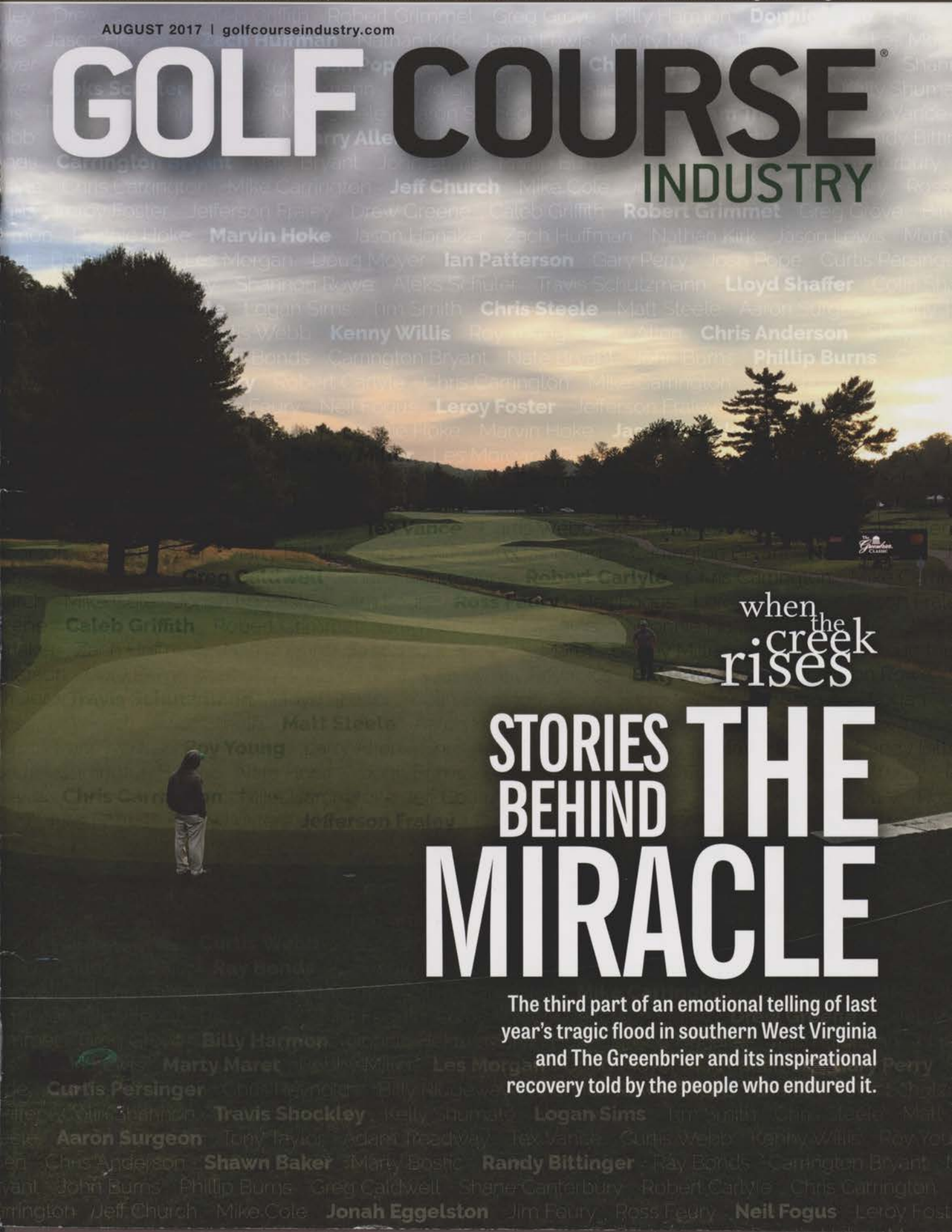


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# GOLF COURSE INDUSTRY



when the creek rises

## STORIES BEHIND THE MIRACLE

The third part of an emotional telling of last year's tragic flood in southern West Virginia and The Greenbrier and its inspirational recovery told by the people who endured it.

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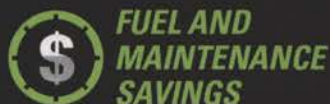
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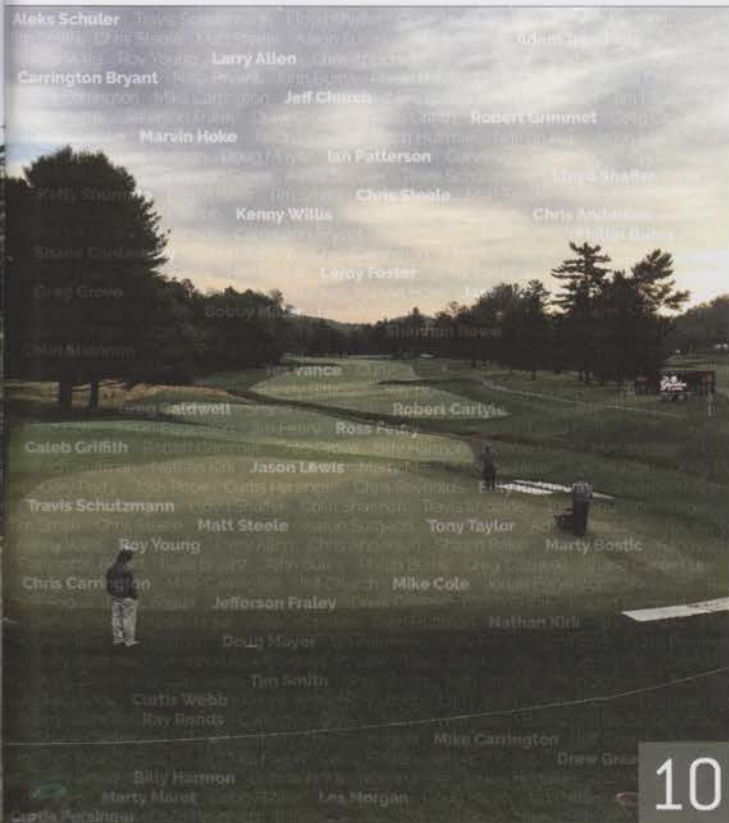


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Cover story

when the creek rises

# STORIES BEHIND THE MIRACLE

A GCI Special Report Supported by



JOHN DEERE

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## HOW A MIRACLE HAPPENED

Reaching White Sulphur Springs, W.Va., from GCI's Northeast Ohio headquarters requires a scenic and soothing 360-mile drive through river and mining towns. It can be a bit treacherous at night and distraction-filled during the day. Ever hike the New River Gorge, run the Greenbrier River Trail or play one of West Virginia's 87 public golf courses?

For the most part, I avoided the delightful distractions while visiting The Greenbrier three times in a 10-week stretch for our three-part series: "When the creek rises." Driving more than 2,100 roundtrip miles and 33 hours for the same reason never felt like work, thanks the generosity of the people willing to share their incredible stories.

On the final return trip for the series, which started on the evening of Sunday, July 9 and stretched into the early hours of Monday, July 10, I muted the radio and pondered a question: *How did The Greenbrier team turn a giant search-and-rescue site into gleaming golf courses in less than a year?*

The exhilaration of working on a PGA Tour turf crew for the first time muddled my initial thoughts. But a few answers have emerged since returning to Northeast Ohio.

**PEOPLE COME FIRST.** The Greenbrier's people are the biggest reason why we devoted 33 pages and 11,000 print words to the story. Nobody I interviewed for the series considered leaving his job or the area following the flood. Multiple employees told me they have never looked for work elsewhere. Shop coordinator Curtis Persinger, profiled on page 14, surrendered a thriving personal business to continue working at The Greenbrier. The longevity and loyalty produced inordinate amounts of determination.

**STRONG OWNERSHIP.** Before he became West Virginia's governor, billionaire Jim Justice was the face of The Greenbrier. He's an avid golfer who cares deeply about the state's well-being and reputation. Personal contacts helped Justice lure the PGA Tour to The Greenbrier in 2010. The tournament gives West Virginia an annual appearance on the worldwide stage. Missing two straight opportunities to showcase his state because of the 2016 flood wasn't an option. Justice and The Greenbrier's managers immediately decided to rebuild The Old White TPC and Meadows courses instead of limiting repairs to sections destroyed by the flood. The Justice family then provided the necessary resources to expedite the rebuild.

**EXPERIENCE MATTERS IN TOUGH SPOTS.** Neither the jarring scope of work nor the tight deadlines flustered the architect and builder selected for The Old White TPC rebuild. Keith Foster has restored some of the country's best classic courses; McDonald Golf has cleaned up messes and returned luster to numerous golf gems. Certain projects are suitable for a rising architect or builder, but The Greenbrier needed proven people on site. Foster and McDonald Golf, fortunately, are based in neighboring states.

**DON'T FORGET ABOUT INDUSTRY PARTNERS.** Personal and professional relationships with key partners such as Revels Turf & Tractor and Smith Turf & Irrigation helped The Greenbrier obtain equipment and irrigation guidance throughout the rebuild. Director of golf maintenance Kelly Shumate, The Old White TPC superintendent Josh Pope and members of crew kept communication lines open with partners, fostering trust and friendships benefitting all parties. Shunning quality partners today can put a course in a tricky spot tomorrow. The Greenbrier team knew it could rely on its partners because of relationships cultivated long before the flood. **GCI**



**Guy Cipriano**  
Associate Editor

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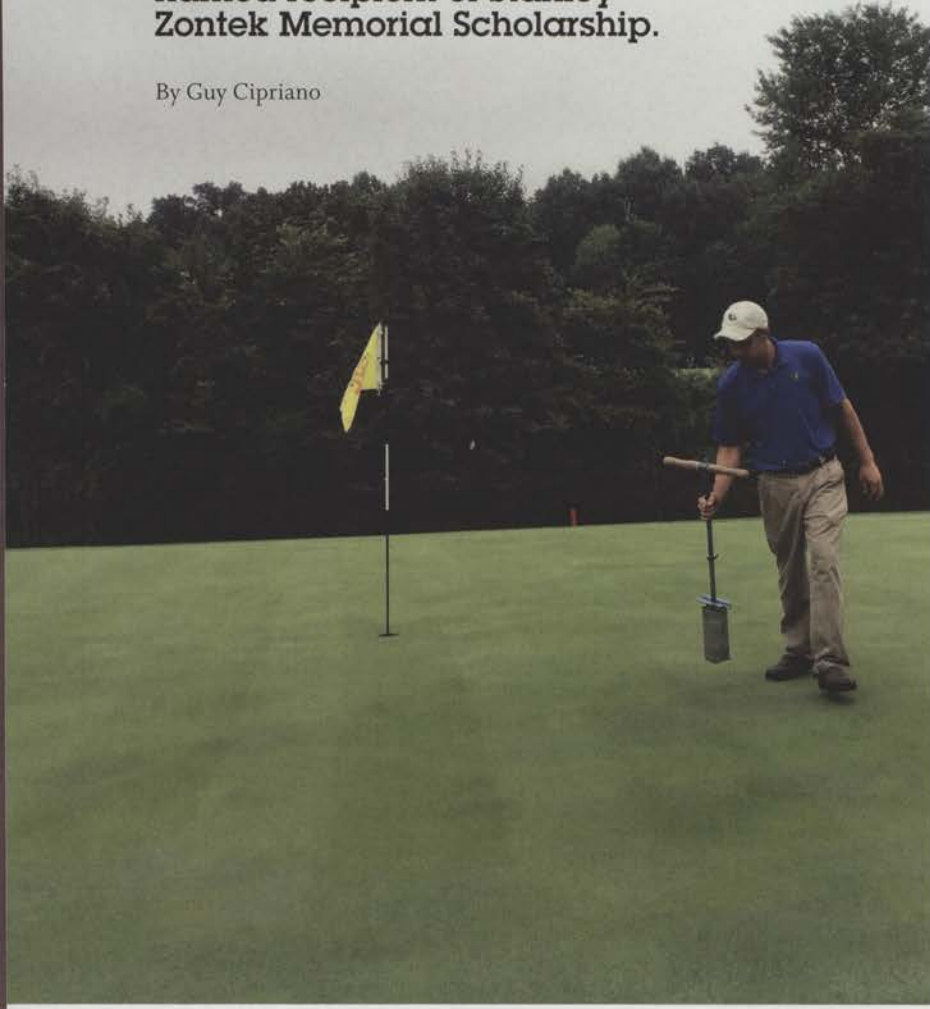
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# Humble roots

**First-generation college graduate Steven Shavel named recipient of Stanley Zontek Memorial Scholarship.**

By Guy Cipriano



**STEVEN SHAVEL BYPASSED A SYMBOLIC** ceremony and subsequent celebrations for the solitude of Saturday work. The decision has yielded no regrets.

Shavel, the winner of the 2017 Stanley Zontek Memorial Scholarship, earned his degree in turfgrass science from The Ohio State University this past May. Commencement was held at Ohio Stadium, but Shavel spent the morning and afternoon at Double Eagle Club, 25 miles from “the Shoe.”

Memories of the day are stored in a maintenance journal: Shavel executed a PGR application with a walk sprayer. “I had an opportunity to work,” Shavel says, “and Saturday was my day.”

The work ethic stems from Shavel’s upbringing in Garfield Heights, Ohio, a blue-collar community outside Cleveland. He’s the first member of his family to graduate college, earning a biology degree from Notre Dame College in neighboring South Euclid, Ohio, in May 2015. Shavel did attend that commencement ceremony.

A collegiate bowler and recreational golfer, Shavel received his first job at a bowling alley as a teenager. His second job offered more variety, as he landed a position at Washington Golf Course, a nine-hole Cleveland Metroparks course with a bustling practice facility. Washington is the closest golf facility to downtown Cleveland and attracts a variety of customers, ranging from First Tee students to businessmen hitting lunch buckets. Shavel started shagging range balls before noticing the other work happening around him.

“There was the curiosity factor of guys always mowing greens, mowing fairways,” he says. “I was always like, ‘Man, I wish I was that guy.’ It



seemed like a cool job. I thought it would be fun to come in at 6 a.m. and work my day.”

Shavel landed a maintenance job and remained hooked despite attending a college without a turf program. Attending school close to home helped Shavel afford tuition, and his interest in golf course maintenance intensified when his academic advisor Dr. Tracy Melander introduced him to a horticulturist position at Shaker Heights Country Club on Cleveland’s East Side. A year later, Shavel graduated from NDC and enrolled at Ohio State. Numerous credits transferred over, and Shavel needed just two years to earn a turfgrass science degree.

The past year has featured some memorable experiences, including an internship at prestigious Canterbury Golf Club, where he helped superintendent Mike LoPresti and crew through a brutal summer. LoPresti entrusted Shavel with a variety of responsibilities, ranging from hand watering greens to spraying acres of storied turf. Canterbury, the site of two U.S. Opens, two U.S. Amateurs and a PGA Championship, hosted the Web.com Tour’s DAP Championship last September. When he returned to school, Shavel joined superintendent Dennis Bowsher’s crew at The Ohio State University Golf Club, which hosted the Web.com Tour’s Nationwide Children’s Hospital Championship.

Shavel received his first full-time

turf job in March, when he joined the Double Eagle team as the second assistant superintendent. Working with LoPresti, Bowsher and Double Eagle COO Todd Voss positions Shavel nicely as he settles into the industry.

Like the scholarship’s namesake Zontek, the former director of the USGA Green Section’s Mid-Atlantic Region, Shavel wants to make a lasting impact in a demanding industry. Zontek was the USGA’s longest-tenured employee at the time of his death in 2012. Shavel learned about Zontek during a class at Ohio State and he’s heard the agronomist’s name mentioned in conversations at Double Eagle.

“Every day is a new challenge,” Shavel says. “The industry right now, as everybody knows, it’s tough on wages, it’s tough on staffing. I looked at that when I was at Canterbury, and going through Ohio State I told myself, ‘I want to

be someone who finds a solution to the problem.’ Even though I’m 25 and I don’t want to overstep my boundaries, I would like to solve some of these problems in the industry. That’s what gets me up in the morning. I don’t know anything else really. That’s how I started off. That’s my passion.”

The scholarship, an unrestricted \$2,500 grant, supports a turf student with a passion for the game. Selection criteria include academic performance, advisor/superintendent recommendations and an essay about why the student is passionate about a career as a superintendent.

“We had an amazing batch of applicants this year,” GCI publisher Pat Jones says. “We probably could have selected any one of several really excellent entries, but Steven stood out because of the passion he displayed in his essay and in his commitment to building a career in the profession. I look forward to seeing him carry on Stanley’s legacy.”

## Tartan Talks No. 13

The second season of Tartan Talks started with our first father-son episode as Dr. Michael Hurdzan and Dr. Christopher Hurdzan revealed their thoughts on a variety of industry topics, including why Golden Age tactics are necessities for 21st century golf courses. “Golf courses of 2020 are going to look like golf courses of 1920,” Michael Hurdzan says.

Hurdzan Golf is the midst of a memorable summer. Erin Hills, the Wisconsin course Michael designed with Dana Fry and Ron Whitten, hosted the U.S. Open, while Ottawa Hunt & Golf Club, a course Hurdzan renovated in 2013, hosts a LPGA event in late August. What’s next for the Hurdzans? Enter <https://goo.gl/Vdc2f8> into your web browser to find out.



# THE OTHER F-WORD



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

If you attended this year's GC-SAA conference, it's likely you learned as much in the hallways between sessions as you did in the programs themselves. That's because you would have heard—as I did, over and over—superintendents engaged in a very public form of therapy: Call it “Failure Forum.”

Wherever I went, I heard one big agronomic rehab session. Superintendents from across the country opened up to one another, friends and foes alike, discussing their biggest mistakes, gaffes and screw-ups.

And you know what, I think it's great. Maybe it's because misery loves company, or that we all feel better when we realize everybody makes mistakes, and maybe made the same mistakes. Messing up is part of life.

But because we work in a business that is very public, and which everyone else thinks they can do better than you—particularly people with no experience or training—our mistakes in pursuit of unachievable perfection are magnified.

