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2018

CONSTRUCTION
& RENOVATION
— ISSUE —

— GOLF COURSE —
INDUSTRY

ROSS GOING *FORWARD...* ...ROSS IN *REVERSE*

HOW A PAIR OF OHIO COURSES MOLDED
BY THE FAMED ARCHITECT ARE HEADED
TOWARD CONTRASTING FUTURES.



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A Deeper Respect



ABOUT THE COVER: Image of Donald Ross
courtesy of Tufts Archives.

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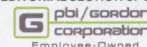
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YOU DONE SPOILED ME!

I got into journalism because I craved the rush of chasing down breaking news and covering the sexy beats like cops and community politics for the local daily newspaper (You remember those, right?).

But fate intervened in my career path, and I got an offer to serve as the editor of the paper's business desk. At the time, the business desk was an editorial graveyard typically populated by burned-out reporters who had seen too much for too long. The only thing alluring about the beat to a 20-something kid like myself was the few extra bucks in my paycheck.

Luckily for me there was this thing called the Internet that was suddenly all the rage. It was the first time I'd heard the word "entrepreneur" associated with 20-somethings like myself who were either overnight IPO millionaires or chasing that dream. The tech bubble's meteoric rise and eventual explosion, and the impact it had on local, national and global markets, was an incredible time to cover business. Those experiences made me into the writer and editor I am today.

That foundation landed me with GIE Media, where I was brought on to help build a fledgling B2B publication focused on commercial snow and ice management. You see, the mantra of "make money, save money" is applicable in nearly every industry, and I continued to rely on it when I was reassigned to contribute to and manage sister publication, Lawn & Landscape.

When I was promoted in March 2009 to manage GCI's editorial mission, quite frankly, I was thrown for a loop. I really didn't know much about the game beyond an affinity for Carl Spackler and "Caddyshack." Worse yet, superintendents didn't seem to follow the "make money, save money" formula that I was used to covering. In fact, you attempt to spend all the maintenance budget you've

been allotted, and then you may go back to your board to fund a capital project.

What I soon learn about you – and would come to admire and appreciate – is that a golf course superintendent is a sort of hybrid entrepreneur. I imagine somewhere a mad scientist distilled the best traits of a farmer, botanist, chemist, hydrologist, mechan-



Mike Zawacki
Editor

ic, accountant, electrician, teacher, coach and bazaar trader, and injected them into an entrepreneur to create the template for the modern golf course superintendent.

Never have I met and engaged with a community of professionals who are not only passionate about what they do, but who also truly care about the professional and personal well-being of their fellow superintendents, whether they reside down the road, across the country or half-a-world away. Over the years, this collegiality has made my job extremely easy, and it's been an honor to have the opportunity to tell your stories over the last decade.

Unfortunately, October is my last issue for GCI. I have the opportunity to devote my full attention back into the commercial snow market and take a leading role on helping to build something really special and impactful for that industry. Sort of like what you've established for the golf community, but with more snow and sub-zero temps.

As The Bard eloquently penned, parting is such sweet sorrow. I will truly miss all of you whom I've met and worked with over the years in every aspect of this industry. Closer to home, you're being left in some pretty good hands. Pat Jones and Guy Cipriano continue to devote their energies to growing and enhancing GCI and its offerings. I know for a fact they've got a few tricks up their sleeves for 2019.

I've never been one for long goodbyes, so until we meet again – thanks for the memories. **GCI**

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Tartan Talks No. 27



Brandon Johnson isn't shy about declaring his zest for golf.

"I would say

I'm a golf nut," he says. "I eat it. I sleep it. I dream it. I drink it."

That zest has made Johnson an ideal fit for a position at one of the world's most recognizable golf course architecture firms. Johnson joined Arnold Palmer Design in 2006. The position allowed him to flourish alongside one of the biggest golf nuts in history. Since Palmer's death in 2016, Johnson has worked with partner Thad Layton to continue a legacy of providing options for all golfers.

The firm has stayed busy in the last two years and Johnson discusses projects in multiple places, including Florida, California and Minnesota, in a Tartan Talks podcast. Johnson also describes his introduction to the business, how past experiences with The First Tee applies to his current work and the lessons he learned from Palmer. "He got on us a lot about making sure our designs, our features and our thinking was catered to the everyday person," Johnson says.

Enter <https://goo.gl/BVajF4> into your web browser to hear the energetic podcast.



PHOTO: ADOBE STOCK

THE AFTERMATH

Tim Moraghan offers a few observations about what to expect after Hurricane Florence and future storms.

BE COMPASSIONATE. Your staff has family and property to care for and worry about, as do you. And, when the governor issues an evacuation order, you are in no position to counteract this directive.

PLAN AHEAD. Take a serious look at your maintenance facility and envision what it would look like under 3 to 5 feet of water. What would be lost and where would you move your assets to? Besides checking the stability of your systems and features,

what is the evacuation plan for your equipment, chemicals and tools?

INSURANCE. What is the level of property and flood insurance that your club holds? Does it replace what is lost? What is the deductible? Remember, it takes a long time to get in line for the insurance inspector, to file claims, to negotiate and most of all, to receive payment from your insurance company.

WEATHER WATCHERS. In the case of

Florence, the National Hurricane Center was totally accurate as to where the storm would make landfall. Be careful who you listen to and study your geography. Much of South Carolina came out unscathed and yet, Weather Channel's frequent mentions of the Carolinas coast getting hammered wreaked havoc on businesses and lives throughout South Carolina. Find a local weather station and follow them. Find out which meteorologist is most accurate on an ongoing basis.

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RULES OF THE ROAD



Tim Moraghan, principal, ASPIRE Golf (tmoraghan@aspire-golf.com). Follow Tim's blog, Golf Course Confidential at www.aspire-golf.com/buzz.html or on Twitter @TimMoraghan

Golfers can get an awful lot of instruction in the game. How to swing, how to think, how to follow the Rules (hey, just because they CAN get it doesn't mean they DO). But one critical skill that no one teaches is how to drive a golf cart — or more correct, a golf car.

Put a golfer in a golf cart and he thinks he's Mario Andretti or Dale Earnhardt Jr. They get just as interested in making donuts as making birdies, and pay little attention to one another let alone the golf course and its maintenance.

I recently read an article that quoted golf course architect Gil Hanse saying that he abhors the use of golf carts and feels strongly that ours is a walking game. While I subscribe to this philosophy — golf is best played and enjoyed on foot — I also understand the revenue opportunities that carts offer and that there really are people who couldn't play the game without a cart and need to be accommodated.

I'm good with all that. But it still doesn't explain why otherwise good, smart golfers lose their mind and their manners when they get behind the wheel of a golf cart.

So this is one of those col-

umns that isn't as much information for you as a message to your golfers. Maybe you want to *tear it out* and post it in the locker room or elsewhere around your club, or pull out the points below that most fit your situation. Please, be my guest. If we can help stop the scourge of terrible, and dangerous, cart driving on golf courses, we'll all be better off.

Start with this: No matter where you are, chances are you had a pretty

lousy summer in terms of weather. Excessive rain, generally crappy conditions, heat, humidity, torrential storms, even fires ... almost no one was spared. Golf courses everywhere had to put up with a lot: Damage, unintentional or not, from golf carts was salt in the wound of a very tough few months.

And while we're on the subject of carts, here's something golfers might want to take up with their clubs. Why is it, whether I'm playing by myself or with a friend, we're both charged the same rate for the cart? Courses should have a "shared rate" that is favorable to players. Not doing so leads to more and more single carts zooming around out there, contributing to all the problems outlined above.

Love 'em or hate 'em, carts are here to stay. And now they're being outfitted with music, phone chargers, GPS systems and more. Fine with me — as long as you drive them with care and show respect for other golfers and the course. **GCI**





What YOU Should Know About DRIVING a GOLF CART

1 Cart paths are there for a reason. There is no need to drive or park anywhere other than on the path when conditions warrant.

2 Pulling off the path approaching tees and greens wears out the turf close to the paths. The more the turf declines, the more drivers creep closer to areas where carts do the most damage.

3 If you belong to or play at a course that is part of a community, obey traffic signs. A stop sign means just that: Stop! A 400-pound plastic golf cart meeting a 3,000-pound metal automobile is not a pretty sight.

4 Even if you're the only one out on the course in the early evening, even if there's no one else around, it's still not OK to drive wherever you want. No one might see you, but the turf will still be affected.

5 Ropes and stakes are not there to create an obstacle course for you to have fun driving over, around and through. They are there to keep you safe and keep the turf healthy.

6 Same with speed bumps, curbs and rumble strips. They are there to get your attention and keep you safe. And stone-risers on a curve and by the greens are not there to tell you when it's time to leave the path and go closer!

7 90 degrees means 90 degrees! Golfers who drive on the course after aerification, Frazee mowing, a rain event or other anomalies are asked to go straight over and straight back for a reason. No meandering, no venturing into a "cone of uncertainty." And in case you've forgotten your high school geometry, 90 degrees is a right angle, a straight line to your ball and back. Right angles are not 70 degrees or 110 degrees.

8 Having a special flag on your cart does not give you permission to drive across the putting green or through puddles and native areas. It's supposed to mean

you have a legitimate disability, which allows you some special privilege and leeway. How much is simple common sense. Don't roll over the flower beds or take a tour of the bunkers. Don't park with one tire on the green and don't drive through the fine fescue. Stay as close to the paved surface as possible and do not venture into any protected areas.

9 Water is going to collect in low spots, but that doesn't mean you have to drive through every body of standing water on the course. Steer carefully around the puddles and the cart, the course, and you are more likely to be OK. And just because you see someone else pretend he's on the flume ride at the amusement park, doesn't mean you have to make your own waves.

10 Signs that ask you to "Enter Here" and "Exit Here" along the cart paths are there for a reason. Yes, the superintendent is trying to make his life easier, but he's doing that so the course doesn't take the brunt of bad driving.

11 Driving over sprinkler heads and next to fairway bunkers can cause a lot of damage, which means repair and maintenance, with the costs ultimately passed on to you, the golfer.

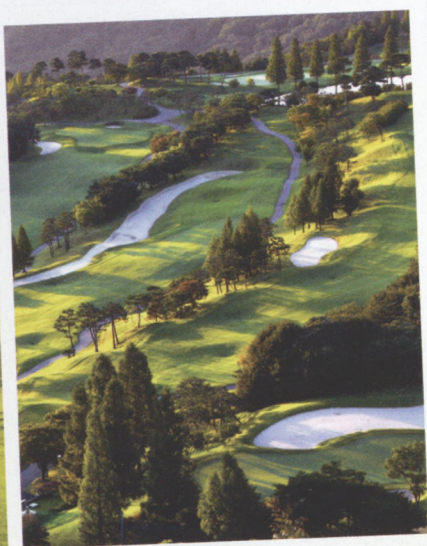
12 If you're looking for a ball, don't park the cart at the furthest point and walk back, abandoning the cart and ignoring players behind you. If there are two of you in the cart, one of you should get out and walk while the other searches in the cart. And when you do find the ball, leave your cap, towel or head cover close by so you don't have to search all over again after getting a club. Not only will you do less damage to the course, but you'll help speed up play.

