatest courses in the country with one of the most demanding memberships. For Paul R., that meant early to bed and early to rise because he was working such long days. That meant Paul B. didn't get to see his father much.

"I knew if I wanted to spend time with him, I had to go to work with him," Paul B. says.

So that's what he did. But Paul B. *wanted* to go to work with his dad, and he begged his dad to let him go to Oakmont.

"It was never my dad saying, 'You're coming to work with me today,' " Paul B. says. "It was always me asking, 'Dad, can I come to work with you today?' "

Even though Paul R. worked long hours, he and his only son spent a lot of time together at Oakmont, where Paul R. worked as superintendent for 14 years.

"We spent a lot of time together. It just wasn't in the traditional sense, like throwing the baseball or the football in the backyard," Paul B. says. "While it was in the work setting, our time together was quality time together."

Paul B. was born in Jackson, Mich., where his father began his career as a superintendent. Then the family moved to Cleveland for four years when Paul R. got a job at Shaker Heights CC. Then it was on to Pittsburgh.

It was in 1978 when Oakmont hosted the PGA Championship that Paul B. began to understand the magnitude of his father's job. He witnessed the glamour and glitz that comes with a Major tournament and realized what it meant to the community. "I realized what my dad did was really special."

Paul B. was hooked. During high school, he spent the summers working at Oakmont. He got a taste of the demands of the profession by working 70 to 80 hours a week. He didn't see his friends much, but he learned a lot about hard work. "I formed a solid work ethic."

After high school, Paul B. enrolled at Penn State University and studied agricultural science and turfgrass management. He says his dad never discouraged him from becoming a superintendent, but he got the impression his dad thought he'd be better off in a profession that wasn't as demanding.

"I didn't encourage him to get into the business," Paul R. says. "But when he decided to go into it, I told him what I thought he needed to do."

In the summer of 1985, Paul R. recommended that his son work as an intern for superintendent and industry veteran Dick Bator at Pine Valley GC in New Jersey. It was a test, of sorts, to see if Paul B. could withstand the toughest the industry had to offer. Bator was like a drill sergeant, and he wasn't afraid to get in workers' faces.

But Paul B. survived what he calls "Bator's Boot Camp," and says the experienced motivated him even more to go into the profession. "I never considered doing anything else," he says.

Paul B. says he learned about perseverance and passion from Bator, who now works as a consultant in the industry.

"He had a tremendous work ethic," Bator says. "And he was a sponge for learning."

In 1986 and 1987, Paul B. worked as a summer intern for superintendent David Stone at The Honors Course in Ooltewah, Tenn. He says Stone is an excellent teacher. Paul. B. then worked briefly for his father at Augusta after graduating from Penn State. He went to work as an assistant for his father when Paul R. left Augusta to become superintendent at Wilmington CC in Montchanin, Del. Paul B. stayed there for three years before getting the job at Merion in 1992, where he replaced Bator.

That's when people began to talk. Nobody in his mid-20s should be hired as the superintendent of Merion, the critics said. Paul B.'s father must have had a hand in the hiring.

Paul R. refused to visit his son at Merion until several months after he started the job.

"There was no question in my mind he could do the job," Paul R. says. "But I didn't want to go there because I didn't want people to think I was helping him."

It was Bator who recommended that Paul B. succeed him at Merion. Bator says he was the clear choice, even though he was only 26. "Youth doesn't mean anything," Bator says. "It's about maturity, drive and the willingness to learn."

"Maybe [people think] I got a break, but I guarantee you it doesn't matter who your father is," Paul B. says. "If you don't perform, you'll lose your job."

He must have done something right because he stayed at Merion for almost seven years. If he weren't a good superintendent, Merion's members would have run him out long before that.

Oak Hill approached Paul B. about coming there in late 1998. Knowing that Oak Hill had booked the PGA and that Merion would probably never host a Major because of its size, Latshaw made the switch.

"Leaving Merion was probably the toughest decision of my life," he says. "But I've wanted to do a Major ever since I was 12."

It was 25 years ago that Paul B. experienced his first Major while working for his father at Oakmont. Ironically, that PGA Championship was also his father's first Major.

Oak Hill's East Course, where the PGA Championship will be played, needed repairs when Paul B. arrived. At that time, the club's brass also decided to spend money on some major renovations, including drainage, irrigation and tree removal. Rule says Latshaw's

Continued on page 34

Oak Hill's Upgrade

Since Paul B. Latshaw joined Oak Hill CC in 1999, a lot of time and money has been spent readying the course for the PGA Championship, set for Aug. 11-17.