We're all under constant pressure to make the land we're responsible for as green, or brown as the case may be, and friendly as possible. Every weed, brown spot, tire track, puddle, bad lie and unfair break is our fault, and there's a men's grille full of critics willing to tell us so.

No wonder we've forgotten how to fail.

Failure. That's the F-word we won't say. You've probably heard the expression that “you're not a superintendent until you lose grass.” When we lose grass, we lose face. Crop failure, procedural failure, personal failure. It's all the same, and the good superintendent is stung deep and hard whenever something fails.

However, if you don't know this already, if you haven't taken this to heart, then do so now: Failure is part of our business, part of our personal learning process. So, the most important question to ask yourself when you fail is, “How am I going to handle it?” Here's how.

**STAY STRONG.** Don't beat yourself up, at least not too much. Get mad and then get over it. Quickly. Remember: You're not the first superintendent to have this problem, whatever it is, and you won't be the last.

**STAY POSITIVE.** Angry at yourself? Good. Use that energy to find a solution to the problem and get it done as soon as you can. Failure does NOT make you a bad superintendent: It makes you 1) human, and 2) a better superintendent. Still feeling down? Remember all the good things you've done in your career. Same guy, right?

**COMMUNICATE.** This can be hard. But as soon as you know there's a problem, tell those people who need

to know, above and below you. And here's what you have to be able to share: What happened, why it happened, what you're doing about it, how long it will take to fix, what it will cost and what how will it affect the golfers that play your course.

**BE PREPARED.** For what? Everything. Criticism, calls for your head, to accept blame, repercussions. And in this age of social media, for your mistake to go viral.

**SET REALISTIC AND WORKABLE GOALS.** Be very careful to only propose actions that you can control or things will get worse. In the process of planning to make things better, take a hard look at your programs and procedures: Was the cause of the mistake something in the way you work that is unrealistic for your course or maintenance program? Or experimenting based on the newest and greatest?

**IGNORE NEGATIVE PEOPLE AND NEGATIVE THOUGHTS.** You know exactly who will be giving you a hard time, and while it's impossible to avoid them entirely, don't let them get into your head. Instead, turn to your trusted advisors—at the club, outside experts, friends—people who have your best interests at heart and who have been there for you in the past.

**STAY OPEN-MINDED.** Something else that can be tough. But there's usually more than one way to undo a problem. Be flexible and willing to listen to options.

**STAY HONEST.** Lay out the plan for every step of making things right. That's not just finding and implementing a solution to the original problem but also continuing to communicate to your constituents as well as management or board. And don't promise more than you can do: Set reasonable expectations, a workable timetable and manageable steps. Then do it. GCI



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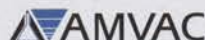
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—JIM NANTZ, *BROADCASTER, CBS SPORTS*

# STORIES BEHIND THE MIRACLE

The third part of an emotional telling of last year’s tragic flood in southern West Virginia and The Greenbrier and its inspirational recovery told by the people who endured it.

By **Guy Cipriano**

**SNOWMOLD**  
**SUPER**  
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Some level of snow cover is likely needed for pink snow mold to infect turf.

# NO better time

**A**ugust in the northern parts of the United States: warm temperatures, heavy play, exhausted crews, dry turf and humming equipment. Snow mold might not fit with other end-of-summer thoughts. However, for regions with limited play windows, this turf disease warrants serious consideration.

Preventing the spring reveal from becoming a horrifying experience requires foresight. Devoting a small chunk of August to snow mold – yes, it's possible to use snow and August in the same sentence – can reap big rewards the following spring.

Mid-August is an ideal time to begin snow mold preparations, says Syngenta technical field manager and snow mold guru

Matt Giese. In addition to the fact fungicide prices are more attractive, there's also a technical element associated with preparing early.

"You can kind of reflect back on what worked in previous years," Giese says. "And if you need to make a change, you will have some time to maybe contemplate that before you need to go out there and mix it up and make the applications, whether you make them in October or November. Things are going to come up during that time of the year, so you're giving yourself an opportunity to make some changes if necessary."

Doug Hoeh starts thinking about snow mold even earlier. With five courses supporting 100,000 rounds, the director of golf course maintenance at Tree-

Thinking about snow mold this summer eliminates the angst of falling behind mitigating this disease next spring.

By **Guy Cipriano**

tops Resort in Gaylord, Mich., says getting ahead on coverage negates weather-related pitfalls during the application period.

Treetops' condensed season runs from late-April to October, and the resort competes with many of Michigan's 45 other public golf resorts for business. Michigan's 665 public golf courses ranks second in the nation behind Florida, according to the National Golf Foundation. Conditioning can enhance and damage reputations in the crowded golf marketplace, and Hoeh learned early in his career snow mold is a disease not to mess around with.

"All other diseases, whether it be brown patch, a little anthracnose or dollar spot, you can see them, you can cure them, you can prevent them," he says. "When it comes to snow mold, once we get snow usually in November, we don't lose it until April. I can't apply or go out and do anything so I have to get it right for the first time."

July seems like a curious time to review spray notes from the previous fall and meet with industry partners about snow mold. But Hoeh devotes time during the second half of the month to planning snow mold applications. The resort's golf terrain includes 20 acres of greens, 24 acres of tees and 130 acres of fairways. Every square foot of the three surfaces gets treated for snow mold.

"Every year we try to do something different to see if it's easier for us to spray and if we get the results," Hoeh says. "Having this much acreage to spray, we are kind of at a luxury. It's not a big deal for



In most cases, gray snow mold requires at least 60 days of snow cover to infect.

us to mix a tank and go spray nine greens and nine tees with a different product on a different course just to see the results we get out of that. We will compare our notes, we will compare cost and then sit down."

Hoeh allows Michigan State University to perform snow mold trials on Treetops' turf, and the presence of five courses allows him to test new products on areas with high disease pressure. After Contend received EPA approval last fall, he sprayed the fungicide on a problematic fairway. Contend combines four active ingredients, including Solatenol, a new active ingredient for turf. Hoeh observed clean results on the fairway, and he will likely increase his Contend usage this fall.

"I like to test products in the



field and in different spots," he says. "I know what the high-pressure areas are and I want to see what a product does. I will throw it in a high-pressure area. We have certain areas where we always get pink snow mold. We have certain areas where we get gray snow mold, and we have certain areas where we get both. I will throw it in different areas and try it. Yeah, if you are going to walk in and tell me your product is the best, I'm going to throw it at the worst spot I got and we will look at it together."

Hoeh combines a thorough

chemical approach with reliable cultural practices. A limited season means aeration occurs around the time each course closes in mid-October. Treetops' greens are topdressed in the fall and fertilization ends in early September. For courses in the snow mold region, generally the upper half of the United States, Giese recommends avoiding lush turf conditions entering winter. Mild fall temperatures allowing golf seasons to stretch into November and December in parts of the Northeast, Mid-Atlantic and Midwest present challenges

because of turf growth and continued disease pressure. Improving surface drainage, removing excessive thatch and mowing until turf turns dormant are cultural practices that make turf less susceptible to pathogens, Giese says.

Snow mold comes in multiple forms. Pink snow mold and microdochium patch are closely related and they are caused by the same fungal organisms, Giese says. Deciphering between the two can be tricky. "It's not a definitive line where one would be microdochium patch and one would be pink snow mold, but generally you will have some level of snow cover with pink snow mold," Giese says. Two species, *typhula incarnata* and *ishikariensis*, cause gray snow mold. The brownish, orange sclerotia produced by *incarnata* are only noticeable after snow melts in the spring. *Ishikariensis* requires a deeper snow cover, although Giese says it's possible to see the species intermingled on a tee or fairway. In most cases, gray snow mold requires 60 days of cover to infect turf.

Sonnenalp Golf Club in Vail, Colo., battles pink and

gray snow mold, according to longtime superintendent Neil Tretter. Sonnenalp, which sits at 7,200 feet of elevation, opens around April 15 each season, but low air and soil temperatures limit spring recovery time, thus making a late-October snow mold application the most important spray of the year. "It's crucial that we come out of the winter as healthy as possible because the recovery time is very, very slow in the month of April and in the month of May and into June," Tretter says.

Sonnenalp has close to three acres of greens, 2½ acres of tees and 30 acres of fairways, and Tretter slowly hardens off turf each fall, aiming to complete snow mold applications by late October or the first week of November. He annually sprays Instrata with a Medallion kicker on the three surfaces. Labeled for pink and gray snow mold control, Instrata includes chlorothalonil, fludioxonil and propiconazole as active ingredients.

"I call it the 'the big reveal' as the snow recedes in the springtime in March to see exactly what kind of turf condi-

## For more information

Syngenta offers a collection of online snow mold information resources, including a webinar featuring technical field manager Matt Giese. Enter <http://www.greencastonline.com/EarlySpringOpen> into your web browser to find the webinar, fall cleanup recommendations, snow mold control options and links to special offers.

tions we are going to work with for the current year," Tretter says. "And we haven't had a disappointment for a number of years."

Superintendent Jay Pritzl "deals with every type of snow mold that you can imagine" at Timber Ridge Golf Club, a daily-fee facility in northern Wisconsin. Snow mold preparations begin in September with a fall cleanup application using multiple products, including Secure and Daconil. He then sprays Instrata in late October or early November on Timber Ridge's 3 ½ acres of greens, three acres of tees and 32 acres of fairways.

The golf season typically lasts from mid-April to Oct. 31, with close to 20,000 golfers

playing the course during the 6 ½-month stretch. A small crew – Pritzl currently doesn't have an assistant superintendent – and the competitive Wisconsin public golf landscape make a reliable snow mold program a crucial part of the job. Trying to recover in the spring can hurt business, and tax Pritzl and his crew.

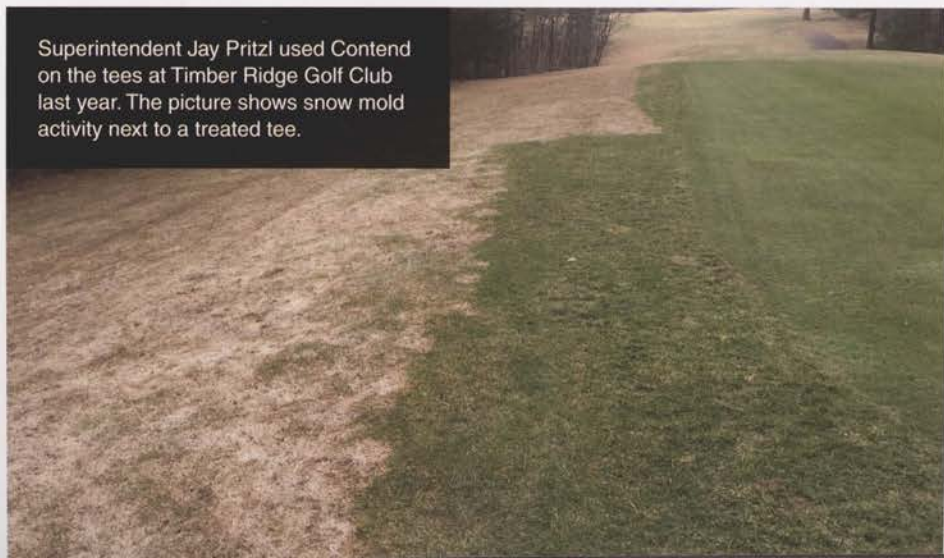
Like any good superintendent, Pritzl has an inquisitive side and he closely observes the snow mold studies University of Wisconsin researchers are conducting at Timber Ridge. Contend was one of the products recently tested on the plots. Pritzl used the fungicide on tees last year, and he reported 100 percent control. "I was highly impressed on my tees," he says. Pritzl is mulling using Contend on tees and fairways this year. Instrata will remain a staple of his greens program.

Once he completes his snow mold applications, Pritzl can expect around 150 days of what he calls "straight, solid snow cover" each winter. A northern Wisconsin winter isn't as bleak when you know the turf will look healthy in the spring.

"It's a great sign when we come out of winter clean," Pritzl says. "But, honestly, I have been doing it long enough and using the same product, I'm not fearful because I have so much confidence in the product that I do use. I have more sleepless nights if we get rain or ice buildup in the winter then I do over snow mold. Snow mold I think I have a pretty good hold on and we have a good chemical program for it." **GCI**

Guy Cipriano is GCI's associate editor.

Superintendent Jay Pritzl used Contend on the tees at Timber Ridge Golf Club last year. The picture shows snow mold activity next to a treated tee.





A group of hardened men from small towns such as White Sulphur Springs, Caldwell, Rainelle and Lewisburg wearing black polo shirts surrounded the nomadic broadcaster with a velvety voice and a Southern California-polished golfer just past 6 p.m. Sunday, July 9, 2017.

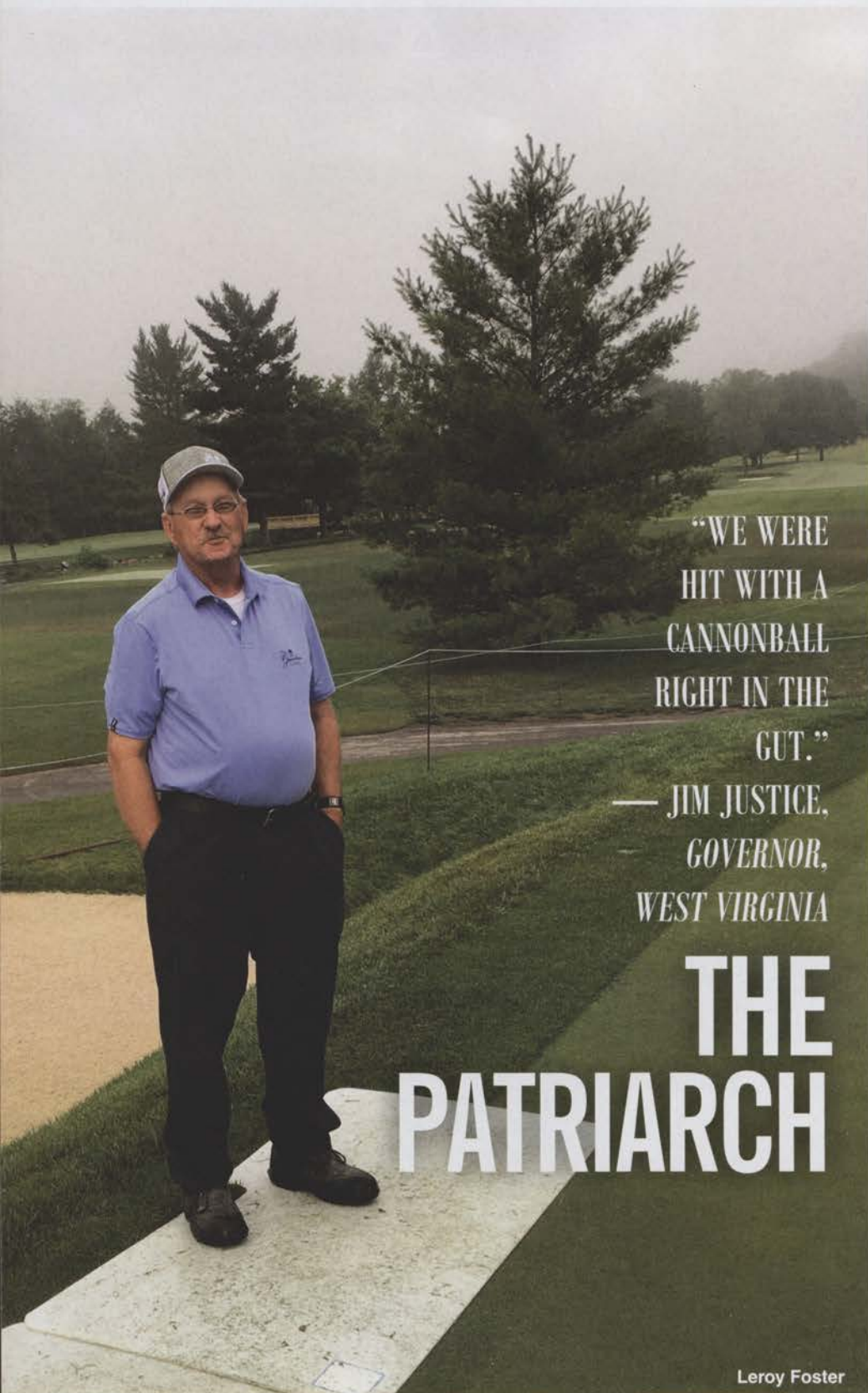
Jim Nantz was the emcee; Xander Schauffele was the champion. The group of men standing on The Old White TPC 18<sup>th</sup> green were the stars, a collection of workers ranging from 19 to 71 years old who sacrificed bodies, minds and time so their region could host a golf tournament and continue a trudge toward normalcy.

Watching from a grassy hill facing the sun, verdant turf, floral arrangements and a thumbprint pressed into V8 bentgrass, family, members, politicians and normal West Virginians applauded their efforts. A creek intersecting The Greenbrier's golf grounds flowed behind the men's backs. The stately and soothing 239-year-old resort represents many things to thousands of people. Above all, it endures peaceful and turbulent periods.

Howard's Creek overflowed on June 23, 2016, causing instant and lingering devastation no human should be forced to witness. Simple lives became complex. Some lives ended.

The men standing on the green following The Greenbrier Classic turned the unexplainable into the playable. A day after the PGA Tour left town last month, resort guests who post scores in the 80s, 90s and 100s but help pay thousands of southern West Virginians' bills, roamed the tees, fairways and greens of The Old White TPC and Meadows courses.

Returning to normal required a year's worth of extraordinary feats. The men involved in rebuilding The Greenbrier's golf courses will be remembered for much more than standing on a green with a famous broadcaster and PGA Tour winner.



“WE WERE  
HIT WITH A  
CANNONBALL  
RIGHT IN THE  
GUT.”