13 Keep your legs and feet in the cart. You'd be surprised how many legs and ankles are broken every year by getting caught between the cart and the curb. Watch out for overhanging branches, too.

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4	Xzemplar fungicide	July 15	0.26 fl oz	Dollar spot, brown patch, summer patch, fairy ring	1-2 gals/1,000 sq ft
5	Xzemplar fungicide	Sept 15	0.26 fl oz	Dollar spot	1-2 gals/1,000 sq ft
6	Emerald fungicide	October 15	0.18 fl oz	Dollar spot	1-2 gals/1,000 sq ft

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ROSS GOING FORWARD...

A golf course with a major championship pedigree molded by Donald Ross in its infancy, Columbus Country Club is relying on throwback tactics to attract a multi-generational membership.

By **Guy Cipriano**

The halfway house at Columbus Country Club sits at the confluence of refreshment and history. It's a rare golfing perch on Columbus' relatively flat east side – the bulk of the booming Ohio city's other prominent courses are on other sides of town – with a patio overlooking parts of five holes.



Staring below the bluffs in the first half of the 20th century, a member might have spotted Tom Bendelow, Donald Ross and H.S. Colt inspecting the land adjacent to Big Walnut Creek. Similar glances in the second half of the century would have yielded glimpses of Dick Wilson and Geoffrey Cornish analyzing the course. From July 16-19, 1964, the course hosted the PGA Championship, Bobby Nichols' lone

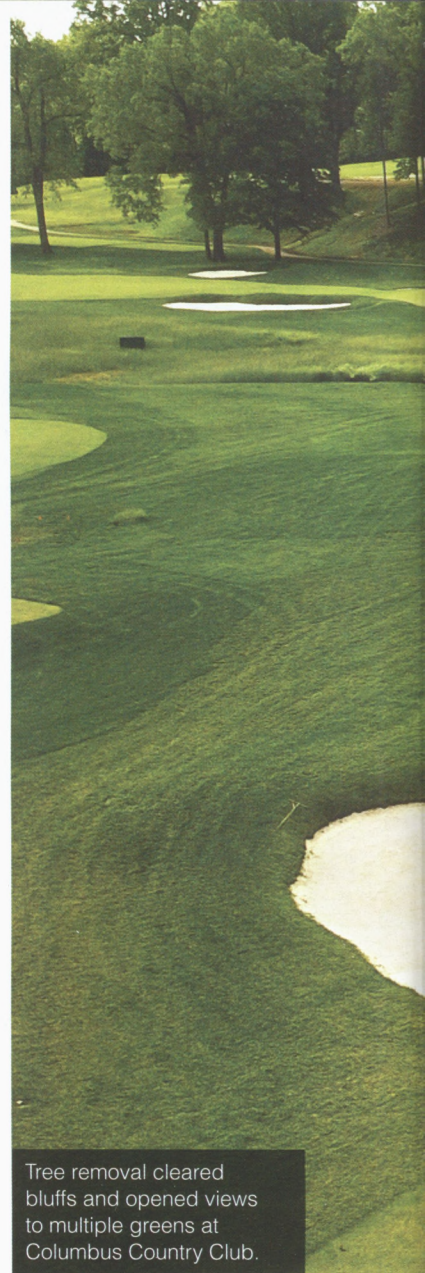
major championship triumph, making the area a delightful spot for spectator indulgence. There's Arnie on No. 5! Is that the hometown boy Jack approaching the 12th green?

The club has indulged in consultation with at least 12 architects in its 111 golfing years. Ross shimmied the course in multiple directions from 1915-40; others shifted away from his intent, altering greens and planting trees on generous

bluffs abutting multiple holes.

Anybody resting at the halfway house from 2016-17 saw a symbolic occurrence: Columbus's oldest private club using its past to preserve its future. On its greatest asset, a golf course with a major championship pedigree Ross molded in its infancy, Columbus Country Club is relying on a restoration to attract a multi-generational membership. "We want to be the best family oriented private club in Central Ohio," general manager Jay Frank says.

Trending in that direction involved selecting an outside company, Troon, to manage the club, followed by three straight years of construction, beginning with a clubhouse renovation in 2015. Kevin Hargrave, a Louisville, Ky.-based associate of restoration guru Keith Foster, oversaw work to the golf course. Foster and Hargrave's involvement with Columbus Country Club commenced in 2011, two years before Troon's arrival at the club. Foster and Hargrave



Tree removal cleared bluffs and opened views to multiple greens at Columbus Country Club.

created a master plan as the club mulled its options. Foster then moved from Kentucky to Virginia, handing the project to Hargrave, who guided Columbus Country Club through two construction phases, beginning with front-nine work from fall 2016 until spring 2017. Work on the back nine started in September 2017 and a golf course featuring two restored nines reopened this past spring.

Hargrave's first impressions of Columbus Country Club had thousands of obstructions. "When we first got there, they had so many trees," he says. "You couldn't see anything. There were so many trees that



it was choking out the turf underneath.”

The club removed more than 1,500 trees during the two phases. A lukewarm response from some members, a commonality in private club restorations, greeted the initial tree work, a necessity if Columbus Country Club wanted to return the Ross flavor via fairway expansion. Working for Foster ingrained into Hargrave the importance of using an original architect’s intent to guide a modern project.

Although it started later than expected, the first round of significant tree removal represented a breakthrough

in Columbus Country Club’s restoration. Members of the renovation committee wanted trees cleared from bluffs on three separate parts of the golf course: left of the first hole, between the fifth and 10th holes, and between the 12th and 14th holes. Proponents of thinning the bluffs, Hargrave says, convinced the club to increase its budget for the project.

Among the lauded projects where Hargrave assisted Foster is Moraine Country Club, 95 miles to the west of Columbus Country Club. Moraine, coincidentally, also has a PGA Championship pedigree (Byron Nelson won his final major

at the Dayton-area course in 1945) and removing thousands of trees opened vistas between holes, exposing indelible golf land. Moraine reopened in June 2016, a few months before work at Columbus Country Club commenced.

The similarities between Columbus Country Club and Moraine extended to many of the people working in the dirt, as GCBA member TDI Golf served as the builder on both projects, increasing Hargrave’s comfort level as the Columbus work headed in a bold direction. Other objectives at Columbus Country Club included lifting the fronts of

12 greens to enhance drainage on approaches, returning bunkers to a flat-bottom style, thus improving drainage and playability, and repositioning multiple tees. The course now plays anywhere from 5,400 to 7,200, providing flexibility to attract a variety of players.

Columbus Country Club boasts a nine-hole, par-3 course at the front of the property. The land where the short course sits served as a parking lot during the PGA Championship. The club used funds from the tournament to construct the par-3 course, a forward-thinking move five decades before adding short courses became

vogue. The presence of the course allowed members to play a form of 18-hole golf as it closed alternate nines during the restoration. Upgrading the short course, along with the 18-hole course's irrigation system,

is part of the club's long-range plans.

With two phases of construction completed and the 18-hole course in service, enthusiastic superintendent J.R. Lynn and his team are now working to provide

the family friendly playing conditions club leaders are seeking. Lynn assigned four members of his Columbus Country Club team each day to assist construction crews with nettlesome tasks such as locating and relocating drainage and irrigation points. His team also sprayed more than 60 acres with Roundup, as the club proceeded with transforming the bluffs and other wayward spots into fescue areas.

Establishing playable fescue areas represents one of Lynn's biggest post-construction challenges. The initial fescue planting this year included using ryegrass as a nursegrass. By early June, the ryegrass had reached three feet and produced thick spots near the surface. Over time, the fescue will thin out, creating visually appealing areas surrounding primary turf.

The bluffs promise to be a feature unlike anything in Columbus, with Lynn and Hargrave envisioning a wispy, colorful appearance. Golfer education and patience are critical parts of the fescue establishment process.

"The fine fescue that's planted looks really good and healthy underneath," says Lynn, who previously worked at Crooked Stick. "We will start to eliminate the ryegrass and encourage the fine fescue growth and turn irritation off in those areas as we need to. If we need to dump some sand in some spots, we will do that to get that thin, wispy get in and find your golf ball feel. We will keep pushing for that. We are going to be managing to not manage those areas so hard."

Lynn adds he wants members to "not feel like they are in the Columbus zip code" while on the course. An unimpeded view of Big Walnut Creek on the third hole's uphill approach shot provide wildlife watching opportunities; simple tee box presentations featuring markers and wooden benches amplify the early 20th century vibe crafted through the restoration. This spring and summer proved soggy, but producing firm conditions, which becomes obtainable because of wider fairways and fewer trees, ranks high on Lynn's ways of blending the past with the future. "From a management standpoint and maintenance standpoint, over the next three to five years, we're going to hone in on how we manage the course in the most family friendly way," he says. **GCI**



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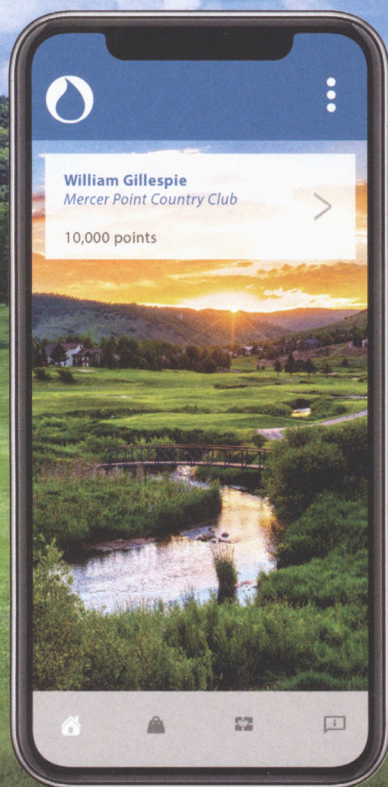
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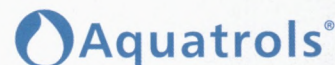
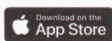
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Cleveland Metroparks Acacia Reservation is the site of a former Donald Ross-designed private golf course.

...ROSS IN REVERSE

The former Acacia Country Club is a living example of how an ecological plan can return land to space where wildlife plays.

By **Kristen Hampshire**

On a hazy, humid August day when the landscape at the former Acacia Country Club golf course in Lyndhurst, Ohio, might have been dotted with golf balls and players focused on the game, a couple sits on a picnic bench and admires swaths of wildflowers. A bicycler pedals on a path originally designated for carts. An excited golden lab bounds across wild grasses, his own leash in mouth—a portrait of pure, good ‘ole outdoor fun that bucks the refined history of a club that opened in 1921 and was designed by the esteemed Donald Ross.



Acacia, today, is a reservation — not reservations-only.

The 155-acre urban greenspace across from a high-end shopping mall, along a heavily populated corridor in a desirable Cleveland suburb, is now home to more than 460 different plants, animals, birds and insects. The branch of Euclid Creek that rolls through the property has 10 times as many fish. More than 1,000 trees have been planted and today the space is evolving back to upland forest, marsh and meadow.

“It’s amazing just how fast nature is really taking over,” says Cleveland Metroparks CEO Brian Zimmerman, who is experienced in golf course turf management as a 25-year GCSAA member. “The land looks natural, the juxtapose of a golf course that is pristine, manicured and not a blade of grass out of place.”

People are attracted to the new Acacia.

