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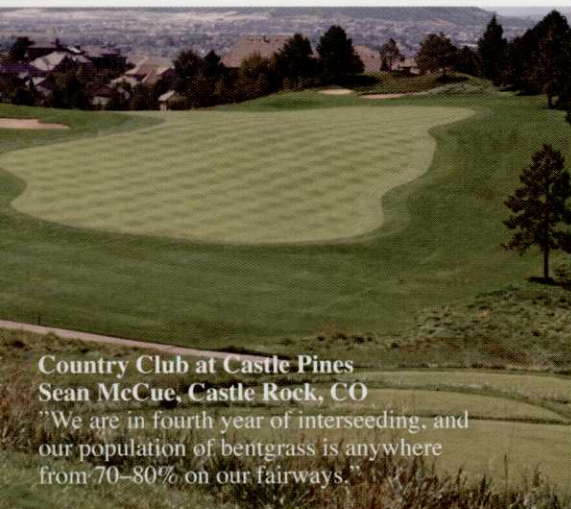
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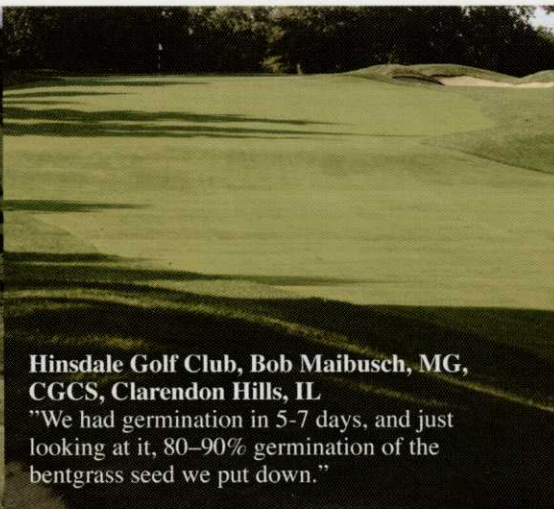
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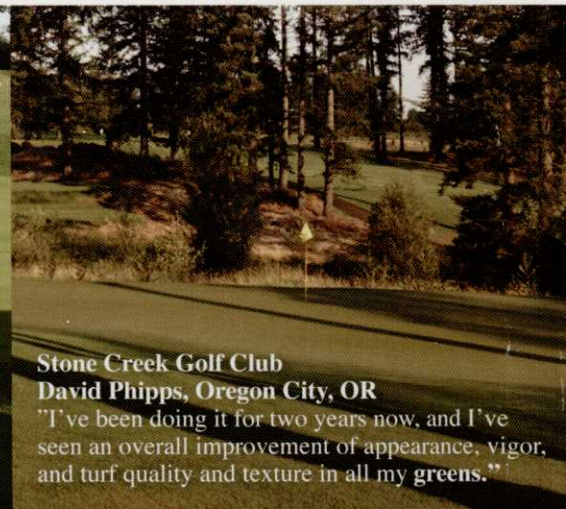
Country Club at Castle Pines
Sean McCue, Castle Rock, CO

"We are in fourth year of interseeding, and our population of bentgrass is anywhere from 70-80% on our fairways."



Hinsdale Golf Club, Bob Maibusch, MG,
CGCS, Clarendon Hills, IL

"We had germination in 5-7 days, and just looking at it, 80-90% germination of the bentgrass seed we put down."



Stone Creek Golf Club
David Phipps, Oregon City, OR

"I've been doing it for two years now, and I've seen an overall improvement of appearance, vigor, and turf quality and texture in all my greens."

"I WILL CONTINUE TO **INTERSEED** TO KEEP GETTING ADDITIONAL POPULATIONS OF **BENTGRASS** OUT THERE AND TO HELP ME COMPETE **AGAINST THE POA ANNUA** POPULATIONS IN OUR FAIRWAYS"

Sean McCue, Country Club at Castle Pines, Castle Rock, CO

These superintendents, from both private clubs and public golf courses across the country, say that interseeding with the advanced bentgrasses from Tee-2-Green is a highly effective method for improving turf.

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David Phipps, Stone Creek Golf Club, Oregon City, OR

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Cover credit: John Etheridge Illustration

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crab'bed-ly, *adv.* in a crabbed manner.
crab'bed-ness, *n.* the state or quality of being crabbed.
crab'bēr, *n.* 1. one who fishes for crabs.
 2. the boat used in fishing for crabs.
 3. [from *crab* (apple).] a person who constantly complains or finds fault. [Colloq.]
crab'bing, *n.* crab fishing.
crab'bing, *n.* a process by which cloth is given a finish that prevents its wrinkling.
crab'bish, *a.* inclined to be cross or surly. [Obs.]
crab'by, *a.* difficult; peevish; ill-tempered.
crab'eat'ēr, *n.* 1. a crab in shape.

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crab'si'dle, *v.i.* to have a sidewise movement. [Humorous.]
crab spī'dēr, 1. a spider of the division *Lat-erigradæ*, moving laterally.
 2. a scorpion.
crab'stick, *n.* 1. a walking stick made of the wood of the crab tree; hence, a stick of any kind.
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THE DAY I KICKED NICK FALDO'S ASS

Jim Peacock, CGCS, at Meadow Lake Golf Resort describes a day he spent with the professional golfer and the Espinoza family at an event in Wyoming.

CATCHING A SHARK

Shark's Tooth Golf Club in Lake Powell, Fla., is the fourth and newest golf course acquired by the St. Joe Co.

ONLINE POLL: WRITTEN AGREEMENTS

As a golf course superintendent, do you work without a written agreement or contract? Visit the GCI home page to vote in this online poll.

DIGITAL LIBRARY

You can view last year's digital issues of *Golf Course Industry* any time you want on DVD. The digital library contains all the 2006 issues on one disc. The DVD is available at the online bookstore – www.golfcourseindustry.com/store.

EDITORIAL MISSION STATEMENT:

Golf Course Industry reports on and analyzes the business of maintaining golf courses, as well as the broader business of golf course management. This includes three main areas: agronomy, business management and career development as it relates to golf course superintendents and those managers responsible for maintaining a golf course as an important asset. Golf Course Industry shows superintendents what's possible, helps them understand why it's important and tells them how to take the next step.





John Walsh
Editor

EXPERIENCE NEEDED

Grass janitor. I'd never heard that one before, but I thought it was an interesting term on which I should shed some light.

Recently, I discussed construction projects with those in the building realm. I heard part of an off-the-record comment about grow-ins: "... it's the difference between a golf course superintendent and a grass janitor," one person said. "Ooooh," I thought. "That sounds pretty harsh." But the point was clear: Growing in a golf course requires different knowledge, skills and methods compared to maintaining existing turf. And, typically, it's more difficult.

I pondered the concept and what others told me throughout the year during interviews for various articles. A reoccurring theme was articulated by consulting agronomists and golf course superintendents, builders and suppliers. They said:

- A minority of golf course superintendents has grow-in experience.
- University turfgrass programs need to include more education about construction and irrigation.
- There are relatively few golf course superintendents who are really good grow-in specialists.
- Too many inexperienced superintendents call builders back to help with grow-ins, and course conditions sometimes worsen.
- More interns and assistant superintendents need to spend time working on construction projects and/or grow-ins because the experience is invaluable and will make them better superintendents.
- Superintendents often get better jobs because of their construction and/or grow-in experience.

Because construction is down, it's understandable to think there isn't as much focus on this area of the industry as there should be. Yet, the truth is just the opposite: This is an excellent time for turfgrass students, assistant superintendents and superintendents to become more involved in construction projects, when realistic. When new golf course construction picks up again, they'll be better prepared to work on these projects. More importantly, the increase of the number of renovations and reconstructions creates more opportunities for those with construction experience.

Granted, not everyone will have the opportunity to be involved with a new construction project. But, more turfgrass management students should become involved with golf course construction and grow-ins because it will help them become more well-rounded and more valuable.

Communication, finances, human resources, management and other nonagronomic areas of a superintendent's job seem to be the focus of improvement for many. That said, let's not ignore the value of being able to effectively manage the incredibly important and expensive processes of building and rebuilding. Construction and grow-ins, which obviously are agronomy related, are critical areas of improvement – especially at the student and assistant levels. Do you agree?

Turfgrass management curriculums change based on real-world pressures and demands. That's why more business-related courses are being added to these programs. However, it's up to those in the real world, including manufacturers, who see a specific need in the market to provide such feedback to professors and those in charge of the turfgrass programs throughout the country to help make that change more quickly and effectively. And because of such change, maybe terms like "grass janitor" will fade from the lexicon. **GCI**

We would like to hear from you. Please post any comments you have about this column on our message board, which is at www.golfcourseindustry.com/messageboard.



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Steve Mona is leaving the GCSAA to work at the World Golf Foundation.

The GCSAA's new task

The Golf Course Superintendents Association of America's board of directors began a task it hasn't had to face in 14 years. It started the process to replace c.e.o. Steve Mona, who announced he has taken the newly created position of c.e.o. of the World Golf Foundation.

Mona, 50, says he was approached in January by PGA Tour commissioner Tim Finchem about an executive position with the WGF but nothing was firm because the WGF's board didn't

determine anything at that time.

"Nothing was solid," he says. "I needed to learn more about the job and the challenges and issues I would face. I eventually got a better insight and understanding of the job and a better feel for what I would do. It's a great opportunity to work in the game in a different way."

Mona elected to keep the job opportunity to himself until it was official. It wasn't agreed to until late last month, and he didn't want to bring up anything speculative. Also, he wanted to

honor the process the WGF board was going through.

"My wife was the only person who knew until I flew down to Texas and told (GCSAA president) Ricky Heine on (Sept. 23)," he says.

There seems to be a shared feeling of surprise about his move, some calling it bittersweet.

"I was surprised, but not shocked, because it was a matter of time before someone was going to recognize his abilities and give him one of those job offers he couldn't refuse," says Chuck Borman, staff member of the

Carolinas GCSA who worked with Mona when Borman was director of the CGCSA.

Current and former association board members say the new position is a testament to Mona's leadership and the strength of the association.

"Just as the GCSAA prospered under his leadership, so too will the World Golf Foundation achieve even greater accomplishments with Steve at the helm," Heine says.

Bruce Williams, CGCS, director of golf courses and grounds at the Los Angeles Country Club, says



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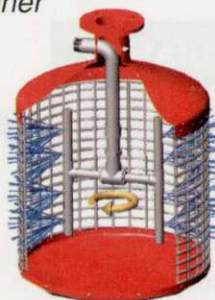
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one of Mona's strengths and fortes is developing relationships with allied industries and a lot of what he'll do in the future will deal with that.

Randy Nichols was president of the GCSAA when Mona was hired as the first c.e.o. of the association. Mona replaced executive director John Schilling. The board didn't hire an outside search firm, and the process took almost a year to complete.

Mona came to the GCSAA after serving for 10 years as executive director of the Georgia State Golf Association. He previously held positions with the U.S. Golf Association and the Northern California Golf Association.

"Steve was respected prior to

coming to the GCSAA, and he's probably even more respected now," Nichols says.

Williams also served on the committee that selected Mona. The fact that Mona's tenure lasted so long is a testament to the caliber of leader he is and the board's thoroughness in the hiring process, Williams says.

Williams doesn't speak about an individual's accomplishments, but rather the accomplishments of an organization during a specific era because several boards have come and gone. During Mona's era at the GCSAA, the organization has been in good shape, he says.

"While we weren't in a poor financial condition before Steve, he's leaving with a very sound

financial base in place for the organization," he says. "He's built a reserve, and there's little or no debt. Certainly, Steve and the elected leaders he worked with

deserve credit for that."

Another positive step Mona has overseen is the collaboration with the National Golf Course Owners Association and the Club

Golf Course Industry earns editorial award

➤ This year, Golf Course Industry earned its third Eddie award for editorial excellence in three years by taking home the Gold Winner in the B-to-B: Recreation/sports/outdoors (full issue) category. The magazine earned the Bronze Winner in 2005 and 2006. Folio – a source that brings information to the publishing community – handed out gold, silver and bronze Eddie and Ozzie (design) awards of excellence in more than 100 categories at its annual Folio: Awards ceremony in late September at the Marriott Marquis in New York City. For more information, visit www.folliomag.com.



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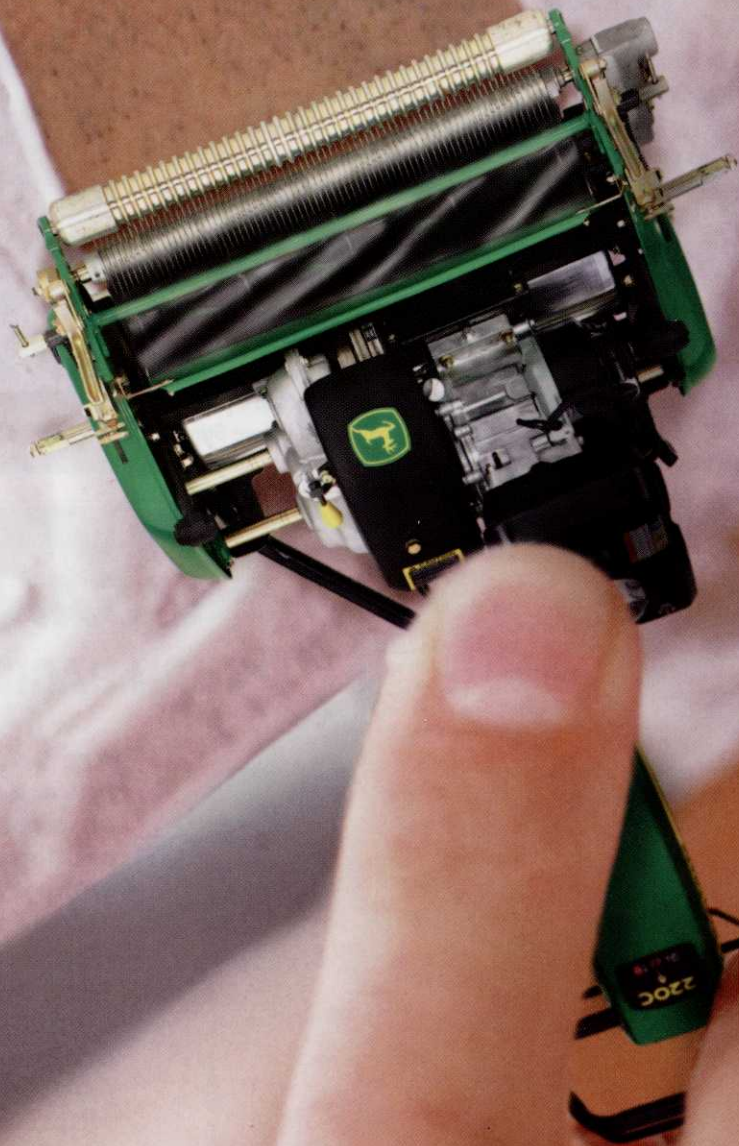
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Managers Association of America to form the Golf Industry Show. The GCSAA trade show's growth had fallen flat in recent years, and the new format seems to have brought new life to the show, Borman says.

Williams also cites the growth in the game of golf during the early years of Mona's tenure and the caliber of educational programs the association offers as other accomplishments. One recent initiative is that continuing

education is required to maintain Class A superintendent status.

Mona doesn't take the praise for the successes.

"I was in the c.e.o. chair, but I don't take credit for it personally," he says.

One area Mona is proud of is that the recognition golf course superintendents receive today is significantly better than 14 years ago.

"It's not about the institution," he says. "It's all about what we're doing on behalf of the members."

As much as Mona will be missed, it could be beneficial to bring a new perspective to the position, Williams says.

"It allows for opportunities to bring in fresh ideas, fresh blood and fresh energy to the situation," he says, adding he's confident the transition will be smooth so recent initiatives will be continued into the future.

Mona has been involved with the WGF and its initiatives during the past decade, serving on the World Golf Hall of Fame advisory board and The First Tee advisory committee since 1998 and the GOLF 20/20 executive board since 1999.

Two of the WGF's visions are to unite the entire golf industry and encourage the growth of the game while its core values remain intact.

"It's a broad mandate, but it's very interesting to me," Mona says.

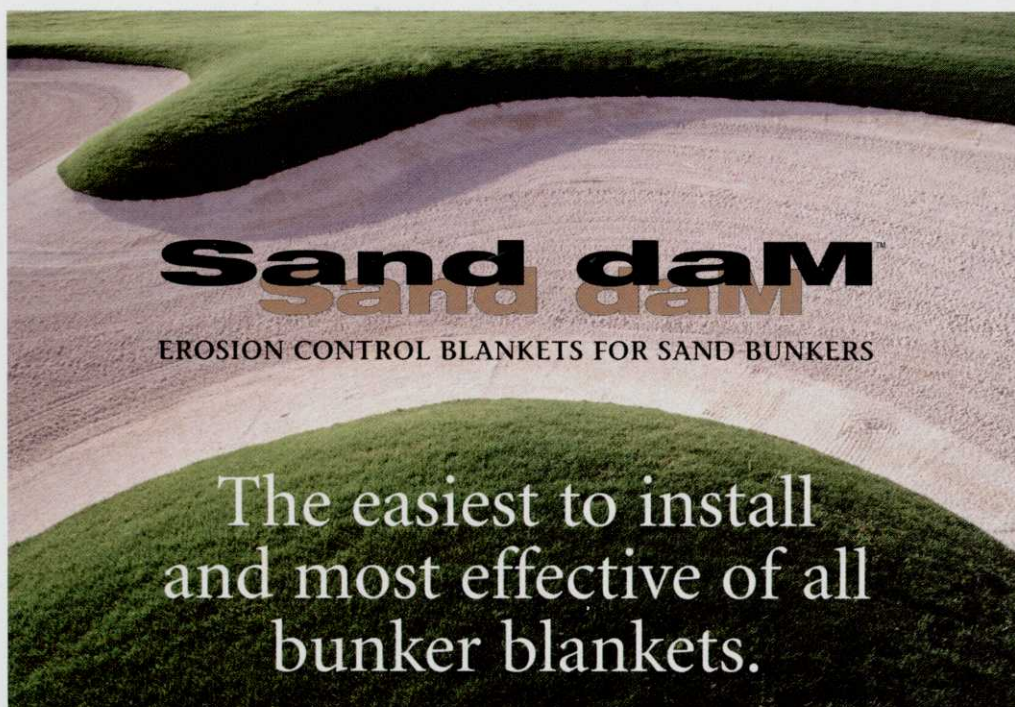
Specifically, Mona will be involved with the antidoping issue, which the WGF will address, as well as with communication and public affairs on a global level, including among the different golf institutions.

"It's a chance for me to work directly with major issues in the game of golf on a global scale," he says. "As a representative of the GCSAA, I'm on a lot of different golf committees, but this is an entirely new role for me."

Many in the industry see Mona's new position and his connection to the GCSAA as an opportunity for increased networking. As GCSAA board member Jim Fitzroy put it, "it will be nice to have a friend in a high place."

Borman works with one of Mona's new responsibilities, The First Tee. While the CGCSA doesn't work with the organization daily, it has a good working relationship with the junior golf groups in the Carolinas.

"Sure, (Mona) will be working with



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associations, but it won't be the day-to-day interaction that he spent his last 14 years doing," Borman says.

The selection process for a new GCSAA c.e.o. started Sept. 28, with the nine-member board making up the selection committee. The board has been participating in conference calls and will meet in the next couple weeks to discuss criteria for the replacement, Heine says. Once the desired qualities for a c.e.o. are hammered out, a search firm will seek candidates.

"There will be a resume-receiving period and then interviews, probably by mid-December," he says. "The goal is to have a replacement chosen before the end of the year, and, in some partial capacity by the Golf Industry Show (which begins Jan. 31)."

This is only an outline of the process, and it's subject to change, he adds.

Nichols says the association is probably in a better position now to pick a replacement than it was 13 years ago, so the process should go more smoothly this time.

Because of the new leadership format, the board had to find a c.f.o. and a c.o.o. at the same time it hired a c.e.o. and didn't use an outside search firm, Williams says.

"The staff now is more qualified than it was 14 years ago," Nichols says. "We're more of a business-oriented organization than we were when Steve came."

Ironically, one thing Mona wishes he had worked on more is a succession plan for the c.e.o. position so a clear path was established for the board to follow.

"It will be a smooth transition," Mona says. "I might not stay on the whole six months because I might not be needed that long."

The replacement could come from inside or outside the organization and might or might not be a golf course superintendent, depending on the qualifications of the candidates.

Even though the decision of a successor is ultimately the GCSAA boards, Mona's own personal view is his successor should be from within the golf industry.

"It's important he or she understands the industry and has a passion for it," he says. "Although I wouldn't exclude someone from outside the industry. The person should be qualified, effective and interested in the industry."

It's a tall order finding a replacement for

Mona, Borman says.

"Finding someone to do the day-to-day administrative duties of the c.e.o. of the GCSAA will be the easy part," he says.

"Finding a replacement of Steve's stature,

given how well thought of he is throughout the entire golf community and the impression he left when he worked with other people, will be the hard thing to find in a replacement." — Heather Wood and John Walsh

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Harmony In Growth

A collective effort

When drought conditions hit Georgia hard enough to necessitate water restrictions four years ago, many superintendents thought it was unfair they had to follow the same rules as homeowners. Restrictions were loosened slightly so greens and tees could be maintained, but some in the industry weren't comfortable with the direction the regulations were heading. They figured they had to turn the trend around.

"We said we wanted further concessions because we're environmental stewards, and we'll prove it," says Mark Esoda, superintendent at Atlanta Country Club.



Esoda

Since then, a task force has been gathering that proof in the form of more than 200 Georgia golf courses' water usage reports.

"We decided we would be proactive and take initiative to develop best management practices for water conservation," says Richard Staughton, president of the Georgia Golf Course Superintendents Association and superintendent and manager of Towne Lake Hills Golf Course in Woodstock, Ga. "We wouldn't force our members with a gun to their head, but would say that if we show we're responsible and have a plan to conserve our water, we would be looked upon favorably in a new water plan."

The Georgia Environmental Protection Division and the GGCSA task force signed a memorandum of agreement in 2004. GGCSA member courses were asked to submit reports logging their water use rates, application methods and other conservation efforts.

"We asked people to provide three steps as to how they might conserve water," Staughton says. "We gave examples of what they could do, like only water the driving range once a week, or instead of mowing 85 acres at 2 inches, find five acres and don't irrigate them at all."

Committee members sent templates to superintendents to complete, hoping for 75-percent participation among association members. Course operators were given three years to return the report. Given the far-away

deadline, many superintendents put the project on the backburner at first, Esoda says. The responses trickled in, until six months before the deadline, when the committee was flooded with them.

The submissions returned exceeded the committee's expectations. About 91 percent of the 230 GGCSA-member courses participated. There are about 400 golf courses in the state.

The reports still are being analyzed, but the water sources and conservation methods vary from course to course.

The committee sent volunteers to golf courses and held classes to try to encourage participation in the program. Superintendents realize water supplies aren't endless, but it wasn't until early summer – when the state experienced some of its driest months on record – that it really hit home, Staughton says.

"Like a lot of things, people say they'll try, but when it gets down to the nitty-gritty and they force restrictions onto you, people take it a little more seriously," he says. "We started the year watering what we wanted."

That's not the case anymore. Drought conditions weren't getting any better in the state in May as the last of the BMP entries were filtering in. Courses were ordered to follow a stage-two, drought-watering restriction, which puts them on the same schedule as residential water users. They can water the fairways three days a week. Tees and greens are exempt.

"It caught people's attention when they told us when we could water," Staughton says.

Staughton doesn't think the regulations are fair because water sources for golf courses are different than for homeowners.

"There's always the perception that golf courses use a lot of water," Staughton says. "We're using water you're not going to use at home, per se. We use nonpotable or pond water. We're not using drinking water."

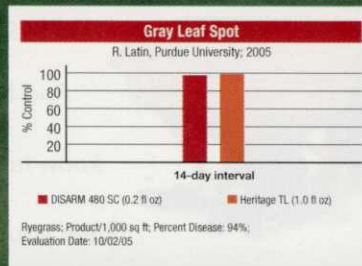
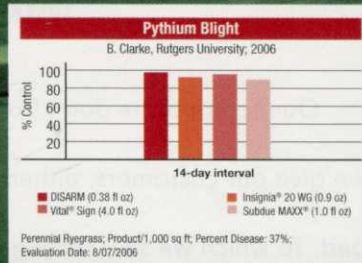
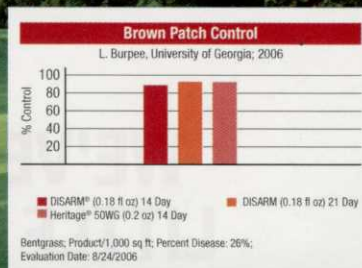
The golf industry is the only industry in the state that's being regulated and the only industry that has signed an agreement with the Georgia EPD, Esoda says. Esoda and Staughton hope they can work out water-usage rules that meet each course's unique needs yet keep conservation in mind.