— JIM JUSTICE,  
GOVERNOR,  
WEST VIRGINIA

# THE PATRIARCH

Leroy Foster

A quarter-inch, half-inch, two inches, a half-foot. Lightning, wind, hail. Elements above the West Virginia mountains rarely faze Leroy Foster, the longest-tenured member of the turf team. When rain halted the work day around 9 a.m. Thursday, June 23, 2016, Foster expected to be working Friday morning. “It was an ordinary day to me,” he says. “It was raining a little bit.”

A little rain, Foster later learned, turned into an abundance. After leaving work, Foster returned to the White Sulphur Springs home he owned for more than 40 years and took a nap. He opened his eyes a few hours later and found himself surrounded by three feet of water. Everything Foster owned, besides a couple of televisions, was destroyed.

Foster, a father of two, grandfather of seven and great grandfather of six, stayed with a daughter who lived in the area following the flood. His other daughter visited from





Tennessee to help him complete paperwork and settle into a temporary trailer. He returned to work July 10, an uplifting day for his co-workers because internet and social media rumors suggested that Foster had died in the flood.

The beloved patriarch of The Greenbrier's turf staff wasn't only alive. He was ready to work again.

The 71-year-old Foster started maintaining the resort's golf courses as a 23-year-old. Foster says a young man who wanted to stay in White Sulphur Springs had two options: cut wood or get a job at The Greenbrier. Foster started chopping wood on the hill with his father, James Warren Foster, but he quickly learned the job wasn't for him. "That was a lot of hard work," Foster says. "It was kind of a relief to get down here."

Foster push mowed tees on his first day at The Greenbrier. He started on a Saturday, worked four hours and received a check for \$5.96. He wanted to quit. "But," he says, "My mom said, 'You're not putting gas in your car if you quit.'" Foster stuck around in 1969, just like he did in 2016 when

he balanced rebuilding golf courses with repairing his life. Foster moved into a new home last September, as seed, sod and sand arrived at work by the ton.

He raised golf irrigation heads caked in mud. The job was dirty and demanding, yet Foster dug the summer and fall away, using nearly five decades of irrigation knowledge technology can't supplant. If something remained intact below the ground, Foster found it, assuming he could see. "It was like a dust storm," he says. "You couldn't go anywhere. It looked like you were in the desert."

The job proved tougher than mowing tees as a young adult. On the side, Foster continued maintaining graveyards. But he never considered quitting a golf course job he enjoyed more than cutting wood. "This is a home away from home," he says.

The past year strengthened Foster's affection for his outdoor office. He's in no hurry to spend his days elsewhere. "I'm trying to get my 50 years in and I then I might decide to leave from here," he says. "Right now, I feel pretty good. I'm getting around well."

## Dear Greenbrier Team,

Since June 2016, the Golf industry has watched in awe as you faced the monumental challenge to recover and rebuild after incredible destruction. The task was daunting and the stakes couldn't have been higher, but your team took a deep breath, rolled up their sleeves, and got to work.

You set the bar high – you wouldn't just repair the course, you would rebuild it. You could have focused on just one course, but instead you decided to renovate two. Crew members could have quit, fearing the hurdle was too high, but each of you committed to the goal and worked towards a shared vision of The Greenbrier reborn.

The truth is The Greenbrier is more than a golf resort, it's the lifeblood of Southern West Virginia. Without The Greenbrier, nearly 2,000 people would be without work. Without the allure of pristine golf courses, millions in tourism dollars would be spent elsewhere. There was no time to waste. An ambitious plan was put into motion with all sights set on July 2017, and you had to succeed.

After long hours and never-ending checklists at the course, you would leave, but your work was not done. Some of you had damage to your own homes, and family and friends who also needed assistance. All around you, people were in need, and you rose to the challenge.

In the immediate aftermath, many looked at the course and doubted your goal. It seemed impossible that you could rebuild a golf course and have it ready for a PGA Tour event within a year. They thought it couldn't be done, but you proved them wrong.

In the following months, debris was cleared, repairs were made, fairways were seeded, and The Greenbrier began to reemerge. The goal now seemed possible, but there was still so much more to do.

As the work continued, it became apparent that what you were doing was larger than preparing for a tournament. The Greenbrier would become a symbol of renewal, a beacon of hope, a testament to overcoming the odds, for those who lost so much.

Throughout this past year, you have shown us what true grit, determination, and teamwork can accomplish, and it's truly remarkable.

You have inspired us all, and delivered on the greatest comeback this industry has ever seen.

### Congratulations!

From John Deere.



**JOHN DEERE**



“IT’S A GREAT STORY HERE AND IT’S A TRIBUTE TO WHO THEY ARE AND THE TYPE OF PEOPLE THAT LIVE IN THIS AREA. THEY ARE A RESILIENT, HARD-WORKING, TERRIFIC GROUP OF PEOPLE.”

— CAL ROTH, SENIOR VICE PRESIDENT OF AGRONOMY, PGA TOUR

## THE GO-TO GUY

Curtis Persinger occupies a corner cubicle in a high-traffic area across from director of golf course maintenance Kelly Shumate’s office. Colleagues and vendors receive answers and comfort when they visit the space.

Persinger holds the title of shop coordinator for the golf and grounds departments. He’s the man who can fix, order or schedule almost anything. In a 30-minute stretch on a July afternoon, colleagues approached him about a noxious smell by the ice machine, a pair of exotic animals lurking near the dump and a new hire’s uniform needs. He provided instant answers.

Versatility allowed Persinger to order and track supplies needed to complete impromptu renovations on two golf courses. Natural disasters leave little time for planning. But, for 14 years, Persinger had been training for this moment.

A 37-year Greenbrier employee, Persinger also owned a dog supply and feed business from 1999-2013. The business weathered the economic slowdown and grew to a level Persinger never imagined, forcing him to choose between being the boss or working across from the boss. After three months

of conversations with his wife, Persinger chose the latter.

“That business grew overnight and you would say, ‘Why do you ever give up a business?’” he says. “I was hiring people to help me, but I wasn’t the type that could stand back and say, ‘There it is. I will come back in a week.’ I still had to be involved.”

Arriving at the golf courses before 6 a.m. and filling business orders until midnight weakened Persinger. He suffered a heart attack in 2014. “It was because of my lifestyle for 14 years,” he says. Persinger recovered, and by the summer of 2016, he was multitasking again, displaying the wherewithal required to schedule hundreds of deliveries. Construction on The Old White TPC commenced July 27, less than a year before the 2017 Greenbrier Classic. “I was definitely under some stress,” Persinger says. “But by dealing with our vendors, 99 percent of the time I was able to be successful.”

The days were different when Persinger started working at The Greenbrier’s bag room in 1980. A winter strike led to Persinger and other non-union employees receiving opportunities to help rebuild golf maintenance equipment. Persinger says his “ability to turn a wrench” impressed



Curtis Persinger

superintendents and foremen, and he landed the first available full-time maintenance position after the strike was settled.

His regular assignments included mowing and irrigating the Greenbrier course, which hosted the 1979 Ryder Cup. Persinger relished rainy days because they offered chances to grease, oil, adjust and sharpen equipment. He further demonstrated his mechanical talents when the resort implemented a formal golf course equipment maintenance program in 1991. The Greenbrier now has three seasoned mechanics for 54

holes: Persinger, Roy Young and Ray Bonds.

The resort has flourished and struggled depending on the economy’s condition, but Persinger says he knew by the mid-1980s he was likely a lifer. Neither a heart attack nor a historic flood deterred him.

“There was an older gentleman who worked here in the ’80s and early ’90s and after he retired they hired him back part-time,” Persinger says. “He always said that once you got your feet wet in the dew, you couldn’t leave. I think about that.”

“YOU GUYS HAVE A LOT TO BE PROUD OF. A HELL OF A LOT TO BE PROUD OF OUT THERE ON BOTH PLACES, THE MEADOWS AND THE OLD WHITE. YOU SHOULD REALLY, REALLY THINK ABOUT IT AS YOU ARE RIDING AROUND. YOU SHOULD THINK ABOUT WHAT YOU PULLED OFF IN A YEAR. IT’S REALLY UNHEARD OF.”

— JOSH POPE, SUPERINTENDENT, THE OLD WHITE TPC

## THE CREW

Phillips Burns calls himself a “detail man,” with responsibilities ranging from cutting cups to polishing markers and signs on the Meadows course. His work prevents an elegant property from giving guests shaggy impressions.

Burns notices mismatch swaths and blurry splotches customers will never recognize.

He observed unprecedented disorder last summer: bridges and signs transported hundreds of yards, water-logged tunnels, zapped pumps. No images

forced the “detail man” to ponder the big picture like empty golf courses. “When the golfers start coming back in,” Burns says, “that’s my paycheck.”

The return of golfers motivated Burns, along with veteran co-workers Billy Ridgeway, Ross Feury and Jeff Church. Combined, they have spent more than 100 years at The Greenbrier.

A way of life hinged on rebuilding the golf courses. Once

southern West Virginia enters the blood, thoughts of a life elsewhere subside. Less than 36,000 people live in Greenbrier Country and the closest major metropolitan area, Washington D.C., is 250 miles away. The daily lifestyle perks contrast urban retail, dining and indoor entertainment options. “You have people here that will jump in to help you,” Church says. “Everybody knows everybody and every-

Members of The Greenbrier turf team with 2017 Greenbrier Classic champion Xander Schauffele.





body will lend a helping hand.”

That doesn't mean life is easy. Church is approaching 30 years at The Greenbrier. He worked a decade in the bag room before earning a job on The Old White TPC, where he says, “you have to know different trades” to develop longevity. Ridgeway spent 34 years in the resort's room service department before joining the turf team eight years ago. “I just wanted to be outside,” he says. Feury was a logger before landing a golf course maintenance job prior to the inaugural Greenbrier Classic in 2010. “I

had put in for the warehouse,” he says. “Then the PGA Tour came along and they asked if I would be interested in coming down here. I had no idea what it would be like. I tried it and liked it.”

The flood increased responsibilities and tested patience. Preparing The Old White TPC fairways for seeding involved Frazee mowing, a form of extreme turf scalping most workers had never heard of until last year. On the worst days, they sacrificed sight to preserve a way of life. “A lot of times you couldn't see the mower or the

trailer because of the dust,” Feury says. “It was just like a fog.” Even the strongest mountain fog, though, doesn't discolor eyes. “Your eyes looked like they had been a week without sleep,” Ridgeway says. “They were just beat red.” Ridgeway and co-workers used plastic to create protective canopies. The ingenuity failed to improve conditions.

Winter provided time to rest and cleanse. But the work intensified in March. Days became frantic in June as crews rushed to beat the Greenbrier Classic countdown clock in

the breakroom. The Meadows course was also on the clock.

Pressure? Imagine family, friends and neighbors depending on your dawn-to-dusk efforts. “If it wasn't for this place, the town would be a ghost town,” Church says.

Handling pressure brings immense fulfillment. The Greenbrier unveiled two revamped courses to resort guests Monday, July 10. Career legacies rest on that turf.

“We have created something special,” Burns said. “We took it from dirt, rock, mud and trees to a beautiful renovation.”

“WE WERE IN BUSINESS WHEN HUGO HIT. EVERYBODY WAS WARNED. WE KNEW IT WAS COMING AND IT HIT, AND IT WAS DEVASTATING AND THERE WERE GOLF COURSES DESTROYED. BUT PEOPLE COULD PREPARE FOR IT. THIS WAS A ONE-DAY THING THROWN ON THEM. YOU COULDN'T PREPARE FOR IT. THIS ONE WAS SO SUDDEN AND SO DEVASTATING TO THIS ONE LITTLE COMMUNITY.”

— TURNER REVELS, *PRESIDENT, REVELS TURF & TRACTOR*

## THE INTERN

So, what happened the first time you lived away from home because of work? Bet Drew Greene's experience beats other turf tales.

Greene had no roommates or summer social life in 2016. The office doubled as his apartment. He was 20 and living in The Greenbrier's turf care facility, 800 miles from his Jackson, Miss., home.

When the bosses told his older co-workers to head home the

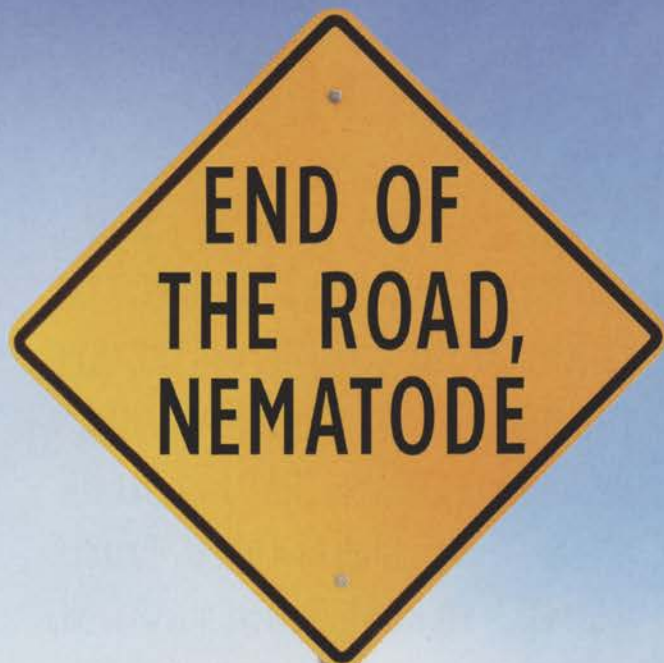
morning of June 23, 2016, Greene retreated to the apartment. He rested for a few hours, got hungry and made a soggy 10-minute drive to Lewisburg to grab a pizza. When Greene returned to his apartment, somebody noticed the left blinker light on his car wouldn't stop. He cranked the engine. Nothing. The engine was likely fried because of a lightning strike. Stuff happens.



Drew Greene

Really bad stuff also happens. Deep water covered Route 60, the two-lane road connecting Interstate 64 with White Sulphur Springs. The turf care facility sits on the east side of the road. Greene couldn't move his car to higher ground because, well, it still wouldn't start. He called his mother, but not in a state of panic. He felt a son's obligation to gently alert his mother of an unusual situation.

Greene watched the water rise with a few co-workers, including shop coordinator Curtis Persinger who exuded calm amid chaos. He also



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listened to the radio in Persinger's truck.

"I got into his truck and the radio station was saying, 'Get a helicopter to whatever address. There's a person on top of the roof. We have to get her out,'" Greene says. "I'm asking Curtis, 'Is this in downtown?' He said, 'You think we got it bad. People are trapped in houses.' Then you hear houses are floating down Highway 60 on fire. Water got in attics. It brought it into perspective. Holy cow. It wasn't just me. It was much worse than where we were."

Feeling helpless, hopeless and homesick, Greene quietly followed the lead of his bosses: director of golf course maintenance Kelly Shumate and The Old White TPC superintendent Josh Pope. "This whole time I was just trying to hold it together," he says. "I'm this young kid, the intern living here and I didn't want to get in anybody's way. Follow them. They're my bosses. I'm not going to try to be the hero here. I was fearful of my life, but I stayed calm for the most part."

Four weeks later, Greene trusted his bosses again. Uncertainty following the flood changed his internship. The PGA Tour wasn't coming to The Greenbrier in 2016 and his bosses weren't around because they were developing plans to rebuild two golf courses. Greene, the only turf intern last summer, was counting the days until the start of his junior year at Mississippi State University when Shumate and Pope approached him on The Old White TPC's battered first fairway. The duo wanted Greene to extend his internship.

"Initially, I was kind of turned off by that," Greene says. "I was only 20 years old.

I had never been to a high-end golf course. I didn't know the importance of a renovation. I didn't know the magnitude of what I was looking at. I was just really spaced out, I guess. That's one way to describe."

Greene spoke with people he respected, including Persinger and The Old White TPC assistant superintendent Greg Caldwell. He called former bosses. He learned he was sitting on a rare opportunity. "I realized there was no option," he says. "I had to stay."

"This was unbelievable," he adds. "Construction experience is automatically a step above just normal golf course experience and this was not just a construction experience. This was disaster relief cleanup and a restoration."

Instead of playing frisbee and attending SEC football games with friends last fall, Greene directed trucks to dumping locations and checked gravel and sand depths on green mixes. He worked alongside veteran project managers from McDonald Golf. He felt removed from the college loop, but he developed bonds with the prideful – and often comical – West Virginians on The Greenbrier crew.

Greene returned to the resort last month as a Greenbrier Classic turf volunteer. He was overwhelmed by seeing former co-workers and the courses.

"I really don't know how to describe it or put it into words," he says. "I'm kind of a short-timer. I was only here until Thanksgiving. They really busted it this past spring and I wasn't here. I don't know if I deserve any credit. I was basically following the leaders. I knew as long as I did what they told me to do and worked hard that it would be OK."

**"EVERY PLACE HAS PRIDE. BUT WEST VIRGINIA IS DIFFERENT. WE DON'T FIT IN THE SOUTHEAST, THE NORTHEAST, THE MIDWEST. WE ARE APPALACHIA. WE KIND OF CELEBRATE THAT IN CERTAIN WAYS. WE'RE LIBERTY-LOVING PEOPLE WHO LIKE TO BE FREE. THE RESILIENCE OF THIS STAFF WAS NO SURPRISE TO ME. IT MIGHT BE A SURPRISE TO OTHER PEOPLE. THE TALENT LEVEL OF THAT STAFF AND WHAT THEY CAN DO IS INCREDIBLE."**

— **KEN TACKETT, RULES OFFICIAL, PGA TOUR, WEST VIRGINIA RESIDENT**

## THE BROTHERS

Everybody in White Sulphur Springs knows Nate and Carrington Bryant. Their father, Jeff, is the superintendent of Greenbrier County Schools. Their mother, Teresa, is an elementary school music teacher.

And how's this for an only in small-town America occurrence? Jeff served as the principal when Nate and Carrington attended Greenbrier East High School. Nate and Carrington are now golf course superintendents at the largest employer in town.