The newly acquired reservation generated more than a half-million visitors in its first five years, even while the bulk of the park was closed for restoration activity. It’s safe to say that few of those guests would have had access to the gated country club before its purchase by Virginia-based The Conservation Fund, which paid \$14.75 million

and then gifted the property to the Metroparks, which serves as a steward upholding a deed that outlines sustainable specifics. For example, the park can contain no more than two acres of impervious surface.

The Conservation Fund had its eye on the property for a good year before the purchase in 2012. Developers did, too, including the City of Lyndhurst, which countered with \$16 million fronted by a developer. The plot was prime for economic development. Instead, it preserves a legacy in a surprising way.

In spring 2018, the last fencing was removed from inside the Acacia Reservation as the Metroparks continues an ecological restoration master plan. “It has been received with huge, positive public response,” says Jennifer Grieser, senior natural resources area manager, urban watersheds for Cleveland Metroparks. Grieser adds that her colleague who removed the course’s drain tile and installed a diverse native plant mix fields questions from visitors who want to know how to create the look in their own backyards. “They’re asking, ‘Which mix did you use?’ and, ‘What plant is that?’”

It’s likely the 400 Acacia Country Club members standing when the course was sold did not expect

billowing grasses to replace manicured greens. The transformation makes Acacia Reservation a national success story of not only how urban land can be restored to its natural state, but also how golf courses can capture opportunities to work ecologically-minded plans into their own courses.

“We are still able to offer a high level of play while our golf course managers work with our natural resources managers to determine how to handle roughs more naturally,” says Grieser, relating that the Metroparks operates eight golf courses on its various reservations in Northeast Ohio. “Our golf course managers really do try to be mindful of environmental impacts.”

LETTING THE LAND GO

The gradual process of transforming Acacia into a reservation is one lesson superintendents can take away from the project. Creating natural spaces takes time, planning and a mindset shift. David Donner, the course manager at Metroparks Seneca Golf Course and a beekeeper hobbyist, admits that not every golfer is thrilled to see wild grasses in the roughs. But do spaces where errant balls collect really need to be mowed?

At Seneca, a 27-hole facility in suburban Broadview Heights, the team is looking at the “roughs outside of the roughs” and areas that separate the property’s three courses. “While golfers tend to get bent out of shape about natural areas, we are trying to explain why we have those places,” Donner says.

The benefit of no-mow zones on the course: “We’ve saving fuel, saving man-hours, saving inputs like herbicides and giving more places for wildlife to go,” Donner says.

His pro tip: “Look at areas on the course that are not being used. If you are manicuring a space that isn’t in play, take a

look at turning that into a more natural situation.”

That could be as simple as letting the land go.

Donner points to Acacia’s newfound wild landscape and how quickly the land “repaired” itself following generations of careful turf management. “It’s amazing and interesting that a few months after letting the course go, how fast nature moved back in,” he says. “You saw maple trees sprouting in the fairways right away.

“There have been many



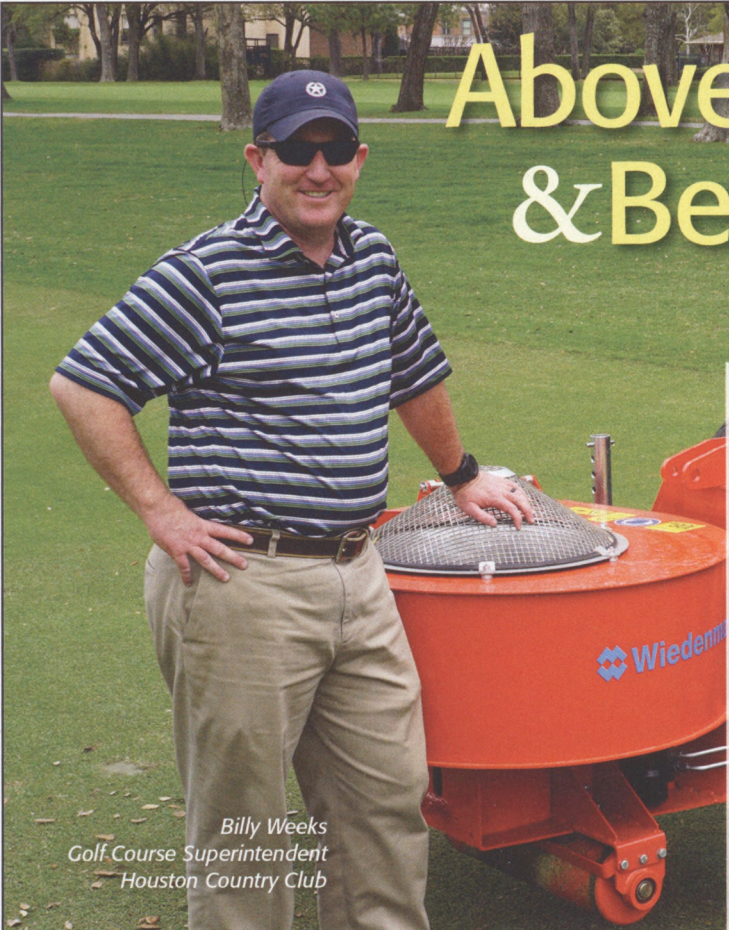
▲ Practices at Acacia Reservation are helping course managers at the eight Cleveland Metroparks golf courses.

courses in the area that have closed,” he continues, supporting Zimmerman’s remark that the region simply has more golf courses than players these days, which built an even stronger case for converting the urban land back to nature. “It’s amaz-

ing to see the transition even if nothing is done to the land.”

Meanwhile, at Acacia Reservation, there were detailed plans in place to turn the land back over to nature. The process began the year after the sale closed, in 2013, with a


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bioblitz to take inventory of the land. "We recruited experts and our in-house staff to document anything living that was out there, from plants to insects to mammals and birds," Grieser says.

Two bioblitzes were conducted at Acacia that year — one in spring, and another in late summer. "Those bioblitzes along with vegetation monitoring plots, and stream and lake surveys, really painted a good picture of what was the near-term after golf cessation," Grieser says.

Next came efforts to find out what was underneath the course: the infrastructure.

"We reached out to the course's previous managers and past superintendents to inquire about how it had been managed — if there were any drain tile maps, irrigation maps or other nuanced information that could help us understand the landscape more," Grieser says.

There wasn't much information available.

So next came some test pits of the soil. "It was indicative of wetlands, and we really hadn't anticipated that because there were no wetlands on the property — and that was largely because of the unnatural ways that water was being managed with the drain tiles," Grieser says.

Indeed, the property was intended to include marshland: wetland smack dab in traffic-jammed suburbia.

Taking a cue from this, superintendents and golf course managers can take an extensive look at irrigation practices and how to water spaces on the course that do not get play. Donner relates how the Metroparks' Seneca

“There have been many courses in the area that have closed. It's amazing to see the transition even if nothing is done to the land.”

— David Donner,
Seneca Golf Course

course renovated its irrigation system to single-row irrigation — with a double row here and there. "We are being more considerate of our water," he says.

Seneca ended up "rescuing" some of the irrigation heads from the former Acacia to use. Donner can't say exactly how much water the course saves with the new irrigation system, but the point is that efforts are in progress to minimize the course's impact on nature. That includes installing more drought-tolerant turf types that require less watering, he says.

BUZZING WITH SUSTAINABILITY EFFORTS

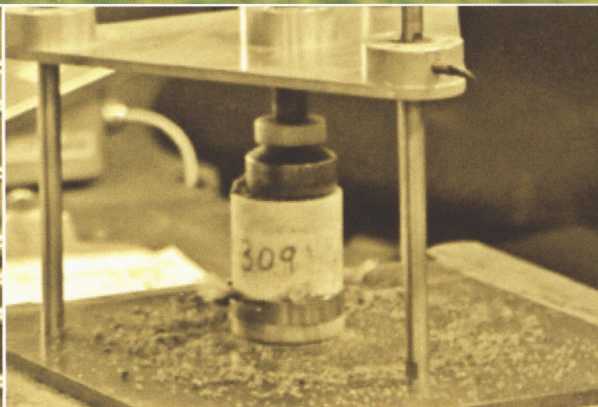
Acacia Reservation has been busy with citizen scientists and volunteers, Zimmerman says. "We are most proud of the fact that it's a living laboratory — an evolution of a restoration project," he says. Zimmerman adds, "It will take 40 more years before we have mature trees."

But every year — and every month — the reservation (continues on page 28)

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Information Shows How FLA Batteries in Electric Golf Cars Are **BEST FOR THE ENVIRONMENT**



U.S. BATTERY

Many industries are now taking steps to be more environmentally conscious. Some look towards minimizing waste and using sustainable materials, others try to recycle more and find ways to use less energy. While this is a popular movement, battery manufacturers such as U.S. Battery Manufacturing in Corona, California, have known for decades that the electric golf car industry and industries that utilize golf cars, such as resorts and retirement communities, have been a force for one of the biggest and best environmental successes in U.S. history.

Most golf courses would agree, that flooded lead-acid batteries (FLA) remain as the most cost-effective power solution for their fleets. The advantages to using FLA

batteries also extends to them being one of the most recycled product in the world, according to the Battery Council International (BCI) and other environmental agencies. The facts are that FLA batteries are recycled at a rate of 97 to 99 percent, from which the recycled lead and plastic from the battery cases are re-manufactured back into new golf car batteries within a closed-loop system.

The idea of recycling lead doesn't seem like an environmentally friendly process, but lead recyclers have had to operate and maintain under extremely restrictive emissions regulations and standards. The results, over the years, is a process that has reduced emissions from lead recycling and is now far below EPA standards. According to the BCI contamination in the air

has dropped by 99 percent since 1980, and a recent study it conducted suggests that the U.S. lead battery industry enables more than 95,000 jobs for American workers and contributed more than \$28 billion in total economic output to the national economy in 2016.*

For golf courses who are maintaining their fleet of FLA battery-powered vehicles, it's gratifying to know that they are contributing, perhaps unknowingly, to one of the highest recycling successes that are far beyond aluminum and paper recycling methods. This is one of the reasons why battery manufacturers and the battery industry in general, maintain that proper battery recycling and disposal is key to keeping up the high environmental standards. The introduction of Lithium-ion

batteries into the FLA battery recycling process has caused fires and explosions, so organizations like the U.S. Society of Automotive Engineers (SAE) and the International Electro-technical Commission (IEC), are proposing to develop a more standardized labeling system with color coding, in an effort to minimize and stop lithium-ion battery contamination within the FLA battery lead recycling process.

For more information on flooded lead-acid batteries specifically manufactured for electric vehicles and more, visit www.usbattery.com.

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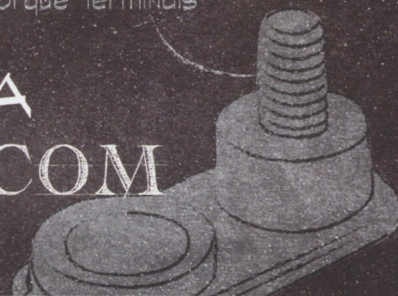
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RESTORING THAT MINNESOTA MAGIC

Rochester Golf & Country Club embarks on an ambitious project to honor its renowned architect while modernizing what lurks below the surface.