"It's been positive getting regulators to listen to us," Esoda says. "It will help when we go to the review table for water rules." – HW

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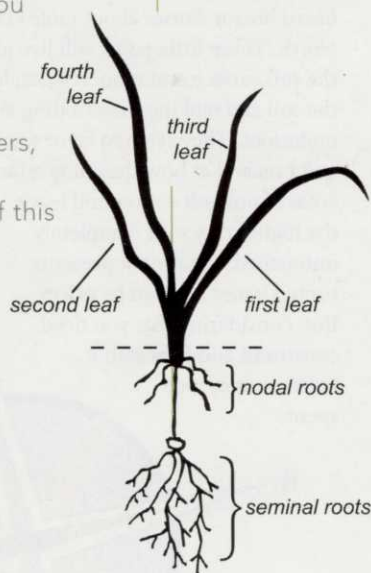


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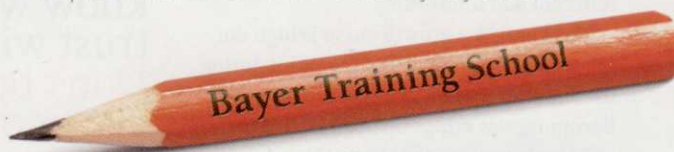
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Justin Wheeler, superintendent-in-training with the U.S. Air Force, works at Wrenwoods Golf Course at Charleston Air Force Base in South Carolina. He can be reached at justin@justinwheeler.com or 843-297-0063.

FROM BENT TO BERMUDA

This year, I've experienced an incredible change and learning opportunity by moving from the Midwest to Charleston, S.C., to take a superintendent-in-training position at Wrenwoods Golf Course at Charleston Air Force Base.

What a difference! I had to learn quickly about life in the South, minor seasonal changes and the needs of a turf I've never worked with before. I wondered how I was going to learn all the new information and master it quickly. So, I attended a short course at Texas A&M and learned to use resources at local universities and the USGA Green Section. I also listened carefully to local superintendents and sales reps. However, there was still a lot that would be different and interesting.

The bentgrass growth curve is high during the spring and fall and dwindles during the summer months. On the other hand, Bermudagrass ramps up in April or May and slows again in October or November, depending on evening temperatures. In the Midwest, we used to fertilize heavily in the fall and spring, as well as spoon-feed throughout the summer. When managing Bermudagrass, it feels like you're applying too much fertilizer in the middle of death weather for turfgrass. It's amazing how much fertilizer Bermudagrass can handle and how well it responds so quickly.

Up North, we were babying the turf. Although there's a need for verticutting and deep thatching, it was difficult to do because of play considerations and how well the turf might respond to the damage. I think of Bermudagrass as the sadistic sibling that enjoys the punishment. Granted, the different varieties of Bermudagrass lend themselves to different amounts of management. The newer ultradwarfs need much more maintenance but are less intrusive than the older varieties such as 328 and Tifdwarf.

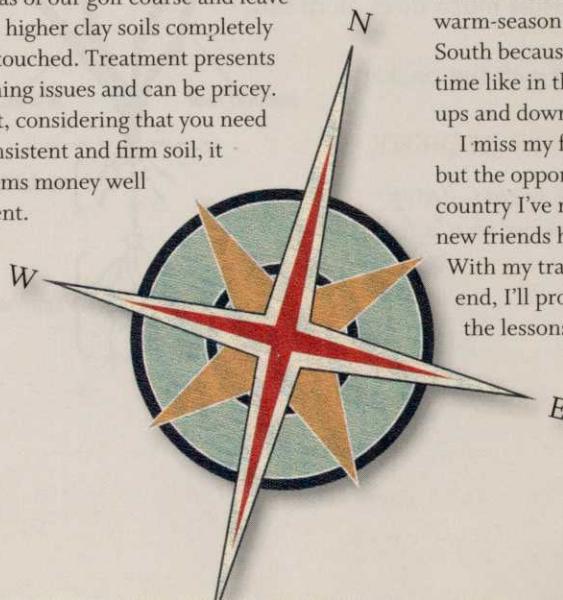
Another big difference is water management. I could count on one hand how many times I've had to drag a hose to water hot spots on a green. I was told a rule of

thumb is to wait until you think you need to water, then wait about two more days and then run the sprinklers.

Also, I can probably count on two hands how many times we've had to spray fungicides. You trade fungicides for herbicides and insecticides. With the extended growing season, every weed known to man will come up and needs to be dealt with eventually. Usually, a good fall and spring preemergent program will deal with the majority, but you might find yourself spraying about as often as if you were on a preventive fungicide program up North.

It's a good idea to know who to ask and trust with questions. Don't be afraid of not knowing all the answers.

Insects are ravenous in the South. I had heard horror stories about mole crickets up North. These little pains will live just under the soil surface and munch roots, loosening the soil and making surrounding areas soft underfoot. They seem to favor sandy soil, and I marvel at how they only attack some areas of our golf course and leave the higher clay soils completely untouched. Treatment presents timing issues and can be pricey. But, considering that you need consistent and firm soil, it seems money well spent.



And overseeding ... imagine trying to grow in an entire golf course every year, then killing the grass and trying to get your base grass to come back. Many superintendents verticut deeply and scalp their Bermudagrass to get the new seed down into the soil. After getting the new grass in and looking good for about six months, they have to spray it out or let the heat kill it. Bermudagrass doesn't like shade or competition, so this transition period is critical to summer and early fall conditions. The positive side of this is that ryegrass is relatively cheap and can be seeded again into weak or heavy traffic areas such as tee boxes.

Despite the differences, there are similarities between cool- and warm-season turfgrass, such as the need for basic nutrients and water. Like so many people have said, growing grass is just a part of the job. Still, it's a new area and set of rules. It's a good idea to know who to ask and trust with questions. Don't be afraid of not knowing all the answers. I've made many phone calls to local college professors, USGA turf agronomists, sales reps and other local superintendents asking what their opinions are and what others are doing. Getting involved immediately in a local associations might sound a bit overwhelming when you're new to the area, but the contacts and friends made surely will be a welcome helping hand.

Some who make the move I've made say they would never go back to bentgrass, while others last only a few years growing warm-season turf. It can be tough in the South because there's not really a down time like in the North. Everything has its ups and downs.

I miss my friends that I left up North, but the opportunity to see part of the country I've never seen before and make new friends has made this move enjoyable. With my training program coming to an end, I'll probably be moving again, taking the lessons I've learned here along with me. Grass is grass, you will learn how to manage it if you learn to use your resources. **GCI**

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Jeffrey D. Brauer is a licensed golf course architect and president of GolfScapes, a golf course design firm in Arlington, Texas. Brauer, a past president of the American Society of Golf Course Architects, can be reached at jeff@jeffreymbrauer.com.

INTERFACING WITH CONTRACTORS

I asked contractors for tips to give superintendents about the contractor/superintendent relationship. There were some common refrains, starting with the concern about the number of good superintendents who've lost their jobs soon after a renovation project. It seems no one praises superintendents for their good work, but they sure get called out when things seem to go wrong – and a lot can seem to go wrong with renovation projects.

In some cases, superintendents get so involved in construction, they neglect other responsibilities that are visible to club members. It's more common for members to have false expectations that a reopening will occur sooner or better than it actually does. This expectation creates ill feelings that are unreasonable, and the superintendent usually pays.

Superintendents should strongly recommend the best contractor possible and implement clear communication starting from the planning phase until well past reopening to set realistic expectations for the schedule and playability. This includes estimates of achieving peak condition and playability differences, such as new USGA greens versus old ones, or why bunker sand won't settle immediately.

A superintendent's relationship with a contractor will last several months, so it pays to be civil, timely, reasonable and consistent. While there are some adversarial conditions in the contractual relationship, superintendent must realize:

- You both have the same objective – an on-time, quality project.
- The contractor and its personnel are professionals, just like you.
- Profit isn't a dirty word. Don't try to reduce it unnecessarily.
- The contractor's costs are higher

than yours. Some owners might lament that tile cost \$0.45 and contractors charge \$4.50 for it, not figuring in the costs for gravel, material waste, trencher rental, labor, travel expense, home-office overhead, contingency and profit.

- The contractor doesn't bid each item at true cost. Some items are break even and others are loaded with profit. If the contractor bid low, you're getting a fair price, and it isn't fair to cherry pick high-value items for cost reductions.

In a superintendent's daily work, he should strive to:

- Respect the contractor's chain of command. Give directives only to the supervisor.

A superintendent's relationship with a contractor will last several months, so it pays to be civil, timely, reasonable and consistent.

- Give directives mandating expected results, not work methods. The contractor is responsible for those and might use different machines and methods than you expect. Don't make him change if the job is done right. Be aware that directing specific actions or methods might make you liable for injuries or delays. For example, if you want irrigation pipe laid deeper, tell the supervisor, but don't direct workers to retrench.

- If you desire a certain construction method, ask in the beginning. Contractors want to comply with the superintendent's or owner's wishes if costs are similar.

- Don't write memos for the file. Share your concerns in a timely fashion rather than secretly documenting errors to cover yourself. That doesn't help the project now or you later if things turn out poorly.

- Respect the budget. If the specifications call for \$12 per ton of green sand, you can't order the contractor to use a \$30 per ton of green sand without a change order.

- Understand the contract, which is likely different than ones you've used with past projects.

- Take care of your responsibilities. As an owner's rep, you'll have responsibility, so make sure you get it done. If you must arrange for power to be installed in the pump station, plan for inevitable electric company delays. Chances are you'll still struggle to have power on time.

- Help the contractor, which usually results in going above and beyond what's stated in the contract. If you can easily lend materials, equipment or labor to reduce the contractor's cost in one area, such as mowing to reduce turf stripping or tree trimming, by all means, do it because you'll likely ask the contractor for extras later. Remember, it's a two-way street.

- If you provide work – by contract or volunteering – do it well and on time. The project schedule depends on it. Only volunteer where you have actual, not expected, expertise. Performing work, such as seeding and fertilizing, near the end of the project usually minimizes potential delays to the schedule.

- Interpret specifications reasonably and in light of actual project conditions. Most contain some boilerplate written long ago and are restrictive and geared towards the worst possible conditions. They're written for the worst possible conditions in mind.

- Don't force the contractor to redo numerous low-value work items if you expect cooperation. **GCI**

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Jim McLoughlin is the founder of TMG Golf (www.TMGgolfcounsel.com), a golf course development and consulting firm, and is a former executive director of the GCSAA. He can be reached at golfguide@adelphia.net or 760-804-7339. His previous columns can be found on www.golfcourseindustry.com.

WRITTEN CONTRACTS

Unfortunately, this summer hasn't been unlike any other for the past 15 years in the sense that I always receive three to four calls or e-mails from well-qualified, successful superintendents who've been summarily dismissed during the month of August – each asking how to best deal with this core shattering news. How many times is this scenario repeated each year? I estimate as many as 400 times each year throughout the country. This might not seem to be a big number, but it's significant because it's enough to sustain the ill-founded premise that the golf course superintendent profession doesn't command employment respect.

Then, do we have to remind ourselves of the devastation wrought when superintendents get turned out precipitously. The opportunity to work through the balance of the season and to leave a job gracefully is generally denied; their families immediately face the loss of primary income; mortgage payments are put in jeopardy, or employer provided housing is quickly term-limited; family health coverage fades; children living at home will have to change school systems, while older children's college tuition payments also are put in jeopardy; and finally, the dismissed superintendents face the daunting task of finding a replacement job on short notice, without credible references, wearing a "just fired" sign on their backs. Can there be any greater trauma forced on good families? Not likely.

The common denominator throughout these arbitrary dismissal cases is that the superintendents don't have written contracts. Appropriately, we should note that a recent GCSAA compensation report indicates only 21 percent of all superintendent members have written contracts, which means four of five of the 16,000-plus working superintendents throughout the country will unnecessarily face the possibility of unexpected dismissal every year, with the accompanying likelihood of being forced to accept severely restricted severance packages. Is

it any wonder that a recent Golf Course Industry survey indicated that 52 percent of all superintendents feel insecure about keeping their jobs? Can there be a greater injustice perpetrated on an entire profession than what these two inversely related percentages suggest?

To add further insult, while only 21 percent of the only essential individuals serving operational golf are granted written contracts (or the equivalent, letters of agreement), roughly 70 percent of golf professionals and over 80 percent of club managers are granted this assurance.

... one-year agreements and no written contracts have reduced superintendents ... to second-class citizenship status.

The basic reason why private clubs don't generally grant written contracts is because their search committees don't trust their own judgments when hiring a superintendent from within such a technical environment. To protect themselves, accordingly, clubs offer one-year generally verbal agreements and back this up by refusing to grant written contracts so they'll always be able to dismiss potential hiring mistakes immediately. While much has been made of the lack of written contracts issue, the ongoing one-year employment concept also is lethal because it can make it difficult for superintendents' families to borrow money to buy a house, a car or whatever. Clearly, this combination of one-year agreements and no written contracts have reduced superintendents and their families to second-class citizenship status.

Having defined the problem, our attention turns to the plausible ways this

injustice can be rectified.

First, superintendents can help themselves in the way they conduct negotiations when initially hired or whenever employment renewal discussions arise. All this begins with the superintendent affirmatively inquiring about a written contract. If and when this possibility is denied, the superintendent should immediately plant the seed for earning three months of future security notice for each year of continued successful employment to a cap of 12 months. Many fair-minded employers will react favorably to this approach because it eliminates the risk of a bad hire, i.e., superintendents earn incremental job security only after proving their value during a period of time.

Then, the GCSAA should take the initiative with a series of nationwide multimedia-based educational programming, sooner rather than later, to rectify this injustice. This might not be as difficult a task as it might seem because of the reality that about 95 percent of all golfers and volunteer board/committee people serving golf throughout America have written employment contracts, wouldn't tolerate anything less for themselves and don't know that so few superintendents have the security of written contracts. Once they find this out, they'll be angry the men and women who provide the quality golf courses they play every day and their families are being treated so callously. By tapping into this reservoir of goodwill, the GCSAA would be able to convert a professionwide debilitating negative to a precedent-setting positive.

Furthermore, I recommend the GCSAA use the aforementioned concept of earning job security incrementally three months at a time as the cornerstone of its national educational campaign to the point where the GCSAA might produce a short video mock interview illustrating how comfortable this interview exchange can be. This interview profile then would be sent electronically to each chapter and then on to each chapter member. Armed with this visual negotiating model, superintendents soon will learn how to negotiate their way to secure written contracts. **GCI**

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Robert A. Milligan, Ph.D., is professor emeritus from Cornell University and senior consultant with Madison, Wis.-based Dairy Strategies. He can be reached at 651-647-0495 or rmilligan@trsmith.com.

INTERESTING READING

Last year (September 2006), I received an unusually large number of positive responses to my review of several of my favorite management books. This year, I focus on the topic of building strong relationships with those you lead, supervise and coach. Of the four books I cite below, the first two have roots in the work of the Gallup Organization about what makes a great manager. The second two books build on the ideas discussed in the first two to enhance the ability to communicate more effectively.

“How Full is Your Bucket? Positive Strategies for Work and Life” – This book emerged from the author’s questioning of the prevalence in psychology of studying what’s wrong with people. The analogy used is a bucket and a dipper. Each of you has a bucket and can use the dipper to fill the bucket by filling others buckets or use the dipper to dip from others and diminish yourselves. The following points illustrate how remiss you can be filling your buckets:

- The No. 1 reason people leave their jobs is they don’t feel appreciated.
- 65 percent of Americans received no recognition in the workplace last year.

Potential to fill your bucket is illustrated by the following:

- Research suggests positive emotions are necessary for survival.
- Nine out of 10 people say they’re more productive when they’re around positive people.
- To be most productive, we need five positive interactions for every negative interaction.

Read the book to learn more about filling your bucket and five bucket-filling strategies.

“Vital Friends: The People You Can’t Afford to Live Without” – This well-researched but easy-to-read book revisits the subject of friendship, especially best friends. Perhaps the most important discovery about friendships – with spouses, friends, co-workers – is that all true friend-

ships (vital friends) are focused on what each person is contributing to the relationship rather than expecting each person to be everything.

The most interesting part of the book addresses the controversial subject of friendship at work with an unexpected conclusion. Friendship at work is OK and nearly essential to being productive. The research reported supports the theory that those with a best friend at work are more productive, more engaged with customers, have fewer accidents and enjoy greater job satisfaction. A couple of concrete research results are:

The research reported supports the theory that those with a best friend at work are more productive, more engaged with customers ...

- Without a best friend at work, the chance of being engaged in one’s job is one in 12.
- When asked to choose between having a best friend at work and a 10-percent raise, having the best friend won easily.

The value of a best friend at work even extends to being a friend with one’s boss.

“Getting to Yes: Negotiating Agreement without Giving In” – This is a classic about conflict resolution. Our traditional paradigm of negotiating focuses on winning and consequently is typically win-lose. The authors propose mutual-gains negotiation – a concept more recently referred to interest-based decision-making

– with the goal of synthesizing for mutual gain rather than entering into win-lose competitiveness. The differences between traditional and mutual-gains negotiation are dramatic and have crucial implications for the outcome of a negotiation and, perhaps more importantly, for future negotiations between the parties. The authors present four strategies for mutual-gain outcomes:

1. Focus on interests not positions.
2. Separate the people issues from the contextual issues.
3. Invent options for mutual gain.
4. Insist on using objective criteria.

These strategies have been applied successfully to day-to-day interpersonal relationships, work relationships and even management (union negotiations).

“Managing to Have Fun” – This is a good follow-up to the aforementioned books. We often hear work isn’t supposed to be fun, that’s why it’s called work. The aforementioned books show that productivity and job satisfaction (including fun) go hand in hand. This book provides four principles for establishing a culture (in your case, within your golf course maintenance staff) that values celebration, appreciation and the human side of business. They’re followed by 52 ideas – one for each week of the year – to generate more fun on the job. The ideas range from simple to bizarre. **GCI**





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By the numbers

\$1 billion What New Mexico's golf and golf tourism industry was worth to the state's economy in the fiscal year that ended June 30, 2005, according to a study from New Mexico State University

0.4 The percentage decrease of rounds played at all U.S. facilities in 2007 compared to 2006 year to date through July, according to the National Golf Foundation



5 The number of golf course superintendents Bayer Environmental Science and The Environmental Institute for Golf will send to the GCSAA Education Conference and Golf Industry Show in Orlando, Fla.

The percentage of all rounds played in the U.S. by the 15 million core golfers in the country, according to the National Golf Foundation; it's also the same percentage the same group is responsible for regarding all golf-related spending

87

\$1

The amount of money Olde Sycamore Golf Plantation in Charlotte, N.C., donated from every round of golf played at the course Aug. 31 through Sept. 3 to benefit the Fallen Heroes Foundation, which supports families of military members who've become disabled or lost their lives in the line of duty.

110

The number of golf courses that hosted Tee It Up for the Troops tournaments Sept. 7 as part of a fund-raising campaign for wounded American soldiers

Quotables

"The poor water quality isn't really a problem for the grass, but it would be a big problem if it was Bermudagrass. Thank God for paspalum. This course wouldn't have been built if it wasn't for paspalum." – **Stew Bennett**, CGCS, at the semiprivate, 18-hole Alden Pines Country Club in Bokeelia, Fla.,

"When I came on board, I reduced water usage 30 percent. I weaned the plant to not need as much water. I add soil amendments, use time-release fertilizers, and aerify and verticut more frequently. I use growth retardants to control top growth." – **Tom Trammell**, CGCS, director of agronomy at Doral Golf & Resort

Fall cleanup and winter prep

The kids are back in school, there's a chill in the air, and fall colors are starting to appear. As you transition to fall, it's important to think about fall clean-up and preparing your course for the winter months. Proper preparation will keep your crew and budget one step ahead this spring. Here are some tips:

1. Cultural practices. Core removal through aerification promotes air circulation in the soil's root zone and should be completed before turf goes dormant. Aerification reduces the amount of thatch on greens and fairways, improves drainage and relieves compaction. Verticutting removes thatch and provides a smoother surface. Topdressing with porous materials such as sand fills aerification holes and smooths the turf's surface. Topdressing also helps to decompose thatch by activating microbes.

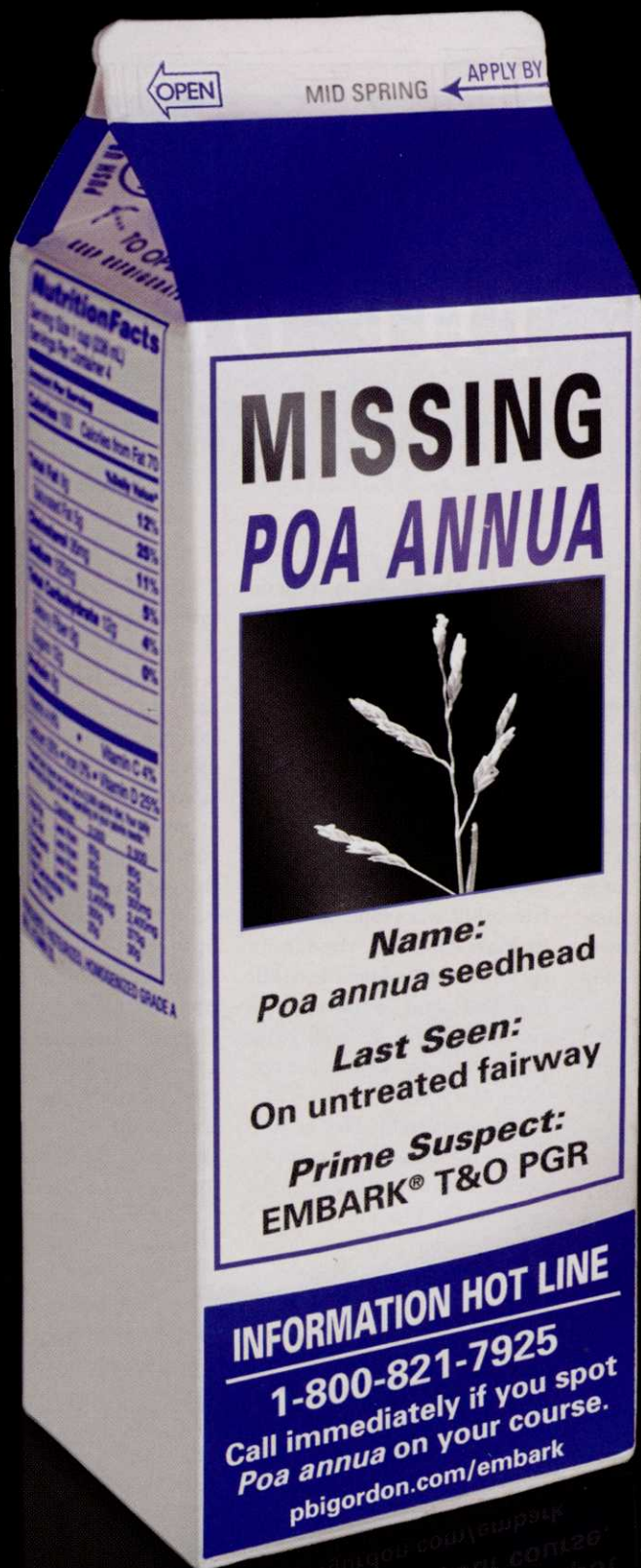
2. Chemical applications. In the North, chemical applications are crucial to preventing and curing fall diseases before turf becomes dormant. Preventive snow mold treatments are encouraged if your course experiences significant snow cover. In the South, consider preemergent herbicide applications to control winter annual weeds

and fertilization to help Bermudagrass adapt to impending cooler weather.

3. Winterizing equipment. Protecting your equipment through the winter months means saving yourself from costly, time-consuming repairs in the spring. Winterize sprayers and irrigation systems by cleaning and removing water and perform maintenance on leaf blowers, snow blowers, plows, carts and mowers. Proper pesticide storage is critical because some products can't tolerate freezing temperatures. Make sure all pesticides and fertilizers are stored properly in dry, airtight containers.

4. Labor, planning and winter projects. Review labor needs and line up seasonal employees during slow months. Examine budgets and develop the strategy for next year's maintenance plan, taking advantage of early-order programs to buy chemicals in advance and save money. Schedule winter projects such as rebuilding bunkers, tree removal or landscaping.