Nate, the 30-year-old superintendent of Greenbrier course, is the big brother. He left home to chase a football dream, playing at a pair of small colleges, Malone University in Canton, Ohio, and UVa-Wise in far eastern Virginia. When football dreams faded, he



Nate and Carrington Bryant

turned his summer job as an hourly worker at the private Greenbrier Sport Club's Snead course into a newfound career dream. He enrolled at Horry Georgetown Technical College in Conway, S.C., to become a trained superintendent.

Carrington, the 27-year-old superintendent of the Meadows course, completed two years at Marshall University, one of West Virginia's two big state schools. After his sophomore year, Carrington returned home to work at the Snead course and experienced a revelation while mowing collars on the 12<sup>th</sup> hole one morning: "I had this aha moment, 'This is fun. Let's do this.'" A second Bryant enrolled in Horry Georgetown's turf program.

The brothers landed their first full-time assistant superintendent positions at The Greenbrier, with Nate joining

the staff in 2010 and Carrington in 2012. They needed little introduction to the clientele and expectations. Jeff and Teresa are musicians and they often brought their sons along when performing at the resort. "They would drop us off at the arcade and we would go bowling and do stuff like that," Nate says. "I always wanted to come back because it was a good place. When the opportunity came, you couldn't really pass that up."

Nate and Carrington understand The Greenbrier's relentless turf pace. When fully functioning, the resort supports three upscale golf courses, a PGA Tour event and NFL training camp. Nate and Carrington helped build fields the New Orleans Saints used from 2014-16. The Houston Texans are training at the resort this summer.

The past 13 months pre-

sented the biggest challenge of their professional and personal lives. Nate juggled leading the maintenance of the 12 open holes on the Greenbrier course and helping his brother's crew rebuild the Meadows course while repairing his own life. The flood destroyed his O'Connell Street home in downtown White Sulphur Springs. The house, the last structure hit by water on the street, is being rebuilt as part of the Neighbors Loving Neighbors charitable efforts, and Nate and his wife are living in Jeff and Teresa's garage apartment until the home is finished. Nate downplays his ordeal around co-workers.

"The guys would ask, but there were so many people affected," he says. "I just didn't feel like mine was any different. I was probably a lot luckier than a lot of people were. I gave them updates. You never really

try to bring it up."

Staring across from his brother during an indoor conversation, Carrington becomes emotional when describing the plight Nate and others faced. "You take everything for granted and people just lose everything," he says. "Wow. You feel lucky. Maybe a little bit lucky with the amount of people that were affected and I wasn't."

Rebuilding golf courses are Nate and Carrington's contribution to their community. Nate will play a key part in the Phil Mickelson-directed renovation of the Greenbrier course. The largest employer in the county will boast three refurbished courses when the renovation is completed.

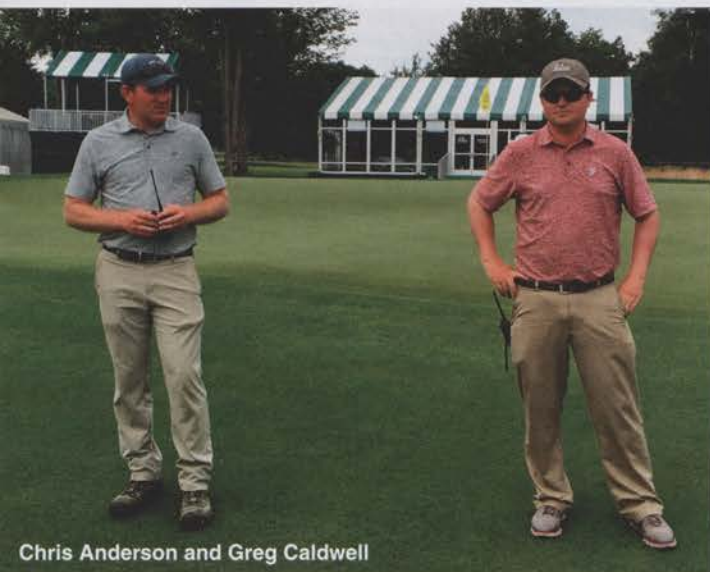
"A sense of normalcy is a tremendous motivator," Carrington says. "I'm not sure what normal is, but I guess we might find out one day."



“TO OUR STAFF, I’M NOT GOING TO GET INTO IT. I GET EMOTIONAL. YOU KNOW HOW I FEEL ABOUT EACH AND EVERY ONE OF YOU. SO, THANK YOU.”

— KELLY SHUMATE, *DIRECTOR OF GOLF MAINTENANCE,*  
*THE GREENBRIER*

# THE ASSISTANTS



Chris Anderson and Greg Caldwell

Chris Anderson hiked one trail and never removed the kayak from below his deck in his first 15 months as a West Virginia resident. The flood ruined outdoorsy plans.

Anderson, 33, left his native Ohio in April 2016 because he wanted to help host a PGA Tour event. A job as The Old White TPC assistant superintendent presented an opportunity to obtain tournament experience. “It was the whole reason I moved to West Virginia in the first place,” he says. The mountains, rivers, streams and golf courses were intriguing diversions.

Greg Caldwell, 31, joined Anderson as The Old White TPC’s other assistant superintendent two months later. The job offered a chance to move a young family closer to its Virginia roots. He ended his stint as an assistant at Colonial Country Club in Fort Worth, Texas, by working the DEAN & DELUCA Invitational six weeks

before the scheduled start of the 2016 Greenbrier Classic.

“I kind of had a plan in my head that I was going to finish the tournament at Colonial and come back and do another tournament and then kind of ease into the fall, almost like a glorious homecoming for us,” says Caldwell, who hails from Narrows, Va., 50 miles from White Sulphur Springs. “Our homecoming kind of got spoiled a little bit with this flood. I was looking forward to slowing down a little bit after that tournament. And that all changed.”

The first year on the job proved more grueling than glorious for both assistants.

With family and friends in a neighboring state, Anderson immersed himself into the rebuild. He spent the early stages of his turf career in Columbus, Ohio, where he served as an assistant superintendent and held part-time jobs ranging from winter retail work to a gameday position on the grounds crew of the city’s Triple-A baseball franchise. Experience working multiple jobs helped him handle construction demands and deadlines. And the rebuild helped him avoid the solitude associated with uprooting.

“I’m used to working a lot,” he says. “The hours don’t really

bother me, especially when I didn’t really have any friends and family down here, so it was actually better. I wasn’t spending as much time by myself.”

Caldwell had never grown in a fairway or green or watered 50 acres of sod until the past year. He also had never spent so much time away from his wife, Desiree, and 20-month-old daughter Eleanor. Working alongside contractors under tight deadlines meant days exceeding 12 hours. “I tried not to take too much of it home,” Caldwell says. “There were times it was frustrating. I wanted to go home. I wanted to go home bad to see them.”

Anderson and Caldwell are curious about post-construction life at The Greenbrier. Will Anderson adjust to living in a state with fewer residents than the Columbus metropolitan area? Will Caldwell find a desirable work-life balance?

Both know they achieved something unexpectedly big. By being dependable and adaptable, they aided a rebuild with few industry peers.

“I don’t know if it gets much tougher than this, turning a golf course around in eight months or whatever it was for a tournament,” Caldwell says. “What it looks like right now is pretty awesome.”



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“THE SUN DOESN’T ALWAYS SHINE IN WEST VIRGINIA, BUT THE PEOPLE DO.”

— JOHN F. KENNEDY, 35TH PRESIDENT, UNITED STATES OF AMERICA

# BONDED BY LOSS

**K**enny Willis was a coal miner – until he fractured his neck in a fire truck accident. He then lost his home a few years later. Nathan Kirk was a typical young adult who played basketball, football and golf in his spare time – until he lost his home.

Fifteen years separate the pair. But they are forever bonded by a flood.

The pair watched water destroy their homes last year. Neither Willis, 37, nor Kirk, 22, possessed flood insurance. Willis lived in the mountain town of Rainelle; Kirk lived in the adjacent mountain town of Charmco.

Willis, a 17-year veteran of the local fire department, has seen plenty of devastation. “But I never dreamt I would personally be affected,” he says. Kirk figured his native state was positioned to avoid disasters. “I always felt like West Virginia was a safe zone,” he says. “You don’t really have to worry about tornadoes or anything like that up here. The thought of losing my house never really occurred to me, never crossed my mind. First time anything like that dramatic has happened to me. It’s definitely life-changing.”

Willis, who has a young daughter, stayed with his wife’s grandparents for a few months. Kirk lived in a tent before shifting to a camper as he mulled his next step. They were stunned and staggered, yet determined to repair their lives.

They started riding to work together because Kirk also lost his car in the flood. The pair learned they had plenty to discuss beyond hardship. Willis and Kirk worked on the Meadows and Greenbrier courses, and they shared a zest for golf course maintenance. “For me, it was almost like a vacation to get your mind off the emotional stuff you had going on outside of work,” Kirk says.

The pair received significant support. Coworkers donated money and clothes while a prominent golf industry company provided additional assistance. Kirk also helps maintain the football fields, and he says the New Orleans Saints

gave them clothing when training camp started last July.

Their role in rebuilding the Meadows course involved constructing sod-stacked bunkers by hand, a methodical and exhilarating process. “Probably one of the hardest things I have ever done,” Kirk says. “But probably one of the funnest things I have ever done.”

Life has improved off the course. Willis and his wife are preparing to buy a house. “It’s away from the water,” he says. “That’s the first thing we looked into.” Kirk is expecting a child in November and he’s supplementing his Greenbrier income with evening landscape work as he rebuilds his home. “The flood kind of made my find myself,” he says.

Willis and Kirk envision turf as major parts of their respective futures. Willis earned an online turfgrass certificate from the University of Georgia on June 22, 2016, less than 24 hours before a flood altered his life. He wants to work his way into an assistant superintendent position at The Greenbrier. “I have fallen in love with this place,” he says.

Kirk is in the process of applying to two-year turf schools. He’s fascinated by sports turf, and harbors dreams of maintaining an NFL or major college football field. “I hope my experiences here at The Greenbrier lead me somewhere in life,” he says. “I’m dedicated to sports turf. After everything that happened last year, I will never doubt myself again.” **GCI**



Nathan Kirk and Kenny Willis



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Close-up of a creeping bentgrass/*Poa annua* fairway. Note the conversion of the *Poa annua* (left) as compared to bentgrass conversion following 5 applications of Musketeer at 36 fl. oz./A every 3 weeks (right).

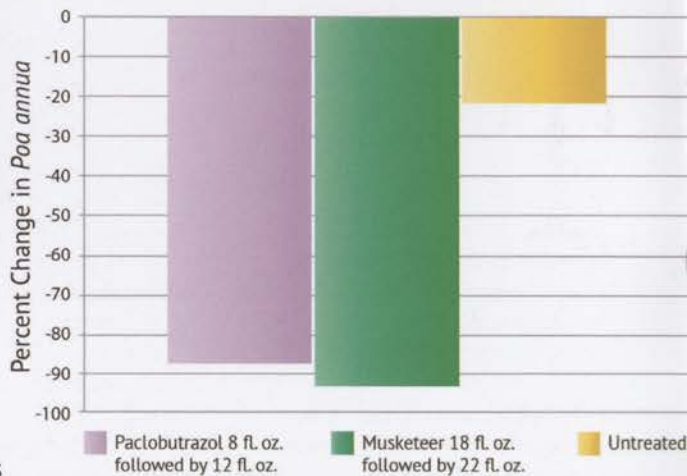
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*Poa annua* control following applications of Musketeer (left) on a creeping bentgrass/*Poa annua* fairway compared to untreated (right).

## Percent Change in *Poa annua* in Creeping Bentgrass Greens



Percent change in *Poa annua* population in a creeping bentgrass green following multiple bi-weekly applications of PGRs.



Turf injury following applications of Musketeer (left) on a Kentucky bluegrass stand compared to paclobutrazol (right).

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# GONE HAYWIRES



**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 a past president of the National Golf Course Owners Association's board of directors and serves on the PGA of America's Employers Advisory Council.

**T**hey call it a "haywire outfit" when something is thrown together at the last minute, without planning and using whatever materials are available. The term comes from the days when farmers and cattlemen used the soft malleable wire they found lying around to bale hay.

If you're a golf course superintendent or club leader, you don't want to be accused of running a haywire outfit. But we often see signs of a lack of planning and a whatever's lying-around approach to course operations and management practices. Evidence of a disciplined, deliberate and well-researched style are also just as visible.

Developing a sound agronomic plan is a sure sign that an expert is on the job. Thorough agronomic plans provide the owner, manager and greens committee with a clear picture of management and cultural practices. Such a plan features several key components:

**DETAILED BUDGETS.** Assumptions in terms of unit count (the number of gallons or applications being used) and unit cost reveal a superintendent's experience, due diligence and forecasting accuracy. There is no better way to earn credibility with management than through careful budgeting.

**CAPITAL ASSET EVALUATION.** Golf

courses are continually in need of capital investment, and a range of capital needs come under the superintendent's responsibilities, including rolling stock, irrigation and pumping systems, and on-course comfort stations. The maintenance compound with its building, tools, supplies and turf-care equipment houses substantial assets that must eventually be replaced. Careful tracking of the use and condition of capital assets provides essential information for the budgeting process and reduces spikes in capital purchases. Tools and resources that can aid in this process include schedules produced by the American Society of Certified Public Accountants and the Golf Course Builders Association of America.

**LABOR AND STAFFING PLAN.** The greatest operational costs for most golf courses are labor related. Stephen Johnston, the founder of Global Golf Advisors, notes that from 50 to 60 percent of most golf course expense is tied to direct labor and benefits. An effective staffing plan should focus on the full range of staff positions required to provide the level of maintenance called for in the strategic plan, including specific job descriptions, compensation and benefits.

Because of the growing scarcity of capable workers in many areas, staff development is critical at most facilities. Consequently, the agro-

nomical plan should show how workers will be trained and retained in their jobs. Some workers jump from job to job for the money, but most want a professional home where they are a respected member of the team, paid a fair wage and understand how their work makes a difference. This section of the agronomic plan will continue to demand thought and grow in significance.

## ENVIRONMENTAL MANAGEMENT PLAN.

Many important cultural programs, such as fertility planning, water-use and arboreal plans, should be included in the plan. As a growing number of courses are undertaking species development and protection initiatives, golf courses are finding new purpose in beekeeping, wetland preservation, and programs to enhance habitat and vitality for bats and birds.

**TARGETED SPECIAL PROJECTS.** In-house improvements for certain golf course features, such as ornamental landscaping and small-scale projects, often stimulate creativity and teamwork for the maintenance crew. The agronomic plan should describe each project, indicate direct costs involved and forecast a timeline for implementation.

We all know that even experienced management often doesn't fully understand the expertise and experience required for course conditions that meet quality standards and are delivered under budget. That's why the most successful agronomic plans are the ones that set out a well-documented and clear path that superintendents and their crews intend to follow.

Plans enhanced and supported with photography are a great way to educate and build credibility at the same time. Great plans are not thrown together at the last minute. They take research and thought, which makes the off-season the best time of year to tackle next year's plan. **GCI**

**A**s the South prepares itself for another peak season, golf course superintendents need to be aware of potential disease pressures they may face. While factors such as topography, climate and turfgrass variety play roles in a particular disease's tenacity, turf experts provide their best forecast.

Superintendents maintaining Bermudagrass putting greens should be vigilant this fall, says Dr. Jim Kerns, assistant professor and extension specialist of turfgrass pathology at North Carolina State University. "The Bermudagrass guys, they'll be starting to see things like leaf spot, Pythium blight, take-all root rot, and even potentially some nematode issues," he says.

When it comes to warm-season grasses, Dr. Bruce Martin, Clemson University professor of entomology, soils, and plant sciences, is particularly concerned about Pythium.

"We are recognizing an increase in the visual symptoms of patches in Bermudagrass greens that appear to be caused by Pythium," he says. "This is in addition to occasional outbreaks of bonafide Pythium blight. Symptoms of Pythium root rot are difficult to distinguish from some other patch diseases or even root knot nematode infestations. Also, with abundant rains and cloudy weather in the past in fall months, we likely see more severe spring dead spot the following spring but also have seen a big increase in take all root rot."

Take-all root rot is another pest for superintendents' disease radars. It's troublesome in southern climates because



# SOUTHERN COMFORT

Minimize disease pressure this season on your southern turf and ease your stress maintaining playability expectations.

By **Rick Woelfel**

its initial impact occurs below the surface.

"Last fall, Hurricane Matthew came through and really swamped the Carolinas and, of course, Florida," says Dr. Derek Settle, a technical specialist for Bayer who is based in the South. "We got to see some of that this year with these tropical storms that are moving up through the Gulf and along the coast. That changes things because suddenly you've got saturated root zones and then you've got problems.

"But it's never really readily apparent, and that means by the time we see symptoms above ground it's probably been weeks to a month of activity," he adds. "In this case, by the (fungal) pathogen *Gaeumannomyces* (take-all patch) and it's a very common disease that attacks all the warm-season turfs."

The introduction of ultradwarf putting greens has made take-all root rot a more pressing concern, says Syngenta senior technical representative Dr. Lane Tredway. "Take-all root rot has historically been a problem only in the Deep South," he says, "But it has become a chronic issue on ultradwarf greens in the transition zone."

Take-all root rot causes patchy symptoms from fall through spring when cool and/or cloudy weather suppress Bermudagrass growth, Tredway says. But this is not necessarily the best time for preventive fungicide applications because the pathogen is most active from late summer through early fall.