By Guy Cipriano

Rochester Golf & Country Club is undergoing a multi-year enhancement of its A.W. Tillinghast-designed golf course.

East Coast bravado often doesn't click in folksy, laid-back places. So, how did a Philadelphia-born, New York City-hardened architect like A.W. Tillinghast become a beloved figure in Rochester, a therapeutic city in southeast Minnesota? And why does this matter in 2018?

Family brought Tillinghast to Rochester. His daughter, Elsie, married Mayo Clinic physician Dr. William P. Finney and Tillinghast agreed to design an 18-hole golf course in the region. His fee was an unusual one in any era: lifetime memberships for Elsie and her husband.

Securing Tillinghast's services represented a major triumph for Rochester Golf & Country Club members. Tillinghast had designed dozens of East Coast punchers, including exactas at Winged Foot Golf Club and Baltusrol Golf Club. By the end of his Hall of Fame career, Tillinghast's portfolio included just two Upper Midwest designs: Rochester Golf & CC and Golden Valley Country Club in the Twin Cities. Both clubs hired Tillinghast in 1926, with Rochester Golf & CC debuting its course in 1927.

Had Elsie married somebody who worked elsewhere, Minnesota, a golf-crazed state with a participation rate surpassing 10 percent, might lack a Tillinghast layout. Today, Rochester Golf & CC members hold events, conduct meetings and raise glasses in Winged Foot I and II Ballroom, Baltusrol Boardroom, Cricket Club Room, Tillie's Bar & Grill and Shawnee Dining Room. "There's a sentiment here that Tillinghast kind of reigns supreme," superintendent Nick Folk says.

That sentiment has guided one of the biggest renovations since the current construction wave reached the Upper Midwest.

Using funds from a sizable Imprelis settlement, Rochester Golf & CC has entered its second straight fall of golf course construction. The multimillion-dollar, multi-phase project will rekindle the Tillinghast flair while modernizing irrigation, drainage, bunkers and practice areas. All aspects of the course have already been enhanced by the removal of 2,000 trees over the past five years as part of the master plan. The club is working with multiple parties, including Tom Doak-led Renaissance Golf, Minnesota-based GCBA member Duininc Golf and drainage specialists XGD Systems.

The tree removal has uncovered little change to key parts of the course since Tillinghast completed his work on the hilly land, which includes 185 feet of elevation, a hearty total for the Upper Midwest. The biggest alteration in the last 91 years involved removing the 13th and 14th holes from play and adding two holes on adjacent property purchased by the club. The club never stopped maintaining the holes and the original 13th and 14th returned to play less than a decade after they were removed from the scorecard. A young Doak, coincidentally, was consulting for another Minnesota club and visited Rochester Golf & CC around the time of the change.

A 1926 Tillinghast blueprint and black-and-white aerial from 1937 are among the materials aiding the Renaissance Golf work being directed onsite by associate Brian Slawnik. Folk worked closely with the green committee to select an architect motivated by restoring Tillinghast's work. Folk arrived in 2013 after stops at multiple classic gems,

including Minikahda Club, Olympia Fields, Janesville Country Club and Oakland Hills. Rochester Golf & CC is Folk's first head superintendent job. Although engrossing, the project presents a rare opportunity for Folk, a superintendent who relishes Golden Age architecture, to play a major role in a restoration.

"It's like uncovering a gem that has been hidden for a long time," he says. "There's not too many of those around. A lot of other courses that have been renovated have been touched by a few people over the years and it becomes more difficult to do true restoration work."

Surrounding Folk are professionals with a similar enthusiasm for classic golf, including Slawnik and shaper Angela Moser. Duininc Golf division manager Judd Duininc says the company tries to assign golf enthusiasts to restorations. In addition to Rochester Golf & CC, Duininc Golf's home-state workload this year includes projects at Minikahda Club (Donald Ross) and Minnesota Valley Country Club (Seth Raynor). "There's a group of our employees who are really golf nuts and take great pride in being able to work on those projects, and we work pretty hard to get the right people on those projects," Duininc says. "When work is fun, we all have fun and do good work."

Slawnik, a former Oakland Hills greenkeeper approaching his two-decade anniversary with Renaissance Golf, also served as the lead design consultant during the restoration of Somerset Hills Country Club, one of Tillinghast's renowned New Jersey designs. Tillinghast worked at Somerset Hills nearly a decade before he arrived in Rochester, but Slawnik says similarities between the courses exist. Experience gained at Somerset Hills has helped Slawnik make decisions on how to restore distinctive features such as greens, mounds and bunkers at Rochester Golf & CC.

"You can see in the ground where the greens wanted to be and where they had been at one point," he says. "We didn't need the aerial photos to figure it out. It was right there in the ground. One of the things I like about Tillinghast's work and a lot of those Golden Age guys was the sort of purposeful way they built their features. They aren't natural features, but they fit naturally into the ground. There's an intent there and it's born of the methodology."

The second phase of significant golf course construction, which commenced Aug. 6, addresses course features and what Folk calls "non-infrastructure" parts of the project, including widening fairways, expanding greens to original fill pads, revamping tees, rebuilding cart paths and returning bunkers to a Tillinghast style protected by a modern liner. Construction on a new maintenance facility begins this fall.

To prepare for the greens expansion, Folk and his team aerified last summer and created a 17,000-square foot nursery using the cores. The nursery allowed Folk to establish *Poa annua*/bentgrass sod matching surfaces on the existing greens. Folk estimates Rochester Golf & CC's greens will be around a half-acre larger than the surfaces members

played this past season. Crews are installing an XGD System – a method to improve subsurface drainage of existing greens – to help meet conditioning demands. XGD turf drainage consultant Mark Luckhardt lauds Folk and the Rochester Golf & CC team for the steps taken to ensure uniform greens.

“It’s about consistency and trying to match up everything, not just what’s above ground,” he says. “We talk about transitions and expansions from *Poa/bent* to pure bent on the expansions. That kind of looks odd as well. I like it when you take a little bit of your existing *Poa* plugs, create a nursery and do all the expansions of taking the club back to their old days with the *Poa/bent* sod. That way you are matching your rootzone and drainage down below, and you’re matching up the visual on top with everything. That’s what they have done at Rochester.”

Crews worked on parts of the course

members rarely see last year, installing a new pump house, advanced irrigation system and a 1½-acre irrigation pond behind the renovated practice facility. Parts of eight holes rest on a geological anomaly called the Decorah Edge, an impervious shale formation that yielded chronically wet spots. The club installed a highly engineered drainage system to shift lateral water to the irrigation pond. A sensor in the pumphouse triggers the recharge system when the pond reaches a low level. Recycling water via the pond allows Rochester Golf & CC to reduce its groundwater usage. An efficient irrigation system pumping water at 1,500 gallons per minute reduces irrigation windows and further decreases water usage.

Water isn’t the only reused resource:

- A ½-inch layer of sand harvested from old bunkers helps prepare floors for sprayed polymer

- Dirt from old bunkers and tees covers exposed tree roots
- Limestone rock from the old swimming pool fills a drainage valley between the first and second holes, thus limiting dirt erosion
- Course benches are being created using wood from removed white pines
- Old cart path surfaces are crushed onsite and reused as a base layer for new paths

It’s likely Tillinghast would appreciate the ingenuity. In addition to designing golf courses, Tillinghast was a writer and ardent USGA Green Section supporter. Among his articles, he authored a short piece titled, “A Plea For Greenkeepers,” writing, “The true greenkeeper is not an ordinary laboring man but a highly specialized thinker, – and brains have always been worth something.”

Folk, only the fifth superintendent since Tillinghast designed the course, has added significant brainpower to the project devoting countless hours to helping the club document Imprelis damage, researching club and Tillinghast history, studying and interviewing architects, and serving as a liaison between the club and contractors. “Nick has done an excellent job of communicating on that project and keeping things moving along really well,” Duinick says.

Participating in the transformation energizes Folk, who endured vast agronomic challenges at the beginning of his tenure, including Pythium and brown patch caused by a lack of air movement and damp conditions, and a nearly 70-year-old cast iron hydraulic irrigation system. A Wisconsin native who started his career at 124-year-old Janesville CC, Folk often finds himself watching in amazement as the Renaissance Golf team sculpts Tillinghast features. The result should make two straight falls of construction worthwhile and position Rochester Golf & CC for a prosperous era.

“It’s pretty unreal,” Folk says. “If you would have told me when I got hired five years ago, I would be involved in a multimillion-dollar, multi-phase project with a new practice facility, new irrigation system, and a renovated golf course led by Tom Doak and company, I’d probably would have called you a liar. It’s humbling that in my first five years as a superintendent that I get to do something like this.” GCI



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(ROSS IN REVERSE... continued from page 20)

grows more steps away from its former golf course self. "What's unique about this is that it's going to grow with the generations of Clevelanders from what it was as a private country club to what it will become as a high-quality Metroparks reservation," Zimmerman says.

Grieser says the team was careful not to "overpromise a biological response" to its restoration efforts right off the bat. But significant watershed restoration activities have resulted in measurable positive impact. Acacia Reservation is part of the Euclid Creek Watershed, but the stream in its golf course days ran deep and straight. Erosion was a problem. A portion

of the creek was buried by a culvert and ran under land.

"We dug a new channel with shallow banks and curves, so it's more of a natural habitat with pools and riffles, and it's very connected to the floodplain," Grieser says. "The whole goal was to reduce downstream erosion and improve water quality, because when a stream can get out on to a floodplain, it can settle out the pollutants — and it also settles out its own energy, so that is how it reduces that downstream bank erosion."

The culvert was removed in a "stream daylighting" effort. "We were able to recreate a more natural stream bed," Grieser says. The impact: Fish-

ery biologists report 10 times the amount of fish.

On a smaller and simpler scale, courses that include no-mow areas in roughs and unused spaces can help "clean" stormwater by giving it natural spaces to settle out pollutants. On other Metroparks courses, Grieser says, "We are also being more mindful applying only what chemicals are

needed and being aware that they aren't putting fertilizers out that are just going to get washed off a couple minutes later."

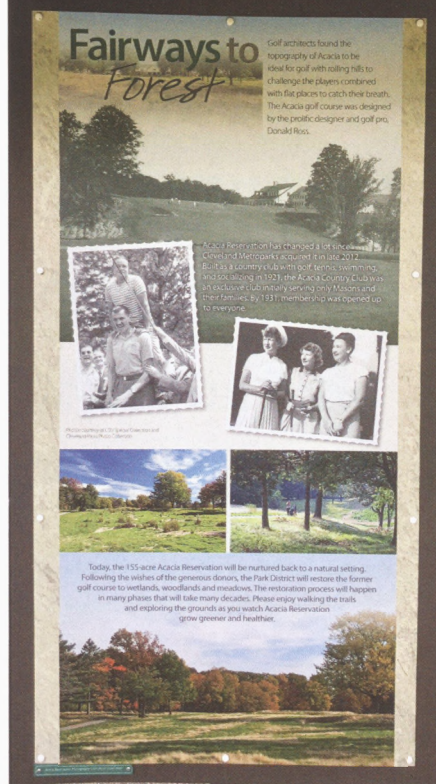
And, some golf course managers in the Metroparks system, including Donner, have taken up beekeeping on the courses. "We have been installing pollinator plots alongside some fairways, too," Grieser adds.