– Information provided by Kyle Miller, senior technical specialist for BASF Turf & Ornamentals



SHAWN OF THE DESERT

Arizona superintendent describes what makes him tick, what he thinks the future holds for golf in the West and how he balances work and family

BY PAT JONES

Photo by Chris Loomis

By his estimate, Shawn Emerson has participated in more than 60 overseedings. He's carefully managed the application of 13 billion gallons of irrigation water. About 15 of his former assistants and crew are superintendents throughout the country. He's been on staff for or hosted almost a dozen professional tour events. He oversees six courses, 200 employees and a \$13-million annual budget.

Yet, when we talked, his main goal was to make it to as many of his 7-year-old son's baseball games as possible this year.

Emerson isn't necessarily a name that immediately pops to mind when you think of marquee superintendents. That might be because he's based out West in an industry that tends to be East Coast-centric. Or possibly it's because he's more interested in doing his job well, mentoring and being mentored, and spending as much time as possible with his family.

Emerson, a second-generation superintendent, is director of agronomy for the Desert Mountain Co. courses in Scottsdale, Ariz. The facilities he and his team oversee include the famed

Cochise course – previously the home of The Tradition event on the Champions Tour – and the highly ranked Renegade course. Emerson is a sports nut who grew up in a baseball crazy family, thus, his passion for watching his youngest swing a bat and throw a ball.

Emerson has spent his life immersed in the golf course maintenance business. Born while his father, Bill, was a superintendent in Massachusetts, the family relocated to Maryland where Bill managed turf at several high-end clubs. He spent his teen years playing golf, working in the pro shop and toiling on his dad's maintenance staff. Thanks to a successful high-school baseball career, he did a stint at American University in Washington, D.C., on scholarship playing ball and studying finance – something that would pay off for him later in his career.

In 1983, Bill Emerson moved the family to Phoenix – specifically Paradise Valley Country Club – and Shawn decided to come along and finish his studies at the University of Arizona. He soon hooked up with another of his lifetime mentors, Cal Roth, as an irrigation crew member while Roth was building and managing the TPC at Scottsdale.

"That was key for me because I learned irrigation from the ground up," he says. "That's so critical in the West."

With guidance from his dad and others, Emerson decided to take the leap and earn his bachelor's in agronomy from UA. In school, he continued to work at various courses and make contacts and develop friendships that continue to serve him today. After school, he worked his way up to his first superintendent job at Desert Mountain's Renegade course in 1992. Despite a side-trip to El Paso, Texas, to work at Coronado Country Club for a few years, he's been a fixture in the Arizona golf turf community ever since. He was promoted to the director of agronomy position at Desert Mountain in 1997 and never looked back.

But what makes him tick? What does he think the future holds for golf in the West? And, how does he balance a family that includes his wife of 13 years, Laura, little Jacob and 5-year-old Rebecca with one of the most demanding positions in corporate golf? Let's find out.

WHAT'S YOUR BIGGEST CHALLENGE WHEN YOU WALK INTO YOUR OFFICE EVERY MORNING?

My major concern is projecting the future for my company. Immigration is the biggest problem in the West. How can we adjust if we have a labor crunch? I've also spent a lot of time on effluent water issues. That's just a fact of life for us. Personally, my biggest challenge is always how to manage people. We have 200 people on staff, and I have to rely heavily on my two agronomists (Jim Key and Keith Hershberger) and seven superintendents.

YOU'VE BEEN A MENTOR TO MANY. WHO DO YOU TURN TO FOR ADVICE?

I've been extremely lucky because there are four people that I've looked at as mentors from the time I was a kid until today. Obviously, my father was first. As a superintendent, he was the best at (club) politics and how to manage up. Virgil Robinson (who preceded Shawn at Desert Mountain) taught me how to break golf course management down into a business. George Thompson (the legendary North Carolina superintendent) taught me to break it into a science. And Cal Roth (longtime head of agronomy for all the TPC courses) taught me how to put things on the ground and make them work. I'm a collage of dif-

ferent management styles and perspectives.

HOW DO YOU USE THAT COLLAGE DAILY?

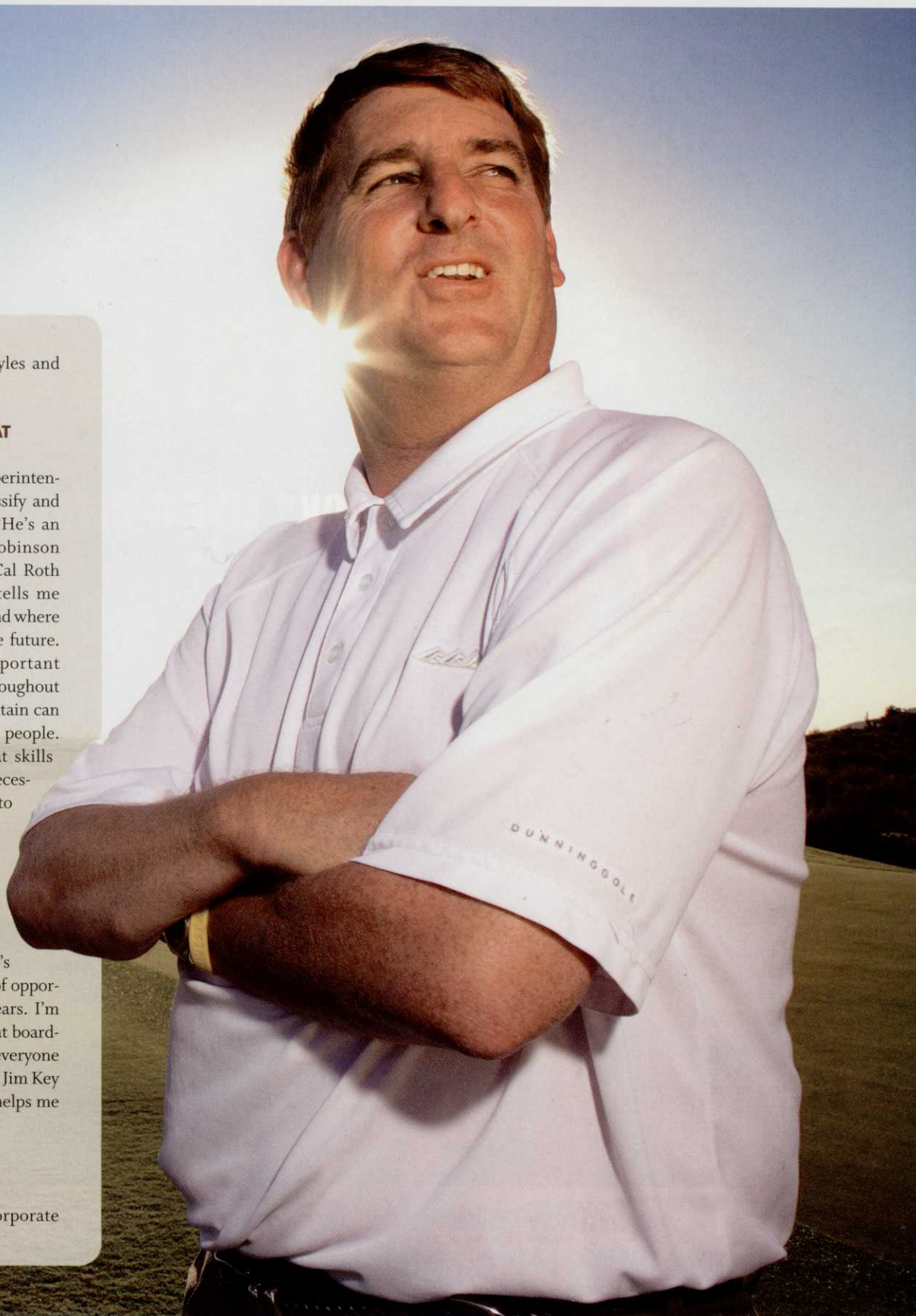
When I look at my superintendents, that's how I classify and rate them. I'll think, "He's an eight on the Virgil Robinson scale or a six on the Cal Roth scale," and so on. It tells me what kind of guy he is and where he might fit best in the future. That's one of the important things I've learned throughout the years. Desert Mountain can be too much for some people. Even people with great skills in certain areas don't necessarily fit here. You have to pick the right job that fits your skill set.

WHAT ARE YOUR WEAKNESSES? WHAT NEEDS WORK?

I'm not a good writer. It's probably cost me a lot of opportunities through the years. I'm a great talker and a great boardroom person, but I tell everyone they should write more. Jim Key is a great writer, so he helps me a lot with that.

WHAT ARE YOUR STRENGTHS?

I'm successful with corporate





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people because I know what they want. That comes naturally to me thanks to my finance background. I got my job because of my technical skills, but I keep it because of my business sense.

HOW WILL THE PROFESSION EVOLVE?

This business is changing as we speak. The profession used to be a rural, blue-collar, grind-it-out field. You had to have an offensive-lineman-type mentality to succeed. Now it's a more skilled, white-collar position. We've become quarterbacks and specialty players. That's largely because of the approach the GCSAA and the chapters have taken to drive salaries, attract good people and spend as much time growing professional skills as we do the technical skills.

Another thing that's really changed is that guys don't want to be at work 18 hours a day. They want balance. My father worked 60 hours a week for 30 years. That's not what it's like today.

WHY DO YOUNG PEOPLE FAIL IN THIS BUSINESS?

It's usually because of that commitment you still have to make putting in the time. Most young guys don't understand turf is nonstop. I was with Ken Mangum (of the Atlanta Athletic Club) in early August at a corporate event in Chicago. He was on his computer every day. Even though we were in Chicago, he was at work all the time. That's where the rubber hits the road with most guys. It's not growing grass that's the problem, it's committing to the time and pressures of life outside of work. I'm getting assistants now that are married with kids and mortgages. That balancing act is critical.

WHAT IMPACT WILL THAT HAVE ON THE BUSINESS?

For one thing, assistants' salaries are going to rise rapidly. That's already happened here and in other parts of the country as well.

WHAT ARE YOUR OTHER PREDICTIONS?

Wall-to-wall overseeding will largely go away because of labor and water. Golfers are going to have to understand this and adjust their attitudes. Also, construction costs will increase because of effluent water. The cost to pipe in the effluent, sand-capping fairways, adding more drainage, etc., will increase initial building costs.

Highly manicured golf courses won't be able to afford the labor we have now. Already, the cost of fuel drives more PGR usage and less mowing.

We've shifted to mowing fairways four days a week instead of six. You'll also see more electric mowers with fewer hydraulics. Anything that can reduce labor and water is going to be key.

HOW'S THE CURRENT GOLF ECONOMY IN YOUR AREA?

The top level courses in Phoenix are still spending more than \$2 million a year. But, some of the major turf supply companies are getting nervous because superintendents have to cut costs at some point. That's opened the door for generic chemicals and the like. The problem is that if we use generics now, we'll lose research and new technologies in the future.

We have to keep looking toward the future. That's part of the battle those of us in corporate golf have to fight every day. That's where my finance background comes in. I can show them that short-term savings might cost you in the long run.

One of the other problems in our area is that courses are being bought and sold so often. It puts pressure on superintendents because they're constantly faced with the challenge of changing hands. We're owned by Morgan Stanley, and I get asked to check out other courses for potential acquisitions. That's a process that needs to be done confidentially, so we're told not to tell anybody. It's a tough thing because I get paid by my owner-ship, but don't want to screw the other guy.

WHAT DID YOUR DAD TEACH YOU?

He always told me, "Persistence to purpose leads to success." You just have to be persistent, have a purpose and keep going. Each of my mentors had sayings like that. Virgil said, "You have to control the controllables." There are always some things you can't control – like the weather – but the rest of it is in your hands, and you need to focus on that stuff. George told me that science will always change – that's why you replicate things in trials. You have to constantly test new things. Cal preached that the superintendent is the backbone of the course. How you hold yourself is how the golf course will hold. If you stand strong, the golf course will stand strong.

My dad was never afraid to tell it the way he saw it. I was in a GCSAA committee meeting seven or eight years ago, and there were some of the older guys there. We were discussing some issue, and I was the only one who raised a hand to disagree. One of the old guys said, "You are your father's son." It was funny, but it's true. You

have to be able to stand your ground and support it. Sometimes it's just a gut feeling, but hopefully the facts will back you up.

HOW DO YOU BALANCE LIFE AND WORK?

I had a great example last week. I saw my son hit his first home run, took him to get ice cream after the game and went back to work. All I could think about was the big smile on his face after that homer. You can do this job, still have a great time and balance your life. There's no question it's a trade-off: You might not have quantity time with your family, so you have to make it quality time.

WHAT WOULD YOU CHANGE ABOUT THE BUSINESS?

Wouldn't it be great if we could have consistent growing cycles from year to year to year? Weather patterns are so erratic. It would be so nice to have a cycle of consistency and implement our programs the way we want.

ANY PLANS TO RUN FOR THE NATIONAL BOARD?

I don't think so. Instead, I enjoy sitting on customer councils for companies like Bayer, John Deere and Rain Bird. That's a more interesting perspective. We expect so much from the manufacturers, and I'm a big believer in being on their side. We need more advocates for the industry. We need to work more diligently with the manufacturers and embrace their needs. It's also helped me be successful as well, because I'm able to learn much more about products and support.

WHAT DO YOU DO FOR FUN?

I don't play enough golf anymore, and I miss it. But, I'm a sports junkie, and if it involves a ball or a stick, I'm there.

IF YOU WEREN'T A SUPERINTENDENT, WHAT WOULD YOU BE DOING?

I'd be an athletic coach. I'm a coach disguised as a superintendent right now. Unfortunately, if you ask my guys, I'm the old-style, disciplinarian-type coach like Tom Landry or Tom Coughlin. I believe in discipline and chain of command. People always say I'm more like Bobby Knight than Coach K (Mike Krzyzewski of Duke). And that's OK with me. **GCI**

Shawn Emerson can be reached at semerson@desertmt.com.



Matt Shaffer
Director of Golf Course Operations
Merion Golf Club, Ardmore, PA

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From PUBLIC To PRIVATE

SUPERINTENDENTS WHO WORK AT PRIVATE CLUBS
VALUE THEIR PUBLIC COURSE EXPERIENCE

By John Walsh

Many turfgrass students have their ideal job in mind when they leave school: Becoming the superintendent at a high-end private golf club. This implies having plenty of money to do whatever you need to keep a golf course in pristine condition, as well as not having to deal with a lot of rounds played annually. However, it's not easy getting that ideal position. Nowadays, it takes longer to get there than it did 20 years ago, and the competition is stiff.

But many say that if students or young assistants want that high-end private-club job, they first need the pedigree of working at a well-known private club. Yet, that path isn't always taken. Some successful private club superintendents have enjoyed stints at public facilities to advance their careers.

BACK AND FORTH

Dan Charlton, who has been a superintendent for six years, started his career working at high-end private clubs. He spent three years as an assistant at Muirfield Village Golf Club in Dublin, Ohio, and seven years as an assistant at Bob O'Link Golf Club in Highland Park, Ill. Currently, he's golf course superintendent at the Evanston Golf Club in Illinois and has been there five years.

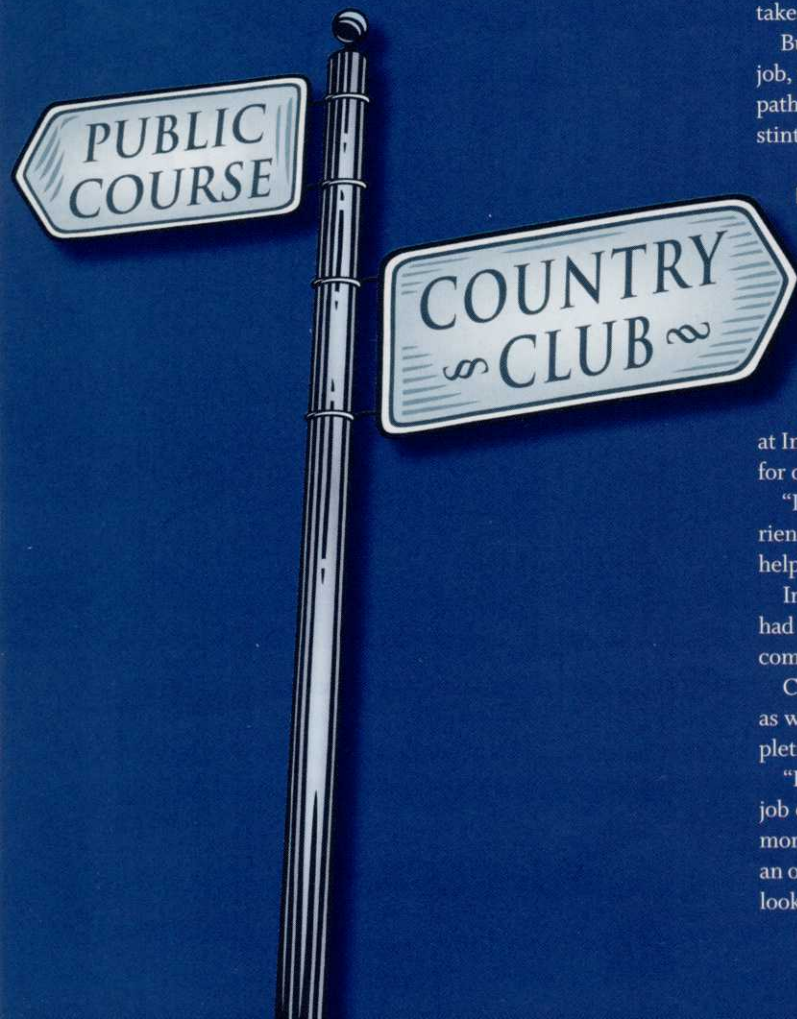
Before landing the job at Evanston, Charlton's first superintendent job was at Indian Lakes Resort, a public 36-hole facility in Bloomingdale, Ill. He was there for one year.

"It's difficult to get a superintendent position in the private sector if your experience is mostly public, although being a superintendent at a 36-hole facility will help," he says.

In Charlton's case, Indian Lakes, which generated 40,000 to 50,000 rounds a year, had a similar budget (\$1.1 million) and crew (33 people with three superintendents) compared to Evanston (\$1-million budget and 21-person crew).

Charlton believes working at a large public course that generates many rounds, as well as being involved with a renovation project – which Indian Lakes is completing – are experiences that helped him advance his career.

"I would've passed on a regular 18-hole public course," he says about past potential job opportunities. "I felt a larger facility with a bigger budget would have looked more favorable on my resume. I was expecting to stay longer at Indian Lakes, but an opportunity came up, and I made the jump back to a private club. Evanston was looking to do a renovation, and my experience fit."





Experience at Indian Lakes, a public facility in Illinois, has helped Dan Charlton at Evanston Country Club (pictured). Photo: Evanston Country Club

Charlton's previous experience at private clubs and the fact that Evanston and Bob O'Link are similar (location and members) helped him secure the job at Evanston.

"I wasn't too far removed from private clubs," he says. "That helped me get the Evanston job. I was in a fortunate situation because it was easier to compare the budget and staff size of Indian Lakes with Evanston's and the committee at Evanston was familiar with Indian Lakes."

Charlton says his short stint at Indian Lakes was beneficial for him, specifically the experience with carts, guest play and various outings throughout the year. Evanston has far fewer outings – only two or three a year – than Indian Lakes, which hosted three or four a week.

"As a superintendent, you don't want to see many outings because it beats up the golf course," he says. "But seeing the revenue outings generate, I see value in them and am more comfortable with more outings and cart use. With public-sector experience, you realize how important daily rounds are and how important that is to the bottom line of the club. You stretch your dollar farther in the public sector, and that experience has helped me keep the budget here at Evanston more in line. You're more fiscally responsible, and there's an appreciation for allowing more guest play and outings to generate more income for the club."

"The Evanston membership doesn't want too many outings (four a year)," he adds. "If we have outings, we need to make money. We can't break even. I don't want to beat up the course if we're not helping the bottom line."

PROJECT EXPERIENCE

Brent Doolittle, golf course superintendent at Shady Oaks Country Club in Fort Worth, Texas, also has benefited from public experience. Before Shady Oaks, where Doolittle has been for more than five years, he worked at private River Hill Country Club in Kerrville, Texas, for seven years. Before that, he worked at the public Lost Creek Golf Course in Fort Worth for four years. Before Lost Creek, Doolittle was an assistant at the private Preston Trail Golf Club in Dallas.

"At that time, I wanted to get my first superintendent job and most private clubs weren't hiring assistants as superintendents, so I had to take a step down and go to a lower-end public facility," he says. "My ultimate goal, though, was to get to a high-end private club."

"Yet, my time at Lost Creek was memorable," he adds. "The greens were Bermudagrass, so I didn't have to work as hard on them during the summer compared to bentgrass greens, so I was able to work on managing people and renovation projects. The Lost Creek owners wanted a top-notch facility on a shoe-string budget, so I had

to figure out how to make these improvements without any money."

Doolittle's improvements were done in-house and included expanding cart paths, upgrading irrigation in order to water from one edge of the property to the other, harvesting flat rock to use in surface drainage areas and adding bunkers. He also resodded and resprigged Bermudagrass greens after a bad freeze.

"Anybody can make these improvements by throwing a ton of money at them," he says. "We had to be efficient with time and money. We had to think about the operation from the owners' perspective: 'Do I really need to spend money in certain areas?' You have to consider things such as aerifying greens without letting play suffer for three or four weeks or making fertilizer applications without shutting down the course."

Doolittle recalls moving from Lost Creek to River Hill and being able to do projects in-house.

"That's what River Hill wanted," he says. "The public experience helped, although it could have been a problem with other higher-end private clubs."

River Hill, a retirement club where all members want to play in the morning, generated 35,000 to 40,000 rounds a year. Doolittle says his experience of managing people efficiently and organizing all the mowers in operation at the same time at Lost Creek helped him at River Hill.

"We were blowin' and goin', trying to stay ahead of the golfers," he says. "Working at a public facility, you learn to operate efficiently and not waste a lot of time. You schedule efficiently and make maintenance more efficient, which allows you the time for the in-house projects."

With all of the things he learned working on the renovation projects at Lost Creek, Doolittle says he still does 99 percent of projects in-house at Shady Oaks even though it's a high-end club.

Having worked at a public course, Dan Charlton understands the value of the number of outings and rounds and their impact on a club's bottom line. Photo: Evanston Country Club

"We've leveled tees ourselves and built 5-foot-high retaining walls around them," he says. "That project saved \$40,000 to \$50,000. What person doesn't like saving money?"

TRANSITIONING WELL

Ken Mangum, director of golf course and grounds at the Atlanta Athletic Club, started his career working at public facilities. He was an assistant at Mystery Valley Golf Club in Lithonia, Ga., for two years and a superintendent at Lagoon Park Golf Course in Montgomery, Ala., for more than three years. Working at a public facility is a great way to learn, Mangum says.

"At Mystery Valley, I learned how to work within a system," he says. "Everything had to go through a central processing system because it was county owned. I was ordering enough parts that it equaled the cost of one piece of equipment. The money was there, but there was no flexibility."

"Lagoon Park was the pride of the city and a top 25 public golf course at that time," he adds. "I received almost whatever I needed without too much difficulty. I did all the payroll and purchasing at Lagoon. It was great experience. I had a large budget and a huge staff – 25 people for 18 holes. I did some design and construction and started an overseeding program. I was able to use my ideas early and received attention for them throughout the state. I was involved in the GCSAA and did some early speaking. My eyes were opened to industry more through that job. I had a great job, but I wasn't making much money."

So that was a good time to look for another job and move up, Mangum says.

"I had a couple interviews before but nothing worthwhile," he says. "I turned down two jobs. It was a weird feeling because I didn't know if another job would come along. I learned to say 'no'. One job I turned down had a smaller budget and fewer people but a higher salary. Another job had old equipment and an old irrigation system. I held out for the job in which I had more to work with. I would have to go to a private club for the pay scale to change significantly. I don't remember feeling inferior because I was working at a public facility. I always believed if



I produced a great product with what I had, I would be rewarded."

Mangum's next job was at Idle Hour Country Club in Macon, Ga., where he stayed for seven years.

"It was a private club, but it was at the lowest point in its course conditioning history," Mangum says. "It was just awful. They gave me the opportunity. They had the money, but they needed the leadership."

"I had learned a lot about purchasing and dealing with people at the city operation," he adds. "Now I was working with boards at private clubs. I made a good presentation because I had to be thorough in the public sector. I transitioned well."

BEING CREATIVE

Mike Mongoven, director of golf at the semiprivate Shell Point Golf Club in Fort Myers, Fla., previously worked for the city of Fort Myers from 1990 to 2000, managing two public facilities: the Fort Myers Country Club and Eastwood Golf Course. He was the assistant director of golf. Before the city, Mongoven worked at Wildcat Run, a private club in South Fort Myers from 1984 to 1990. He left Wildcat Run to work for the city because he wanted to manage two courses, the environment was unstable and the city courses were closer to his home.