In 2001, Oak Hill installed a new Rain Bird Cirrus Central Control irrigation system on its East Course, site of the tournament. The triple-row system, featuring 1,348 heads, replaced an outdated single-row system.

LARRY AYLWARD

"The fairways are a lot firmer and more consistent because we have much better control of the water," says Latshaw, noting the club also installed a new Flowtronex pump station.

The club also spent about $900,000 on drainage, featuring more than seven miles of new pipe. About 75 percent of the bunkers received new drainage.

Every bunker on the course was rebuilt with the bunkers' faces rolled down as far as they could go. All fairways were recontoured and nine new tees were added. The course was also extended 230 yards.

Oak Hill purchased 4.1 acres of new land near the 17th hole. The extra space will help immensely to control the flow of galleries, Latshaw says.

The key to getting ready for the tournament has been hard work, says Latshaw, who salutes his crew's solid work ethic.

"That's one of the things I've been very fortunate with – I've had great, great people working for me," he says. "That's one of the unique things about this business. When it gets into people's blood, they really become passionate about it." **– L.A.**

Paul B. Latshaw (left) credits his crew, including superintendent Tom Bailey, for working extra hard to get the course in shape for the tournament.

Continued from page 33

hiring to oversee the projects was vital. "If we would have given another superintendent the same budget, I don't know if we would have seen the same results."

So far, so good, Paul B. says about Oak Hill, which hosted the Ryder Cup in 1995 and the USGA Amateur Championship in 1998. The club surveyed its members last year to ask them if they were satisfied with the conditioning of the course. Ninety-eight percent said they were "very satisfied" or "satisfied." That compares to a much lower percentage of members who answered the same survey question in 1998.

But Paul B., who seems to be his own worst critic, says the course will not be in as good of shape as he would like to have it for the tournament. "I feel good about what we've accomplished, but I'd like to have another year to prepare."

When Paul B. says his achievements are overshadowed by his father's success, he doesn't say it with even a hint of bitterness. He accepts it for what it is. "I still think I'm perceived as the son of Paul R. Latshaw, but I also think I'm perceived as being a good superintendent," he says.

Paul B., who holds a master's degree in management, says he's a good superintendent partly because he learned so much from his father, especially about leadership, which he considers one of his strong points.

"I saw my dad as my father, but I also saw him as an unbelievable leader of people," he says. "He was one of those guys people like to rally around."

Maybe that had something to do with Paul R.'s work ethic.

"My dad is a workaholic," Paul B. says. "He's the most driven person I've ever met."

And he had a special talent for grooming golf courses. There were many times when father wowed son with his work, Paul B. says. One event that sticks in his mind was the 1997 U.S. Open at Congressional CC in Bethesda, Md., where Paul R. worked as superintendent in the mid-1990s.

"I would defy anyone to have a better-conditioned golf course than Congressional [that year]," Paul B. says. "It was near perfect."

What impresses him most about his father is that he was able to duplicate his success at some of the most prominent clubs in the country, where being the superintendent is often a pressure-packed job.

"He surely didn't take the path of least resistance," Paul B. says. "It's one thing to achieve success at one place, but to duplicate it at multiple places at such a high level ... that's the criteria for being great."

Paul B. says he doesn't like to compare himself with other superintendents, especially his father. "What [my father] has done ... probably no one else is ever going to do."

But that's not to say that Paul B. is not striving to be in that same "elite" class of superintendents. Although he says has a ways to go to achieve that status, some people already think he has already made it.

"Paul B. is probably a better superintendent now than me and his old man put together," Bator says.

"He's the best superintendent in the business — from agronomics to business to management to mentoring," says Oakmont's Zimmers.

Paul R. and his wife, Phyllis, will attend the PGA Championship and be at their son's side during the hosting of his first Major tournament, the pinnacle to date of his still-young career.

Paul R., the veteran of hosting Majors, may offer his son some advice. But it's a good bet he'll stay mostly out of his son's way and be content to play the role of the proud father.