Donner maintains a beehive outside his shop, by a pond on the course. It produces honey, which can be used at the restaurant. And aside from the bees, the course is incorporating nesting boxes and Donner expects people will eventually find bluebird trails on the property. All of this is in effort to improve sustainability. But, Donner acknowledges, "We are doing this strategically so we don't slow up play on the course."

Indeed, the key is to have a plan — and begin working it.

Nature, when allowed, will do its thing.

Today at Acacia Reservation,



▲ Signage at the entrance of Acacia Reservation makes visitors aware of the land's golf history.

the land is a welcome respite in a highly populated urban setting. Grieser likes to walk along the northern end of the property, where the old cart pathway comes to a V. "You can see the wetland meadows and I love looking at the various flowers that are in bloom during the seasons," she says.

Another "hidden spot" she enjoys is along the Acacia treeline on its western end, where it overlooks Euclid Creek. "You can peer down over the floodplain and see Dillard's [department store] off in the distance," she adds. "It's a funny reminder of the setting, yet you're in this maturing forest."

In many ways, golf courses built in natural spaces are also providing players with that funny reminder. While the grass is greener on the fairway, they are borrowing space from the great outdoors. **GCI**

Kristen Hampshire is a Cleveland-based writer and GCI contributor.

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THREE WAYS TO INCORPORATE PROFILE GREENS GRADE FOR OPTIMAL ROI

As the leader in soil modification and erosion control solutions, Profile Golf offers the proven products and expert consultants to help course superintendents generate healthier root zones, enhance nutrient uptake, increase air porosity and optimize growing conditions on greens, tees and fairways.

One of our most sought-after products is Profile Porous Ceramics (PPC) Greens Grade. Trusted by more superintendents than any other inorganic soil amendment, it has been proven to outperform peat in sand-based root zones and generates optimal long-term growing conditions while fighting dry spots, drought stress and disease.

Superintendents often ask the Profile team about the best method for incorporating Greens Grade into their greens and other course areas, so they can maximize their results and ROI. Here are three popular techniques:

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This is the most common Greens Grade application method. Simply work our Greens Grade topdressing down into the soil after aerification to enhance your root-zone mix. Use straight Profile Greens Grade or blend it with your existing sand to get the custom results you need. As an added cost-saving benefit, Profile Greens Grade helps dry down sand for easier application, allowing superintendents to avoid the higher cost that comes with using kiln-dried sand.

#2. DRYJECT

The DryJect method uses high-pressure blasts of water to fracture the soil, relieving compaction and allowing you to work our Greens Grade product down into the new spaces opened up by the fracturing process. Best of all, you can enhance your foundational mix while creating minimal disruption to greens surfaces, allowing your course to stay open throughout the process.

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Drill and Fill is an efficient way to get a large quantity of Profile Greens Grade and other amendments into the root-zone, to quickly improve the soil's nutritional profile. Drilling and filling holes up to eight inches deep, it's an ideal solution for chronically undernourished soils or soils especially heavy in clay, but also can be used for traditional sand-based greens aerification.

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POLISH YOUR SKILLS



Henry DeLozier is a principal in the Global Golf Advisors consultancy. DeLozier joined Global Golf Advisors in 2008 after nine years as the vice president of golf for Pulte Homes. He is currently Chairman of the Board of Directors of Audubon International.

Of all the career counseling advice given over the years, Abraham Lincoln probably nailed it when he said: "The best way to predict the future is to create it." With one more grass-growing season under your belt, maybe you're reflecting on your career and wondering where it's going. Maybe you're worried it's not going in the direction you hoped or that it seems stuck. Maybe it's time to take charge of your career and start creating your future. Here are nine capabilities that must be developed and improved upon to advance your career:

LEADERSHIP/COMMAND SKILLS

Are you the person to whom others look in times of difficulty or crisis? John Cunningham, who began his career as a golf course superintendent and is now the general manager at Aronimink Golf Club, views career paths as a four-lane highway rather than the one-lane road many see. "Do not pigeonhole yourself as just an expert in one area. Once I started learning about the entire club business, I realized that the leadership and management skills that I had been working on in one area of the club business were transferable to many other career opportunities."

PROFESSIONAL SELLING SKILLS

Those who understand the science of professional salesmanship have a dis-

tinct advantage when trying to move someone to their point of view. For them, persuasion is a process of describing both the features and benefits of the course of action they advocate.

BUSINESS ACUMEN

Do you understand how the business you manage works? Are you an accomplished financial manager? Countless programs are available through CMAA, GCSAA and the PGA of America to help aspiring managers understand the business necessities of their clubs and employers.

LEARNING ON THE FLY

Many lessons in club management are learned on the fly without time for rehearsal or in-depth preparation. This requires that a manager be open to change and comfortable when dealing with unexpected problems. Mark Bado, the GM at Myers Park Country Club in Charlotte, says, "Aspiring managers should be patient and hungry to learn and to stretch themselves. We all experience setbacks and get knocked down. Surround yourself with people who have been there also and will you get back up on your feet."

STANDING ALONE

The people who make major career moves are often those willing to explore new concepts and find new solutions to complex problems, ones such as labor shortages and escalating

personnel costs. Often it is the champion for new concepts who reverses operational losses and plots a new course for a club's growth.

ORGANIZATIONAL AGILITY

"Take a chance and ask for help," Cunningham advises. "The relationships that I have developed in the club business have afforded me so much perspective and insight. We all have blind spots and being collaborative and reaching out to others regarding your career will be invaluable." Develop your own list of go-to experts in various aspects of the business and remember to pay their kindness forward.

DEALING WITH AMBIGUITY

Those who advance their careers function effectively in a state of continuous learning. Paul Levy, the current president of the PGA of America, has learned great lessons "in the heat of battle," as he calls it. "Work on improving your communication skills (because) it's often not what you say but how you say it that matters."

PERFORMANCE MANAGEMENT

"Today we live in a world where most people respond best to positive direction and motivation," Levy says. "When you must give feedback on performance or behavior that needs adjusting, it must be done positively and with a plan you both agree on for improvement that benefits both parties." Every leader is held to account for his or her results; knowing how to track and measure ongoing performance yields improved results.

HANGING TOUGH

Adversity finds each of us. As the Navy SEAL saying goes, "The only easy day was yesterday." Leaders are admired for their unwillingness to give in to problems. Your next promotion may come as a result of showing the determination to find a solution for which others have given up searching. **GCI**



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***SHADOW HAWK AND
BLACK HAWK GOLF
CLUBS RELY ON
PROVEN FIRE ANT
PRODUCTS TO CONTROL
A POST-HURRICANE
INFESTATION.***

By **Ron Furlong**

The twin Rees Jones-designed courses of Shadow Hawk and Black Hawk Golf Clubs in Richmond, Texas, about 25 miles southwest of Houston, sit in an area that was hit hard by floodwaters from Hurricane Harvey in late August of 2017. According to the director of agronomy for the two courses, Brent Schilhab, fire ants have become an issue since the flooding, and he attributes their elevated population directly to the Class-4 hurricane.

"Of course, I tend to want to blame everything now on Harvey," Schilhab jokes. "But seriously, I believe because of the massive flooding we experienced on both courses our soils have undergone some subtle changes. These changes have definitely affected the fire ant population."



▲ Schilhab



▲ A reliable agronomic program helped Shadow Hawk and Black Hawk provide solid conditions following Hurricane Harvey.



▲ Applying the proper insecticides and herbicides are elevating all surfaces at Shadow Hawk and Black Hawk.

CONDITION

As with any pest issue on the properties, Schilhab and his two superintendents (Danny

White at Shadow Hawk and Glen Murray at Black Hawk) tend to first turn to Syngenta products for the solution. The sudden increase of their ant population was no exception.

"We've always had success with Advion Fire Ant Bait in the past," Schilhab says. "Typically, we make two applications per year. This year, in the aftermath of the hurricane, we have applied the Syngenta product quarterly, and with great success."

Schilhab's reliance on Syngenta products for the two courses certainly does not end with Advion and ant control. In the annual battle against weeds, Brent favors multiple Syngenta herbicides, including Pennant Magnum, Barricade and Monument.

"Our weed pressure has increased over the past couple of years," he says. "Sedge and doveweed being the biggest problems. My Syngenta rep, Bart Fox, suggested a program based on some successful trials Syngenta had conducted."

PERFORM

Schilhab decided to try the Syngenta herbicide program

on Shadow Hawk but not Black Hawk. They did a first application in late February of Barricade, then came back with a second application mid-April of a Barricade + Pennant Mangum combo. A third application around June 10 was done at Shadow Hawk of a Pennant Mangum + Monument combo. All products were applied at the labeled rates.

At Black Hawk, they applied some competitor products, as well as a Monument application (minus the Pennant) in mid-June.

"The results on Shadow Hawk were fantastic," Schilhab says. "Really burned down the sedge. We got about 95 percent control. On Black Hawk (without the Syngenta program) the sedge came back pretty heavy. I'd say we only got about 15 to 20 percent control tops. We had to come back with some post-emergent applications at Black Hawk, where we didn't need to do this at Shadow Hawk."

RECOVER

Schilhab mentioned the plan for 2019 is to give Black Hawk the same "Syngenta" treatment

Shadow Hawk got this year. Another issue Schilhab and his superintendents fight utilizing a Syngenta product is the battle at the two courses versus grubs.

"We use Meridian for grub control," he says. "Not so much because of the damage of the grubs themselves, but the damage done by the varmints trying to get at the grubs. The varmints in question being hogs, skunks and armadillos. Again, this product works great for us."

Another Syngenta product Schilhab has experienced success with is the insecticide Acelepryn.

"We band our trees lines with Acelepryn," he says. "The control we receive is exceptional. It's a staple of our summer program." Acelepryn is applied in July for five months control on fall armyworms, which are currently eating non-Acelepryn treated turf throughout Texas.

Safe to say Schilhab and the twin courses of Shadow Hawk and Black Hawk have discovered the benefits of utilizing all of Syngenta's industry-leading plant protectors, not just their fungicides and plant growth regulators. **GCI**

Condition. Perform. Recover. Your body.

A variety of critters, including numerous harmful to workers, lurk on a golf course. Here are six ways to protect prevent little species from producing big personal health issues.

1. Recommend employees wear pants, socks and long-sleeved shirts when working in areas where biting insects reside in abundance.
2. Provide insect repellents that contain DEET or Picaridin.
3. Get rid of standing water from the course and remove debris from ditches. Wear heavy gloves when removing debris from the course.
4. Avoid disturbing or working near fire ant mounds.
5. Seek immediate medical treatment if a bite produces an abnormal reaction such as nausea, chest pains or loss of breath.
6. Encourage your staff to check for ticks when working in tree lines or tall grasses.

YES, YOU NEED PERMITS



Brian Vinchesi, the 2015 Irrigation Association Industry Achievement Award winner, is President of Irrigation Consulting, Inc., a golf course irrigation design and consulting firm with offices in Pepperell, Massachusetts and Huntersville, North Carolina that designs golf course irrigation systems throughout the world. He can be reached at bvinchesi@irrigationconsulting.com or 978-433-8972 or followed on twitter @bvinchesi.