"You certainly can become creative working for a city because you have fewer resources," he

says. "You become more open-minded."

City finances were strict, and Mongoven had to deal with a purchasing department.

"I had a greater ability to purchase at the private club, but I was able to win over the purchasing department because I was financially responsible and communicated with them well. After two years, rather than putting in a request for a fertilizer purchase, I was able to submit a large bid package for the year. After a while, I got more flexibility by developing an annual bid, which made it easier for them. I didn't have to go to them every time because I had an agreed-upon price."

Mongoven also dealt with a regulated human resources department, which was different compared to a private club in which superintendents are their own HR manager many times.

"You had to go through a very defined process," he says. "I couldn't reprimand employees informally. I attended counseling sessions to get employees up to standard."

Mongoven moved to Shell Point because there was an opportunity for him to be responsible for the entire operation – the income and maintenance side.

"I could put my fingerprints on the place," he says.

With a semiprivate club, the revenue is directly attributed to play, Mongoven says. With a private club, there might be other mechanisms to bring people in. Shell Point has membership

dues, but it still depends on public play for income. The 250 members pay anywhere from \$500 for a partial year (off season) membership to \$3,500 for an annual membership.

"Your decisions are different than at a private club because play and the cash register are involved," he says.

THE PRESTIGE FACTOR

There's a perceived status working at a private club, especially in the eyes of young people.

"I worked at Windermere Country Club in Florida in the 1980s," Mongoven says. "The assistant came in and was wearing a nice shirt and slacks. When he went out on the golf course, I thought he didn't have to do any work but direct people. You're drawn to that.

"Some guys can portray themselves as being a better superintendent because they're at a private club," he adds. "But in reality, you can be a great superintendent at a public facility because you manage resources much better and don't have a blank check to solve your problems. You have to be more resourceful."

Even with all the prestige that comes with working at a private club, not all students coming out of college want to work in the private sector because of the pressures and demands that come with working in such an environment, Charlton says.

"I have an assistant right now who's working at his first private club," he says. "He's realizing this might not be for him down the road. But it doesn't hurt to do internships or be an assistant at a private club because it can benefit you if you move to a public facility.

"A lot of guys just focus on U.S. Open golf courses or Augusta National because they want to work there down the road," he adds. "However, they can get into trouble if they don't open up to other jobs because they might not be cut out for that. Students need to experience all the different areas, especially being exposed to different management styles at public and private facilities."

Working at private clubs actually can be detrimental to some, depending on the career track.

"It hurt me when I applied to public courses

because they thought I wouldn't be able to manage a smaller budget and would just drive up theirs," Charlton says.

Even though Charlton was able to make the jump from a public facility to a private one, it might not be as easy for others.

"It's harder for a committee of a private club to look at a public guy from out of state if they aren't familiar with the facility," he says. "They might dismiss him quickly. Public course applicants can be unjustly thrown out of a job search at a private facility because of committees who look for superintendents with private club experience."

Mangum agrees.

"Most people doing the hiring don't know the business, especially in the private sector because they want to brag to their membership that they hired someone from such-and-such a club," he says. "It depends on what type of facility – people recognize high-end, daily-fee courses and it might be easier for a superintendent to break into private from a facility like that. Sometimes people have a negative connotation of public facilities. I never saw that, but obviously when you're in a golf-for-profit situation, sometimes public facilities don't have the resources that private clubs have. With private clubs, sometimes conditioning takes precedent over making as much money."

Despite the challenge of moving from a public facility to a private one, Charlton says there are things superintendents should focus on.

"If you can show fiscal responsibility, can manage numbers well, have a larger crew or operating budget, capital projects and construction experience, and highlight the number of rounds played at your facility, then point out all these things if you want to go into the private sector," he says.

The public/private experience doesn't matter to Doolittle when he's looking for workers.

"I'm just looking for people with good work ethics and those who have been in the business for a while," he says. "Maybe the people that I've hired who have worked at a public facility seem to be happier, more grateful and have a little more motivation. For a guy at another private facility, more money might be his only motivation."

It's difficult for guys to break into the private club sector at the superintendent level, Mangum says.

"Nowadays there are so many more people in the business than when I made the switch from public to private," he says. "You can specialize much earlier in your career. If you worked at a private facility, you might have an advantage, but we need to look in depth at experience. We look for guys with good experience in general, and that can come in the form of public or private facilities. I like guys who come from a facility where they didn't have everything they needed. That creates the MacGyver in all of us, and it makes you appreciate what you have when you're at a high-end facility." GCI



Although young assistants can get caught up with the prestige of working at a high-end private club, it's not for everybody. Photo: Evanston Country Club

NEW OUTLOOK ON MANAGING RESOURCES WILL HELP EVERY STRETCHED BUDGET

Today's economic climate demands that golf course maintenance professionals master the art of resource management. A more competitive landscape with more course offerings means increased pressure to consistently offer excellent course conditions in spite of disease and weather-related pressure – and with fewer resources. As a result, superintendents need to creatively employ sound methods to manage their limited resources of water, manpower, time and money.

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- Recommended Precision Product – Magnus™

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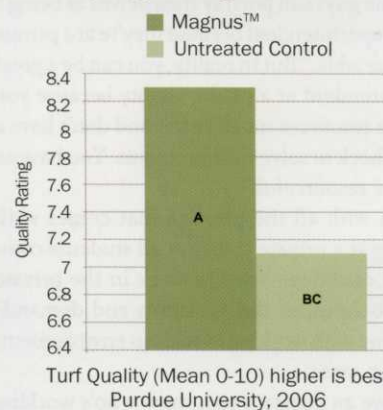
CONDITION:

- Organic acid production increasing due to organic matter decay
- Water runs off instead of penetrating the soil
- Uneven distribution of soil moisture
- Standing water in low areas
- Soggy surfaces due to heavy rainfall
- Hydrophobicity and Localized Dry Spot (LDS)
- Signs of Fairy Ring
- Recommended Precision Product – Cascade™ Plus

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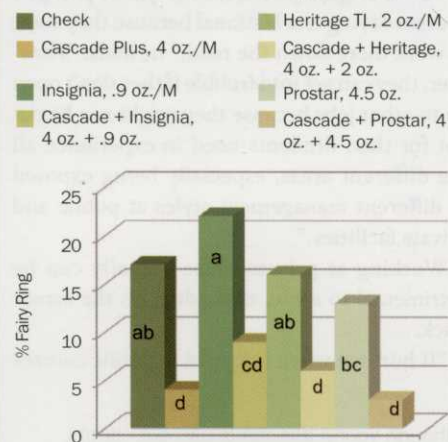
Because of Cascade's ability to move water into and through the soil profile, applications early in the growing season reduce standing water and

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Magnus optimizes turf quality and increases soil moisture content during periods of stress.

Lycoperdon Fairy Ring Clemson University - 2005



Cascade Plus in combination with fungicides optimizes disease reduction compared to fungicides alone and the check.

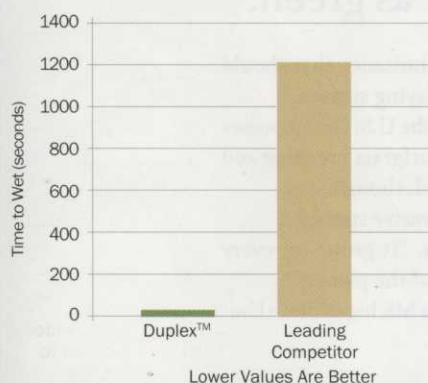
promote deeper root systems. Routine usage throughout hot, dry months delays the onset of symptoms of stress and provides improved turfgrass quality. Fall applications ensure better re-growth in the spring and reduced opportunity for winter dessication. The result is a year-round tool for turf professionals that gives better rooting conditions, more resilient turf, faster re-wets, firmer and faster playing surfaces, and significant water savings.

CONDITION:

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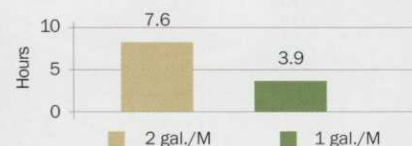
Draves Wetting Test 24 oz. per 100 gal.



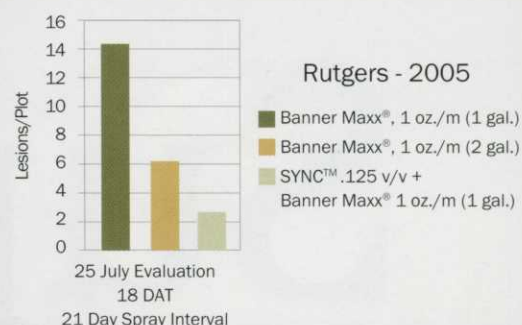
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Effect of Spray Volume on Application Time (30 Acres of Fairway)



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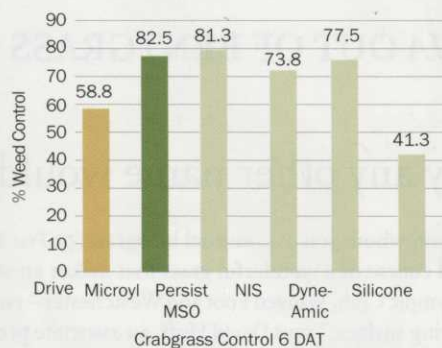


MANAGING BUDGET

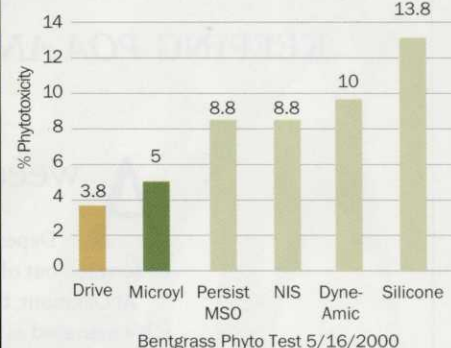
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The Supreme Weed

BY T.R. MASSEY

KEEPING *POA ANNUA* OUT OF BENTGRASS REMAINS A CHALLENGE

A weed by any other name would grow as green.

Depending on whom you ask, annual bluegrass, or *Poa annua*, is a nuisance that should be ferreted out of a golf course or a wonderful grass that makes an attractive playing surface.

"At Oakmont, the Olympic Club, Winged Foot and Westchester – two thirds of the U.S. Open courses – it's managed as a playing surface," says David Huff, an associate professor of turfgrass breeding and genetics at Penn State University who conducts research about *Poa*. "It's a weed, though."

Although it can provide a nice playing surface, *Poa annua* is a remarkably invasive species.

"This organism is just fascinating from a biological perspective," Huff says. "It grows on every continent, including Antarctica. Here's an organism that has covered the face of the planet."

Ron Calhoun, an environmental turfgrass specialist for crop and soil sciences at Michigan State Uni-

versity, says *Poa* is amazing because it changes to thrive in conditions where it's growing.

"What's cool about it is it's 95-percent inbred," Calhoun says. "If you have a plant that can survive under a certain set of circumstances, that plant is going to produce seed that will also survive in that situation. You develop your own personal *Poa* population that's ideally suited to subenvironments on the golf course. It can produce seed at any mowing height and can be viable quickly. Most seed takes two weeks. There's some evidence that *Poa* takes only a day or two. It's unique among grasses."

But so far, no one has come up with a marketable seed for *Poa*.

"If you're a new course, what do you do?" Calhoun says. "You can't buy *Poa* seed. You have to buy aggressive bentgrass seed. You spend thousands, and if you are vigilant from day one, you can try to keep it out. If you try to restore 10 to 40 percent, you can't do it."

KEEPIN' IT REAL

John Zimmers, golf course superintendent at Oakmont Country Club (home of the 2007 U.S. Open near Pittsburgh), has been tending the club's 100-year-old *Poa* greens for the past eight years.

"You try to manage what you have," he says. "We manage our *Poa*, and we've learned what we need to do and keep it healthy, syringing it with lots of aerification and topdressing and drainage. Ours doesn't do as well in damp conditions because perennials do better in the dry conditions. Our greens hold up well under dry conditions."

Oakmont's turf is a perennial *Poa* that's a much higher quality than other types found throughout the world, and it doesn't seed much, Zimmers says.

"It's slow to grow and recover and slow to move laterally after aerification," he says. "However, you can cut it shorter than any other grass I've seen. It's the most unique *Poa* I've seen. I can cut below $\frac{3}{32}$."

OUT OF HERE

Ray Viera, superintendent at Hamilton Farm Golf Club in Gladstone, N.J., believes *Poa* is a disaster waiting to happen.

"As you lower mowing heights and turn up the heat, it's a collision course," he says. "It's not an ideal grass for high-profile places anymore.

When people want fast greens, you're bound to fail. It's torture."

With a grow-in, it certainly takes an enormous amount of planning in preconstruction to keep *Poa* away, Viera says.

"You have to anticipate when you plant," he says. "The quicker you deal with it, the less chance a stand establishes. Quick coverage is key. It's not chemicals. You can't 'preout' *Poa annua* on soil where you need to germinate grass. You have to have good watering practices and understand *Poa annua* is in that ground before you start. You have to keep it clean from the beginning. Then you have to cut it out, then keep it managed with chemicals."

At Hamilton Farm, Vierra has only a small population of *Poa*.

"We're on top of it," he says. "We use Cutless, which is toxic to *Poa annua*. It's great for bentgrass regulation. We've been using it, and the *Poa* stays out."

About one-third of Vierra's pesticide budget is allocated to growth regulators, which are used to control *Poa*, among other things, so it's hard to quantify by dollar amount.

If you spend a lot of money on a new construction or renovation project and plant any number of bentgrass varieties, *Poa* isn't a welcome visitor. Take the course at the exclusive Double Eagle Club in Galena, Ohio. It's a Tom Weiskopf/Jay Morrish design that's maintained in as near perfect condition as it can be daily. Fewer than 10,000 rounds are played there annually.

"We're 99.5 percent *Poa* free on the greens, which is remarkable for 16-year-old greens," says superintendent Todd Voss.

One of Voss' first defensive screens is having every person's golf shoes changed and cleaned.

"It helps us control what spikes our people are wearing, and it has an added benefit of keeping people from bringing in *Poa* on their shoes," he says.

When Double Eagle was built, it was a virgin field with mature woods, so there was little *Poa* on site.

"Our first *Poa annua* came in through bluegrass sod," he says. "The sod source is more important than anything else."

Voss warns others to be extremely vigilant when screening sod and seed sources and suggests starting programs that keeping *Poa* off a property.



At Towson Golf & Country Club, Velocity is the cornerstone of Quent Baria's *Poa* control program. Photo: Heather Wood

"For the first 15 years, we mechanically removed it with forks and knives – we basically cut it out," he says. "Most courses don't have the time or labor to make it as big a priority, but for us, it was. It's aggressive. If you see one spot one year, then it's 20 spots next year. It's meant to survive. It reproduces quickly. It's an amazing plant."

Voss also experiments with different chemicals to retard *Poa* growth.

"Statistically, they work, and if you're trying to go from 60 percent to 20, it can work," he says. "If you're trying to go from 3 percent to none, it doesn't work."

Even though Voss is determined to keep *Poa* at bay, he doesn't condemn the plant.

"What is wrong with *Poa*?" he asks. "It can be a fabulous grass. The problem with *Poa* is

the transition. You go through years of being new or renovated, and you start getting *Poa*. Then when you have about 30 percent *Poa*, you get those bumpy conditions that no one likes. Then once you get to 60 to 90 percent, those complaints stop. It's the transition time – that's the problem."

Quent Baria, superintendent at Towson Golf & Country Club in Phoenix, Md., is a believer in Velocity herbicide for *Poa* control.

"It's the cornerstone of my program," he says. "It's so effective. Three years into the marketplace, I'm surprised it hasn't had more press. It's extremely selective and effective."

But there's an educational process the membership or clientele must endure when using the product, Baria says.

"You'll be looking at some voids in your turf," he says. "But that's a good thing. You have to rely entirely on the creeping nature of the bentgrass to take over where the voids are and you have to be patient."

If the voided areas are too big, the *Poa* will come right back, Baria says.

"If you don't use a preemergent the whole time, you'll just get the *Poa* back," he says. "You didn't acquire it in a year or two, and you probably shouldn't try to get rid of it in a year or two. I have significantly cleaned it up. I've demonstrated I can win the battle in the short term."



At The Country Club at Castle Pines in Colorado, Sean McCue uses Bensumec and either Velocity or TGR to control *Poa*. Photo: The Country Club at Castle Pines

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At The Country Club at Castle Pines in Colorado, the 22-year-old course has 10 to 25 percent *Poa* on its greens and 30 percent on the fairways.

"We treat greens, tees and fairways preventively as well as postemergently," says golf course superintendent Sean McCue, adding that he uses Bensumec as the preemergent herbicide and either Velocity or TGR after *Poa* has emerged. "About 20 to 25 percent of my chemical budget is allocated to controlling *Poa annua*," he says.

McCue says it would be nice to reduce the *Poa* population, but realistically, he doesn't believe it will happen.

"But agronomically, if we provide nutrition for the desired species, we can reduce the *Poa* with chemical treatments," he says. "We're beyond the point of physically cutting it out. Our populations are too large for that to have a

positive impact on things."

ADVICE

Calhoun asks those superintendents who are thinking of ridding their golf courses of *Poa*: Have you made a sober assessment of your *Poa* population?

"When it dies, it's so ugly," he says. "If you have *Poa*, you have to look at it as a renovation. Some products can give us some control, but it's hard to take grass out of grass."


There are postemergent products on the market, including Velocity, but superintendents must be careful with it, Calhoun says.

"Are you going to put that down a week before your member-member?" he says. "It selectively takes out annual bluegrass, but the rub is that it takes several applications. So you have to watch the *Poa* die. It turns the color of a manila folder, and it's not subtle. If you have more than 20 per-


cent *Poa*, you're looking at Velocity as a selective renovation. It's like using Roundup, except you get to keep part of your bentgrass."

Often, when superintendents approach Calhoun, they either want to manage *Poa*, manage bentgrass or manage what's there. For 5- to 8-year-old golf courses, Calhoun usually advises aggressive regulator programs that slow the *Poa* more than the bentgrass to give the bentgrass a competitive advantage. Cutless and Trimmit are the two big products for that, he says.


"For the first 25 years they were available, when we applied them in spring and fall, we'd see a lot of injury to the annual bluegrass, but the bentgrass wasn't really growing at that time of year so there wasn't any gain," he says. "At the University of Kentucky, they did research and found you should apply it during the growing season. That gets them to 85 or 90 percent. The last part has to be done by hand."



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T1 bentgrass, shown here on the 9th green at Carmel Valley Ranch, ranks number one in NTEP for its rich genetic color.

Superintendents praise Jacklin's top-performing **NuGlade** bluegrass. **NuGlade** provides even more shade tolerance than Jacklin's original **Glade** variety, and is known around the world for its lasting fairway performance and dark-green color. **NuGlade** provides superior performance at low mowing heights, down to one-half inch.

Jacklin also boasts the number one darkest Kentucky bluegrass in existence, according to national test results. **Total Eclipse** is a fairway bluegrass with outstanding resistance to leaf

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Yes, when you think Jacklin, you often think bluegrass. However, savvy superintendents and turf professionals are aware that Jacklin does more than just blues, offering more than 98 varieties of seed, including fescue, zoysia and bentgrass.

Bent On Quality

Jacklin's bentgrass varieties are garnering as much praise as the award-winning blues, and for good reason: superintendents love their superior color, strength and disease resistance.

Take Jacklin's **T1**, for example. This creeping bentgrass ranks number one in NTEP trials for its rich, dark-green genetic color. **T1** was bred to successfully compete against *Poa annua*, and its aggressive nature and ground coverage make it perfect for use on greens, tees and fairways.

The **L-93** variety is another outstanding Jacklin bentgrass. The stress-resistant **L-93**, with its upright, fine-blade leaves, is a great fit for high-traffic areas. This variety offers superior dollar spot resistance, and ranked number one in tee and fairway performance categories at two consecutive national trials.

Alpha – also known as “Pinehurst” – is an aggressive bent with unmatched ground coverage and density. Its interseeding strength, brown patch resistance and gains against *Poa annua* give courses a true championship appearance.

For the deepest root system compared to other creeping bentgrass varieties, Jacklin's

Putter is the top choice. **Putter** was rated the number one variety for overall quality in the final year of the 1989 – 1993 NTEP fairway trials, and its quality shows in its superior spring greenup and winter color retention, improved disease resistance and adaptable mowing height.

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But before a superintendent makes a decision, he must know what kind of *Poa* he's dealing with.

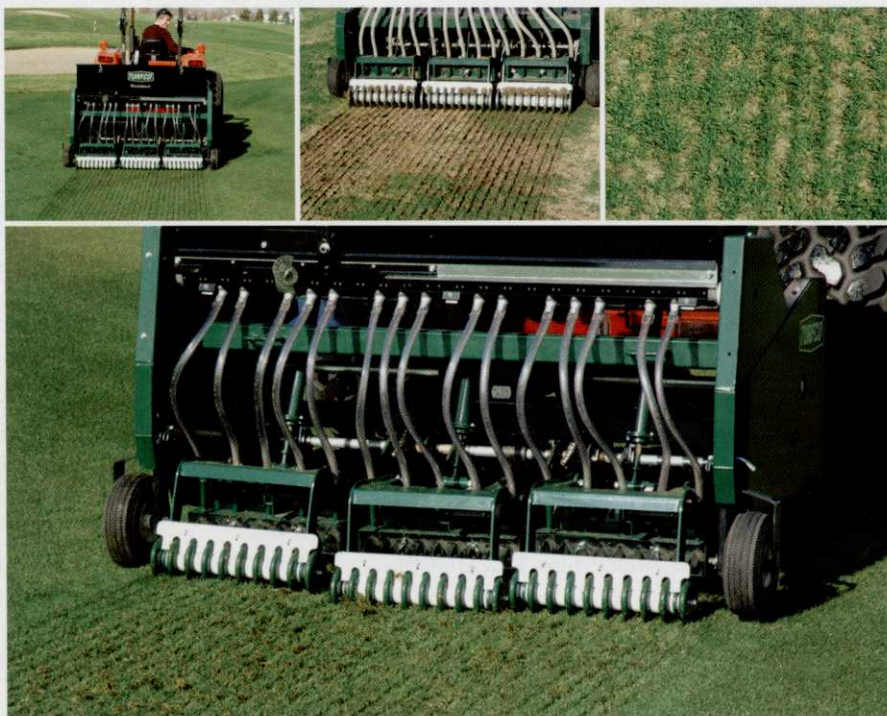
"Not all *Poa* is the same," Huff says. "It's a world apart. It's a different grass altogether. I

don't know how pervasive that knowledge is."

"You're not talking about a single plant," Calhoun says. "Because it can adapt, it changes over time and by site. Because it's inbred, it can produce another *Poa* plant that's also ideally

sued. It thrives in its situation. That's why it's the supreme weed." GCI

T.R. Massey is a freelance writer based in Columbus, Ohio. He can be reached at trm@columbus.rr.com.



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In search of a silver bullet

David Huff, an associate professor of turfgrass breeding and genetics at Penn State University, is in search of a silver bullet for *Poa annua*.

"No one has pulled back the curtain on it yet," he says. "We can't kill it, and we've had difficulties eradicating it. We've been on it now about 12 years."

Poa annua, or annual bluegrass, is an invasive species listed on a noxious weed list in 13 or 14 states, Huff says. When it enters a golf course, it evolves rapidly.

"It adapts exactly to the level of management you're giving it," he says. "It takes several decades for it to get there, but once it's there, it can propagate true types. It has this amazing ability to adapt to about anything that you throw at it."


Despite a lot of research, Huff hasn't figured out how to keep *Poa* at bay.

"Other than taking a knife and never letting it get established," he says. "Work it into your management scheme and your budget. You have to send guys out with buckets and tools to cut the plant out. Go to the nursery, get some bent samples and replace the *Poa* with it."

Huff's research is working toward producing a seed from the desirable types of *Poa*. "Eventually, we'll have the seed," he says. "The high quality types, the ones better than the best bentgrasses is like nothing else. There's a negative relationship with seed production. The highest quality is mostly perennial and doesn't produce many seeds. We have some types that produce no seed — there's only vegetative growth. The other end of the spectrum are ones that produce seed. When you put any stress on it, they shut down and go to seed production."

The problem, or wonder, of the plant is its genetic instability.

"They're so unstable they can adapt rapidly," Huff says. "That's what gets them in there." GCI



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Article and photos by David Wolff

PGRs: the superintendent's multitool

New uses for growth regulators seem to emerge daily



At Sun City Carolina Lakes, superintendent Aaron Nolan says he has improved turf consistency 20 percent through plant growth regulator use.