Cool-season grasses in the transition zone generally aren't as susceptible to disease pressure as strains of Bermudagrass,

## LOOKOUT

### TOP TIPS FOR TREATING SOUTHERN TURF DISEASES THIS SEASON

#### Bermudagrass Diseases

Disease	Timing	Some effective fungicides	Comments
Spring dead spot	Preventive fungicides in fall	Headway, Velist, Lexicon	Time two or three applications for fungicides to begin about 45 days before the first hard frost
Take-all root rot	Preventive fungicides in fall/ spring	Lexicon, Mirage, Tartan	Early-mid fall applications and mid-late spring applications
Pythium blight and root rot	Time applications based on wet weather forecasts	Mancozeb and Subdue (blight); phosphonates, Banol, Segway, Terrazole	Prolonged wet, cloudy weather may trigger preventive or curative sprays

#### Bentgrass and Bent/Poa Diseases

Disease	Timing	Some effective fungicides	Comments
Fairy Ring, dollar spot	Mid-spring for two or three preventive applications	Tartan, Mirage, Velist, Xzemplar Lexicon, other strobilurin and DMI chemistries	Choice of options depends on diseases targeted; all are incorporated with irrigation
Anthracnose	Late spring through summer	Mirage, phosphonate + chlorothalonil, Velist	Part of a preventive program for other diseases
Rhizoctonia diseases	Summer months	Strobilurin fungicides, chlorothalonil, iprodione	Part of a preventive program
Pythium root rot	Summer months	Segway, Banol, phosphonates, Some strobilurins	Part of a preventive program; beware of spectrum of activity

\* The chart was provided by Dr. Bruce Martin at Clemson University

grass, Kerns says.

"On bentgrass, we do see residual problems from the summer that still may need control," Kerns says. "But bentgrass down here, their biggest months are July and August. If they can get through that, they're pretty solid."

Superintendents caring for cool-season grasses must remain vigilant. The combination of high heat and high moisture drives epidemics of Pythium root rot in summer months, Martin says, which can be a major limiting factor regarding survival of bentgrass

greens in the South. These factors may also provide conditions which limit fungicide efficacy, so a breakthrough of diseases such as summer patch or fairy rings can occur. So, the major chronic diseases on cool-season grasses to plan for year in/year out would include dollar spot, fair ring, anthracnose (especially in *Poa*), rhizoctonia-induced diseases and especially Pythium root rot."

Kerns advises that superintendents should make their stand against the pathogen when their courses are busy.

"I would kind of not worry as much about dollar spot in July and August as I would in September and October," he says. "Golfers are coming back to the resorts and even down in Florida it's been an issue on grasses like Seashore paspalum."

Dollar spot can be severe in the spring and fall when there is a lot of golf being played at southern latitudes. Kerns suggests superintendents facing budgetary issues focus their efforts against dollar spot during those times and cut back if need be during the heat of

the summer. "(Dollar spot) is rarely as severe down south during the summer," he says.

Tredway says hot, humid weather has become a more pronounced superintendent concern in recent years. "Absolutely, without question," he says. "Turfgrasses are most susceptible to disease when they are stressed, so weather extremes, which seem to occur now with more frequency, lead to aggressive disease outbreaks. Hot and humid summers cause creeping bentgrass to become very susceptible; conversely warm and wet winters create ideal conditions for Bermudagrass diseases."

When Settle first started working for Bayer in 2013, the winters in his territory featured cold periods and significant amounts of snow. But the weather trends have changed the past few years.

"It's been all about heat," he says. "So, we aren't really having winters and that has impacted us."

Settle says warmer winter temperatures have led to increased diseased pressure from take-all root rot and Pythium, among other things. Sustained cloud cover also contributes to the problem.

Superintendents shouldn't be afraid to call an audible if the weather dictates. "If

you see the weather forecast bringing in a big storm or we have a winter where there are warmer temperatures, you're going to have to change up what you're doing," he says. "You might even (make) an application where you never have before in your career."

All superintendents will face the risks of disease pressures as they head into their golf seasons. But how should they minimize those risks? Tredway says the best defense is employing sound year-round cultural practices.

"Good cultural practices are the most important part of a disease management program," he says. "Turf that

is constantly stressed from low fertility, drought, poor soil drainage or close mowing will be more prone to extreme weather conditions and the disease outbreaks that often follow. If the turf is properly conditioned to be healthier and stronger going into that stress period, it will perform better and recover quicker from the stress with better quality."

When it comes to applying fungicides, Tredway advocates a proactive rather than reactive approach. **GCI**

*Rick Woelfel is a Philadelphia-based writer and frequent GCI contributor.*

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# REPAIR OF REPAIRS



**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](mailto:bvinchesi@irrigationconsulting.com) or 978-433-8972 or followed on twitter @bvinchesi.

**W**hen I go out onto golf courses to do evaluations and designs, one of the questions I like to ask the maintenance staff is how many mainline and lateral breaks they have had in the last year and the last five years. Basically, I am breaking – pardon the pun – the question down into big pipe and little pipe. The answers give me an idea of how well the piping system is holding up and if it can be reused, if the hydraulics are any good, and an indication of how well the pipe system was installed. I also ask what kind of breaks they were. You would be amazed at how many times the reply to the second question is that it was a leak in a previous repair or as the industry likes to say: “a repair of a repair.”

Many times, and not just on golf courses, irrigation repairs tend to be reactive. That is, the fix is made when it is discovered and made as quickly and as easily as possible. As a result, many of the repairs do not last and end up having to be dealt with later, many times by different staff so they do not learn from their mistakes. A recent golf course I visited had made 80 lateral repairs in the last few years with over half of them being previous repairs.

Quality training, determining what caused the break and using proper



materials are keys to not making repairs of repairs.

## TRAINING

Make sure your staff is properly trained in solvent weld cementing techniques, thrust blocking and pipe preparation. Many people think that solvent weld cementing, aka gluing, is straightforward and anyone one can do it, but the manufacturer will tell you there is a process to solvent weld cementing and if you do not follow the process, the joint can/will fail over time. PVC joints commonly fail 10 to 15 years after installation due to poor solvent weld cementing techniques,

often due to the use of too much primer or cement.

## CAUSE

This is the most difficult aspect of the repair process. What caused the pipe or fitting to fail in the first place? If someone put a backhoe bucket through it, the cause is obvious, otherwise it might take some investigation. Pipe and fitting breaks can be caused by high pressure, surge pressure, poor cementing procedures,

poor thrust blocking, or bad pipe or fittings. These issues could be the result of poor design or bad installation practices, but they could also be operations. If you operate too many sprinklers in the same area and do not spread out the water, you raise the velocity in the pipes and therefore water hammer/surge pressures. Thrust blocks also can fail if not properly installed. The thrust block needs to be properly sized and always installed against undisturbed soil. In soft soils, the thrust block needs to be stabilized.

## MATERIALS

Material selection depends on what type and size of pipe or fitting failed/broke. For small pipe, 2½-inch and below, many people use telescoping repair couplings. Between the ability of the coupling to move after installation and having two solvent weld cement joints they usually do not last long. Compression couplings are a better choice, but the connection needs to be pretty straight and your process flawless or it will slip over time. In the picture, the pipe was not properly aligned and the compression coupling repair failed. The threads on the compression couplings do not like any dirt in them. A knock-on PVC or ductile iron coupling is usually a better choice. For larger pipe, 3 inches and above, you can also use compression couplings, but they have the same issues as with smaller pipe. **GCI**

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# SIX-LEGGED RABBLE ROUSERS

The top insects southern superintendents need to keep their eyes out for and how to best manage them this season.

By **John Torsiello**

## FALL ARMYWORM

Superintendents need to understand that fall armyworm infestation in the South is as “sure as hot weather in the summer – wait for it and it will come,” says Dr. Juang-Hong Chong, associate professor and extension specialist in turf and ornamentals entomology at Clemson University.

While nearly every year there are reports of severe fall armyworm infestations, there is no consistent pattern in the severity of infestation, Chong says. For example, one course might suffer severely, while another course a mile away experiences no issues. The damage – or infestation level – of this pest depends on the weather and environmental conditions in Florida and Georgia, he says.

“The fall armyworm does not overwinter in South Carolina,” Chong says. “The entire population dies soon after the first frost in November. A permanent population occurs in Florida, which begins to build up in the spring, and spreads north into Georgia. The population grows and continues to spread north, and eventually reaches South Carolina in June.”

Superintendents should keep an eye on infestation in the summer, especially along tree lines. Chong adds timing depends on



Fall armyworm infestations in the South are inconsistent, meaning one course might suffer from it, while another course a mile away experiences no issues.

FRANK PEAIRS, COLORADO STATE UNIVERSITY, BUGWOOD.ORG

where their courses are located. A staple of southern turf, the fall armyworm is starting to be reported in South Carolina (in June), but the worst is yet to come, with the most severe damage to take place in late August and September, Chong says. The worst infestation Dr. Chong ever witnessed was on a golf course in Charleston, S.C., in 2010, where the fall armyworms were so numerous that “the entire rough seemed to be moving.”

“Fall armyworm adults prefer to lay eggs on anything that is erected – tree trunks, flags, markers, posts, signs, walls, etc.,” he says. “Population and damage often radiate from these erected structures.”

While soap flush is a good way to sample for population, Chong advises superintendents to pay attention to paper wasps, which are predators of fall armyworms. Areas where the wasps are actively flying around, close to the turf surface, are likely areas with fall armyworm or other caterpillar infestations, he says.

Fortunately, fall armyworms are not difficult to control curatively. “Most insecticides registered for management – organophosphates, pyrethroids, diamides – are effective at the label rate,” he says. “The residual of organophosphates and pyrethroids are relatively short, so supers may have to come back and make reapplications on a biweekly basis.” He adds that it may be weekly if infestation is particularly intense.

Preventatively, superintendents can apply a long residual diamide insecticides (chlorantraniliprole or cyantraniliprole) on roughs bordering tree lines or areas where there has been consistent infestation over the years, Chong says. In some cases, one application of diamide may provide protection for two months.

Traditional reactionary practices of spraying an outbreak with a pyrethroid insecticide delivered less than stellar results and were labor intensive, says Dr. Lane Tredway, Syngenta senior technical representative. However, new chemistries for managing fall armyworms outbreaks can preventatively control this insect in an effective and efficient way, he says. “One application of Acelepryn insecticide can prevent fall armyworms for 90 days or longer,” he says.

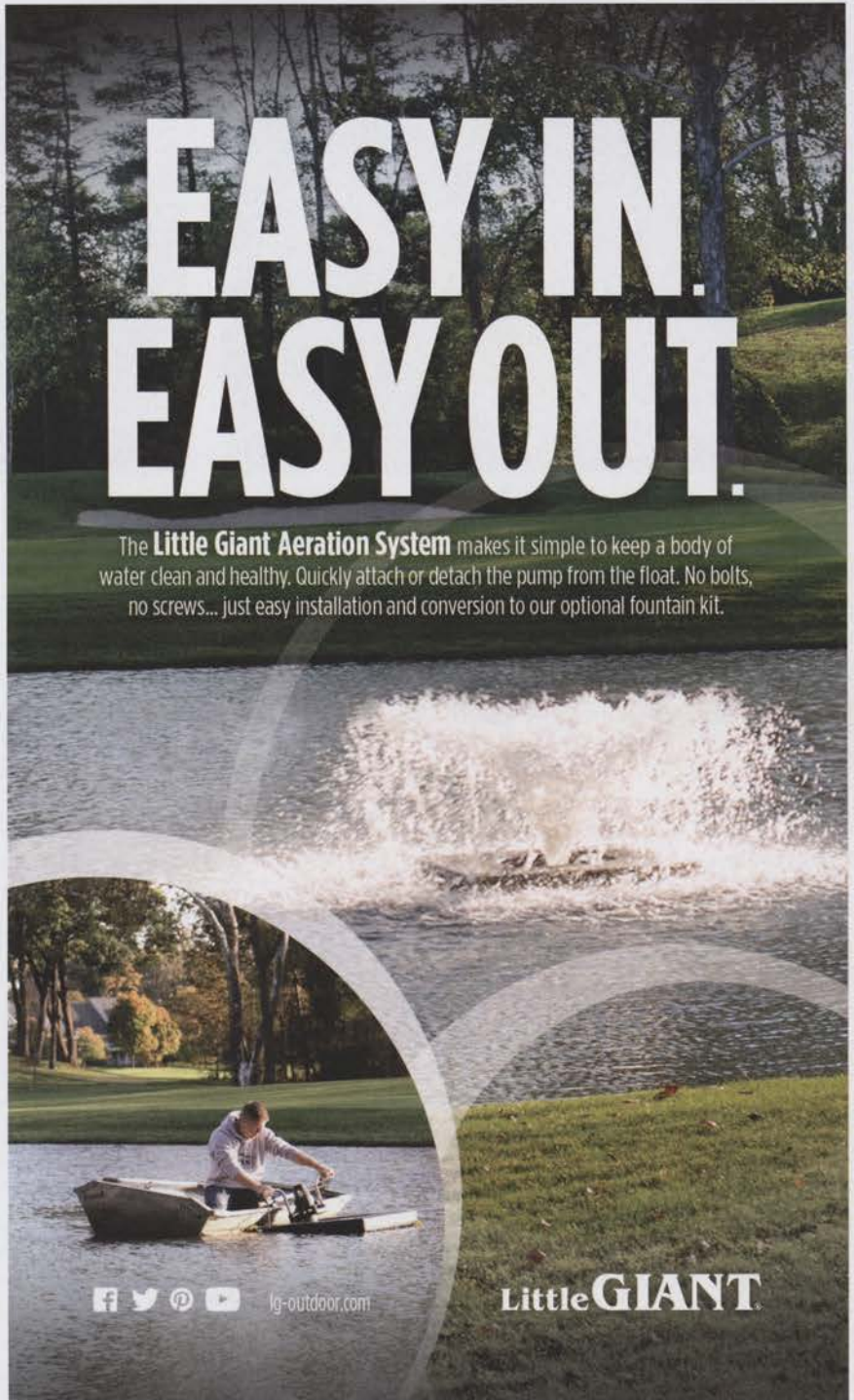
#### MOLE CRICKETS

Like fall armyworms, mole crickets destroy large areas of turf in a very short period of time if their populations are allowed to build through the summer, Tredway say.

With any infestation, smaller insects, in the early stages of their life cycle, are more sensitive to insecticide chemistries, while larger insects, later in their life cycle, can be controlled by fewer chemistries and

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Areas where mole crickets were active in the spring will also be areas where mole crickets will become active in late summer and fall, according to Clemson University's Dr. Juang-Hong Chong.

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high label rates for effective performance. Mole cricket management can happen at either phase, Tredway says, while prevention is preferred.

"Several options are available to control small (mole cricket) nymphs in the spring or early summer, but large nymphs and adults in the late summer and fall are much more difficult," he says. "Advion Insect Granule, a bait formulation of indoxacarb, is one of the few options, but provides very effective control of larger mole crickets in the late summer and fall." Areas where mole crickets were active in the spring will also be areas where mole crickets will become active in late summer and fall, Chong says. These are the areas superintendents should keep an eye on every year. Most turf managers have

a pretty good handle of mole cricket suppression, but damage can still sneak up on them, he says.

The best approach is to reduce the mole cricket population – and thus their tunneling activity – in the spring and early summer. Fipronil (TopChoice) is the best product available for mole cricket control, Chong says. Because of its cost, some courses mainly use this product on the most critical areas such as greens and tees, he adds.

#### JAPANESE BEETLE GRUB

Kentucky and surrounding states have seen "very heavy flights" of adult Japanese beetles during summer 2017, says Dr. Daniel Potter, University of Kentucky professor of entomology. Heavy rainfall and moist soil conditions favor the survival of Japanese beetle eggs,



Heavy rainfall and moist soil conditions favor the survival of Japanese beetle eggs, which should lead to high grub populations in August and September.

JOHN A. WEIDHASS, VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY, BUGWOOD.ORG

so this is expected to mean high grub populations in August and September.

"Much of the damage may be masked if turf remains vigorous from above average rainfall," he says. "But if it turns dry and turf is stressed in late summer, there will be plenty of grubs in the soil. So, watch for grub damage such as turf that is wilting, dying and easy to pull back like a loose carpet due to lack of roots, and digging by skunks, raccoons, armadillos, birds and other critters that feed on these 'land shrimp.'"

The best window for preventive grub applications with Acelepryn or neonicotinoids (Merit, Arena, Meridian or combo products) is in May or June, Potter says. However, if superintendents missed areas and experience grub damage, trichlorfon (e.g., Dylox), clo-

thianidin (e.g., Arena), Aloft (which contains clothianidin), or carbaryl (Sevin) can be used as spot-treatment for curative control, he says.

#### HUNTING BILLBUGS

Hunting billbugs are also problematic on zoysiagrass and Bermudagrass golf courses. And to complicate matters, they're often confused with grub damage or drought stress, Chong says. Identifying the problem correctly goes a long way toward developing the proper control strategy.

Bermudagrass and zoysiagrass are most frequently impacted by billbugs, and areas stressed by drought or low irrigation amount/frequency (bunker faces or slopes) are often areas where problems first appear. Adults can often be found walking on turf sur-

faces in the morning, but the presence of adults does not automatically indicate severe infestation and warrant immediate pesticide application.

Instead, superintendents should conduct soil core sampling in areas that show thinned or weak turf, particularly areas that do not retain moisture. "Our experience indicates that billbug grubs can be quite spread out in an area, so multiple samples should be taken to check for their presence and density," Chong says. "Another good way to sample for billbug damage is to tuck at the impacted turf." If the desiccated or chlorotic grass break off easily at the crown,



and fine saw dust (these are actually a mixture of waste and grass by young billbug grubs) come out of the stems or fall out when the superintendents split the stem, billbugs may be

present, he says.

Chong's research suggests there may be two generations of billbugs in the Carolinas – adults are active in March to July and August to November.