So, it's time to install a new irrigation system and your knee deep in the planning process. You have a design, a contractor, the chosen manufacturer and supplier, and the money. So, your all set to go? Well maybe not. Have you thought about permits?

People believe a permit is required for an irrigation system when it is part of a golf course renovation project because that requires earth-moving permits and irrigation is covered in that permit. But a system-only installation may require a permit or two, or possibly several. Some permits may be obvious, some a little obscure and others that make no sense at all. Required permits are broken down into several categories.

ENVIRONMENTAL

Wetlands always need to be dealt with and in most states all you need to be doing is working within the vicinity of the wetlands to require a permit. There are saltwater and freshwater wetlands. If you are going to disturb them, you will need a permit. But even if you are working in the buffer of a wetland, which can be anywhere from 25 to 100 feet or more, you may need a permit. In addition to federal and state wetland regulations, you may have a local wetland restriction in the form of a bylaw. These are usually much

more restrictive than state or federal wetland regulations.

If you have to go over or under a stream or creek, you will need a permit. This most likely will be part of the wetlands permitting, but not always. Even if you are attaching pipe to a bridge, you will require a permit as you are breaking the bank on each side and are technically in the wetland or its buffer.

If your water source is a pond, or will be a pond, you will need a permit for the land disturbance of the pond construction. If you have a pond and are constructing a new pump station intake, you will need a permit for breaking the bank into the pond. Again, this may be part of the wetland permit. If the existing pond is being drained or significantly lowered, you may need a permit for moving/disturbing the fish.

BUILDING

If you are building a new pump house, then it will require significant permitting. You will need a building permit in most jurisdictions. If the new pump house is close to the pond, it most likely is in the wetland buffer. Or if you're pumping out of a river, there may be a river protection act that you will be required to deal with. Rivers and streams also have floodplains, so if your pump house is in the floodplain, it will have to be permitted for that.

If the pump house is new or on a different place on the golf course, then it may have to go through local site-plan review. If you're unlucky, you may need to seek approval from the zoning commission or board.

ELECTRICAL

An electrical permit will be required for an irrigation system with a conventional control system for the 120/220-volt wire. If you are powering fans, drinking fountains or anything that requires 120 or higher voltage wiring, then it will require an electrical permit and an electrician. The pump house/station work, if new, will require an electrical permit, which is usually separate from the building permit. Recently, a course had to get a permit for a project just for the grounding. For 2-wire systems, you may or may not need a permit depending on how that state handles low-voltage wiring. Technically, a permit is required to install the wiring, regardless of the voltage in most states.

PLUMBING

If you are using potable water, you will possibly need a plumbing permit, but definitely a permit for the backflow prevention device. This makes sense. What about a plumbing permit for an irrigation system that uses water from a well, lake or pond? It depends where you are. I have had two projects where a plumbing permit was required even though the water source was not potable water.

MISCELLANEOUS

If your piping system is crossing any private roads, they may require a road crossing permit. If they are public roads, you will most likely need a road crossing permit. These crossings will be required to be constructed per the authority having jurisdiction's standards and requirements. These can be quite varied depending on the golf courses location. **GCI**

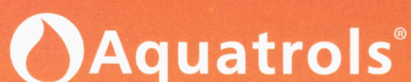
FASHIONABLY

Late

Most turfgrass managers stop using soil surfactants in early autumn when the summer stress period is over. However, a late season application of **REVOLUTION** or **DISPATCH** just before you blow out your irrigation system can provide many important turf benefits before the ground freezes in winter and after the ground thaws in early spring.

BENEFITS INCLUDE:

- **Late Autumn:** Ensure maximum penetration of any rainfall or snowmelts that occur and improve soil moisture levels before the ground freezes.
- **Winter:** Prevent crown hydration injury by ensuring free water drains off of the surface during snowmelts.
- **Spring:** When the rootzone thaws in early spring, Revolution or Dispatch will still be present in the soil, improving soil moisture levels and maximizing photosynthesis and root growth.



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GINGER OR MARY ANN?



Jeffrey D. Brauer is a veteran golf course architect responsible for more than 50 new courses and more than 100 renovations. A member and past president of the American Society of Golf Course Architects, he is president of Jeffrey D. Brauer/GolfScapes in Arlington, Texas. Reach him at jeff@jeffreymbrauer.com.

Questions about cart paths are often as ubiquitous as the paths themselves. A frequent question is “Should we use asphalt or concrete for our cart paths?” The answer is ... obviously ... hoverboards.

The concrete/asphalt divide follows the Mason-Dixon line. Down south, asphalt can get hot enough to soften up and stick to tires, so concrete is typical. Up north, asphalt is typical, but concrete is rocketing up the charts with a bullet. For what it’s worth, there are other options. Sometimes clients request gravel for its lower cost, but in limited experimentation, I have not found them practical. A few environmentally minded clients ask about permeable pavement, which is common in urban landscape architecture, used to reduce runoff, often a requirement under sustainability guidelines. However, at over twice the price, the cost deters even the most environmentally minded golf course owners, and architects can reduce run off using the detention capacity of golf course ponds.

The choice between asphalt or concrete pits the longer-term durability of concrete against the typically lower initial cost of asphalt. Typically, those with the “long view” favor concrete, while those with shorter horizons can opt for asphalt in northern climates. Additionally, concrete is price competitive with asphalt when oil prices rise, affecting asphalt directly. It pays

to bid both. You may decide that concrete is worth the extra expense when the price difference is narrow.

For either material, correct specifications and quality installation are a must. If your owner’s representative, architect or engineer don’t understand material and installation requirements, some contractors will cut corners. You should bid “apples to apples,” with an independent specification, rather than let various pavers provide a price on their standard methods. All asphalts and concretes aren’t always equal.

While each pavement will vary at each site, requiring individual design, these are typical golf path guidelines:

Asphalt Paths typically require:

- A compacted sub-grade, at least 95 percent on the proctor. On new golf courses, the paths are usually used as circulation routes well before paving and the constant equipment traffic usually compacts the base quite well. In renovations, you should expect to use a roller on new locations.
- Occasionally a stabilization fabric, depending on soil moisture and stability.
- 4 to 8 inches of a base gravel, depending on soil stability.
- 2 to 4 inches of asphalt, sometimes laid in one pass, and others with a base course overlaid with a finer finishing course. Experienced owner’s reps know that asphalt machines place thinner lifts when going uphill, which leads to more cracks later on.

- A custom designed asphalt mix, which usually follows local guidelines for bike paths, driveways, or sometimes, even roads.

One problem in retrofitting an existing course is matching the old pavement, which is now cracked and faded. If budget allows, you should repave the entire system, but you will want to at least “top” the old path (at about half the full new price) for a consistent look. In most areas, disposing of asphalt now requires special handling, and you can’t simply dig a hole and bury it on site somewhere.

Concrete Paths typically require:

- Compacted sub-grade, (gravel bases have been eliminated unless sub-grade is unstable)
- 4 to 4½ inches of 3000 to 4000 PSI concrete, often thickened on the edge for greater strength.
- The long time standard of 3000 PSI for sidewalks, driveways and similar concrete uses is now 4000 PSI. Cart paths were typically specified as “5 sack concrete,” but 5.5 to 6 sack concrete is required to increase strength accordingly. Sometimes, suppliers propose “a better value” of 5 to 5.5 sack with additives, and can get 3500 PSI or more, but you will have to be the ultimate judge of the strength you want to hold up under maintenance equipment and truck traffic.
- Formed with wood forms, with no use of so-called “slip form” machines which spread unevenly. Also note, a 2 by 4 piece of lumber isn’t actually 4-inch deep/wide. If you want 4-inch paths, the contractor needs to rip larger lumber to an exact 4 inches or leave the forms a half-inch off the ground, which rarely happens.
- Reinforcement, like 4 x 4 steel wire mesh, or steel rebars. Any steel reinforcement should be set on “chairs” in the path’s top half, ideally above mid height to help surface strength. Many contractors will merely lay reinforcing bars/mesh on the ground to save time, but the result is 0 percent effective. **GCI**



2018

FALL PLANNING GUIDE

2019: ARE YOU READY?

Ok, it's almost over. 2018, that is. And what a year it was, with flooding in some regions, drought in others, and some places got a little bit of both. As crazy as the year was, it highlighted the importance of planning. My fellow employee-owners of PBI-Gordon and I are proud to once again be a part of this Fall Turf Planning Guide to help you be ready for anything next year.

All this crazy weather can mean crazy fungus problems, and PBI-Gordon has you covered (You didn't think I'd let you go without talking about a couple products, did you?).

KABUTO® FUNGICIDE SC delivers both preventative and curative control of dollar spot, and can be applied up to eight times a year as part of a resistance management program.

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NEW PEDIGREE™ FUNGICIDE SC is the first liquid utolanil formulation! Pedigree offers the same performance and turf safety as granular utolanil, but it's easier to handle and easier to mix with other products.

Again, the employee-owners of PBI-Gordon are honored to join Golf Course Industry in bringing you this Fall Turf Planning Guide. We hope it'll help you prepare for 2019!

Sincerely,

Jim Goodrich
Marketing Product Manager



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EARN THAT **BUDGET** **INCREASE**

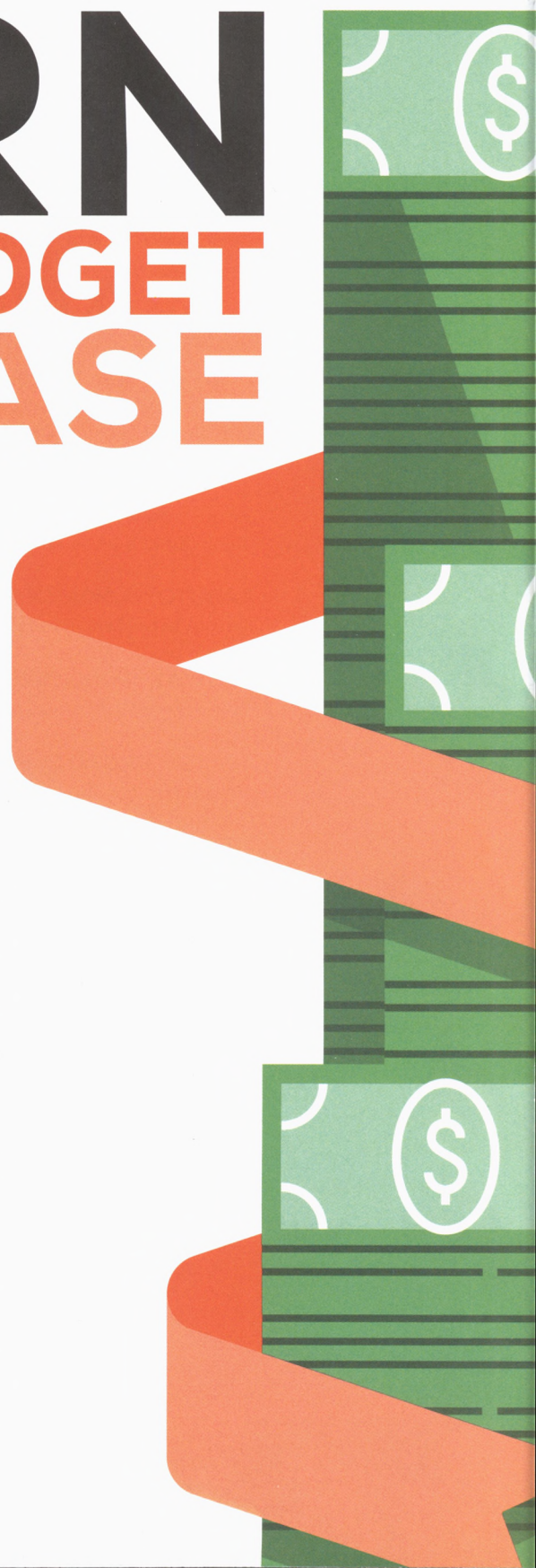
Overcome these three common setbacks and get your ownership to invest in your program, rather than resist.