Rick Tegtmeier has declared war on *Poa annua*. One of his weapons – the plant growth regulator Trimmit. The director of grounds at the 36-hole Des Moines Golf & Country Club in Iowa uses the chemical on his A-4 bentgrass greens.

“Trimmit helps the bentgrass by holding the *Poa annua* in check and even taking it out,” he says. “We have a dense, compact, upright surface that’s still smooth in the evening after a day’s growth.”

Tegtmeier also uses growth regulators in the fairways. For the first two applications in the spring, he uses a combination of Primo and Proxy to control *Poa annua* seedheads. Beginning in mid-June, he switches to Trimmit to slow the growth of *Poa annua* while the bentgrass is actively growing.

“On greens, we apply Trimmit from spring until the first frost,” he says. “It’s a light application every two weeks. There’s another application just after aerification to help control any *Poa annua* that might have germinated.”

Plant growth regulators have been a veritable multitool for golf course superintendents for many years. Growth-inhibiting PGRs generally are used to control growth of warm- and cool-

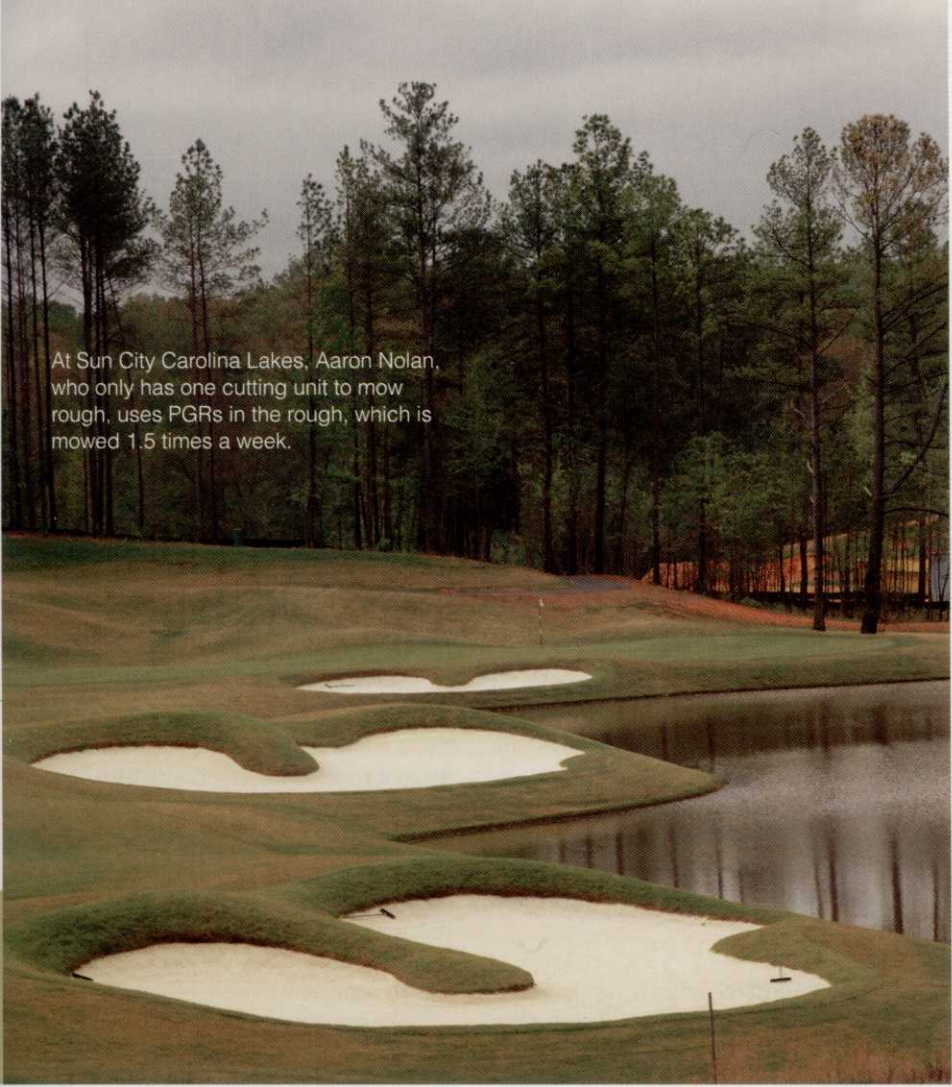
season grasses and for seed head suppression, primarily with *Poa annua*.

But, more recently, this type of PGR has been used to manage turf stress, especially under drought and shade conditions. Superintendents also use these products to enhance overall turf quality, promote a smooth and uniform playing surface and improve stress tolerance in intensely maintained areas.

CREATIVE USES

While growth reduction generally is the goal of plant growth regulators, a number of other creative uses have been developed, says Nick Christians, Ph.D., a professor in the horticulture department at Iowa State University.

“*Poa annua* control remains a serious problem for golf course superintendents around the world,” he says. “One of the creative uses of PGRs has been to use them as part of a carefully structured integrated program to reduce *Poa annua* in golf turf. Gibberellic acid-inhibiting (Type II) material doesn’t kill the *Poa*, but slows its growth more than bentgrass. Over time, this results in an advantage to the bentgrass. Success depends on the skill of superintendents in adapting the program to their particular situation.”



At Sun City Carolina Lakes, Aaron Nolan, who only has one cutting unit to mow rough, uses PGRs in the rough, which is mowed 1.5 times a week.

Color enhancement is another benefit of PGRs, especially with gibberellic acid-inhibitor materials.

"This is particularly true with trinexapac-ethyl (Primo), which often results in a darker green color of treated turf," Christians says. "As is usually the case, this response can be highly variable."

PGRs have been used as a tool to improve the overseeding of cool-season grasses into warm-season turf. The goal is to slow the growth of the warm-season grass without inhibiting the establishment of cool-season grass seedlings. With this practice, timing is critical.

"Primo tends to be one of the best PGRs for this purpose because of its foliar absorption and its reduced likelihood of inhibiting the cool-season germination," Christians says.

A critical factor when using this product is that it must be allowed to dry on the Bermuda-grass tissue before overseeding takes place.

In northern regions, freeze damage can be a serious problem.

"PGRs slow growth, thicken cell sap and might provide an antifreeze-like effect," Christians says. "A study a few years ago observed enhanced freeze tolerance of annual bluegrass

treated with low rates of trinexapac-ethyl. Northern superintendents who often experience *Poa annua* loss during winter might want to experiment with this idea."

One of the factors that limits fungicide efficacy is plant growth, or when the plant contacts are mowed off soon after application. PGRs tank-mixed with fungicides show promise in extending efficacy and reducing fungicide rates needed for disease control. Some PGRs might even directly suppress dollar spot on treated turf.

"Research has shown PGRs can improve shade tolerance of certain species, particularly zoysiagrass," Christians says. "Trinexapac-ethyl has been shown to reduce clippings, prevent scalping, and might improve establishment of new sod and stimulate tillering of Kentucky bluegrass being grown for sod."

SAVE TIME

Labor savings is another reason why David Smith, superintendent of golf and grounds at Abbey Springs in Fontana, Wis., uses plant growth regulators. The 18-hole resort course has a maintenance staff of nine during the peak season.

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**"WITH THE SIZE OF MY STAFF,
I'LL LOOK AT ANYTHING
I CAN TO SAVE LABOR."**

David Smith, superintendent of golf
and grounds at Abbey Springs [pictured]

"We have used Primo very effectively for many years and have reduced our tee mowing by 33 percent," Smith says. "I haven't calculated a dollar figure because we use the time saved to enhance other aspects of the course. And, Primo is effective for five to six weeks after application. On greens, we use it as a stress conditioner."

Smith also uses Proxy to reduce the time spent weed-eating banks and other areas that are difficult to mow. He applies the product to the bluegrass, and it's effective for five to six weeks.

"With the size of my staff, I'll look at anything I can to save labor," he says. "I started using PGRs more than 20 years ago with the original formulation of Embark. Throughout the years, these products have helped me a lot and have been a big time-saver."

CONSISTENT GREEN SPEEDS

At Park Hills Golf Course in Freeport, Ill., the target green speed is 9.5 feet. Superintendent David Fisher uses a combination of PGRs on the 36-hole public facility's Penncross creeping bentgrass greens. The first two applications in spring are a mixture of Primo and Proxy to control varying percentages of *Poa annua* in greens that are 52 and 25 years old. In late spring, Fisher switches to using strictly Primo. In the summer, it's a mixture of Primo and Cutless. Then it's back to straight Primo during the fall. Applications are at two-week intervals.

"This program allows us to have a little higher height-of-cut and still maintain the green speed we want," Fisher says. "We use triplex mowers and generally cut at 0.11 inch. The PGRs control growth and let us maintain our desired green speed a little longer throughout the day."

Fisher has a program for fairways, but it's

only implemented in the spring. Between April 15 and May 15, Fisher applies a combination of Primo and Proxy. Fairways – a mixture of Kentucky bluegrass, ryegrass and *Poa annua* – are cut at three-quarter inch.

"We do this strictly for seedhead control," he says. "In the spring, there's a surge of growth, and it can be messy in the fairways after we cut them. PGRs regulate the growth and make clippings more manageable."

CONSISTENT CONDITIONS

Aaron Nolan, superintendent of Sun City Carolina Lakes in Lancaster, S.C., applies plant growth regulators wall-to-wall at the 18-hole public course. Primo is used extensively in July and August during the heaviest growing period for 419 Bermudagrass.

"At this property, growth regulators relieve mowing stress and give us a consistent height-of-cut," he says. "But our biggest goal is consistent playing conditions. We don't mow fairways every day, and without PGRs, the grass tends to get a little shaggy during the nonmowing days."

The story is a bit different for the roughs. Because Nolan only has one cutting unit for the rough, it's mowed 1.5 times a week as opposed to the two or three times he would prefer.

"This is a large property, and we want to provide a consistent height-of-cut," he says. "I refer to growth regulators as 'liquid labor.' We don't have a large staff, but we're expected to deliver top conditions. These products help us achieve that."

Again, the rationale for PGRs on greens is different. The primarily G-2 bentgrass surface is mowed daily, and it's necessary to maintain consistent green speeds of 9.5 to 10 feet through-

out the day.

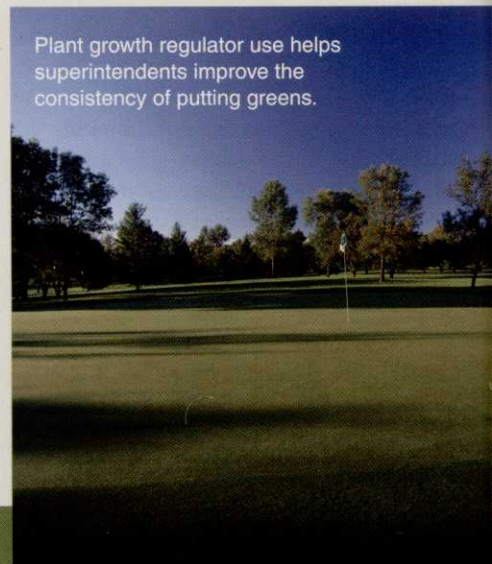
"On greens, we use a combination of Primo and Cutless," Nolan says. "The Primo absorbs on top as a foliar product, while Cutless works in the root zone. In my experience with bentgrass greens, if there's a 30-percent population of *Poa annua*, this combination works best to suppress *Poa* seedheads. When we aerify in spring and fall, I use Trimmit, which again is effective for *Poa annua* suppression or removal."

So how does Nolan sell the extensive use of growth regulators to management?

"Taking a big-picture view, how important is this relatively modest expenditure when the goal is consistent playing conditions?" he says. "Through the use of PGRs, we've increased our consistency by 20 percent, and that speaks for itself." **GCI**

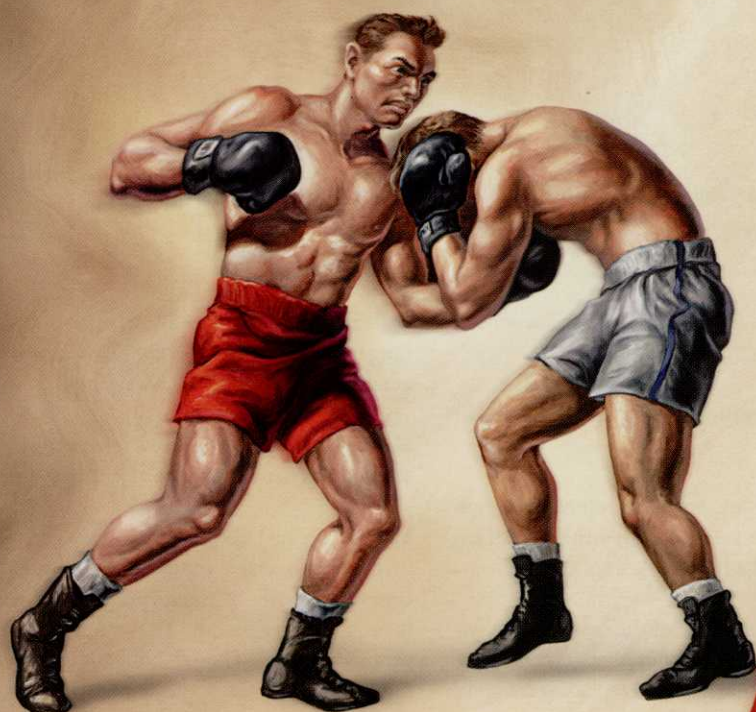
David Wolff is a freelance writer based in Watertown, Wis. He can be reached at dgwolff@charter.net.

Plant growth regulator use helps
superintendents improve the
consistency of putting greens.



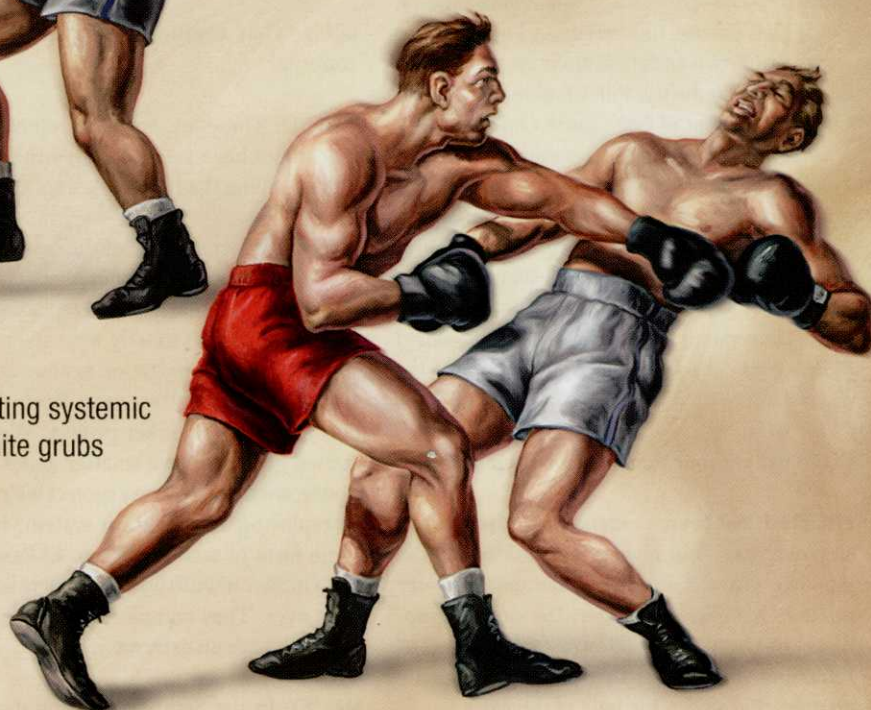
Turn to pages 76 and 78 to read about how two superintendents purchase and use plant growth regulators.

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Harmony In Growth

PROJECT PARAMETERS

Builders discuss the differences between renovation and new construction, along with the importance of grow-ins **By John Walsh**

Editor's note: During this year's annual summer meeting of the Golf Course Builders Association of America, which was in Monterey, Calif., Golf Course Industry hosted a roundtable with six GCBA members to discuss the golf course development industry. Participants were Glenn Caverly, president of Golf Course Construction in Howell, Mich.; Bob Bryant, president of Bryant Taylor Gordon Golf in Costa Mesa, Calif.; Oscar Rodriguez, vice president of Weitz Golf International in Temecula, Calif.; Klaus Ahlers, golf sales manager with Colton, Calif.-based Leemco; Wayne Massey, president of Medalist Golf in Cumming, Ga.; and Willie Slingerland, sales manager for Dallas-based Flowtronics. The following is an excerpt of the discussion.

GCI: What are your thoughts about renovation?

AHLERS: It has been – except for all the stuff we ship overseas – our biggest business during the past two years. A lot of it is because of water quality changes, the modernization of equipment, the fertilizer injector systems, as well as rebuilding bunkers, greens and tees. On many courses, that's been the bulk of the work.

SLINGERLAND: That's the majority of our work domestically. Internationally, it's all new construction.

CAVERLY: I don't believe renovation has picked

up any. We've done as much renovation work as when the big golf boom was on.

GCI: Is that regionally or throughout the country?

CAVERLY: There are no more renovations now than there have ever been. It's the only thing that's keeping the industry going.

BRYANT: In certain parts of the country, renovation has picked up. For example, 10 years ago, if we did a project that involved replacing an irrigation system, that's exactly what the project was – we designed an irrigation system. Sometimes, six months later or two years later, the owners decided to do a bunker project. Well, they've started getting a little smarter about planning. Today, with almost every project we're involved in replacing an irrigation system, it involves some form of reconstruction. El Paso Country Club in Sacramento was a complete blowup and start over. They completely rerouted the golf course. That's an extreme.

MASSEY: In the Southeast during the past two years, we've seen projects increase to 70 percent new construction and 30 percent renovation. All new construction is basically very high-end.

RODRIGUEZ: What I liked about renovations is that most of the time they've been budgeted, either privately funded or publicly if it's a city or county. So when you go in there, you know you're going to get paid most of the time. We don't start

until funding is in place. And it's already a running facility, so you know the chances the funds are going to be there for you are high.

SLINGERLAND: Plus you know what you've got to start with. There's not a lot of surprises.

BRYANT: Going back to the team concept, we're involved in a major renovation with a top 100 course in Southern California that has a long-term planning group. There are intelligent people involved. They're budgeting, they have the architect involved, they have the agronomist involved. I predict it's going to be a very successful project. They're going to control their costs.

GCI: Would you attribute that successful planning to architects' push for master plans?

BRYANT: That's starting to help. I'd like to think the Golf Course Builders Association also has helped with communication. In general, there's



Slingerland



Bryant

more information available to new developers than there has been during the past 10 to 15 years. There are conferences, our conference, our Web site, and obviously, the electronic age makes information more available. Sophisticated builders, not golf course builders, but developers, especially of housing, have access to the information. They just have to go find it. The architects are helping. Not all of them understand yet, but the majority of them do.

AHLERS: Regarding the renovation thing, many courses say, 'OK, hold on. We're going to do this next year.' It's not a money thing. Sometimes they've already acquired all the funding. They don't have a model home opening and aren't trying to get their money back from this investment and the property. They do the master plan, get budgets, think it out, and just say countless times, "Hold it, we're going to wait. We're going to do this next year because we don't want to lose the season. It's a big investment for us, and we'll be OK one more year or season.' Those are the kind of jobs ... I've never seen anything work out better. The planning's great. The people know exactly what they want. You make a couple bucks on it, too, because you don't have a lot of issues.

GCI: Do you treat renovation and new construction projects differently?

RODRIGUEZ: You have to be more versatile with your people. Even though all this planning takes place, at the end of the day when you start opening things up, who knows what's underneath.

We have a few crews that do self-performed irrigation. We should put those crews on the renovation projects. If I bring in a subcontractor, I have to go through the change-order process and documentation. If you're self-performing, you can almost ad lib about those circumstances, working with a committee or the superintendent. Sometimes you don't have time to go through those channels and just have to make it work.

BRYANT: It absolutely requires a different crew for irrigation. The crew who does that work needs to understand several things. One is that we have to maintain the old irrigation system. It has to remain in service, especially if we're not blowing up the entire golf course. They also need to understand how to take the sod up, get the pipe in the ground and get the sod back, so there's the least amount of disruption to those areas that aren't involved in the renovation. They also need to understand the members because many of these renovations are done with the members still playing on parts of the golf course. They need to understand the courtesy that's required for these members.

AHLERS: I remember years ago starting to see the dust control, then the erosion control and now the storm water management program. I remember at first I thought, 'What's with these bails of hay? Why do I need bails of hay on a golf course? I never saw that.' It must be getting bigger and more expensive all the time.

CAVERLY: We used to bid jobs, and those items were treated as incidentals, and now every one of those items you just mentioned has a dollar value to it. And those costs are anywhere from \$100,000 to \$1 million. Soil erosion and storm water protection alone. We used to build a golf course for \$1 million. Today, storm water management can be \$1 million.

RODRIGUEZ: We're working in Palm Springs, and we have what's called a PM10, and all that is grouped together. It easily could be \$2 million.

SLINGERLAND: In the Carolinas and certain parts of the country, they'll only let you disturb, four to 15 acres, and you have to have that grassed with 75-percent coverage before you can disturb the next four to 15 acres.

BRYANT: In Hawaii, it's five acres.

AHLERS: I thought that job in North Carolina was ridiculous at 25 acres at a time. How do you build a golf course like that? And you're saying five acres!

BRYANT: As with most things, there are certain rules that apply. It's not like you have to open and finish five before you move on to the other five. They're guidelines. Essentially, you're not supposed to be disturbing or involving more than five acres at a time.

AHLERS: And that's what this 25 was. You did 25, and you got that regressed and covered, and they sodded it.

CAVERLY: We're on one right now that has a 30-acre work limit. And back to driving costs, we have a lot of idle equipment. We shut down the earth-moving operation to go back and stabilize. And we have to stabilize before we go to the next section.

AHLERS: Weren't the irrigation guys waiting to start on the next thing?

CAVERLY: That's exactly what happens. I mean, we're in a typical situation where there's a timeline on the project, but nobody wants to acknowledge these things when they make that timeline. These things all drive up costs.

GCI: One issue seems to be exactly when a builder is finished with the work and when the responsibility shifts from the builder to the superintendent or owner.



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COURSE CONSTRUCTION



Caverly

CAVERLY: I'm into one right now in which the owners believe that when the golf course is ready to open it's theirs. The architect specs have always been my pet peeve. When the seed hits the ground, it's the owner's. For maintenance and watering purposes, however, they always put that line in there that says the contractor has to guarantee germination. It's difficult for us to guarantee germination when we're not in control of doing the grow-

in of the property. And if we have a superintendent that's not doing the proper grow-in, we don't get our retainage, and we have to go back and regrass. It's a big problem area. The grow-in is the biggest thing on the golf course, and it's neglected. They don't want to hire a superintendent until they have to, and we as contractors don't want to have to do the grow-in – not unless there's a line item bid for it.

GCI: So parameters aren't being defined clearly?

RODRIGUEZ: It becomes a gray area when you bring in germination. In most of what I go through, the gray area is a little different because it's really not when to seed or when sod goes down, but when you're irrigate it automatically. Most contracts are worded that if you use irrigation system to water an area, then the superintendent or owner takes over. The problem with that is that most people interpret that as an entire, complete golf hole. And how many times do we have to start here and end up on the same golf hole to complete the 18? We go with where we can. It could be environmental. It could be all kinds of things that are beyond our control that we have to piece out this golf course, and we can't turn it over hole by hole.