The hunting billbug is problematic on zoysiagrass and Bermudagrass

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"The activity of adults can be monitored with a simple pit fall trap," he says. "Applications of pyrethroids can be applied in April and September to target adults, or a combination of pyrethroids and neonictinoids can be applied at about the same time. Cyantraniliprole also has been shown to be very effective against billbug grubs." **GCI**

*John Torsiello is a writer based in Torrington, Conn., and a frequent GCI contributor.*

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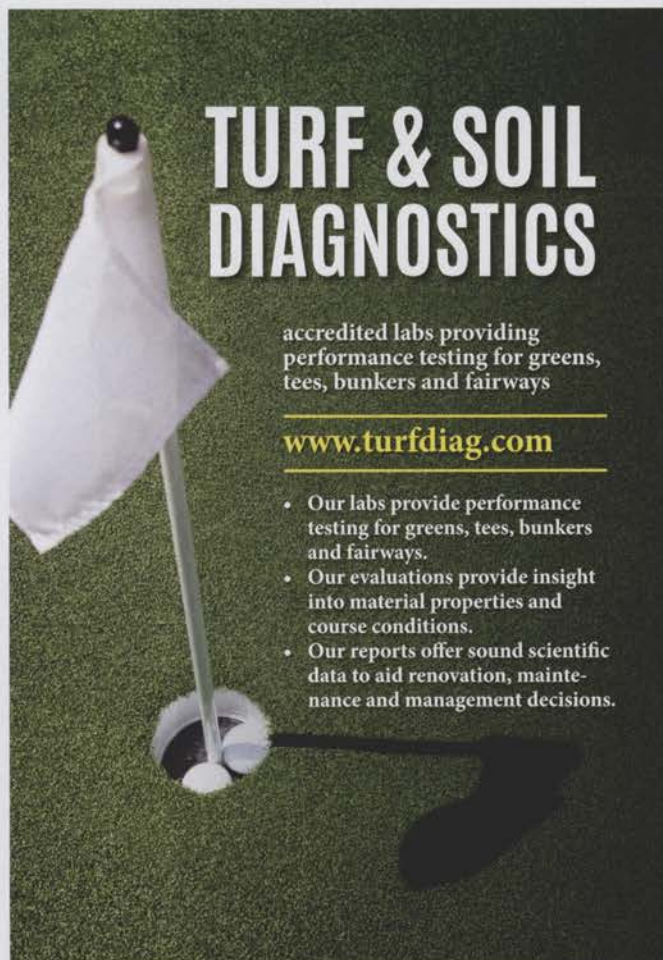


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Indemnify demonstration on a Champion Bermudagrass green in South Florida. Photo: Bayer

## Nabbing Nematodes Just Got Easier

**B**ob Lively faced steep challenges when he took the superintendent job at Greens and Grounds at Edgewood Valley Country Club in La Grange, Ill., in 2015. The 107-year-old golf course in Chicago's western suburbs has push-up *Poa annua*/bentgrass greens.

"Our members want very firm, very fast greens," says Lively, who earned a degree in turfgrass management from Rutgers University. "But I struggled to keep any type of root structure on a few of those greens. I practically lived on the course for the first two summers because I was afraid to walk away. I did everything I knew to grow deeper roots, but nothing seemed to work."

Lively knew a few things about push-up greens, having worked with them for most of his 25-year career. He vertidraines monthly with solid 12-inch needle tines. He also slit-seeds heavily in spring and fall, while maintaining the same mowing height as the rest of the greens. At first, he supplemented with spoon feeding and hand-watering. He even cut trees to alleviate shade issues on one green. But he still couldn't get roots on three of the greens.

After trying multiple cultural practices, Lively conferred with his distributor rep, who suggested he sample his greens for nematodes. The result? Tests on one of the greens sampled showed an average of

4,020 stunt nematodes per 100 cc of soil. Since this was above the damage threshold, he concluded plant parasitic nematodes were causing his problems. Chad Hauth, his Bayer Environmental Science field rep, recommended he try a new product, Indemnify® nematicide from Bayer.

"Even though we only tested three greens, we sprayed all of our greens with Indemnify just to be on the safe side," Lively says. "We sprayed on June 12, 2017 and within days I saw a huge difference. They had always been a tannish color because I used a lot of growth regulators and kept them very lean so they'd be fast and firm. But suddenly all of my greens were truly green – and the only difference was Indemnify. It really kicked the crap out of those nematodes."

### HOW INDEMNIFY WORKS

Indemnify offers both curative and preven-





A demo sample of a Tifdwarf Bermudagrass green in North Florida. Photo: Bayer

tative control of key nematodes, including ecto- and endo-parasitic nematodes like sting, stunt, root knot and ring. The product has a Caution signal word on the label and requires only standard personal protective equipment. Applicators need only water-in the material to the depth of roots within 24 hours after spray application. Built as a stand-alone nematicide, Indemnify contains a soil surfactant, so there is no need for additional adjuvants.

“Stunt nematodes are one of four we typically see in turfgrass in the Northeast — and they can do a lot of damage,” says Dr. Nathaniel Mitkowski, plant pathologist with the University of Rhode Island. “Stunt nematodes attack plant roots but the symptoms vary — you can get wilting, thinning or turf yellowing. They cause different symptoms at different levels.”

Mitkowski began testing Indemnify last fall. “It’s the first material I’ve used in a very long time that’s shown such immediate and dramatic results,” he notes. “Superintendents often see a difference within two weeks. We’ve also been very impressed with the safety of Indemnify. The old product, Nemacur, worked fantastically well but was extremely toxic. It’s nice to have a material available that is relatively safe to the applicator and without the potential

environmental damage.”

#### PUTTING THE STING ON A SOUTHERN PROBLEM

In the South, Dr. Bruce Martin agrees. “Indemnify has filled a huge niche from the standpoint of sting nematode control,” says Martin, plant pathologist with Clemson University’s Pee Dee Research and Education Center in Florence, S.C. “Sting nematode is a major pest on Southern golf turf. We did not have good materials for controlling this pest until Indemnify came along. I’ve tested it for several years and results have been phenomenal.”

Martin has found that fall applications of Indemnify work well in the Carolinas, Georgia and northern Florida on bermudagrass turf. “A preventive application in October or November works because Bermuda is going into dormancy in the transition zone,” he explains. “You want to protect the roots and optimize plant health prior to dormancy as much as possible. Indemnify can also be used in the spring to ensure normal green-up and transition of turfgrass. And the product can be used curatively at any time.”

Sting nematodes thrive on sandy soils, which are common in coastal areas, adds Derek Settle, Ph.D., technical service



A demonstration on an ultradwarf Bermudagrass green with sting nematodes. Photo: Bayer

specialist with the Bayer Green Solutions Team. “But when you construct a golf green, you bring in sand and can easily introduce sting nematodes on plant parts or sod. Whether they are USGA-spec or push-up, most greens are vulnerable to nematodes. And no other nematode has such a low threshold level as sting nematode. It only takes about 20 - 40 per 100 cc of soil to cause damage.”

#### MISDIAGNOSING OR MASKING SYMPTOMS

Nematodes are a nagging issue frequently either misdiagnosed or addressed by hand-watering at mid-day to alleviate wilt stress, says Settle. “In a way, excellent water management only masks nematode symptoms,” he says. “Until superintendents use a good nematicide, they don’t realize what’s causing their problems. Once they solve the issue, they can often send their hand-watering crew home at lunchtime.”

That is exactly what Lively did on his Illinois golf course. After spraying Indemnify, he not only stopped hand-watering greens every day, he began sleeping better at night. When he retested his greens in July, *Poa* roots had grown from 2 to 5 inches, while bentgrass roots were an astounding eight inches long. Tests revealed that stunt nematode counts went down from 4,020 to just over 1,000 — barely over the threshold.

“My greens have never been better — both species of grass reacted positively to Indemnify,” he notes. “I believe this is because all the nutrients in the soil became available to the turf after nematode levels went down. They were beating up on the roots and when they started dying off, the plants got better.”

# WHAT, WEED WORRY?

Don't Get Mad – Get Even. Five weeds to get ready for as summer turns toward fall on southern courses.

By Judd Spicer

**T**he autumn season is no time to fall down when it comes to controlling and pre-treating weed pressure. And for southern golf courses, the turn toward Labor Day provides little respite for course management, with fickle weather patterns requiring a studied game plan as soil temps approach 70 degrees.

“Going into this time of year, prior to winter, people should be looking at anything they can do to reduce the weed population,” says Dean Mosdell, technical manager of the Western U.S for Syngenta. “Some of these perennial broadleaf weeds, the best time

to control them is heading into fall rather than waiting until spring because you’ll get better translocation of the active ingredient down into the roots. Come spring, they’re putting out a lot of growth and not translocating material down into the root system.”

Prepping for autumn isn’t predicated on herbicides alone. Rather, your preemergence plan should combine applications with a review of spring data, along with study of irrigation systems, shaded areas and mowing heights.

With *Poa annua* at the forefront, here are five weeds to ready for as summer turns toward fall on southern courses.



Herbicide resistance in annual bluegrass has become a “massive” issue in southern states, according to Virginia Tech’s Dr. Shawn Askew.

STEVE DEWEY, UTAH STATE UNIVERSITY, BUGWOOD.ORG

## POA ANNUA

Annual bluegrass is a burden, to be sure, appearing from tee-to-green and proving especially pesky on putting surfaces.

“The number one weed is *Poa annua*,” says Dr. Shawn Askew, associate professor of turfgrass weed science at Virginia Tech. “There are many different ways that *Poa* can cause problems on a golf course, and now, in the southern states, there’s also a massive problem with herbicide resistance in annual bluegrass.”

Evidencing the adaptation of *Poa*, Askew says if you’ve had success with Prograss for about three or four years in a row, then you’re probably not having success with Prograss anymore, because annual bluegrass becomes resistant quite rapidly to that product. “And the further south you go, the more difficult it is because Prograss relies on winter temperatures to help; so it can fall short if you have a mild winter,” he says.

Mutation makes annual bluegrass even more of a nuisance. “The weed has devel-

oped biotypes that tolerate low mowing heights,” says Kathie E. Kalmowitz, Ph.D., technical specialist, turf and ornamentals Southern Region for BASF. “However, the bunch type is a prolific seeder and plants can germinate over several weeks if the weather conditions in the fall are favorable.”

To best control winter germination of *Poa*, superintendents need to have a plan in hand and the best bet for management is putting out a preemergence herbicide prior to seed emergence. The plan may also be well-served by rotating applications to avoid resistance.

“Application timing varies widely depending upon soil temperature and available moisture, but typically superintendents apply between September and October,” says Dr. Jay McCurdy, assistant extension professor of turfgrass sciences at Mississippi State. “There’s limited options on greens, but the best prevention is to keep the remainder of the course clean. After that, winter time postemergence

applications to control escapes are almost always warranted.”

“Pendulum, Pendulum + Tower, or Freehand G have activity on annual bluegrass,” says Kalmowitz. “Pendulum and Freehand are WSSA herbicide groups 3 or 3 + 15 herbicides, and it’s the DNA’s or Group 3 herbicides that have, over the long years of their use, lost some sensitivity to controlling this weed. Timing is very important and if the golf course has practiced a good rotation of herbicides at the property for several years, the DNA’s and Pendulum or Freehand can be very effective.”

#### **BERMUDAGRASS**

From fairways to rough areas to green encroachment, Bermudagrass is a prevalent pest. For non-green areas, Bermudagrass

emerges again in the spring when the grass emerges from dormancy and the cool season turfgrass is growing vigorously,” Kalmowitz says. “Reseeding the cool-season turfgrass in the fall allows for inter-turf and weed competition and removal of Bermudagrass can be greater with this technique.”

From the Atlanta, Georgia region and upward, Bermudagrass (and Wiregrass) encroachment in tall fescue is often a problem.

For cost-efficiency, Askew advises using Tenacity turf lawn when Bermudagrass gets 50 percent green in early summer to pre-treat, followed by com-

carries a three-week seeding restriction,” Askew adds. “Our solution to that is, on your last application, do not use the Turf Line and you’re actually able to seed and spray on the same day.”

A review of mowing heights can also help “Raise the mowing height,” Askew says. “You will never control Bermudagrass in tall fescue at 2 – 2.5 inches; you’ve got to get that mowing height up to 3.5 – 4 inches before you’re going to be successful with these chemical programs. And, I understand, that golfers will then complain about losing their ball, but at lower mowing height the weed is just going to be too tough to control.”

#### **GOOSEGRASS**

After the spring emergence of crabgrass, goosegrass generally appears in bunch-growth a month or two later and is seen on course areas receiving frequent irrigation.

“Goosegrass is starting to develop more and more as a summer annual, which results in application of a pre-emergence herbicide sometime in the spring to control both goosegrass and crabgrass,” Mosdell says.

While goosegrass treatment on greens is particularly delicate business, a thorough review of mowing strategy (“Goosegrass competes better at low mowing heights,” adds Mosdell), combined with

herbicides can help superintendents get a grip on the goose.

For goosegrass on greens, Anderson’s Goosegrass/Crabgrass Control is a recommended option.

“And if you’re prone to goosegrass on fairways, then indaziflam may be useful,” McCurdy says. “Postemergence options during the summer requires some funds, so don’t blow all your cash up front. Cheap products are out there, but they rarely are a cure all.”

Pylex controls goosegrass and is the newest class of chemistry that has been shown to be highly effective for control, Kalmowitz says. “Because Pylex can also be sensitive to the desirable turfgrass in which goosegrass is found, controlling strategy and rate must be followed for the specific location of the golf courses,” Kalmowitz adds

#### **DALLISGRASS**

Known for escaping mowing, perennial dallisgrass, often bunched in Bermudagrass rough areas in the southern region, is among the toughest weeds to best. Dallisgrass is most effectively attacked when in transition from fall into winter dormancy.

Getting the weed at its weakest is key. “Where available, MSMA is the most realistic and practical application,” McCurdy says. “Tribute Total applied twice in the fall and again in the spring works well



Dallisgrass is most effectively attacked when in transition from fall into winter dormancy.

JOHN D. BYRD, MISSISSIPPI STATE UNIVERSITY, BUGWOOD.ORG



Removing Bermudagrass in non-greens area can be a multi-year autumn project for golf course superintendents in southern states.

STEVE DEWEY, UTAH STATE UNIVERSITY, BUGWOOD.ORG

removal is typically a multi-year autumn project.

“In the southern transition zone, normally it will take two years of the fall schedule to remove the Bermudagrass, or, reapplication to Bermu-

binning an ounce of Pylex and 32 ounces of Turf Line applied in three-week intervals come fall.

“But if you have severe infestation of Bermudagrass and you need to seed tall fescue, it’s important to know that Turf Line

on dallisgrass, and is also effective on sedges, and even young goosegrass.”

**DOVEWEED**

Generally seen in high-cut turf areas and found with increasing regularity in the sub-tropical Southeast, the unseemly, blue and purple flowers of doveweed can proliferate when the plant goes to seed in the fall or through cuttings that are the result of mowing.

If the weed isn't controlled heading into August, the population can worsen the following spring.

“Most broadleaf herbicides work well when it's very young, but it is hard to scout for under

turf canopy,” McCurdy says. “Unlike many other weeds, doveweed doesn't care how dense the turf canopy is, or if you're following all the right cultural practices, it just jumps up and smothers all the turf competition. Celsius, Tribute Total, even MSM-Turf, all work well, but it comes back. Include a preemergence herbicide in spot treatment applications, but beware that they may inhibit recovery of Bermudagrass into treated areas.”

Superintendents can further dovetail the doveweed by attacking prior to germination.

“Both Freehand granular and Tower products have been shown to have a very high



If doveweed isn't controlled heading into August, the population can worsen the following spring.

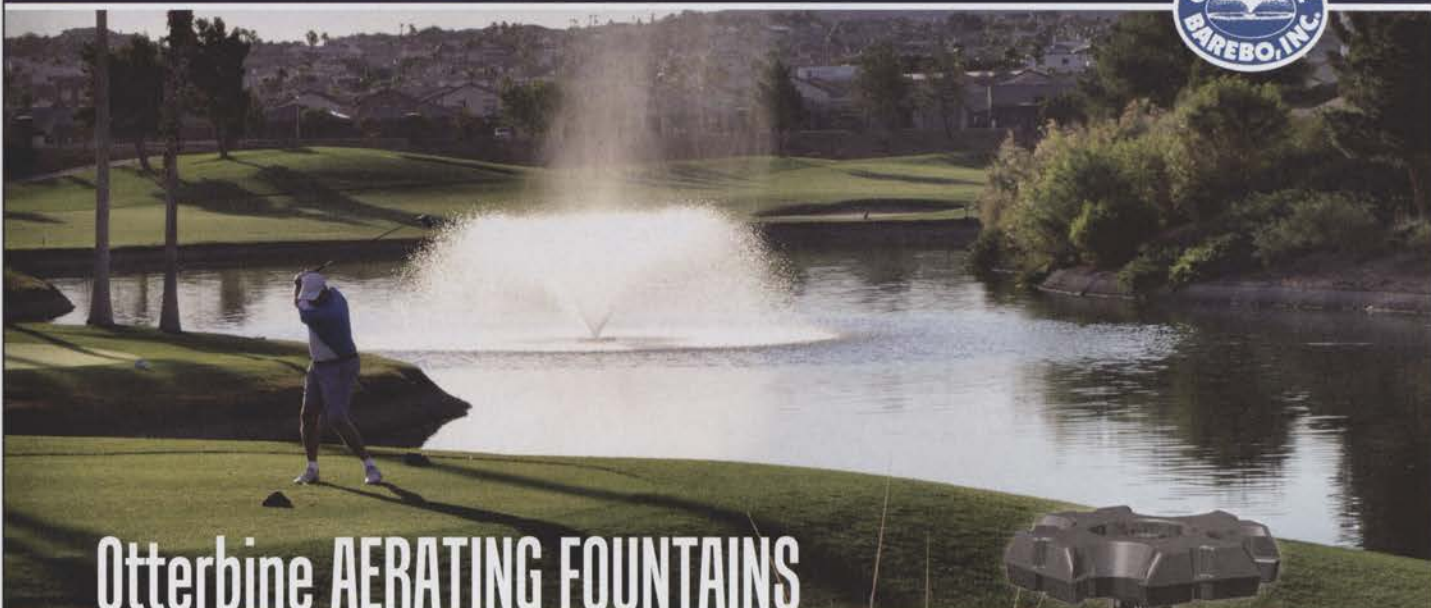
JOHN D. BYRD, MISSISSIPPI STATE UNIVERSITY, BUGWOOD.ORG

level of control if the timing of the product is correct prior to germination,” Kalmowitz says. “The weed germinates in the spring and because, many times, it sits deep in the canopy before it emerges, in-sight timing is many times incorrect; and that timing changes as you move from Florida up into the Carolinas and Georgia.”

are using Tower, you can tank mix the two or you can use the Post herbicide and then follow this with the application of Freehand – if granular spreadable product is preferred – or use a spray application of Tower.” **GCI**

*Judd Spicer is a golf writer based in Palm Desert, Calif.*

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# At **your** fingertips

Five important data sets you should be collecting, and why these analytics are important to successful turf maintenance.