"He tried his best to prove he could do this job on his own," Paul R. says of his son. "And he has done it on his own." ■

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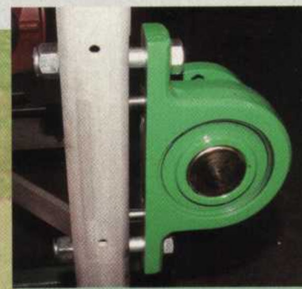

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INSECT CONTROL

How to Control Mound-Building Ants

By R. Chris Williamson

Ants can be tremendously annoying pests on golf courses, especially in high-profile areas such as putting greens, tees and even fairways. Moreover, due to the increased use of sand-based putting greens and tees, empirical evidence suggests that ants are a growing problem. This is not to say they are not also common in roughs as well as other sunny turf sites, but they are often less noticeable there.

Worker ants excavate underground nest chambers, pushing up soil that creates "volcano-shaped" mounds (Shetlar, 2003). These mounds, typically 2 inches to 4 inches in diameter, not only disrupt the smoothness and uniformity of putting-green surfaces, but they also smother patches of turf and dull mower blades (Lopez et al., 2000). As a result, superintendents typically make surface applications of fast-acting conventional insecticides to eliminate this nuisance.

Lasius ants like foods that contain the three primary nutritional components: protein, carbohydrate and fat.

The cause

A relatively small ant commonly referred to by superintendents as the "turfgrass ant" (not an officially recognized common name by the Entomological Society of America), the *Lasius neoniger* is native throughout the United States and Canada. This ant species is a social insect that lives in colonies 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 inches and 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 two to more than 10. Generally, the number of ant mounds steadily increases from early spring to late summer as the colony grows.

Previous research 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 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 through 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.

Continued on page 38

IN THIS ISSUE

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Continued from page 37

However, before constructing a new chamber, new queens chew off their wings. Oddly enough, most queens die before making a chamber, but those that do survive typically construct a small chamber in the soil, often creating a small mound of soil approximately three-eighths to one-half inch in diameter.

Surviving queens typically lay a relatively small number of eggs in the chamber. Within several weeks (usually fewer than six weeks), new worker ants break open the chamber to forage for food. These new workers typically are about half the size of normal workers. 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.

There are three different recommended approaches for managing mound-building ants.

Based on previous research findings, it is widely understood that each nest has only one queen, and the future of the colony is dependent on her. This is not to downplay the importance of workers — they serve a crucial role by both defending and foraging for food for the colony. As far as the types of foods that ant species feed upon, respective ant species have different food preferences.

Ant mounds destroy turf and annoy golfers, so superintendents should eradicate the pests as early as possible.

Lasius ants appear to like foods that contain the three primary nutritional components: protein, carbohydrates and fat (Traniello, 1983). In turf, they commonly forage on the surface for small insects and insect eggs, but they also are known to protect subterranean root aphids to obtain the sugary honeydew that the aphids produce (Lopez et al., 2000).

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.

Control tactics

Unfortunately, ant control often is not so simple. In fact it can be quite difficult, especially at different times of the growing season.

Throughout much of the growing season, the queen ant, with her eggs and larvae, are located underground in nests. Therefore, surface applications of contact insecticides are only effective in controlling workers on the surface. Thus, 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:

- Insecticide treatment applications. These are made in the spring when ant mounds first appear. They use relatively short-residual, contact insecticides such as bifenthrin, chlorpyrifos, and cyfluthrin, deltamethril, and lambdacyhalothrin, which may provide up to four to six weeks of control;
- Applications of long-residual insecticides. These include thiamethoxam (not currently registered), fipronil (not registered in northern states and can ONLY be applied to golf course turf by licensed and authorized commercial applicators) and imidacloprid. These may potentially provide season-long control when applied to mounds as they first appear;
- Granular ant baits. These include abamectin, hydromethylon and fipronil, which may provide two to three weeks of control (Shetlar, 2003).

The winged reproductive (swarmer) ant perpetuates the colony by fertilizing the queen's eggs.

Since ants are quite sensitive to the freshness of the bait, it's understood that moisture renders most baits unattractive, likely due to staleness. Therefore, it's critical to apply baits to dry turf, avoid applications prior to anticipated rainfall and be sure to withhold irrigation for approximately 48 hours.

To further complicate the 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 swarmers emerge from their nests in the late afternoon.

In this situation, the most effect management approach would be to apply a surface , contact insecticide such as bifenthrin, chlorpyrifos, cyfluthrin, deltamethrin, or lambda-cyhalothrin to the turf surface with intention of controlling the swarming ants before they have an opportunity to mate and construct new chambers (Williamson, 2001).