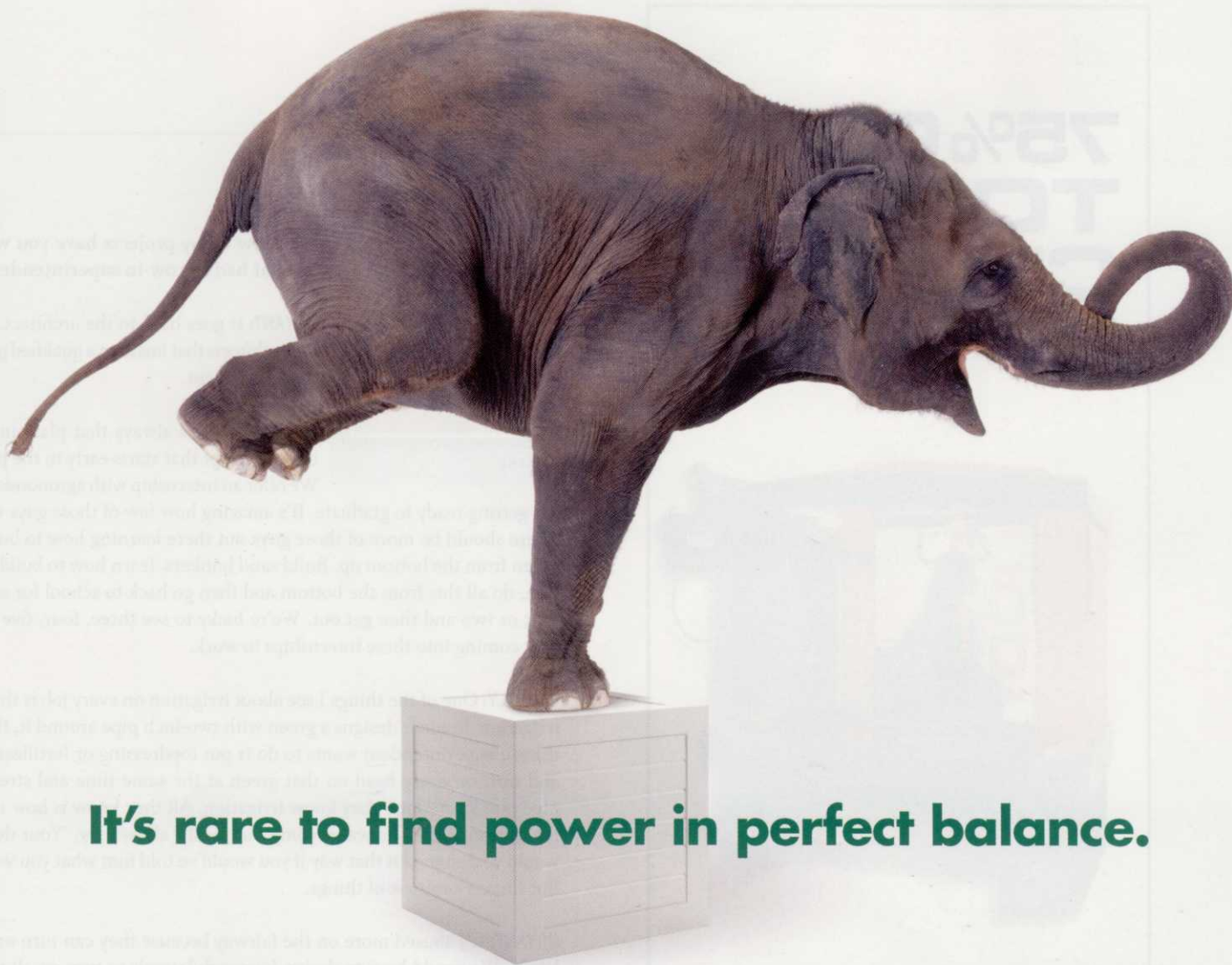
Now that's where the gray area is, but something that makes a golf course a lot better is the quality of the grow-in superintendent. I could name a few: Virgil Robinson, Earl Sanders, Scott Lewis. There are some people in the industry that take what we give them and can't wait to get rid of us and say, 'We love you guys, but get out of here. You're done, let me take it.' And they take it to the next level and do an excellent job. Then you get the rookie that keeps bringing you back, and now you're arguing about whether it's erosion, overwatering or whatever the reason might be, but that golf course doesn't get to the next level. It gets even worse sometimes.



Rodriguez

CAVERLY: We've tried to work with Michigan State University for years, and maybe right there's where the problem starts – the superintendents go through the turf program, and they believe because they have a degree in turfgrass management, they know how to do a grow-in. A grow-in is a completely different animal than maintaining existing turf. That education needs to be emphasized.

SLINGERLAND: Grow-in takes experience. It's nothing you can learn in a classroom. It's nothing you can learn until after you've done it. And it's not just once.



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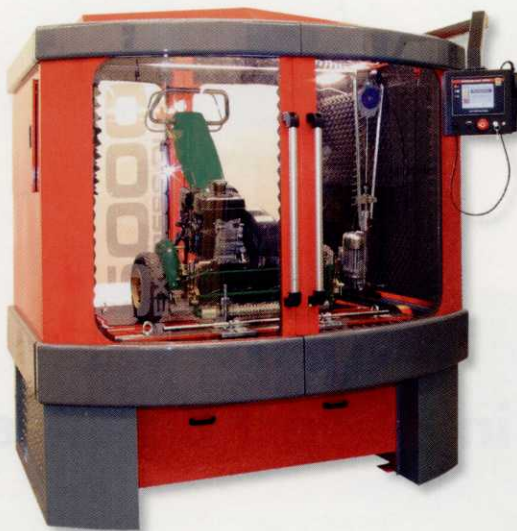
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COURSE CONSTRUCTION



Masey

GCI: How many projects have you worked on that had a grow-in superintendent?

BRYANT: It goes back to the architect. There are architects that insist on a qualified grow-in superintendent.

MASEY: There's always that planning, that team concept that starts early in the project. We offer an internship with agronomists who

are getting ready to graduate. It's amazing how few of those guys we see. There should be more of those guys out there learning how to build the green from the bottom up. Build sand bunkers, learn how to build irrigation, do all this from the bottom and then go back to school for another year or two and then get out. We're lucky to see three, four, five guys a year coming into these internships to work.

CAVERLY: One of the things I see about irrigation on every job is that if an irrigation designer designs a green with two-inch pipe around it, the first thing a superintendent wants to do is put topdressing or fertilizer down and turn on every head on that green at the same time and stress that pipe out. They think they know irrigation. All they know is how to push the button and make water come out. And I always say, 'Your designer would've designed it that way if you would've told him what you wanted.' But there's a misuse of things.

BRYANT: It's abused more on the fairway because they can turn on more heads. We would have to design four-inch laterals to turn on all the water they want to turn on. And they don't need to do that. With a proper grow-in process, they can schedule irrigation on the satellite without a central or with a central if it's available. They can schedule an irrigation without violating the hydraulics of the system. It just gets back to having an educated person do that.

Years ago, I was asked what was the most challenging problem facing irrigation in the future, and I said one of them was the education of the superintendents. Of all of the programs I've seen and all of the textbooks I've ever seen published that are used in major schools, none of them are current. They all go back to the late '60s and '70s in terms of irrigation technology. That's frustrating, and I don't know why the major manufacturers haven't made more effort to reach out to these universities to provide more education.

SLINGERLAND: I've been asked to talk at Texas Tech and Texas A&M, and I bet they spend less than 2 percent of the entire degree time talking about irrigation. And nowadays, it's one of the largest line items in a bid. It's nothing to see a \$2- to \$4-million dollar irrigation system these days.

BRYANT: It's not just to water the grass. An irrigation system is a long-term maintenance tool for the health of the grass and soil.

SLINGERLAND: It's maintenance of that system, too. They don't even teach that. Obviously, I'm in the pump business. I tell people that when I walk into some pump houses and pump stations that are a year old, they look like they've been there for years. **GCI**



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how sweet it is

In Michigan's Upper Peninsula, golfers might find themselves examining their concept of normal.

In Harris, Mich., the Hannahville Band of the Potawatomi Nation is building a new golf course as part of the "natural evolution" of its 22-year-old Island Resort & Casino. That's normal for casino resorts nowadays, but that might be where the comparisons end – designwise, constructionwise and financewise.

Through a fortune willed to the tribe by an outsider, Sweetgrass Golf Club is being built without borrowing any money, according to Tony Mancilla, council chairman of the Hannahville Indian Community. As important as that is, and as much as Mancilla promises they will hold the line on the cost of a round of golf, it's only one of the project's facets that sets it apart from the norm.

Normally, an architect won't identify any one of his creations as his best. But, Paul Albanese of Plymouth, Mich., says this is by far the best golf course he has designed.

Typically, courses in the U.P. consist of about 150 acres and are heavily forested, commanding golfers to be precise with their drives. But Sweetgrass consists of 320 acres of mostly open farm fields and mildly undulating hills, with only a handful of holes meandering through trees. Because of this, Albanese was able to create a layout that makes it difficult to lose balls when playing.

Normally, views of lakes or mountains outside a course are a drawing card. At Sweetgrass, the best views are the features the development team created, such as an island green and the waterfalls between the ninth and 18th greens, Albanese says.

Typically, 100-year-old, one-car iron bridges dot the highways of Michigan. At Sweetgrass, five of them will carry golf cars to the island green or over wetlands and creeks.

At Sweetgrass, native lore is written on scorecards and stretches out before the golfer on every hole, such as the fifth, which tells the legend of the serpent and the great flood, and the 18th, which depicts the story of the seven grandfathers.

Generally, those in the industry can make three educated guesses to determine the type of irrigation system installed on a new golf course. At Sweetgrass, the first-ever John Deere-manufactured Aurora Decoder System was installed.

Normally, if a golf facility contains a continuous flame, it's in the grill. At Sweetgrass, a flame is kept burning constantly in a firepot on the 10th tee box to mark the fact that the Hannahville Band of the Potawatomi Nation are known as keepers of the fire.

The golf course, which has been grassed, is expected to open in July.

CONTINUED GROWTH

Even though the golf course was a natural evolu-

tion for the resort, the tribe conducted a market study for the \$4-million to \$5-million project, Mancilla says.

"We did it for the bank and so the tribal council would feel comfortable," he says. "One of the studies said a golf course would be a big draw if done well, and that's what we intended. In every one of the market studies for previous expansions, we've always exceeded expectations."

The estate was left to the tribe by Zoe Branzowski, who had visited the reservation when she was a young girl in the 1930s, so the Hannahville Band was able to self-finance the golf course, Mancilla says. Since the casino opened in a pole barn in 1985, the tribe has managed the entire operation, overseeing construction of a small casino with 40 slot machines and 28 guestrooms in 1991; the addition of a convention center, 113 guestrooms and 860 slots in 1997; and the addition of 225 guestrooms and another 600 slots this year. Currently, the resort features 330 guestrooms, 1,500 slots and a convention center that holds about 400 people.

The tribe was confident it could build the golf course on its own, Mancilla says. The tribe used its own construction company moved the bulk of the dirt for the golf course, saving half the cost of such a job.

ROCK WORK

Aside from the heavy earth-moving, Grassi Enterprises of Howell, Mich., handled the construc-

Native American tribe differentiates its new course from others in Michigan's Upper Peninsula

BY MARK LESLIE



The \$4- to \$5-million Sweetgrass Golf Club was built without borrowing any money, according to the council chairman of the Hannahville Indian Community. Photo: EPIC Creative

tion, including one project that owner Dan Grassi says he'll never do again – chiseling about 10 feet of ledge rock to create a waterfall and 10-acre water feature. Afraid of using dynamite because it could cause fissures in the ledge rock leading to leaks in the ponds, Grassi and partner Dana Morrow used excavators with three jackhammers to do the job, which took two months. Grassi and Morrow used the rock from the excavation to create 200 feet of waterfalls that cascade down from the double-green at the ninth and 18th holes and between the two fairways and settle in three ponds along the way. From there, the water flows into a creek that runs through the golf course.

BETTER DIRT

The other considerable challenge for Grassi was compensating for the heavy clay soils throughout much of the property. While creating mounding, bunkers and other features, Grassi also was able to use the clay to line the several ponds that were built. But still, they needed to cap the clay with soil on which a golf course could be built. Albanese's design called for all-sand California greens, and the tees needed to be sandcapped before they could be laser-leveled to promote drainage. When a 10-acre parking lot was built, Grassi used the soil from that project to build features and elevate greens and tees. Another soil source was the earth around about 30 acres of trees that were logged.

"We weren't allowed to burn," Grassi says. "A

logger did the logging, and we did the stump-ing. Then we took an excavator and shook out the topsoil and loaded it into trucks to a pit for later use."

The stumps were used as fill.

NEW PLUMBING

Meanwhile, Grassi chose to be the first to install John Deere's new Aurora Decoder irrigation system, a two-wire system that includes more than 1,000 irrigation heads and almost 22 miles of pipe.

"Installation went 30-percent to 40-percent faster than a conventional irrigation system because you use fewer wires," Grassi says. "Typically, you irrigate a hole every couple days. We were able to get it down to a day, day and a half per hole. You use a lot less copper and run a lot less wire."

With the two-wire system, golf course superintendent John Holberton has individual head control, is able to operate it from a cell phone or computer, and, if he wants to add a head, can just run a piece of pipe and connect the wire to one of the nearest heads, not all the way back to the controller. That's good because Holberton, who joined the project in July 2006 after the irrigation choice was made, is adding more heads and might exceed more than 1,100 by the time he's done.

"Seeding lines exceeded irrigation," he says. "The wind blows every day, sometimes so hard that you only get water in one direction."



AT A GLANCE Sweetgrass Golf Club

Location: Harris, Mich.

Type of project: New construction

Cost: Between \$4 million and \$5 million

Construction start: August 2005

Construction end: October 2007

Course opening: July 2008

Owner: Hannahville Indian Community

Architect: Paul Albanese

Builder: Grassi Enterprises

Superintendent: John Holberton

Turfgrass: L-93 bentgrass on the greens and fairways; a mix of L-93 and Southshore on the tees; hard and sheep fescues in rough

A COURSE APART

Meanwhile, Albanese has been busy creating a course he believes will be different than any other in the Upper Peninsula.

"We tried to minimize forced carries and make it exceptionally playable because there will be a lot of high-handicap golfers; yet, you could have a PGA Tour event here from the back tees without question," he says. "We tried to create a golf course where you can have as much risk-and-reward challenge as you want. From the back tees, if you take the risky route, you can run into quite a bit of penalty. But if you deal with it effectively, if you get over the correct bunkers at the right spot, you will be amply rewarded. But all day long, you can bail out and make bogey; you're not going to make double-bogey. That's the essence of a good design. You won't be overly penalized."

Mancilla, an avid golfer, agrees Sweetgrass is a special golf course.

"It's different than anything you will see in this area," he says. "People are used to tree-lined courses in the Upper Peninsula. The difficulty is getting down the fairway and keeping your ball in play. That's not the case here. A lot of the Upper Peninsula courses aren't that long. You're never hitting over a 7-iron into a par-4. Here, you will play every club in your bag, and that sets it apart for me."

Sweetgrass is the first course to feature John Deere's new Aurora Decoder irrigation system. Photo: EPIC Creative

"As a golf course contractor, you always feel one or two holes were left out, but the land here was so aesthetically pleasing and with Paul's routing, we've got 18 great ones," says Grassi, who has built a couple dozen courses during the past 26 years. "It seems that on every hole you're on your own private hole."

Aside from a sound design strategy, Albanese wanted to incorporate another aspect that would create interest beyond golf – something unique to the tribe and the Potawatomi Nation.

"We wanted to reflect native culture and tribal heritage, so we started to look at the native stories and legends as a way that we could incorporate them into the design," he says. "We wanted the overall earth-moving and grading to blend in to what was already there. It doesn't look artificial, out of place or over the top. When you look at that bunkering, you think, 'Wow! That's visually dynamic.' But there's a story behind it, a genesis that comes from a tribal legend or story."

On some holes, seeing the legend is like discerning an animal in the clouds, such as the Sacred Deer hole where a gigantic waste bunker across the fairway resembles a deer. On the Serpent and the Great Flood hole, a serpentine bunker curls down to the edge of a two-acre pond that represents the flood. Seven pot bunkers symbolize the seven grandfathers in another legend. Redan means fortress or fort in French, so Albanese designed a Redan-style green on the

Michigami (Native American for "fort") hole.

OVER THE WATER

More visible to everyone will be the bridges. Tribal administrator Pat Groleau discovered the Michigan Department of Transportation was selling a historic one-car bridge for scrap metal. It happened that Albanese and Grassi were discussing the island green on the 15th hole, and a typical land bridge was planned because they didn't want to build a bridge. A cost analysis led to experimenting with a 104-foot-long iron bridge built in 1915. The bridge was disassembled, moved to the property, restored and reassembled at the island green. It looked so good, the Hannahville Indian Community bought four more, Mancilla says. The shortest is 50-feet long, and they all match, partly because they were built within 10 years of each other.

"It took a little more time and money than we anticipated, but those bridges have added a lot to the course," Mancilla says.

FRESH GRASS

Holberton, a Class A superintendent who came to Sweetgrass from Wild Bluff Golf Club in Brimley, Mich., has overseen a difficult grow-in period. Intense heat and only two-tenths of an inch of rain during 2.5 months caused concern and a lot of extra watering – so much so that Holberton had to make fungicide applications

to halt diseases. But now the rains have fallen, his crews are mowing all but two fairways, and the opening is in sight.

L-93 bentgrass was chosen for the greens and fairways, while a mix of L-93 and Southshore was used on the tees. A large area of bluegrass stands between the fairways and secondary rough, where hard and sheep fescues will create a wispy, Scottish look. And the sweetgrass?

"It's all around the course," Mancilla says. "Sweetgrass is burned before any tribal meeting. It clears your mind. We thought, 'For golf, what could be a more perfect thing?' You can't have bad thoughts in your head when you golf. It naturally fit. Plus, it has a wonderful smell."

The tribe hopes that translates into the smell of success. **GCI**

Mark Leslie is a freelance writer based in Monmouth, Maine. He can be reached at gripfast@adelphia.net.

The all-sand California greens were grassed with L-93 bentgrass. Photo: EPIC Creative



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BY DENNIS L. MARTIN, YANQI WU, JEFF A. ANDERSON, MICHAEL P. ANDERSON, GREGORY E. BELL AND NATHAN R. WALKER

Getting better

Investment yields high-quality Bermudagrass cultivars with improved cold hardiness

Bermudagrasses (*Cynodon* species) are the most widely used turfgrasses for golf courses, athletic fields and lawns in the Southern U.S. Tolerance of low mowing, as well as favorable heat, drought and traffic tolerance and few serious pests, makes Bermudagrass an attractive choice in tropical and subtropical areas.

Although widely adapted, Bermudagrass' susceptibility to freeze injury has been a continuing threat in many areas where it's used. Several years of mild winters might occur between catastrophic winter events. When severe winter-kill occurs, considerable time and expense can be involved repairing the damage, not to mention the potential for loss of revenues to severely damaged golf courses. Thus, there has been a long-term need for high-quality Bermudagrasses that have reduced risk of winter-kill.

In 1986, the Oklahoma State University, with support from the USGA, began a joint venture to improve the cold hardiness, as well as visual and performance qualities, of seeded turf Bermudagrass. At the time, the only choice of seeded Bermudagrasses was between the less winter hardy Arizona Common (*C. dactylon* var. *dactylon*) and the more cold hardy but coarse-textured Guymon (*C. dactylon* var. *dactylon* Guymon). The Bermudagrass breeding effort at OSU eventually would grow to encompass vegetatively propagated types.

BERMUDAGRASS DEVELOPMENT

Collection of *Cynodon* germplasm for culture and scientific use began about the start of the 20th century in South Africa and the U.S. (Taliaferro, 2003). Bermudagrass germplasm collection and taxonomic characterization at OSU was under way in the 1950s and '60s by Drs. Harlan, de



An interspecific hybrid and an aggressive common Bermudagrass duke it out during the establishment phase. Inability to eradicate on-site aggressive common Bermudagrass leads to mixtures with reduced playing surface quality. Work is under way at Oklahoma State University to determine if rapid-spreading improved types can compete better against common Bermudagrass. Photo: Oklahoma State University

Witt and Huffine (de Wet and Harlan, 1970; Harland et al. 1970a; 1970b). Turf Bermudagrass improvement at OSU with support by the USGA began in earnest in 1986 under the direction of Charles Taliaferro, Ph.D., with assistance from Mike Kenna, Ph.D., and Jeff Anderson, Ph.D. Joel Barber, Ph.D., joined the development effort in 1987. The initial broad objective was to develop finer textured, seed-propagated, cold-tolerant Bermudagrasses (*C. dactylon* var. *dactylon*) for the U.S. transition zone. The initial efforts involved collecting additional

germplasm, characterizing appearance and performance, improving the fertility and texture of breeding populations that were known to be cold tolerant, and improving the cold hardiness in populations known to be highly fertile.

By 1990, the effort was expanded to include the development of high-quality, cold-hardy vegetatively-propagated materials for golf course fairways and tees and to examine the possibility of generating improved African Bermudagrasses (*C. transvaalensis*) for use on putting greens. Field plantings of improved African Bermuda-



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Table 3. Mean turfgrass quality ratings of seeded Bermudagrasses during 2006 from nine transition zone locations, 2002-2006 NTEP Bermudagrass Trial. †

Seeded Entry	Mean
Yukon	6.2
Riviera	5.8
Contessa	5.8
SWI-1046	5.7
SWI-1012	5.7
SWI-1044	5.6
CIS-CD6	5.4
Veracruz	5.4
SWI-1014	5.4
CIS-CD7	5.3
SWI-1003	5.2
Sunbird	5.1
SWI-1001	5.1
Princess 77	5.0
Tift No. 2	5.0
Transcontinental	5.0
CIS-CD5	4.9
Tift No. 1	4.8
SR 9554	4.8
Panama	4.7
LaPaloma	4.7
FMC-6	4.7
Arizona Common	4.7
Southern Star	4.7
NuMex Sahara	4.6
Mohawk	4.6
Sundevil II	4.5
Sunstar	4.5
B-14	4.5
LSD (0.05)	0.3
Coeff. of variation (%)	12.3

† Excerpted from Tables 3b, p. 14., of the 2006 NTEP Progress Report NTEP No. 07-6. Quality rated on a 1 – 9 scale where 1 is poor and 9 is excellent.

grasses in tropical areas of the U.S. revealed the species performed well in fall, winter and spring but declined substantially in the summer months in tropical and the more southern subtropical planting sites. Many African Bermudagrass selections also suffered substantially more nematode problems on the sandy gulf coastal plain soils compared to the interspecific hybrid Tifdwarf and its derivatives.

Although efforts to generate putting green types of African Bermudagrass were discontinued by early 1997, the breeding and selection effort in that species resulted in improved types that had value in generating improved interspecific hybrid crosses (*C. dactylon* X *C. transvaalensis*) for the golf turf industry.

Taliaferro led the turf and forage Bermudagrass breeding/development effort from its inception until his retirement in December 2005. Guymon, Yukon, Riviera and Patriot turf Bermudagrasses as well as a number of promising experimental types (still under study) were developed under his leadership. Additionally, his familiarity with cultivar development helped facilitate cooperative releases of Midlawn and Midfield hybrid Bermudagrasses between Kansas State University and OSU in 1991. Midlawn and Midfield were developed by Ray Keen, Ph.D., of KSU with field testing assistance by John Pair, Ph.D., and Jack Fry, Ph.D., of KSU amongst other scientists.

The successes of the OSU turf Bermudagrass development program are because of USGA investment and the leadership of Taliaferro in concert with a number of past and current faculty, staff, graduate students and cooperating industry scientists.

Following the retirement of Taliaferro, an extensive search was conducted that resulted in the hiring of Yanqi Wu, Ph.D., in July 2006 to head up the OSU Bermudagrass breeding and development effort. Wu completed his Ph.D. under the tutelage of Taliaferro in 2004. A substantial portion of the newer Bermudagrass germplasm in our program was collected by and is in an ongoing state of characterization by Wu.

CULTIVAR RELEASES

Preceding the USGA-funded turf development effort at OSU, the forage/pasture effort resulted in the release of Guymon Bermudagrass (*C. dactylon* var. *dactylon* Guymon) in 1982 (Taliaferro et al. 1983). Guymon was arguably the first seed-

ed Bermudagrass with improved cold hardiness over Arizona Common. Guymon found favor in soil erosion control areas, roadsides, rangeland and pastures. With only the noncold-hardy Arizona common Bermudagrass seed being available during the 1980s, the coarse-textured but cold-hardy and vigorous Guymon was often used on lower maintenance sports fields and lawns in the transition zone.

Yukon Bermudagrass (*C. dactylon* var. *dactylon* Yukon), tested as OKS 91-11, was released in 2000 (Taliaferro et al. 2003). It was the first turf Bermudagrass from OSU developed with grant funding from the USGA. Yukon is a high-quality, seeded turf-type Bermudagrass with improved cold hardiness (Anderson et al., 2002) and improved spring dead spot disease tolerance (Martin et al. 2001, Morris, 2005).

Yukon found favor on some golf courses, sports fields and in the lawn and landscape industry. It performs well at the 0.5 inch mowing height typical of Bermudagrass fairways. Divot recovery rate of Yukon varies from intermediate (Martin, unpublished) to rapid (Karcher et al. 2005). Although Yukon seed availability has been limited recently, increased availability of seed is anticipated in the near future. Yukon continues to provide excellent quality in transition zone climates (Table 3). Yukon seed production rights are licensed to Seed Research of Oregon, a division of Pick Seed USA.