By **Anthony L. Williams, CGCS, CGM**

**W**e sometimes forget just how many tasks and information a superintendent must master. The need to know small details at a moment's notice continues to govern business and golf course maintenance is no exception. In fact, some experts believe today's successful superintendent must master the ability to collect, analyze and ultimately utilize a staggering amount of property-specific information.

This sea of data ranges from soil reports to parts catalogs, and from water and pesticide use to ongoing financial reports, budgets and outlooks. Clearly, the best superintendents have created systems to capture, store and retrieve all sorts of information. But what separates the trivial from the critical when it comes to useful information?

Here are the top five reports/data/information a superintendent should have at their fingertips at all times.

#### **#1 SURVEY SAYS**

The most important data/report/information we have as superintendents is the golfer/member opinion survey. Whether it's a formal or informal system, or even a hybrid collection of surveys and opinions, it's vital to know what your customer/member/golfer and key people at the property are experiencing when they play the course.

Perception is reality. So, it is important to develop a two-part strategy. First, try to find the most accurate way possible to gather information about the golf experience, in particular the things you can impact, such as playing conditions.

Over the years, I have tended the flag on the 18th green for a few hours on a busy Saturday

and received plenty of feedback to build from, both positive and constructive. Maintain an open mind and remember the goal is to improve the operation. On many occasions, I have created scoreboards and posted results in the maintenance shop that tracked our golfer satisfaction goals and strategies. We did this to increase our number one asset: a happy golfer.

The most important part of this exercise is to build a two-way easy system to keep golfers happy and identify action items that can impact this delicate balance. Be creative and work with your property leadership to create a flexible system that generates reliable data possessing daily and historic value. Some items, such as the water cooler on No. 16 was out of

water at 5:30 p.m., will be easy fixes. Other comments — such as ones on green speeds being too fast or too slow — may require more effort.

Golfers/members appreciate being in the loop, so the better you can communicate that the process includes them and that it works, the more valuable you will become to the operation.

#### **#2 WEATHER PREDICTION**

Decisions on pesticide applications, irrigation, carts on or off paths and tournament schedule are infinitely wrapped around understanding the regional weather. This includes everything from capturing data from the property weather station or regional weather data sites to tracking evapotranspiration rates year over year. As a multi-course operator, I have experienced over two inches of rain in a single shower on one course and no measurable rain at all on the sister course.

There should be more than one manager reviewing weather information prior to it being logged officially into property documents. It is also important to note storms and weather events that are isolated in their severity. You can use historic weather data to predict things like when to have a reminder about the frost delay policy at the club and the negative impacts of lightning strikes to assets (even golfers). This information is also critical in the budgeting process.

Keep in mind a weather

average is the commonality of two extremes — one high and one low.

There are dozens of weather apps and hundreds of websites to hone in on the weather's impact on your operation. There is a reason the PGA Tour employs a traveling meteorologist.

#### **#3 WATER**

The next data/information set a superintendent must have at their fingertips is the water-use report. The Golf Course Superintendents Association of America is committed to having written Best Management Practices for water conservation in all 50 states. I have been part of this work and have seen first-hand the positive impact a strong BMP for water conservation program can have, but the programs are only as good as the data they collect. You must have an accurate site assessment, progressive procedures and functional metering to correctly track your property water use. Moisture meters, wetting agents, hand-watering and scouting allow superintendents to generate excellent playing conditions while using less water.

It is accepted that firm and dry is better than slow and wet when it comes to playing conditions. Water is critical for life and our industry. If you pay for your water, you know that about 10 days out from the close of a month or financial quarter you are going to receive a call asking you to update your water line item forecast. It better be accurate. You need a water BMP and data collection system to keep those numbers at your fingertips.

Once you have the data, you will use it in many ways such as environmental certifica-



tions or recertification's, budget critiques, short and long-range capital planning, or you may even decide to enter the GCSAA Environmental Leaders in Golf contest.

Be diligent in knowing your true water use needs and work with your local GCSAA chapter and other stake holders to establish BMPs for water conservation for your area before you need one, or volunteer to help keep an existing program up to speed because the fight for water-use rights will never truly end.

#### #4 BUDGET DATA

Superintendents need access to their working budget – the actual spend and forecasted budget numbers. We will be asked at times for year-to-date financials or how much do we owe on our Early Order Program. Questions that have real and finite answers that

will be reviewed against the profit and loss statement on a regular basis.

Monthly, quarterly and annually your employer's evaluation of your operational performance is measured in purely financial terms. Budgets are not suggestions, but rather the cornerstone for the rules of engagement that will require large amounts of compromise and an occasional dose of innovation. Take the time to not only master the documents your facility uses to craft your budget, but understand the language and acronyms. Learn all the many forms, procedures and protocols that you need to be financially successful at your facility.

To secure our legacy as stewards of the land and the finances, we must master the data within our given budget process and use it to gain an advantage within the daily

## Real world situation

Ask any long tenured superintendent and they can tell you stories of the things they thought could never happen but did, and how they relied on systems and training and a touch of intuition to make things right. Perhaps it's in the superintendent's nature to remain calm when the situation seems anything but calm. Or maybe we simply have the direction, if not the answers, thought through ahead of the crisis time.

Earlier this year we were caught in an active shooter situation where the shooter was next door at an adjacent property. We were given the call to evacuate the course and follow the active shooter protocol for our property. The alleged shooter took one life and his own before police secured the area.

We did not cover active shooter protocol in turf school, but we had just covered it in a department meeting the month prior to the incident. When the alarm sounded, the team executed flawlessly. May it never sound again.

operation. You may even create your own customized forms and comparative reports to better communicate your agronomic expenses and processes to others.

#### #5 CONTACTS, PROCESS AND PROCEDURES

The last items superintendent must have at his or her fingertips is a complete compilation of emergency contacts and procedures. This includes equipment such as fire extinguishers, first aid kits, AED's, hand tools, and specialty tools such as chain saws and generators.

We are the stewards of the property, and in times of crisis we will be asked to perform tasks and utilize skills far beyond that of a mere greenkeeper. I would first recommend the contact information for various emergency response groups such as police, fire and medical services as well as property loss prevention/security be uploaded to your personal cell phone or other electronic device, as well as posted in key areas.

Also, have a group text set up so when the alarm sounds everyone responds. Who would you call if there was a chemical spill? Who would you call if an employee had a reaction to a pesticide? Who would you call if you had a report of an active shooter near the course? Floods, fires, personal injuries, wildlife gone bad and building collapses all happen on courses and it's not as rare as you think. GCI

*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. He's a frequent GCI contributor.*



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1:25 PM

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3:25 PM

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6:30 AM

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# THE OTHER SIDE OF GOLF OUTINGS



**Monroe Miller** retired after 36 years as superintendent at Blackhawk CC in Madison, Wis. He is a recipient of the 2004 USGA Green Section Award, the 2009 GCSAA Col. John Morley DSA Award, and is the only superintendent in the Wisconsin Golf Hall of Fame. Reach him at [groots@charter.net](mailto:groots@charter.net).

**C**ircumstances can sure change your perspective on things and, for me, I look at golf outings differently now than I did before I retired.

During most of those 36 years I was a superintendent, I considered an outing as a major disruption and a pain in the neck for me and our golf course staff. And for most of those years, I had no right to complain. Our private course was closed on Mondays so we could work on projects and maintenance activities. About once a month we would accept a significant outing IF certain requirements were met – full green fees, prizes from our golf shop, carts, starting times that were convenient for us, menus, etc. We made a tidy profit on these, and they were worthwhile. Mostly we accepted groups that had a charitable aspect to them.

The club officials had tough stringent outing requirements because they could. We had a nice course, provided a good venue and golf was at its zenith. Golf demand was high and we had a waiting list for a place on our member roster. There was no reason to offer up any bargains. I understood all of this, but it was still out of normal golf course operations and caused some headaches.

From that zenith, circumstances in golf declined. Our waiting list, like most others, diminished. Too

many new courses were built in our area, the economy stagnated and our revenue declined. Soon there was an outing on almost every Monday during the golf season, and if it fit, outings could be held at some other times. Participant numbers were reduced to the point where 50 or 60 players at an off time during the week were considered and often accepted. I didn't like it but was smart enough to recognize the need for the revenue outings generated. As I now approach my 10th year of retirement, I understand that things haven't gotten that much better.

But what has changed, a little bit at least, is my attitude. That's because I am now involved in a golf outing at our local municipal golf course. I'm a member of our community VFW Post, and our golf outing is one of the Post's major ways of raising money to help veterans of military service who are in need. Our other fundraisers are the long established Poppy Program and our beer tent in the local Good Neighbor Festival.

We try to run a fun event. I have seen too many outings that had no limits on the number of players and they become six-plus hour rounds. They are a test of tempers and can be miserable instead of fun. Local businesses are very supportive of our veterans' outing with prize donations and hole sponsorships. We limit the number of players and control our

costs very carefully, which is easy to do since we are all volunteers. We grill a lot of the food ourselves and strive to limit the time of the event to around five hours total. If some want to visit at the bar after golf and the meal, that's fine, too.

Money we raise supports everything from our state VA Hospital to gas cards for vets who travel here for care and have little income. We support a facility that helps homeless veterans get back on their feet, offer college scholarship help to children of vets and add to the local Boy Scout programs. Hundreds of flags fly on our community boulevards during patriotic holidays, a beautiful tribute to our country from our VFW Post.

And our biggest source of income is ... a golf outing. It's a little easier because of excellent cooperation of our municipal golf course and the commitment from the superintendent. It makes me proud to be a retired superintendent and a veteran.

Live and learn. I would love to know how much money was raised by our club for the Ronald McDonald House, an outing it has hosted for decades. The University of Wisconsin, in many different aspects, has also benefitted enormously from the club's generosity. From church charities to athletic scholarships to funding for our symphony orchestra and everything in between, golf outings have had a tremendous positive impact. It would be difficult to imagine how else these funds could have been garnered.

I still see the problems with an outside outing that is slow, with "players" who don't understand golf or know the rules or appreciate the etiquette of golf or respect the golf course. But the charity-based events are valuable to society, our courses and the game itself. They fit right in with the PGA and the USGA tournaments that have such huge charitable causes. More people should appreciate that aspect of golf. I most certainly do. **GCI**

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# The EASY way... or the HARD way

Five valuable lessons I wish I had learned early in my career to ease my professional development and better transition into a successful golf course superintendent.

By **Garry Grigg**

**M**y 49-year journey through the golf course industry has been varied and interesting, to say the least. It all started at Utah State University, where in 1964 I earned a degree in agriculture in entomology. I later earned a master's in agronomy at Michigan State. Along my journey,

I earned a CGCS from GCSAA and have maintained that certification active for 40 years. I recently renewed it to the year 2022. I also earned a MG from BIGGA, a certification I have held for 22 years.

I have been involved in golf course maintenance, new course construction, old course reconstruction, renovation, hosting major tournaments, working in management companies, consulting,

industry association work, and serving as a co-founder and principal of my own golf industry company.

I have spoken at a lot of turf conferences worldwide as well as taught agronomic seminars for GCSAA and private distributors across the United States. I taught agronomy for Idaho State University for a year and authored many articles for

various magazines, including this one.

Along the way, the exposure to various opportunities and experiences during the last half-century has granted me a vast reservoir of both practical, professional and personal insights that stem from both my successes and failures.

Here are a few lessons that, looking back, I wish someone would have imparted on a very young and up-and-coming version of myself.

#### LESSON NO. 1

##### **EDUCATION IS NOT EVERYTHING**

I was exposed to a good education. However, I was naïve to believe it was all I needed. The School of Hard Knocks taught me a lot, and that may have been a better education for this profession than what turfgrass school lectured me on.

Some things cannot be learned in a classroom. I wrote an article a few years ago, titled "10 Most Wanted," which outlined the traits, skills and talents every superintendent should possess to reach the top. In it, I listed an agronomic education as my No. 1 attribute. And while it may still rank at the top of my list, it is not the only thing that is important.

Along my way, I have befriended many in the profession who had no formal education but were top-notch superintendents. In today's modern world, there are many other ways to receive a quality education besides a formal turfgrass school. We now have vast deposits of information available via the internet to draw from to fill the knowledge voids. Many schools offering degrees in turfgrass also provide online classes that allow you to learn at home while



“Receiving budget approval may be the most important element for success in this profession. Unfortunately, this feat is not taught in a classroom.”

Gary Grigg

you maintain a family and a job. Professional organizations, such as GCSAA and BIGGA, offer valuable seminars. Local associations and even some distributors also provide solid educational seminars. When I attend the many local, state and regional conferences and seminars across the countries I visit, I still observe education is the No. 1 reason most superintendents attend. What is the use of a good base education if you do not keep up with the new knowledge produced by rapidly growing and changing industry technology?

In addition to a solid educational background, the best way for a young superintendent to break into the business at a top club is finding a mentor. Looking back, I could have benefited from an internship and hands-on learning somewhere for a while. It may have saved me a lot of learning the hard way.

#### LESSON NO. 2

##### **IT IS NOT WHETHER YOU CAN DEVELOP A BUDGET, BUT IF YOU CAN SELL A BUDGET TO THOSE WHO APPROVE IT.**

Receiving budget approval may be the most important element for success in this profession. Unfortunately, this feat is not taught in a classroom.

Like most of us, my budgets were a one-page landscape arrangement with months across the top, one to two dozen items down the left margin and monthly totals down the right margin with a grand total at the bottom of that column. The problem is those who approve the budget normally have a preconceived cost in mind and zero in on that total, giving you a usually lower number to work from.

Unfortunately, today's su-

perintendents contend with a philosophy that generally states: "If you cannot give us what we want at the price we want, then we will find someone else who can." The key is knowing what the club wants and getting it to buy into a budget. Most clubs want more than they are willing to pay for. They do not understand what it costs to achieve a level of agronomic perfection.

The key to developing a budget you can sell is a "Standards Policy," or as it's known in some parts of the world, "The Course Policy Documents." Because most clubs are in a constant state of flux with members, employees and committees, it becomes your most important document. It is a forward-looking report that projects what the golfers and/or members want. It takes time to develop and should include input from committees as well as other professionals on the staff. Lastly, it needs to be approved by ownership.

Once you have an approved standards document, then it is about developing a maintenance plan that outlines every program or step needed to achieve the level described in the standards document. Then, putting a price on what those programs are going to cost becomes your budget. It is all about information, and the more information you can put into the process, the better your chances for approval. It needs to be in a readable format and handed out to those who approve the budget well in advance to the approval process or meeting. Consider inviting those influential individuals to discuss the proposed budget prior to the meeting.

If the budget is deemed too

high, then they need to show you potential changes to the standard and approve those changes. It is much harder for them to lower the standard they ask for than to cut programs.

It then becomes a three-stage process.

**STAGE 1:** Where do you want to go? (course standards)

**STAGE 2:** I can develop the programs to achieve that standard. (maintenance plan)

**STAGE 3:** I will estimate the costs of those programs (budget)

I sure wish I knew that member/club budget buy-in was such a key issue before I did. Remember, it's not "your budget," it is "their budget."



Gary Grigg worked with Tom Weiskopf and Tom Watson during the construction of Shadow Glen (Kan.) Golf Club.

**LESSON NO. 3  
SHARING YOUR KNOWLEDGE  
CREATES A WIN-WIN SITUATION**

Early in my career, I was a bit afraid to ask my peers questions. I feared I would look stupid. But as I grew into

my career, I discovered I did not know nearly as much as I thought I did. I learned to share my knowledge of agronomy with those who had more knowledge and were willing to share that with me.

I soon learned it is not all about science. Some of those I befriended along the way had limited education in agronomy, but I desired to be as good as they were about other aspects of the position. There are no such things as dumb questions, so seek out those that you admire and ask away.

**LESSON NO. 4  
LEADERSHIP IS NOT BEING  
THE BOSS**

In my early days, I liked to give orders but soon discovered leadership is not giving orders. Leadership is about leading and it is about making your staff better at what they do no matter what their role is. It is about training and providing them with the confidence that they know what they are to do and want to provide better conditions. It is about teaching them to take pride in their role on the crew and communicating to them what it is you desire of them. To let them know I cared about how they felt, "What do you think?" became my standard reply to

questions. Sometimes they knew more about it than I did.

**LESSON NO. 5  
WORK SMARTER, NOT LONGER**

I was proud of hard work and working long hours early in my career. And while at times it is needed to get the job done, it is not a smart way to go about your job. I had a wife and four children at home. I truly admire those who learned along the way to balance their lives and those who realized their family is more important than their profession.

No success in this profession will compensate for failure at home. I learned that time away from the job with family, and, yes, even to do the things I enjoyed as a hobby, were also very important. The early days often feel like a never-ending learning curve. I put myself under relentless pressure to get my foot onto the next rung of the ladder. I beat myself up over every setback. You simply do not have to do that to be successful.

For those just starting out in your careers, I wish to save you some of the bruises I got along the way by sharing some of the blunders of my early career, and the invaluable lessons I learned from them. Knowing what I know now, I often reflect on the early days and wish I could rewind the clock. **GCI**

Gary Grigg, CGCS, is a veteran superintendent and current vice president and agronomist at Grigg Bros.

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# DOES MY COURSE HAVE A GOOD ROUTING?