Due to the variation in behavior of mound-building ants within a growing season, it's apparent that a comprehensive understanding of the behavior and habits of a pest organism is essential to achieve effective management. Therefore, additional research is needed to better understand the biology of mound-building ants to develop and refine management strategies and tactics.

Williamson is an assistant professor and turfgrass and ornamental specialist in the Department of Entomology at the University of Wisconsin-Madison.

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Is Reducing Soil pH Possible?

By Charles F. Mancino

Soil pH is probably the most outstanding characteristic of soil solution (Brady, 1990). Acidic soil conditions pose much greater problems in turfgrass management than alkaline soil conditions.

Acidity in the soil results from the leaching of exchangeable base-forming cations calcium (Ca^{+2}), magnesium (Mg^{+2}), potassium (K^+) and sodium (Na^+) from the upper soil horizon. Hydrogen (H^+) and aluminum (Al^{+3}) remain as the primary cations in these soils.

Under strong acidic soil conditions (a pH of less than 5) adsorbed Al^{+3} solubilizes and enters soil solution where it reacts with water to form aluminum hydroxide ($Al(OH)^{+2}$) and H^+.

$$Al^{+3} + H_2O \Rightarrow Al(OH)^{+2} + H^+$$

This hydrolysis generates a large amount of H^+ ions. Similar reactions occur with iron (Fe^{+3}), but the acidity generated by iron is much less than that of aluminum. Adsorbed H^+ actually contributes little to the pH of acid soils because it's tightly bound to organic matter, Fe and Al oxides, and 1:1 type clays.

Aluminum also contributes to the pH of moderately acidic soils (a pH of 5 to 6.5). However, under moderate soil pH conditions, aluminum no longer exists as Al^{+3} ions. Instead, it exists as aluminum hydroxy ions ($Al(OH)^{2+}$, $Al(OH)_2^+$ and much more complex forms). An equilibrium is reached between hydroxy ions held on cation exchange sites and those in the soil solution. Solution aluminum hydroxy ions hydrolyze and generate H^+ ions.

$$Al(OH)^{+2} + H_2O \Rightarrow Al(OH)^+ + H^+$$

In addition, easily exchangeable H^+ and some of the less tightly bound H^+ ions are released into soil solution and also contribute to acidity.

Alkaline soil

Alkalinity occurs when aluminum and hydrogen have been predominately replaced by Ca^{+2}, Mg^{+2}, K^+ and Na^+ on the permanently charged cation exchange sites. Aluminum hydroxy ions in solution have been converted to insoluble gibbsite ($Al(OH)_3$) while any H^+ that has been released has reacted with hydroxyl ions in soil solution to form water.

Alkaline soils are generally found in arid and semi-arid regions where leaching of base cations is low. However, they are also found in humid regions where soils have formed from calcium and magnesium carbonate parent materials, and where calcium and magnesium carbonates precipitate out as a result of irrigation with limestone aquifer water.

Calcareous sands can be found wherever sand is mined from ancient coral reefs, crushed limestone or the mixing of crushed seashells with quartz sand. Under all of these conditions, adsorbed Ca^{+2}, and often Mg^{+2}, dominate the permanent cation exchange sites.

Difficulties associated with naturally occurring alkaline soils, or in soils that have been overlimed, are predominately related to nutrient imbalances rather than from the direct effects of soil solution pH on plant growth. Carrow et al. (2001) point out that these nutritional problems include:

- phosphorus (P) deficiency due to the reaction of P with calcium carbonate and calcium sulfate to form insoluble calcium phosphates;
- the formation of insoluble iron and manganese oxides and hydroxides;
- the unavailability of zinc as it combines with applied phosphate to form zinc phosphate;
- boron deficiency as pH increases from 7 to 9 as it possibly becomes bound to soil colloids; and
- molybdenum toxicity for certain crops, but generally not turfgrass.

These conditions, which do not occur in all alkaline soils, can be corrected through the use of proper turfgrass nutrient management.

A pH range of 6 to 7 promotes the best availability of plant nutrients to higher plants (Brady, 1990). This is the pH range most suited to the availability of phosphorus in miner-

Continued on page 42

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QUICK TIP

Fire ants, like all insects, require moisture. During hot and dry weather, fire ants will burrow deeper into the soil making control more difficult. Insecticide applications should be made during moderate temperatures and adequate soil moisture. Chipco® Topchoice™, with its revolutionary mode of action, can provide up to 52 weeks of control with a single application.