Riviera Bermudagrass (*C. dactylon* var. *dactylon* Riviera), tested as OKS 95-1, was released in 2001. Riviera is a high-quality, medium fine textured seeded Bermudagrass. Riviera seed production yields are typically higher than those of Yukon (Taliaferro et al. 2004). Riviera has improved cold hardiness (Anderson et al. 2007) and improved tolerance to spring dead spot disease (Morris, 2002b; 2005). Its divot recovery rate varies from intermediate (Karcher et al. 2005) to rapid (Martin, unpublished). Riviera is receiving increased use on fairways, tee boxes, athletic fields and lawns when a high-quality seeded Bermudagrass with improved cold hardiness is desired. Although originally created as a seed-propagated Bermudagrass, arrangements have been made to allow for the production of Riviera sod for use on sites where installation deadlines are too tight for seeding or high erosion potential demands sodding. Riviera seed production rights are licensed to Johnston Seed Co.

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☐ G-Builder/Developer
☐ H-Architect/Engineer
☐ I-Research Professional
☐ K-Assistant Superintendent
☐ L-Golf Course Management Company
 Executive
☐ Z-Others (please describe)

4. Number of Holes: (check one)

- ☐ A-9 Holes
☐ B-18 Holes
☐ C-27 Holes
☐ D-36 Holes
☐ E-Other

6. Total Annual Maintenance Budget: (check one)

- ☐ 1-Less than \$50,000
☐ 2-\$50,000-\$99,999
☐ 3-\$100,000-\$249,999
☐ 4-\$250,000-\$499,999
☐ 5-\$500,000-\$749,999
☐ 6-\$750,000-\$1,000,000
☐ 7-\$1,000,000+

7. Total Course Acreage _____

8. Course Renovation Plans for the Next 12 Months

- ☐ 1-Full Reconstruction
☐ 2-Partial Reconstruction
☐ 3-Greens
☐ 4-Tees
☐ 5-Fairways
☐ 6-Irrigation System
☐ 7-No Renovations Planned

9. If Only a Partial Reconstruction is Planned, Please Indicate the Number of Holes _____

10. What is the Name of the Architect Who Designed the Course? _____

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Patriot Bermudagrass (*C. dactylon* X *C. transvaalensis* Patriot), tested as OKC 18-4, was released in 2003. Patriot is a vegetatively propagated hybrid characterized as having improved color, quality and cold hardiness (Anderson et al, 2007). Divot recovery rate has been characterized as medium (Karcher et al. 2005) to rapid (Martin, unpublished). Licensed producers have reported rapid sod production cycles from planting to harvest. Improved tolerance to spring dead spot disease (Morris, 2002b; 2005) has been documented in Patriot. We believe Patriot to be the first commercialized interspecific hybrid turf-type Bermudagrass that's a tetraploid. It was created by the cross of the hexaploid 'Tifton 10' and an improved African Bermudagrass (a diploid) from our collection.

Patriot is well adapted to golf course tee box and fairway use and is experiencing increased use by the golf course industry. Patriot has been widely accepted as a sports turf playing surface for football, baseball and soccer in the transition zone and upper region of Bermudagrass adaptation.

DOWNSIDERS

For those unfamiliar with Bermudagrass, types with improved cold hardiness still experience canopy (leaf and aerial shoot) discoloration under short day length and chilling temperatures, as well as when death of leaves occurs from freeze injury.

Although these Bermudagrasses often perform suitably in full sun areas of USDA Hardiness zones 5a or 5b during summer, they still can experience significant winter-kill during cold winters as seen in National Turfgrass Evaluation Program Trials (Morris, 1997). The USDA Cold Hardiness zone map it is located at: <http://www.usna.usda.gov/Hardzone/ushzmap.html>. Prospective Bermudagrass users are urged to conduct a thorough risk/benefit analysis before making a decision to switch from one Bermudagrass to another or if switching from a cool-season grass to Bermudagrass.

SELECTIONS WITH PROMISE

OKC 70-18 Bermudagrass developed in part with funding from the USGA recently has undergone intensive internal as well as external testing (2002-2006 NTEP Bermudagrass trial). This variety ranked first in overall quality at nine transition zone test sites during several years of

the 2002 to 2006 NTEP trial. OKC 70-18 has several meritorious characteristics and a decision concerning possible release is forthcoming.

Three promising experimental Bermudagrasses from our program were entered into the 2007-2011 NTEP Bermudagrass trial. These included OKC 11-19 and OKC 11-34, vegetatively propagated types and a seeded type, OKS 2004-2. Sixteen NTEP testing sites are in place for the 2007 NTEP trial. Besides the traditional parameters of color, quality, texture, density, green-up and living cover, additional parameters monitored at selected sites will include sod tensile strength as well as tolerance to spring dead spot disease, salinity and traffic (Morris, 2007b).

CURRENT BREEDING

A new broad-based breeding population recently was formed using desirable Chinese *Cynodon* material selected from a collection by Wu made in 11 provincial regions of China. Selections were made based on extensive evaluation of chromosomal, morphological, seed yield potential and DNA marker investigations completed in 2004 (Wu et al. 2004, 2005, 2006a, 2006b). The population contains favorable traits for turf cultivar development, including darker green color, relatively fine texture, good winter hardiness and good sod density. Study of genetically relatedness assists the turf breeder in elimination of possible duplication of breeding efforts due to close relatedness of parents. Additionally, this work might help in locating crosses that have increased likelihood of compatibility. Complimentary to this work, Kevin Kenworthy, Ph.D., (now of the University of Florida Turfgrass Program) recently completed an assessment of the variability in 21 performance traits of African Bermudagrass while in our program (Kenworthy et al. 2006). The work determined which traits can most easily be improved in the African Bermudagrass parents that are subsequently used for developing interspecific crosses.

Applied field trials comparing later-stage promising experimental entries and industry standards are on-going for turf quality, divot recovery, spring dead spot disease resistance and sod tensile strength. Because of the inability to eradicate preexisting aggressive *C. dactylon* var. *dactylon* types from many installation sites, some superintendents choose not to renovate to im-

proved Bermudagrass cultivars. To address this issue, a preliminary study investigating the resistance of hybrid Bermudagrasses to encroachment by common Bermudagrass was initiated in 2006 by master's candidate Holly Han.

IMPROVING QUALITIES

Development of Bermudagrasses with high turf quality and suitable cold hardiness will remain a key focus of OSU's efforts. However, pursuit of additional improvements has begun. Limited fresh water resources threaten the vitality of the golf turf and landscape industry. Work commenced in late summer 2007 by master's candidate Santanu Thapa of OSU's program to evaluate the water use rate of several experimental OSU Bermudagrasses. Evaluation of leaf-firing resistance under drought will also be incorporated into OSU's screening program in the future. Development of Bermudagrasses with delayed leaf firing might help superintendents maintain quality turf during periods of limited natural rainfall and during irrigation restrictions.

Lack of suitable shade tolerance is a key limitation of Bermudagrass (Beard, 1973). As the golf course landscape matures, increased shading of turf occurs. Breeding and selection for improved shade tolerance in Bermudagrass has been conducted successfully by turfgrass scientists at the University of Georgia (Hanna and Maw, 2007). Screening of Bermudagrass germplasm for improved shade tolerance commenced in our program in summer of 2007 by Greg Bell, Ph.D., and Yanqi Wu, Ph.D. The work incorporates the use of a combination of natural and artificial shade.

CONCLUSIONS

USGA support has been instrumental in continuing a long-term turf Bermudagrass development effort at OSU. A comprehensive, interdisciplinary team of scientists has been assembled focusing on turf Bermudagrass improvement. The effort has resulted in extensive collection, characterization and improvement of breeding populations of Bermudagrasses from the *Cynodon dactylon* and *C. transvaalensis* species.

Studies aiding in the understanding of fundamental mechanisms of stress tolerance occurred. Improvements in turf quality, cold hardiness and spring dead spot tolerance occurred.

The improved turf Bermudagrasses Yukon, Riviera and Patriot were direct results of the

USGA investment.

Training of a number of graduate students occurred.

Two clonally propagated and one seed propagated selection with improved characteristics for the golf industry were entered into the 2007 NTEP Bermudagrass trial.

A new germplasm from China has been introduced recently into OSU's program.

Incorporation of increased water use efficiency, leaf firing resistance under drought and

improved shade tolerance in Bermudagrass are future goals of OSU's development effort. **GCI**

Dennis L. Martin, Ph.D., Jeffery A. Anderson Ph.D., Michael P. Anderson, Ph.D., and Gregory E. Bell, Ph.D., are professors in the horticulture and landscape architecture department at Oklahoma State University. Yanqi Wu, Ph.D., is assistant professor in the plant and soil sciences department, and Nathan R. Walker, Ph.D., is associate professor in the entomology and plant pathology department.

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Editor's note: Literature cited in this article can be found on GCI's Web site, www.golfcourseindustry.com, posted with this article.

IMPACT ON THE BUSINESS

Turf trial and error

New variations of Bermudagrass could benefit turfgrass managers working in the transition zone. BY KATIE MORRIS

Superintendents rely on the health and beauty of the course to attract golfers. If the turf is brown and damaged from cold temperatures or drought, a facility can lose money. That's why it's important for superintendents to use reliable and effective turfgrass.

Bermudagrass is one of the most commonly used turfgrasses seen on golf courses in the South, but even it has its limitations. Superintendents in the transition zone, including Colorado, Tennessee, Oklahoma and Missouri are constantly searching for ways to keep their turf green and healthy.

BENEFITS

Turfgrass managers agree Bermudagrass has its advantages over other turfgrasses such as bentgrass, Kentucky bluegrass and St. Augustinegrass. Ken Bennett, golf course superintendent at McAlester (Okla.) Country Club, manages Yukon Bermudagrass on his fairways and tees. Bennett says the benefit of using Bermudagrass instead of other turfs is its

heat tolerance and recovery time.

"[With Bermudagrass], if the turf gets hot and brown, it comes back in a couple of days; or if there are divots on the tee box or on the fairway, Bermudagrass grows back a lot faster than any other turf," he says.

In addition to healing quickly, Bermudagrass adapts well to low mowing heights and is best used for tees, greens and fairways. Mike Larson, general manager at Boulder (Colo.) County Club, likes Bermudagrass because it's a hardier grass that's tightly wound, which makes the greens extremely smooth, fast and consistent.

"It's a marvelous grass for surrounds around the green and on fairways," Larson says. "The balls will stand real nice on it with the short cut."

Doug Estes, director of grounds maintenance at the Colonial Country Club in Cordova, Tenn., manages Tifway 419 Bermudagrass because it makes the course more playable.

"The golfers like Bermudagrass better than other turfs because

it makes for a firmer and faster course," Estes says.

SAVINGS

When it comes to whether or not Bermudagrass saves money on pesticide and fertilizer use, turfgrass managers are split. Estes says Bermudagrass saves him money especially during the summer season when the temperatures keep the grass growing so he doesn't have to fertilize as much. Larson, on the other hand, says Bermudagrass would save superintendents money if they didn't have to overseed in the winter.

"What Bermudagrass saves you in pesticides and fertilizers, you're going to spend back in your overseeding product," he says.

Overseeding with ryegrass is one way superintendents protect their turfgrass during the winter season. The problem superintendent's encounter is they don't know when the first frost is going to occur, and if they miss their window of opportunity, they're going to have a lot of damage to repair in the spring.

LIMITATIONS.

The main concern superintendents have with Bermudagrass is its lack of resistance to cold weather. Bermudagrass is ideal for golf courses in tropical and subtropical areas, but when it comes to areas susceptible to freezing conditions, superintendents are in need of a variation with cold hardiness.

"Bermudagrass does well in heat and humidity but not so well in cold climates such as ours in Colorado," Larson says.

Researchers in the turf Bermudagrass breeding and development program at Oklahoma State University strive to develop a higher quality Bermudagrass with a higher tolerance to cold and shade.

A new shade tolerant Bermudagrass would help Estes fix a lot of weak areas under trees where the grass isn't as dense.

And despite the expense of overseeding, Larson says that if Bermudagrass had a variation with a higher cold tolerance he would certainly use it. **GCI**

BY ALEJANDRO CANEGALLO, MS, AND BRUCE MARTIN, PH.D., CLEMSON UNIVERSITY

Looking at large patch in seashore paspalum

Academics test fungicides on various paspalum cultivars to combat disease.

Seashore paspalum (*Paspalum vaginatum* O. Swartz), described as the environmentally friendly grass, is among the most salt- and sodium-tolerant turfgrass species. This halophytic, perennial warm-season grass, which undergoes winter dormancy in colder climates, produces a beautiful turfgrass surface during its growing season. It's used mainly in mild to warm climates when the soil salinity and sodicity are high, when drainage is a problem and the water quality is poor. It can be used as a turfgrass for lawns, athletic fields and golf courses but also to control erosion and stabilize dunes and coasts.

Typically, it's propagated vegetatively (by sod or sprigs). The species doesn't produce a large amount of viable seeds, and seed production generally isn't reliable. However, there's

a new cultivar, Sea Spray, which is established by seeds. Seashore paspalum produces a dense and high-quality turf. It has excellent drought resistance and dehydration avoidance, is fairly competitive against weeds and requires less nitrogen than other warm-season grasses.

Some authors consider seashore paspalum to be native to Asia, Africa and Europe and introduced to the Americas. Other botanists believe it originated in America and naturalized into the old world. Even though the true origin isn't clear, recent studies about gene diversity and genetic distance between populations from different regions support the theory that seashore paspalum was introduced to North and South America from South Africa. The diversity among the ecotypes from South Africa is the largest, while accessions from North America

and South America are highly similar.

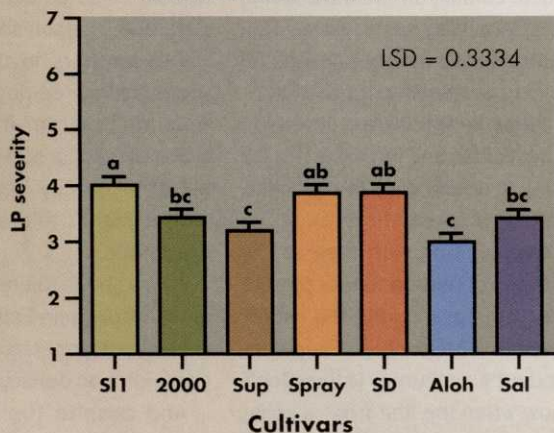
INTRODUCTION TO THE U.S.

The wild, fine-leaf textured ecotypes of seashore paspalum found along the coast of the Atlantic Ocean, primary throughout coastal South Carolina and Georgia, are believed to have been introduced from Africa with the slave ships. The grass was used as a bed on the bottom of the ships that arrived to America during 1700s and 1800s.

During 1950s, O.J. Noer propagated an ecotype he found from fairway 13 at the Sea Island Golf Club in Georgia and distributed it to several people interested in this grass, including some in Hawaii. Australian cultivars Futurf and Adalyd were introduced into California during the 1970s. Although some research was con-

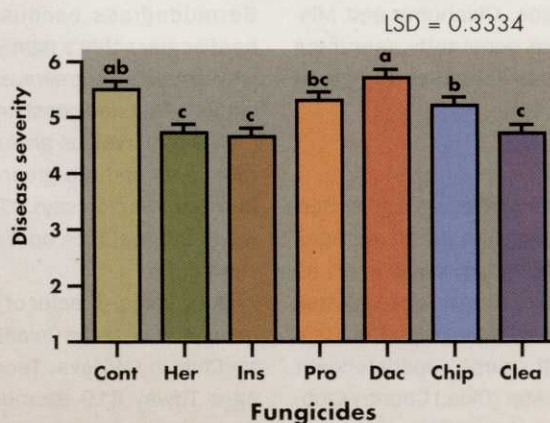
Large patch cultivar susceptibility MRGC

1=bad, 9=best
November 2005 to March 2006



Large patch fungicide control PDREC

1=bad, 9=best
November 2005 to March 2006



Symptoms of large patch on seashore paspalum fairways in South Carolina in December 2005. Photo: Alejandro Canegallo and Bruce Martin

ducted in California during the 1980s, the first formal breeding program for seashore paspalum was initiated at The University of Georgia by R.R. Duncan, Ph.D. in 1993.

CULTIVARS

All the cultivars being used as turfgrass are considered ecotypes, which means strains or selections within a given species adapted to a particular environment. Several collections of seashore paspalum have been assembled in Argentina with 28 Argentine-native ecotypes and in the U.S., first at the University of Florida Fort Lauderdale Agricultural Center and later between 1993 and 1999 at the University of Georgia, Griffin. Ecotypes from Rhodesia (now Zimbabwe), Mozambique, South Africa, Argentina, Hawaii, Australia, Guam, Brazil, Thailand, Israel, Uruguay, as well as Georgia, North Carolina, South Carolina, Florida, Texas, Arizona, California and Louisiana, have been assembled in the Georgia collection.

DISEASES

Seashore paspalum exhibits little disease incidence in its naturalized habitat; however, under the high maintenance programs on modern golf courses, several diseases have been found to cause severe damage under typical management and environmental regimes. Because seashore paspalum is a relatively new grass species for Southeastern U.S. golf courses, research information related to the occurrence and control of diseases on this grass is limited but is needed as interest in seashore paspalum increases in the Carolinas.

We've documented several diseases, includ-



ing large patch (caused by *Rhizoctonia solani* AG 2-2 'LP'), dollar spot (severe on several cultivars) and a necrotic superficial fairy ring. Also, we've isolated *R. zeae* from seashore paspalum and suspect it's pathogenic, similar to its ability to cause disease in several cool- and warm-season turfgrasses. In this article, we will only discuss the description of large patch symptoms, identification of the causal agent, cultivar susceptibility to the disease and curative effects of fungicides on large patch.

Large patch has been diagnosed on seashore paspalum in South Carolina and from several sites in Florida (Martin, unpublished). Symptoms typical of large patch were observed, which included more or less circular patches of yellow-brown turf from 17 inches as big as 10 feet or greater. Diseased grass shoots at the margins of patches were yellow, and lesions could be observed that originated near the attachment of shoots to stolons.

Samples were collected from solid, large brown patches as big as several meters in diameter from a putting green at Old Collier Golf

Club, Naples, Fla., in February, 2005 (cultivar Sea Isle Supreme), from a practice putting green (cultivar Sea Isle 2000) at May River Golf Club in Bluffton, S.C., on March 31, 2005, and from a tee box at The Ocean Course on Kiawah Island, S.C., on May 9, 2005, (cultivar Sea Isle 1). Lesions on the basal leaf sheaths were observed under the stereo microscope at 70 X magnification and symptomatic leaves were easily pulled off from the plant and observed under a compound microscope. The mycelium observed at the base of the leaves was identified as a *Rhizoctonia* species based on hyphal characteristics: 90-degree hyphal branching, dolipore septa, septa near the side hyphal branches, and hyphal diameter about 10 micrometers.

Using standard isolation techniques, *Rhizoctonia* was easily isolated and purified in culture for further identification. Cultural characteristics of mature cultures turned brown and had abundant aerial mycelium with little to no sclerotia formation in culture. Nuclei in cells were stained with a fluorescent dye, called DAPI, that binds to DNA clearly showing a multi-

nucleate condition. The above characteristics placed the fungus into the species *Rhizoctonia solani*, and cultures were consistent with other isolates from large patch identified from other turfgrasses.

Three isolates of *Rhizoctonia solani* from seashore paspalum were paired with a tester isolate of *R. solani* AG 2-2 LP isolated from *Zoysia* spp. This isolate previously was used as a tester in a separate study. This pairing is called anastomosis testing and can be used to determine affinity of strains of *R. solani*. In our experiments, the strains from seashore paspalum fused with a tester from *zoysia* and clearly placed the fungus into *R. solani* AG 2-2 LP. Further inoculations onto seashore paspalum reproduced the symptoms of large patch, and the fungus was reisolated and shown to be identical to the inoculated fungus. This proved pathogenicity and showed the causal agent to be *R. solani* AG 2-2 LP and the disease on seashore paspalum to be large patch. This is the first formal report of large patch on seashore paspalum.

TESTING FUNGICIDES

An experimental putting green was built at the Pee Dee Research and Education Center in July

2005. The green was constructed following USGA specifications for putting greens. Seven cultivars of seashore paspalum (Sea Isle 1, Sea Isle 2000, Sea Isle Supreme, Sea Spray, Sea Dwarf, Aloha, and Salam) were planted in a randomized complete block design with three replications. The plots were 12 feet by 21 feet.

A natural and severe epidemic of large patch occurred during late September and early October 2005. So, every cultivar main plot on the green was divided into seven subplots, 3 feet by 12 feet, and fungicides were tested to see their curative effect on the natural epidemic. Six fungicides were tested: Heritage (2 fl. oz.), Insignia (0.9 oz.), Cleary 3336 50WP (4 oz.), Daconil Ultrex (3.2 oz.), Prostar 70WP (2.2 oz.) and Chipco 26GT (3 oz.). All currently are registered for control of large patch or brown patch. The fungicides were sprayed three times during the epidemic, 14 days apart: Nov. 2, 16 and 30, 2005. Plots were treated again on March 7, 2006. A shielded plot sprayer was used and was equipped with Teejet 8002ER flat fan nozzles and the volume was 2.1 gallons per 1,000 square feet.

At May River Golf Club, the putting green was built in 2003 under USGA specifications. Exist-

ing seashore paspalum was killed by fumigation with methyl bromide, courtesy of Hendrix and Dail Co. on July 22, 2005 and replanted with the same seven cultivars as on the Pee Dee REC green on August 11, 2005, in a randomized complete block design with three replications. The plots were 11 feet by 20 feet.

There were no symptoms of large patch at May River during the natural outbreak at Pee Dee REC. Every cultivar main plot was subdivided into six 3-foot-by-11-foot subplots for fungicide treatments. Four to five oat seeds infested with *R. solani* were placed 10 inches apart from every end of every subplot on every cultivar and every replication. The same fungicides were tested at May River, except for Chipco 26GT. After inoculation, patches developed from the inoculum, but a severe natural epidemic occurred on the putting green and on the fairways of Sea Isle 1 shortly thereafter.

The fungicides were sprayed three times during the epidemic, 14 days apart: Dec. 1, Dec. 15 and Dec. 29, 2005. Plots were treated again on March 9, 2006. Plots were rated for disease severity on a 0 to 10 scale, with 0 equaling no disease and 10 equaling 100 percent of plot area affected, during and after the epidemics, from

IMPACT ON THE BUSINESS

Getting objective about paspalum

BY PAT JONES

Let's face it: It's a little hard to get "jump up and down" excited about most turfgrass varieties. That said, if any one species could be described as a "sensation," it would have to be paspalum.

During the past five years, in particular, many in warm-season climates have jumped on the paspalum bandwagon. And why not? It's tolerant to many environmental stresses, including salt, heat and most heavy metals in effluent water. As potable water becomes less of an option for courses, paspalum is a marvelous alternative. Better yet,

newer, finer-leaved varieties have excellent playability characteristics and numerous courses love it as a putting surface.

That said, nothing is perfect and, as the article above points out, vulnerability to patch disease can be a problem.

IMPACT

Like many turf management choices, the decision to use paspalum comes with consequences. In this case, facilities likely will have to consider a preventative fungicide program similar to those used by Northern courses managing bent/

poa mix. On a 14-day rotation, disease management costs will likely be higher than with traditional Bermudas or even the improved bents increasingly grown in warm-season areas.

That, of course, presents some budget challenges. However, those potentially could be offset by lower inputs of fertilizer and/or reduced water costs for facilities able to secure less-expensive effluent water.

BOTTOM LINE

Paspalum has the potential to be a revolutionary turf for some

facilities. However, the trade-off will be more intense management practices – particularly through establishment. As a side note, the biggest issue associated with paspalum continues to be availability. Its newfound popularity and the relative difficulty of producing it in quantity (sod or seed) had made paspalum a scarce commodity. But, if you can find it, establish it and manage it under the right circumstances, you might well be able to ensure security for your course in a not-too-distant future when water options are exceedingly limited. **GCI**

Severe symptoms of large patch on seashore paspalum fairways in South Carolina in February 2006. Large patch was so severe with coalescing patches the fairway turf resembled full dormancy. Photos: Alejandro Canegallo and Bruce Martin



October 2005 to March 2006. Turf quality was rated as well, on a 0 to 10 scale, with 0 being worst and 10 being best quality.

RESULTS AND DISCUSSION

Large patch symptoms in natural epidemics on seashore paspalum in South Carolina generally were similar to the disease as it's known in other warm-season turfgrasses. Patches varied in size from 12 inches to as big as several meters in diameter, coalescing frequently.

Isolates obtained from Florida or South Carolina were all identified as *R. solani* AG 2-2 'LP'. The identification was confirmed by culture characteristics, multinucleate hyphae and positive, high frequency anastomosis with a known tester isolate. Koch's Postulates were confirmed in the greenhouse inoculation trials on both cultivars of seashore paspalum.