By Anthony L. Williams, CGCS

There is an old saying that goes like this: *The owner of our course has deep pockets (a lot of money). Unfortunately, his pockets are so deep he can't reach the money!* Every golf course superintendent has encountered a few setbacks when asking for a budget increase. It seems there are many reasons to cut a budget, but there are relatively few reasons to increase one. To earn a budget increase, a superintendent must overcome the initial reasons for rejection. These obstacles must be systematically removed and replaced with the benefits of choosing to properly invest in the program rather than resist. Let's take a look at three common budget increase obstacles.

EMPTY-WALLET SYNDROME

The first obstacle to earning a budget increase is there is no more money. You can overcome this by simply qualifying the actual ask. Is it a budget increase or is it a reallocation of funds, perhaps connected to a Return on Investment (ROI)? It is always easier to sell the reallocation of funds without decreasing the bottom line profit. Owners evaluate a healthy business by profit not productivity. Justification of an ROI or reallocation is critical to earning the financial trust to make a budget change. You must create an easy to understand Return on Investment (ROI) or reallocation plan that shows the bottom line impact of the change. Can you show that by spending the money now that you will actually recoup the money in the future? For





example, if an application of plant growth regulator costs \$1,000 but it is not currently in the budget. However, the application will save labor in mowing and blowing costs as well as improve the playing conditions while reducing the wear and tear on the fairway mower.

These savings equate to \$1,000 within the use period effectively having an ROI of one month as well as the added benefit of better playing conditions. It is a no-brainer, simply prove the value and its impact on the operation and consistently deliver the projected results and you can have more control over the budget.

PROFIT BUSTER

The second obstacle to earning a budget increase is the negative impact the action has on bottom line profit. This is a big one because unlike an actual ROI or reallocation now we intend to impact the bottom line profit. Sometimes the way to approach this obstacle is by asking for a budget increase, but go beyond the simple accounting equation to show the need and value of extra expense.

Let's say you ask for \$4,000 dollars for a critical fungicide application to greens or an irrigation pump repair in mid-summer and the answer is, no, we cannot afford the expense. However, the same request posed as an insurance policy to protect the greens valued at \$400,000 may open closed minds. The philosophy is that there are times when expenses are beyond profitability (no budget increase) and then there are times

when expenses are critical to the survival of the core product (budget increase approved). By not repairing the irrigation pump during the critical watering season or forgoing a fungicide application while disease pressure is high, you risk certain large-scale expense (turf loss/replacement). It is the proverbial lesser of two evils and even the toughest owner can see the clear choice: spend the money even if it seems as much an insurance

policy as an agronomic practice. Your ability to communicate the criticality of a need versus a want is key to earning a critical budget increase.

ROB PETER, PAY PAUL

The last obstacle is robbing Peter to pay Paul obstacle. In short, if you ask for and receive the \$4,000 in the above example for irrigation pump repair, then you are asked to recover the money by year end from other line items such as labor, sand or fuel (the actual obstacle). The fact is that something must suffer for something to be repaired. In fact, the current critical issue is usually an item that previously suffered from the lack proper financial/mechanical maintenance. Perhaps the regular irrigation pump maintenance expense had been overlooked to offset a previous fungicide or fertilizer expense. Do you see how robbing Peter to pay Paul sets in motion an inevitable day of reckoning that is often more costly than the initial need had it been addressed in a timely manner? Do you think the owner or financial manager sees the correlation? The key to overcoming this obstacle is to show the true cost of deferring the other items. Sure, we could save on fuel, we just cannot mow to the established standard for a few months or maybe no one will notice if we do not topdress greens this summer. I have found that giving owners and financial managers the cause and effect of taking away resources to cover other needed expenses is effective in earning a budget increase. You will need real numbers and quantified scenarios that are presented in a professional manner. Persevere, never stop teaching the wisdom of an ounce of prevention is worth a pound of cure, especially on a golf course.

There is nothing easy about earning a budget increase, but these strategies have helped many superintendents overcome the obstacles and reap the rewards of a bigger budget. 🍀

Anthony Williams, CGCS, is the director of golf course maintenance and landscaping at the Four Seasons Resort Club Dallas at Las Colinas in Irving, Texas.



SPRAYING SAFETY GUIDELINES



SAY IT BEFORE YOU SPRAY IT

Review important safety guidelines with your crew to ensure the most impactful fall chemical program.

By Mickey McCord

Preventative and preemergent pesticide spraying is an important part of a turf manager's fall program. And just as an ounce of prevention pays off big dividends in the condition and quality of spring turf, so does reviewing important safety guidelines with your crew about the proper application of those chemicals.

Here are three important safety issues to consider before spraying pesticides this fall.

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2018 FALL PLANNING GUIDE

RIGHT PRODUCT FOR THE TASK

I don't know if you'll change anyone's mind if they are already convinced that pesticides are dangerous, but if you explain how you only use products that have been thoroughly tested and approved for use on golf courses, at least they'll know you're doing your due diligence in selecting the safest products. Following pesticide labels is not only the law, it is the only way to assure the product is safe to use, not only for the plant, but for your employees, golfers and the environment. You may be tempted to "bump the rate up a little," but as a major manufacturer of golf course pesticides reminded me, their products are designed to work best at labeled rates and application intervals. Furthermore, it is difficult for manufacturers to support applications of products outside of label recommendations. They've done a lot of research to make sure their products do the job they are intended for.

PROPERLY MAINTAIN AND CALIBRATE YOUR SPRAY EQUIPMENT

One of the key factors in handling pesticides safely is controlling your exposure to the concentrated product and the spray solution. In the court case mentioned above, the groundskeeper claimed that once, while spraying, a hose broke, covering him with Roundup spray solution. This is the kind of accident that could be prevented if your equipment is properly maintained. You should regularly check your spray equipment for worn hoses, cracked or loose nozzles, and leaking seals or fittings. Also, make sure your pump is oper-



ating at the correct pressure for the nozzles you are using.

A boom sprayer is the most accurate and efficient way to apply pesticides to large turf areas. But to safely and effectively spray pesticides with a boom sprayer, it must be properly calibrated, and you should be working within the manufacturer's recommended spraying parameters. Most of today's spray rigs have controllers that automatically adjust pressure to maintain a consistent, predetermined spray rate (gallons/1,000 feet or acre).

Assuring the chemical goes where you want it, and not where you don't want it, reduces exposure to other people and non-targeted areas. Nozzle selection, pressure and speed all affect droplet size and spray drift. Catalogs from nozzle manufacturers have all the information you need to select and use the right nozzle for your situation. Look for a nozzle that produces the largest droplet (to reduce drift), but still provides the coverage you need for the product to work. Some products need to cover (and stick) to the entire leaf blade,

while others need to get down to the crown or be watered in. Regardless of nozzles, pressure and speed, you should always avoid spraying in high winds.

Using a boom skirt that surrounds all the nozzles is a great way to control drift and keep your application on target. For ultimate control of your spray solution, you should consider taking advantage of the most recent innovations in sprayer technology. GPS-guided systems turn individual nozzles on and off automatically based on previously mapped areas on the golf course. This helps guarantee your pesticides are applied only to the target turf areas as well as potentially reducing the total amount of product used.

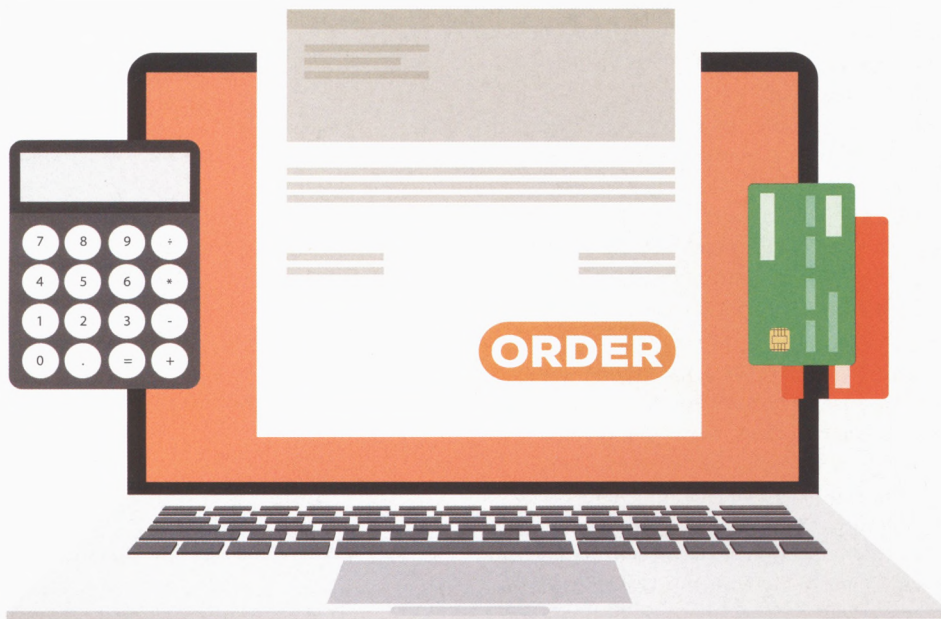
HANDLE PESTICIDES CORRECTLY AND SAFELY

When OSHA adopted the Hazard Communication Standard in 1983, golf course turf managers started putting together MSDS books and added hazardous materials training to their safety programs. The stated purpose of the Hazard Communication standard was

to provide employees access to information about any hazardous materials they may be exposed to at work, and train them to recognize the release of these materials into the work area. Properly training your crew to work with and around pesticides goes way beyond that notion.

Before an employee begins work, they should be informed that potentially harmful pesticides (and other hazardous materials) are used on the course. Every crew member should feel safe with the pesticides they work with and around. That means training your employees to have an awareness of the potential health hazards and understand the precautions necessary to reduce or eliminate those risks. If you're not holding a pesticide/hazardous materials training class for new employees and an annual refresher for the full crew, you should put one together now. 🌱

Mickey McCord is the founder of McCord Golf Services and Safety, providing safety training for superintendents and turf maintenance crews.

**EOP**

FOUND GOLD

Early Order Programs allow superintendents to do more with less and stretch their purchasing power into the next season.

By Anthony Williams

It's that time of the year again when the mail hits your desk with notices of early order programs (EOPs). These programs are not new, and they have actually spread to many manufacturers as there is value from all sides of the equation. Do your homework to see if an EOP makes sense for your business.