**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](mailto:jeff@jeffreymbrauer.com).

**A**rchitecture critic and Donald Ross biographer Brad Klein once wrote "Routing is destiny." He was right. Routing ultimately determines course quality in so many ways – a badly routed hole is a bad hole, period; misplaced or omitted features – like practice areas – remain misplaced or omitted until moved/added/renovated out of existence at great cost later; circulation, maintenance and pace of play problems are often routing induced.

Most architects work hard at routing, doing multiple routings before picking one only when they are convinced they have made the most of the land. I have only heard two tell me they settle for "less than their best," preferring to save time or effort over saving their reputation. It shocks me to know someone can have a dream job, and then lose their passion for it somewhere along the way.

Most design work is renovation these days. Routing means re-routing, and the first step in any renovation is to determine if re-routing is required or desired. Most courses opt to largely preserve their routings. For them, keeping the existing routing keeps costs more reasonable.

However, recently, I see more courses are doing total "blow ups," including totally re-routing and re-branding to change their image in their market. Naturally, many golfers dream of a to-

tally new course. Combine that with an architect dreaming of a bigger potential project and fee, and massive re-routings are far more likely. So, how do you determine which holes require re-routing? Barring outside influences and safety problems, answer this question: "Do I like the hole?"

What constitutes a "good golf hole?" My "Ten Commandments" – in reasonable order of importance – a golf hole must have or be:

**FIT THE NATURAL TOPOGRAPHY.** Nature is a big attraction of golf, so preserve as much as possible for golfers to enjoy and to create a "sense of place."

Holes that don't fit natural topography should look like they do. Correcting any topographical flaws using earthmoving to avoid awkward uphill, steep or misplaced slopes is acceptable to most. In fact, it's usually necessary to cut through at least one hill or dig a lake to generate the necessary fill to build greens, tees and bunkers.

**VISIBILITY.** With rare exception, golfers demand visibility, which makes holes strategic, beautiful and comfortable to golfers. Blind holes went out with the beehive hairdo, and they are even less likely to return.

**SAFE.** Every hole should be well spaced to keep shots from adjacent holes, houses and roads. Older courses are often tighter than new ones, but they

usually compensate by having mature trees to block wayward shots.

**VISUALLY PLEASING.** Golfers from the TV and video game generations expect visually attractive holes. That's not to say nature alone isn't appealing or that every hole needs the equivalent of blockbuster special effects. Variety and distinctive holes are important, using different key elements, like trees, sand and water on each hole.

**RECEPTIVE.** Every shot should be one golfers can reasonably pull off. Landing zones should not reject good drives to hazards or even rough. Greens are built to be receptive, but fairways should rely more on natural or modified contours to hold reasonable shots.

**PLAYABLE BY ALL SKILL LEVELS.** Except for courses designed specifically for better players, good holes minimize, eliminate, provide a safe way around or limit forced carries to shorter par-3 holes.

**WALKABLE.** Except in the mountains, a good hole is walkable, including minimal hill climbing and short green to tee walks even if we choose to use carts.

**GOOD CIRCULATION/SPEED OF PLAY.** Good holes have direct routes and minimal distances from tee to landing zones, landing zones to greens and greens to the next tees, always moving golfers forward to the next area to speed play."

**APPROPRIATE LENGTH, PAR, HOLE SEQUENCE, PLAY BALANCE.** The land determines the best routing, but 18 good individual holes are even better when placed in a variety of hole lengths, hazards, difficulty and wind orientations. A good sequence starts at the front entrance, and includes good practice areas, since the pre-round experience set up golfers to enjoy those 18 good holes. **GCI**





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# HOPE FOR THE BEST, MOP UP THE REST

Hopefully you'll never experience a chemical spill, but that's just wishful thinking. Developing an EAP and training your crew allows you to plan for the worst.

By **Mickey McCord**

If you've never had an unintended release of a hazardous material around your shop or on the golf course, pat yourself on the back. You have obviously been cautious, and attentive to safe procedures when handling those materials.

You've also been lucky.

It's difficult to load, store, open, mix, transport and apply fertilizers, pesticides, soil amendments, fuel, and other materials over 100-plus acres of uneven terrain, many times a year, without unintentionally releasing some of that material, in a quantity greater than labeled rates, or to an area out-

side label recommendations. In other words, experiencing a chemical spill.

Eventually, it's going to happen. And whether it's a push rotary spreader half full of gypsum that tips over on the cart path or a 300-gallon sprayer full of preemergent herbicide that flips over coming off a tee box, they are both "chemical" spills that require action and cleanup.

I'm sure you've heard the adage "hope for the best, but plan for the worst." It's good advice for handling hazardous materials on the golf course. The first part is easy, but planning for the worst takes a little work.

Let's look at what's involved in creating an Emergency Action Plan (EAP).

An Emergency Action Plan describes procedures for dealing with various types of emergencies. Although spilling a few pounds of gypsum on the cart path may not seem like an emergency, an EAP assures that all chemical spills are handled correctly. Following these five steps will help you reduce exposure and limit any negative impact of the spill:

- Evaluate the spill and rescue contaminated persons
- Confine the spill
- Report to responsible person or agency
- Secure the area of the spill
- Cleanup

We'll look at each step in the plan in more detail, but first, think about the potential hazardous consequences of a chemical spill. Knowing who, or what, could be at risk of injury or contamination gives

context to each step, and helps you achieve the goal of your EAP, reducing the risk of harm to people and the environment.

Your first concern is for the health and safety of any people that might be exposed to a potentially toxic substance. This, of course, includes crew members working with the material at the time of the spill, but also other crew members or golfers in proximity to the spill. You also need to consider potential toxicity to the environment, including the turf in the immediate area of the spill, the soil below the spill and other areas, especially water features, the material could contaminate by runoff or washing.

A critical piece of information for determining the potential risk is to ascertain the material's toxicity.

Labels and Safety Data Sheets give you all the specific information you need, to understand the hazards

associated with a product. Looking at any product label you'll quickly see the signal word – either “Warning” or “Danger” – as an indication of the relative severity of the hazard. The signal word tells you at a glance how dangerous the material is. If you see “Danger” and the skull-and-crossbones pictogram, be extremely careful because this product could be lethal. Every label also has a precautionary statement describing recommended measures to minimize risks associated with exposure to the chemical in case of an accidental spill. The precautionary statement also has other safety information, including PPE required for handling, use and cleanup; what to do in case of a fire; and first-aid treatments.

You'll find the most detailed information in the product Safety Data Sheet. There are 16 sections to the new GHS (Globally Harmonized System) Safety Data Sheet, four of them have specific information you'll need when responding to a spill.

**SECTION 2 - HAZARD IDENTIFICATION.** Has the hazard class, for example “Flammable Liquid,” the signal word, pictograms giving a graphic indication of the type of hazard and the Precautionary Statement that is on the label.

**SECTION 4 - FIRST AID.** Instructions for administering first aid to exposed persons, including important symptoms/effects, acute, delayed; required treatment.

**SECTION 5 - FIREFIGHTING MEASURES.** Lists suitable



## WHY AN EAP?

Developing a written Emergency Action Plan (EAP) is an important first step and shows your commitment to safely handling and applying chemicals and other hazardous materials, but if your crew isn't aware of the program, they won't be able to respond quickly. Creating an EAP isn't as difficult as you think, and it's worth the effort for two important reasons.

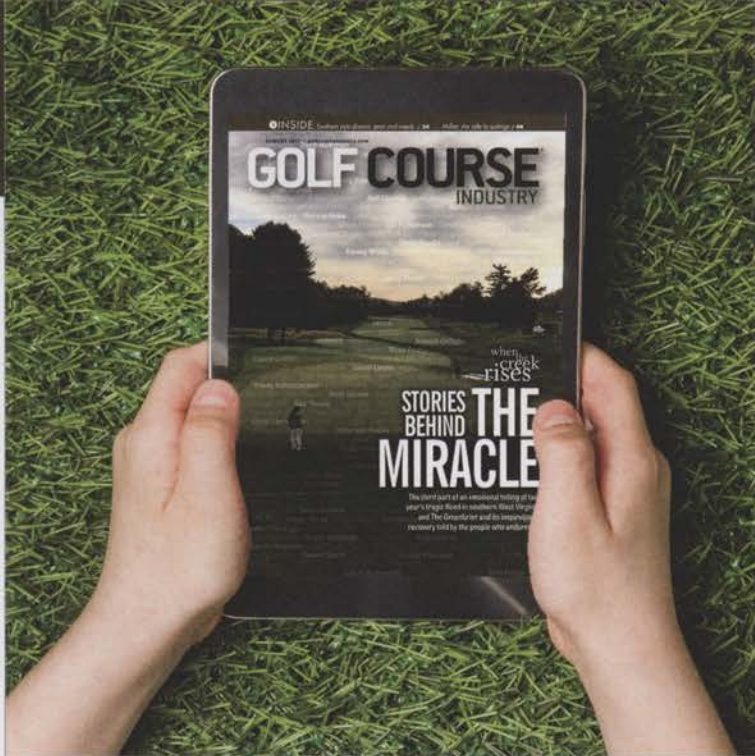
Having an EAP in place will allow your crew to act quickly and appropriately, decreasing the risk of contamination, and possible injury to workers, golfers, your turf and the environment.

It's the law! That's right. OSHA requires employers to develop and implement a written safety and health program, including emergency response procedures.

extinguishing techniques, equipment; chemical hazards from fire.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES.** List includes emergency procedures; protective equipment; proper methods of containment and cleanup. This section helps you distinguish a small or large spill when volume has a significant impact on the level of the hazard and suggested emergency procedures for evacuations and consulting other experts when needed.

This information, found on product labels and Safety Data Sheets, help you develop



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your Emergency Response Plan and put it into action. Now use those five steps to make up your Emergency Action Plan.

### EVALUATE/RESCUE

When a spill happens, or an unintended release of a hazardous material is detected, the first thing you should do is make a quick evaluation of the spill area and provide immediate assistance to anyone involved. You can quickly determine whether this is a minor spill or a major spill based on things like where the spill happened; what type of material has been released, gas, solid or liquid; approximately how much has been released; is there a fire or risk of a fire;

One of the initial steps in addressing a spill is a quick evaluation of the spill area and determining if the spill is small and minor, or large and major.

A minor spill is characterized by the following criteria:

- The spill is inside or on an impervious surface and will not spread outside?
- Did not result in a fire or explosion, and does not present the risk of fire?
- No one was injured, or requires medical attention?

A major spill is characterized by the following criteria:

- Results in a **fire** or explosion, or presents the risk of fire or explosion.
- Personnel injured, or requires medical attention.
- Not easily contained on impervious surface. Could impact the environment.

has anyone been contaminated or injured. Use these guidelines to categorize the spill. The rest of your actions will be based on this determination.

### CONFINE

Once you've made your evaluation of the situation, if material is still leaking, try to stop the

discharge, then confine the spill. Depending on where the spill occurred you may need to close doors, cover floor drains and use soil or an absorbent to restrict movement of liquids. It's a good idea to keep spill kits on hand with absorbent pads, pillows or loose absorbent material like kitty litter or

floor-dri; PPE, gloves, goggles, boots; heavy plastic bags for cleanup; signage to warn others to stay clear. Remember, your primary goal is reducing the risk of harm to any individuals so make sure you are wearing proper PPE, and don't contaminate yourself while trying to contain the spill.



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## REPORT

Next, report the spill to a responsible person. This could be your safety coordinator, the superintendent or assistant superintendent, or possibly someone designated as leader of a response team. Be prepared to provide information on injured persons, the material spilled, estimated quantity and the location. In some cases, other agencies or medical assistance should be contacted. Obviously, if there is a fire that is too large for you to extinguish, call the local fire department.

Reporting requirements are established through the Emergency Planning and Community Right-to-Know Act

(EPCRA). Any releases of a hazardous material in quantities greater than their corresponding Reportable Quantities (RQs) must be reported to state and local officials. Find contact information for your state at [www.epa.gov/epcra/state-emergency-response-commissions-contacts](http://www.epa.gov/epcra/state-emergency-response-commissions-contacts) and record it as part of your EAP along with your local fire department and any other local authorities you may need to contact.

## SECURE

For major spills, the area should be secured until an emergency response team arrives to make sure no one enters the spill area.

## CLEANUP

Cleanup should be performed by qualified persons with appropriate training, personal protective equipment and cleanup materials. Typical cleanup procedures include: waiting at least 30 minutes if volatile materials are present; wearing appropriate PPE to protect skin, eyes, and respiration; gently sweep or use damp towels to collect powders; absorb free liquids with towels or other absorbents; and collect waste and contaminated PPE for proper disposal. Cleanup for a major spill on turf may require the testing and removal of soil to a depth below the contamination.

These steps can be revised

and edited to write a EAP for your course. Include specific information about your location and responsible parties, a copy of your hazardous materials inventory, the location of SDS book, and contact information for state and local agencies.

Once you've developed your Emergency Action Plan, share it with your crew and hold mock accident training sessions. Hopefully you'll never have a chemical spill, but that's just hoping for the best. **GCI**

*A 25-year career golf course superintendent, Mickey McCord is the founder of the maintenance crew safety training firm McCord Golf Services and Safety.*



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## Travels with Terry

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



**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](mailto:terrybuchen@earthlink.net).

## DECORATIVE PAINT/ SEALANT FOR CART PATHS

Scott E. Niven, CGCS, property manager, at The Stanwich Club in Greenwich, Conn., has been applying Latex-ite acrylic dark green coating sealant to the asphalt cart paths for the past 30-plus years, which are continuous on the par 3s and from green to the next tee on the par 4s and par 5s. Initially, two coats were applied and then one coat has been applied after that. One third of the cart paths (approximately one linear mile eight feet wide) are done each year by an outside contractor, which takes two days with three laborers, roughly 60 labor hours. The product is commonly used on tennis courts and it is mixed with water applied by squeegees. It also seals any cracks to extend the useful life and it is very durable. The green color on the cart paths blends nicely with the green-colored turf. \$8,000 is budgeted annually, approximately \$.17 per square foot.



## DRAINAGE GRAVEL TAILGATE CHUTE

This 2010 Pronovost hydraulic dump trailer pulled by a 2013 Kubota M6060 tractor with turf tires holds approximately 2½ cubic yards of granite 89 stone greens grade drainage gravel with the 2-inch by 8-inch wooden sideboards attached. The wooden tailgate is made of two ¾-inch thick pieces of plywood, with one 1-inch by 2-inch wooden brace at the top and another one-half way down across the middle section. An 8-inch diameter ADS non-perforated double wall drainage pipe “chute,” with a coupler added at the end, is installed into the tailgate with Great Stuff foam placed around the pipe and along the tailgate edges to seal them properly. It took about two people two hours and about \$90 in materials. Eric Barnes, project superintendent, and C.T. Shaw, project manager, from Landscapes Unlimited based in Lincoln, Neb., came up with this great idea while their company is renovating/restoring The Country Club of Orlando.



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# LESSONS FROM 30



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**I**t was 30 years ago this month – August 15, 1987 to be exact – that I began my accidental career in this crazy wonderful business. Here are some random thoughts on the journey...

Before I started at GCSAA, I had planned to become a lawyer and had finished three semesters of law school when I realized that I was burned out on college, not very interested in practicing law and far too lazy to be good at it. I thought the idea of being a writer sounded cool and easy. It turned out to be neither, but it beat the hell out of being a lawyer.

When I started at the “National” as a staff writer on a hot summer day three decades ago, the association was still in its weird old headquarters office on Alvarado Golf & Country Club. There were about 30 employees. Everybody did a little of everything. There was no internet. We had one fax machine and I used a Tandy 200 laptop which was basically a crappy calculator with a word processor built in. I wrote long boring articles but I also specialized in ghost-writing president’s messages for guys like Don Hearn, Gene Baston and Jerry Faubel.

I was promoted to director of communications after just a year or so on the job. I was totally unprepared for managing people. I sucked at it and I still feel awful at how bad I was at

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leading a team back then. The most important thing I’ve learned in three decades is how to hire people who are better than me at critical skills, treat them like grown-ups and get the hell out of their way.

The best thing that ever happened to me was being forced to give dozens of speeches at chapter meetings and such in my late 20s. It wasn’t until I started to go to small, local meetings that I began to have an inkling of what this profession is about. I also learned that I loved to teach and it’s still my favorite thing about my “job.”

I was a blowhard and a bullshitter for a long time. I took credit for things that went well and ducked when things went badly. There was a lot of drama at GCSAA back then, and I contributed to it. I always drank, but it was almost part of the job back in those days. Or at least that’s how I rationalized it until I got sober in December of 2009. For the past eight years, I’ve tried to be more honest,

less selfish and kinder to people. My life is a million times better as a result.

The most important piece of career advice I ever got was in 1998 when we were nearly done with the premiere issue of *Golfdom* magazine. I had written a pretty tame inaugural column and John Payne, the publishing executive who recruited me to start a new magazine for the industry, said: “Take stands, don’t shy away from controversy and be a voice for change.” I think about that nearly every time I write one of these funky little 750-word essays.

My gratitude to my boss and colleagues at GIE Media is boundless. For the last 12 years, they’ve been part of my family. I will never stop thanking Chris and Richard Foster for lifting me out of drunkenness and depression and giving me a new chance at life. Mike Zawacki and Guy Cipriano are quite simply the best editorial team I’ve ever worked with. Jim Blayney makes this magazine look amazing. Russ Warner and Craig Thorne keep our revenues growing and our clients happy. And there are 20 or more other pros here in Cleveland who are critical to what we do to keep information flowing to you.

My wife and our kids get mad when I write about them but I’ll just say I love all five of you madly.

Finally, I must thank you – the thousands of superintendents, builders, architects, suppliers and salespeople – who have always been kind to me even when I didn’t deserve it. You’ve taught me everything I know. You’ve pushed me to try harder. You helped me become a better person. You invited me into your lives and for that, I will forever be grateful.

I should probably finish with some crap about “another 30 years ahead,” but time has taught me to avoid such grandiosity. I prefer to continue to take life one day at a time, enjoy the moment and marvel at the beauty around me. Namaste, y’all. **GCI**



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