FUNGICIDE CONTROL OF LARGE PATCH

There were significant differences in the reactions of cultivars of seashore paspalum to large patch and there were significant effects of fungicides on the disease. There was no interaction of

fungicides and cultivars, so main effects could be evaluated across fungicides or cultivars. Surprisingly, none of the fungicides tested provided complete control, although curative control of large patch in any grass is difficult.

At Pee Dee REC, the best control resulted from Insignia [mean of disease severity (MDS) = 4.66], Cleary 3336 (MDS = 4.68) and Heritage (MDS = 4.73). Plots treated with Chipco 26GT averaged a MDS of 5.16 and there was no significant difference with the plots treated with Prostar (MDS = 5.25). Plots treated with Daconil Ultrex (MDS = 5.65) had more disease than the control (MDS = 5.50) (LSD=0.3334).

At May River GC, Insignia (MDS = 3.0) and Heritage (MDS = 3.1) were most effective. There were no significant differences between plots treated with Daconil Ultrex (MDS = 3.46) and Prostar (MDS = 3.20). Control plots were the most severely affected with a MDS of 4.32 (LSD=0.4834).

PREVENTIVE APPLICATIONS

All the cultivars under the study were suscepti-

ble to large patch disease (*Rhizoctonia solani* AG 2-2 LP). There were some significant differences among the cultivars, with Sea Isle Supreme the least susceptible at both locations, and Sea Isle 2000 the most susceptible at Pee Dee REC and Sea Isle 1 at May River. Epidemics at Pee Dee REC were more severe than at May River. Generally, the colder winters in transition zone climate accounts for more severe large patch in several grasses. Nevertheless, large patch has been a recurring problem on seashore paspalum in the Naples, Fla., region.

The fungicides sprayed after severe epidemics didn't provide adequate control of the disease. The use of preventive applications of fungicides is highly recommended to control large patch on seashore paspalum. **GCI**

Alejandro Canegallo, MS, and Bruce Martin, Ph.D., are from Clemson University in South Carolina. They acknowledge the assistance of the staff at May River Golf Club in Bluffton, S.C., and the staff at Pee Dee Research and Education Center in this research.

BY JOHN WALSH

A must have

Colorado superintendent relies on growth regulators for dollars and sense

For Mike McLaren, plant growth regulators are a tool he couldn't live without.

"I couldn't keep green speeds where they're at, and the membership wouldn't be satisfied," says the director of course and grounds at Boulder Country Club in Colorado. "I could mow greens down to a nub without PGRs, but you're risking a lot."

McLaren, who has been at Boulder eight years, works with a \$1.2-million maintenance budget and a \$250,000 annual capital budget to keep the course in the shape and in the condition the 500 golfing families expect. The 27-hole course (the nine-hole Les Fowler course and an 18-hole championship course), which was built in the early 1960s, features *Poa annua*/bentgrass greens, ryegrass/*Poa annua* fairways, bluegrass/

ryegrass tees and bluegrass/ryegrass rough.

Additionally, the club has an array of amenities including indoor/outdoor pools and tennis courts and an athletic center, which will go through a \$12-million renovation in about a year. The initiation fee for a nonequity membership is \$30,000.

"Members are paying a fair amount for dues, and they want their money's worth," McLaren says. "Those who are vocal about the condition of the golf course care a lot about the club. I'm happy here. The membership is wonderful."

As part of McLaren's \$55,000 chemical budget, which increases slowly each year because of the increasing cost of goods, \$21,000 is spent on growth regulators. He purchases mainly Primo but also uses Em-

bark and Proxy during the growing season.

Most chemicals are purchased via an early-order agreement made in the winter months through Golf Enviro Systems and the manufacturers. This ensures availability and locks in the previous years price. They're delivered by Golf Enviro Systems based on the timing of McLaren's operational needs.

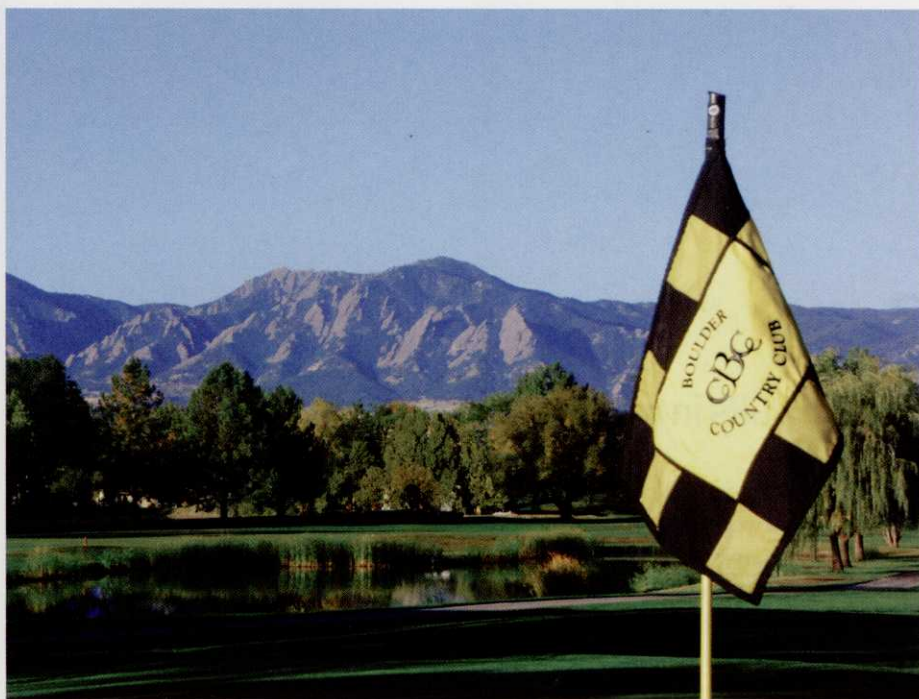
McLaren applies PGRs on greens and fairways starting in the spring and ending sometime in September.

"I spray all playing surfaces except the rough," he says. "I use a little more than 10 gallons per month or 80 gallons a year."

McLaren's first greens application of Embark is in late March or early April at 0.8 to 1 ounce per 1,000 square feet. The second application, two weeks later, is made at 0.6

At Boulder Country Club in Colorado, Mike McLaren use three different plant growth regulators – Primo, Embark and Proxy – on greens, tees and fairways during the growing season. Photo: Boulder Country Club





At Boulder Country Club in Colorado, Mike McLaren use three different plant growth regulators – Primo, Embark and Proxy – on greens, tees and fairways during the growing season. Photo: Boulder Country Club

ounce per 1,000 square feet. He applies a total of four applications of Embark every 10 to 14 days.

Like Embark, McLaren's first application of Primo is applied in late March or early April at 0.15 to 0.25 ounce per 1,000 square feet. Then it's applied three times a month for the rest of the growing season on greens. Fairways are treated with Primo at 1 ounce per 1,000 square feet each month.

Additionally, McLaren makes three applications of Proxy on greens – 6 or 7 ounces per 1,000 square feet each application – starting in late May or early June.

All PGRs are tank mixed. Embark is mixed with Primo and fertilizer. In late May and early June, Embark is still in the grass when McLaren applies Primo and Proxy, so all three chemicals are in the plant at one time.

On fairways, McLaren sprays Primo mainly to reduce labor. He says superintendents normally should mow fairways every day of the week in Colorado, but with Primo, he mows them about three to four times a week mainly to break up divots. The labor money saved by mowing fairways fewer times each week pays for the Primo itself, he says. It

also saves on wear and tear on the mowers, capital replacements, fuel, wear on the bedknives and the mechanic's time working on the mowers.

McLaren also uses Primo because it helps provide denser turf, reduce the number of *Poa* seed heads, provide darker color and improve the overall health of the grass plant.

"I believe that if you don't have the top growth, there's still as much photosynthesis, and that energy is going to the crown and roots of the plants," he says.

Unlike fairways, greens are mowed every day to provide a much better playing surface. The advantage of using PGRs on greens is helping maintain speeds and consistency (quality of turf). Most of the time, McLaren shoots for a 10.3-to-10.6-range on the Stimpmeter.

"I've met with some of the top superintendents at the private clubs in Denver, and they're shooting for a 10 to 10.3 range," he says.

Aside from Primo, McLaren uses Embark to control *Poa* seedheads. He says that in the past superintendents would apply Embark based on air temperature but ended up with inconsistent suppression results. So, he

started applying the product based on soil temperatures (40 to 45 degrees) because there's more of a direct tie to what the grass is doing with soil than air – especially in Colorado where one day it can snow and the next day be as warm as 70 degrees in the afternoon.

"After using Embark for years, I started to incorporate Proxy to control *Poa* seed growth," he says. "Whatever seed head isn't controlled with Embark I 'melt the seed off the stalk' with Proxy. There are usually two *Poa* blossoms, one in the spring and one in the fall, but we don't get the second blossom in the fall because we use Embark.

"Throughout the years, everyone has tried to get rid of *Poa*," he adds. "I have to manage my *Poa*, and there are only a couple products I'm comfortable with. I'm most comfortable with Primo because I've played with it a lot to extremes, and I haven't been able to damage the turf. I've played with Embark but not to the extent of Primo. I haven't had the chance to play with Embark as much partly because I don't have the desire because my program is producing great results."

Embark has a long residual in turf plant, McLaren says.

"After the first application, it's like topping off the cup so to speak," he says.

For McLaren, PGR use all comes down to dollars and sense. With the manpower he saves by using PGRs, he can use those resources elsewhere for detail work, which includes walk mowing tees, greens, and approaches, more intricate mowing patterns, trimming property lines and waterways, planting and maintaining extensive beddings, and just plain tidiness around the course.

"It's this kind of detail that separates a course with less resources from a high-end country club," he says. **GCI**

BY JOHN WALSH

The big three

Oregon superintendent benefits from PGRs in multiple ways

Darren Klein likes the results of using plant growth regulators, specifically the labor savings, consistent greens and seedhead control.

Klein, golf course superintendent at the private 18-hole Brasada Canyons, maintains the 1-year-old course that plays throughout the foot hills of Powell Butte, Ore. Klein has been growing in the course at Brasada, which has 240 members, for three years. He worked at Eagle Crest Resort outside Redmond, Ore., for 10 years before coming to Brasada. The layout features nine holes in canyons and on ridges. The fairways, rough and tees are an 80/20 mix of bluegrass and ryegrass. The greens are A-4 bentgrass.

Klein works with an annual maintenance budget of \$900,000, \$42,000 of which is allotted for chemicals and \$2,200 for plant growth regulators. He has a 22-person crew during the season and six full-timers.

Klein gets his plant growth regulator application rates right off the label.

For Klein, the biggest benefits of using plant growth regulators are the control of clippings on fairways and labor-saving costs as a result of being able to eliminate one mowing day per week. He mows fairways four times a week during the height of

growing season, and that tapers off to two or three times a week during the spring and fall. He sprays fairways with Primo once a month during the growing season, which is May, June, July and sometimes August in central Oregon.

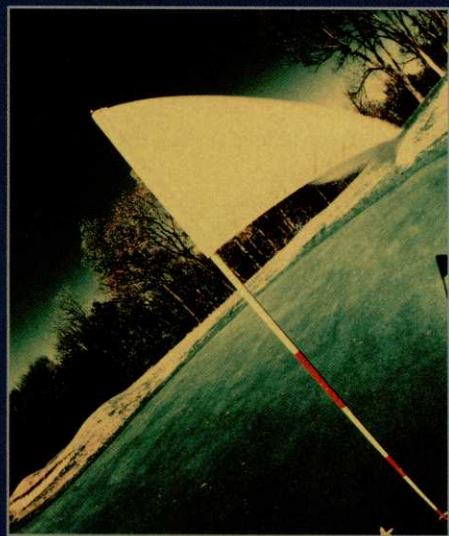
"Once the course was grown in and we were up and mowing the fairways, we

sprayed to help tillering and density," he says. "Now we use PGRs to control clippings in the fairways."

PGR use on greens helps give them consistent ball roll throughout the day. Green speeds run between 10 feet and 10.5 feet during the season and 12.5 feet during tournaments. He sprays greens,



Out of \$42,000 spent on chemicals annually, superintendent Darren Klein spends \$2,200 on plant growth regulators.



Darren Klein purchases plant growth regulators monthly because he doesn't like storing many chemicals on property.

which are mowed daily, every two weeks with Embark. The choice of Embark was influenced by a plan suggested to Klein for *Poa* control on greens from his distributor, Wilbur-Ellis. Klein says the A-4 bentgrass is dense enough to begin with, so he doesn't use PGRs to improve the density of the turf on the greens.

Klein doesn't use PGRs in the rough.

When applying PGRs, Klein uses the same TeeJet nozzles that he uses when applying fungicides. He doesn't tank mix the fungicides and PGRs when applying them, but he'll tank mix iron to mask any yellowing that might occur. He uses a granular fertilizer rather than a liquid fertilizer on the fairways, so the PGRs aren't tank mixed with fertilizer either. The PGR applications are timed between the fertilizer applications.

Klein has seen a little bit of *Poa annua* in the fairways but nothing on the greens so far.

"It's a losing battle," he says about eradicating *Poa*. It's about how slow you can let it move in."

Klein won't alter his PGR program even if *Poa* encroaches into the greens.



"We'll just have to live with it," he says.

Klein buys Primo and Embark through Wilbur-Ellis.

"I used to use Primo on everything, but the distributor recommended Embark," he says. "Embark used to be weather sensitive, but now it's been reformulated to be more user friendly."

When it comes to purchasing PGRs, Klein does it monthly, not in bulk at the beginning or end of the season.

"I don't like storing a lot of chemicals on property, plus Wilbur-Ellis is close by," he says. **GCI**



Tim Moraghan is principal of Aspire Golf Consulting in Long Valley, N.J. He can be reached at tmoraghan11@comcast.net or 908-635-7978.

FROM THE FRONT LINES

Q During the PGA Championship and other summer events, I've noticed the grounds crew was hand-watering/syringing greens during play. Is this a normal practice and why?

A Most definitely. The temperatures in Tulsa, Okla., exceeded 100 degrees. The PGA Championship staff allowed the superintendent to syringe and quickly water the greens, which were stressed because of the heat and player/caddie traffic. This is done frequently and coordinated with the on-course rules officials, so not to interfere with the players and the PGA's pace-of-play system. Turf health is always a priority, even during a major championship.

Q The competitors in the PGA Championship were concerned with excessive spike marks on the putting greens and were vocal about it. What's the deal?

A The professional tours allow metal spikes to be worn. A player has the option to wear metal spikes or to consider spikeless alternatives. Countless research indicates the alternatives are as stance stable and traction worthy as metal spikes – and far better agronomically.

At this year's PGA Championship, a combination of metal spikes, high heat, humidity and increased player traffic contributed to the tufting and vertical oriented position of grass blades. A rolling ball will be deflected from its true course to a different direction by the tufted grass blades because of a player's

option not to wear spikeless alternatives. Ironically, the players are concerned with an issue they create and can rectify.

Q While watching the team of riding mowers cut fairways, I noticed each operator carrying a yellow tennis ball. Why?

A When you have a line of six or more riding mowers cutting in the early morning or late evening hours, it's difficult to see or hear a fellow operator call out to the operator in front of him if there's an issue with the forward cutting unit. By having a yellow tennis ball available, the operator who notices an issue, such as a hydraulic leak, low tire air pressure, improper cutting quality or gas leak, can throw the yellow ball up ahead so the line of mowers can immediately stop. They'll exit and remove themselves from the fairway to avoid any further damage, reel streaking, striping skips or, most importantly, gas and oil leaks.

Q After greens were mowed in the evening, crew members were fixing ball marks created by the day's play. I noticed they were pouring something into the ball mark after repair. What was in the bottle?

A Each crew member repairing ball marks was adding a sand/bentgrass seed mix back into the ball blemish to begin the healing process. Also, the added sand material helps smooth the surface for a better ball roll for the competitors. The key is to avoid soil or organic matter in the mix in case of a rain event. In that case, any soil in the ball-repair mix, which becomes wet, will streak across the green surface during the mowing process, causing much anxiety to the golf course superintendent and his mechanical staff.

Q Why did the PGA golf course set-up officials stretch tape across the put-

ting surfaces before setting the hole location?

A This is to provide as accurate as possible a front-to-back and side-to-side yardage measurement for the hole location sheets that are given to the competitors and caddies before each formal round of play. The accuracy and distance control the players have is amazing. They require exact yardages for their approach shots into greens.

Also, the PGA Championship staff will place a painted dot on what they will use as their putting surface front-and-back axis along their interpreted line. The players might use these center dots to determine their yardages, or they might create their own measurement methods during practice rounds.

Q Why does the crew spend so much time hand-raking sand bunkers? Wouldn't it be easier to use a riding, mechanical sand rake?

A It would be easier, on occasion, and usually quicker to maintain a sand hazard with a mechanical rake. However, with rapid raking, slight ridges of sand or tire tracking will remain. Additionally, the swirling of sand might create varying depths within the bunker, especially where the operator enters and exits the hazard.

Any raised sand or ground in a bunker that's touched by a player's club during their backswing is a penalty. Although hand-raking is time consuming, it reduces this potential for penalty and creates a smooth, consistent playing surface. Unfortunately, the industry has provided a reduced price for hitting into a hazard because of consistency efforts. A miss-hit that lands into a hazard should be a penalty, not a reward. **GCI**

Editor's note: If you have a question about course set-up or maintenance as it relates to golf tournaments or events, e-mail Tim Moraghan at tmoraghan11@comcast.net.



Terry Buchen, CGCS, MG, is president of Golf Agronomy International. He's a 38-year AA life member of the GCSAA. He can be reached at terrybuchen@earthlink.net.



EQUIPMENT IDEAS

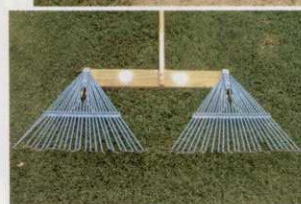
Hand-raking bunkers

Hand-raking bunkers provides excellent playing conditions, as witnessed regularly on televised professional and amateur tournaments and championships. Metal leaf rakes, which usually are used during these events, loosen and smooth the top $\frac{1}{4}$ to 1.5 inch of sand in bunkers.

To make his maintenance staff more productive while still providing excellent playing conditions, Skip Willms, CGCS, at The Owensia Club in Lake Forest, Ill., uses two metal leaf rakes mounted side by side to hand-rake bunkers.

Two metal leaf rake replacement heads, which Willms purchased at the local hardware and garden store, are bolted to a 1-inch-by-4-inch-by-24-inch piece of wood using two $\frac{1}{4}$ -inch-diameter bolts, washers and nuts. The 5-foot-long, $\frac{3}{4}$ -inch-diameter wooden handles, which also are replacements bought locally, are bolted to the wooden frame using the same hardware.

The two metal leaf rakes, wooden handle, hardware, wooden frame and labor costs less than \$60.



Hose-dragging device

Rich Reimers Sr., equipment manager at Sunnybrook Golf Club in Plymouth Meeting, Pa., built a simple but effective metal bracket/holder for dragging a hose between each green's hand-watering operation.

Two used 22-inch-wide fairway mower bedknives were heated with a torch and bent into place. A third bedknife was used to connect the other two, and they were all welded together. Reimers ground down the sharp edges of the bedknives for employee safety. He cut a used John Deere 2653 rear roller into a 2-inch-long piece and slid a 2-inch diameter PVC coupling inside where they were held together with a self-taping screw. The point of the screw was ground off. The coupling and roller piece hold the nozzle attached to the hose in place along with the isolation valve key. A 1.5-inch-diameter metal pipe about 6 inches long is welded to the bedknife frame, and the quick coupler key attached to the hose slides into it. Another metal pipe, 1 inch in diameter and 3 inches long, holds the soil probe in place.

All of the metal parts were primed and painted with flat black-colored enamel. The cost for the recycled metal and labor was less than \$50 per device. **GCI**



Travels With Terry

Globetrotting consulting agronomist Terry Buchen visits many golf courses annually with his digital camera in-hand. He shares helpful ideas relating to maintenance equipment from the golf course superintendents he visits – as well as a few ideas of his own – with timely photos and captions that explore the changing world of golf course management.

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Pat Jones is president of Flagstick LLC, a consulting firm that provides sales and marketing intelligence to green-industry businesses. He can be reached at psjhawk@cox.net or 440-478-4763.

PRO-ENVIRONMENT?

As always, the latest issue of PGA Magazine landed in my old-fashioned, wooden inbox with a resounding “whump!” Despite the ups and downs of the golf business, PGA Magazine has never lacked thickness. Its staff sells ad pages to every stinkin’ company in the galaxy that wants to make a buck off of boneheads like me who walk into a golf shop desperately looking for some magic product that will fix their slice and/or hook and/or distance problem and/or Charles Barkleyesque golf swing. Good for them.

The bottom line is that it’s a fine publication that does an admirable job of helping the PGA of America members do their jobs more effectively. But the cover of the typically fat September issue grabbed my attention with this headline: Golf and the Environment – How PGA Golf Professionals Are Working To Make Golf ‘Greener’. My keen, journalistically trained mind instantly processed the headline and generated this brilliantly stunning question: Huh? I was intrigued but a little befuddled by the idea of golf professionals being actively involved with environmental issues. At first blush, it seemed comparable to one of the turf magazines running a cover story about how superintendents are helping low-handicappers cure the yips.

So I enthusiastically dove into my copy of the magazine. In addition to the cover story – which is a lengthy, well-written and pretty straightforward account of the issues and what a few ecofriendly facilities are doing to address them – the magazine includes a president’s message column from the PGA’s Brian Whitcomb. It contained the following interesting statements:

“Many PGA members have already become involved in touting the positive environmental programs their facilities have in place. To these forward-thinking members, thanks for setting the example by taking on leadership roles in an area where we may have taken a back seat in the past.

“With the environment more and more

becoming a front-burner issue worldwide in the 21st century, we can no longer afford to leave the driving to someone else when it comes to golf.”

Hmmm. Nice turn of phrase. Carefully chosen words. Excellent automotive imagery. But vague enough to compel me to ask: What the hell does it actually mean? Let’s consider two possibilities.

First, one could read this quote (which is, admittedly, chopped from a larger column, so find a copy and read the entire thing for context) and conclude the PGA of America is completely supportive of superintendents taking the lead role on environmental issues but doesn’t want outsiders and activists to dictate what happens to our business.

... the PGA of America has decided, politically, they shouldn't cede authority for a real issue facing the golf industry ...

Alternatively, one could read this quote and conclude the PGA of America has decided, politically, they shouldn’t cede authority for a real issue facing the golf industry to a bunch of grass monkeys.

Obviously, those are my words, chosen specifically for shock value. Neither Whitcomb, PGA head honcho Joe Steranka nor anyone else with the association would ever use such a demeaning term for their superintendent colleagues – they’re good, well-intentioned people. That said, you have to wonder about the meaning of “back seat” versus “driving” in an official message delivered to more than 28,000 professionals, assistants and others.

(An aside: Think this might be some unintended accident of the writing or editing

process? Trust me, the president’s message in an official association publication isn’t written carelessly. Big associations put a lot of thought (and 86 approval stages) into what gets printed in these seemingly innocuous bits of copy. I worked with a bunch of GCSAA presidents on their monthly messages for many years and it was an often delicate and sometimes painful experience to try to align the president’s personal views with the official objectives of the organization. Some GCSAA presidents labored over every word, and some didn’t give a crap. I liked the latter better. But I digress ...)

I don’t think there’s anything accidental about Whitcomb’s statements. Based on history, as well as what was implied in the article, it’s clear to me the leadership of the PGA of America believes that urging members to be the environmental spokespeople for their facilities is another step in the process of establishing the golf professional as the lead dog in the facility management structure.

And you know what? If that’s true, I don’t blame them a bit because that’s their job down in Palm Beach Gardens. They’re supposed to represent and advance the interests of their members. If there’s an opportunity to position the PGA Professional as an environmental expert – or anything else that helps golf pros for that matter – they have an obligation to do it. If the GCSAA isn’t aggressively claiming ownership of the issue, why shouldn’t PGA at least take a shot at it?

There’s an old metaphor for situations like this: It’s called “the camel’s nose under the tent.” Camels are curious, hungry creatures that will poke their snouts beneath the edge of a tent to sniff around and find out if there’s something good to eat in there. Unless the camel is shooed away once it first appears, the rest of the camel will soon be inside and eating everything in sight. Thus, let’s hope the GCSAA’s leadership will quietly smack the camel – er, I mean the PGA – on the nose for this one. Otherwise, superintendents – the rightful owners of golf’s environmental success story – might soon find themselves being shoved out of their own tent by a large, hungry beast. **GCI**



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