Facilities that will benefit most from utilizing an EOP are those that have been managed like a business and kept good track of purchases and usage over time. Knowing your needs for fertility as well as pest control products allows the superintendent to align products with potential usage.

Volumes are going to be dictated by history on that particular golf course. A typical golf course would and should have an agronomic program established by calendar year or fiscal year, because it allows for a correlation of product needs with costs that will fit into the budget.

Doing more with less has been a theme for the last decade. Costs of materials increase along with new products that rarely are more affordable than what we used a decade ago. Taking that into consideration, it is an absolute necessity for golf courses to find the best values to provide optimal plant health and adequate coverage of



potential pest problems. If a superintendent could save as much as 40 percent by using an early order program, then it makes sense to do so. While it seems like a no-brainer, there are actually several things the superintendent must take into consideration.

EOP'S

While EOPs vary by manufacturer — and some are even distributor-driven — they have several main points.

- Fall is the time of the year they are mostly offered
- It is not always all the products in the manufacturer line but some high-volume products along with some slower moving products
- There are deadlines
- There may be terms for payment
- There may be terms for delivery
- Discounts are driven by the amount you purchase

PROS AND CONS

While EOPs may not be for everybody, they surely will work for most golf courses and make a lot of sense. It will take some selling to the financial side of the club to establish the process. Know that similar programs are in effect for merchandise purchases for the pro shop as well.

Something to keep in mind is not just the budget of your department, but also the budget of the overall club. An often-overlooked term is cash flow and knowing when EOP payments are due will establish whether or not your club has the cash flow or would need to borrow money to pay for goods. If the cost to borrow money is greater than the discount received, then it doesn't make

a lot of sense to do it. Most EOPs do not require payment until spring or summer when most facilities are up and running and the cash register is ringing.

Another consideration is whether or not you have the facilities to store your EOP purchases. Some distributors will take care of this for you, but they only have so much space in their warehouses so be sure you fully understand when the product would be delivered. There is economy in volume, so most distributors would want to move your product in bulk once it comes from the manufacturer. This will vary but be sure you have the room.

SELLING THE EOP TO YOUR GOLF COURSE

Have a full understanding of your EOP before approaching the general manager or the club controller. Realize that there are multiple programs and it will surely take some paperwork to process these orders. Laying it out on paper will help to prove the value of an EOP.

The potential of a 10 to 40 percent savings on \$80,000 worth of product would mean \$8,000 to \$32,000 in savings. Surely some courses would be buying more than that, but using that example would be enough to get the interest of management and owners.

Due to the scientific nature of our business, it is rare that decision makers really understand the products that we use but they surely understand their expense. After labor, benefits and water, the next largest expenses in the budget are normally fertilizers and pest

The potential of a 10 to 40 percent savings on \$80,000 worth of product would mean \$8,000 to \$32,000 in savings.

control products. Show management your business acumen by matching your agronomic plan with your business plan for the golf course.

HOW MUCH SHOULD I PURCHASE ON THE EOP?

There must be a good business reason for the manufacturer to offer an EOP. As we know, it is a competitive business. Once one manufacturer has had success in increasing its market share, others evaluate it and get on board. However, it must make good business sense as well.

WHAT ADVANTAGE IS THERE FOR THE MANUFACTURER?

When a manufacturer can plan out their runs of product, it creates efficiencies in their operation. When shipping is done efficiently, it also reduces costs. Manufacturers want to lock in your business for the year if possible. Most manufacturers

are not only in the turf business, but they also sell in ornamental and agricultural markets. Forecasting for the year ahead helps all those that produce our products.

WHAT ADVANTAGES ARE THERE FOR THE SUPERINTENDENT?

Most EOPs come out in September or October. For our northern superintendents, the heat of the summer is over and it is a good time to reflect on your programs from the prior year. Many courses have a fiscal year that ends Sept. 30, so you will know how you finished the preceding year by the time you order. It allows you to show your skill in creating savings for the facility as well as your department.

WHAT ADVANTAGES ARE THERE FOR THE FACILITY?

I can't imagine a facility not wanting to save money. This is a great opportunity. Seldom are there any new products coming out that would change an agronomic plan. And if there are, you can save up to 20 percent of your purchases for purchase during the fiscal year. Check your cash flow and maximize your discounts taking ability to pay based on the terms offered you.

WIN-WIN

Taking all the above into consideration it sure looks like a win-win situation for golf courses and those who manufacture our products. It will take some planning, but the benefits will be seen immediately and in years to follow. 🌱

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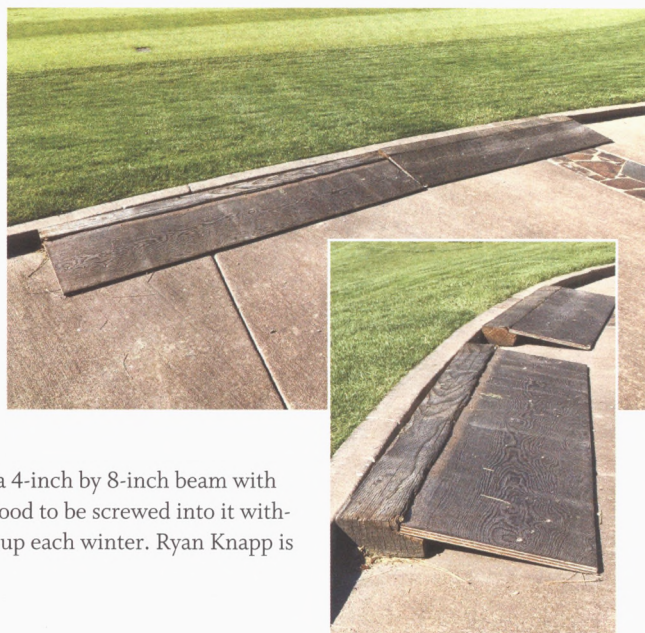
Globetrotting consulting agronomist Terry Buchen visits many golf courses annually with his digital camera in hand. He shares helpful ideas relating to maintenance equipment from the golf course superintendents he visits – as well as a few ideas of his own – with timely photos and captions that explore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



Terry Buchen, CGCS, MG, is president of Golf Agronomy International. He's a 41-year, life member of the GCSAA. He can be reached at 757-561-7777 or terrybuchen@earthlink.net.

CART PATH CURB RAMPS

The Stock Farm Club in Hamilton, Mont., has a large main driving range tee that is used by the membership and receives little wear and tear. It is also used as a staging area for the golf carts for shotgun-start tournaments. The wooden cart path curb ramps are used for transporting the golf carts, the ball picker turf vehicle, and by the golf maintenance staff for their mowing and other equipment. Each 7½-foot long ramp is made from a 4-inch by 8-inch beam with a notch placed in it for the ¾-inch thick plywood to be screwed into it without the need for glue. The ramps are cleaned-up each winter. Ryan Knapp is the golf course superintendent.



LARGEST GOLF COURSE TOOLBOX

J.R. Wilson, equipment manager, at the Noyac Golf Club in Sag Harbor, Long Island, N.Y., has been collecting tools since he was 15 years old. A NASCAR technician would be envious of Wilson's toolbox and tools that he has collected over many years. The main tool box measures 142 inches by 29 inches by 70 inches and the four-shelf cabinet measures 48 inches by 24 inches by 6 feet. Wilson's tools include every impact gun with attachments and every other high-end specialty tool imaginable.



"If I do not have a particular tool, I will get it," he says. "There is a tool for every job and it's only as good as the person using it." The toolbox was accumulated from retiring mechanics and fabricating was done for the drawers, totaling about \$20,000. The cabinet was free and donated from a local mechanic. Wilson's total cost for the toolbox, cabinet, and new and used tools was about \$175,000. Collecting tools is his hobby. Brian Goleski is the golf course superintendent. **GCI**

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THREE THINGS...



Pat Jones is editorial director and publisher of Golf Course Industry. He can be reached at pjones@gie.net or 216-393-0253.

First, just a quick story behind our cover story about two very different fates for Donald Ross courses. The Columbus Country Club story is a great behind-the-scenes look at one of the many Ross restorations and renovations going on out there during the Great Rebuilding Era we're going through right now. But, the other story is very, very different.

Ross's Acacia Country Club was a local favorite in Cleveland for nearly a century. It was one of a handful of top clubs on the east side of town. It was also in the middle of a fast-growing commercial area and developers were throwing huge offers at the membership to sell. The club was torn. Eventually, the property was acquired by a land conservancy group and handed over to the Cleveland Metroparks with two provisions: it had to remain greenspace and it couldn't be a golf course anymore.

That was four years ago. Since then, the property has been slowly deconstructing itself from high-end club to wild pollinator plants, walking trails, sapling nurseries to replant trees in other area parks, and a home to coyotes and other wildlife. I've documented a lot of the gradual changes there on Facebook and the response is often, "Oh that's terrible that we let a Donald Ross course die like that." Frankly, there are hundreds of Ross courses and

we just can't continue to ignore economics and keep every one alive. The best thing is that it's still greenspace and that beats the hell out of another shopping mall or condo complex. Plus, it's the world's only Ross-designed dog park. I love the place.

Second, with our annual Construction & Renovation issue comes the GCBAA auction challenge we offer every year. The GCBAA is an awesome organization. It's not big but its members are incredibly loyal and very engaged in the market. There meetings are chock full of education, networking and (dare I say it?) fun.

Part of that fun is raising money – lots of money – every year for Sticks for Kids, the association's terrific charity. We always auction off a package that includes a page of advertising in the issue and a little bit of fun here in my column. This year's winning bidder? Our good friend Sam Ferro of Turf & Soil Diagnostics. He's been a leader in testing services for superintendents for decades, but I wanted to learn more about him as a person.

What was the hardest lesson you learned? "Not sure about the hardest lesson, but the most important lesson has been that "people are people." We've had the good fortune to work with turf professionals from around the world. I find that no matter background, experience or education, professionally we all want our jobs/

projects to be successful, and personally we want to be happy and to be able to provide a quality life for those who are most important to us. Pretty simple, but also pretty powerful."

Why is GCBAA important to you?

"GCBAA has provided us with a venue to solidify our relationships with leading builders and suppliers to the golf and sports turf industries. It's a great organization where people – who are often competitors – come together in support of the golf construction and maintenance industry."

If you could wave a magic wand over our industry, what one thing would you change? "My magic wand would be somewhat selfish. I would make putting green cutting heights higher to allow coarser topdressing sands to be easier to work in to the turf."

Thanks, Sam! And thanks for supporting GCBAA.

Finally, it's with mixed emotions that I tell you Mike Zawacki, who served brilliantly as editor of GCI for the past decade, is leaving our team to go full-time with our *Snow* industry magazine group. Mike was the grownup on our team, always keeping magazine production and endless digital products going while Guy and I were out gallivanting around the country. The quality of GCI, its amazing production values and its consistent rankings at the top of editorial studies are all because of Mike.

And he did it all while producing *Snow Magazine* and helping to organize a trade show and other events in that market. He's always been a leading voice in the snow and ice management business and now he'll have the chance to solidify that role. He might even have a bit more time to focus on his real passion ... playing that rock 'n' roll music with his band, Hoodoo BBQ.

Thank you, Mike for all the great stories you've told and, mostly, for being a turfhead at heart. **GCI**

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