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Golfdom

02.20

A class all its own

Celebrating the *Golfdom* Summit Class of 2019: the people, the products and the memories

Plus

A GRUELING GROW-IN

REMEMBERING PETE DYE

TREES AND WEATHER DAMAGE

A NORTH COAST MEDIA PUBLICATION VOL. 76 // NO. 2

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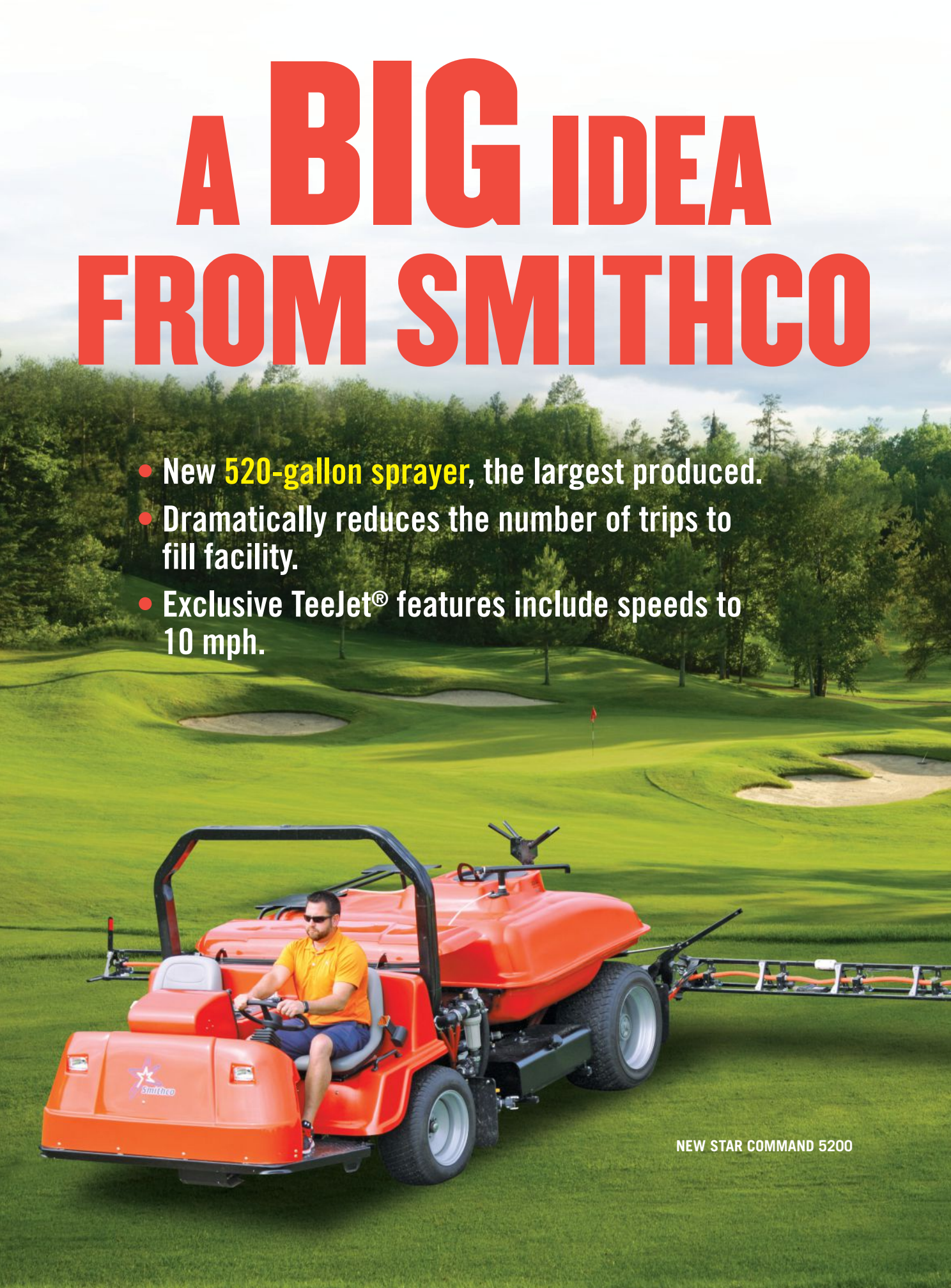

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VOL. 76 // NO. 2

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Celebrating the *Golfdom* Summit Class of 2019 — the people, the products and the memories

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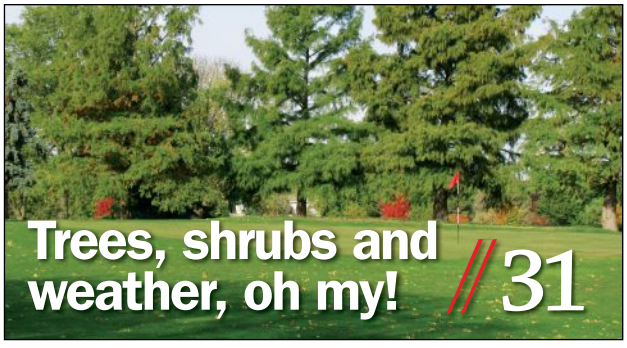

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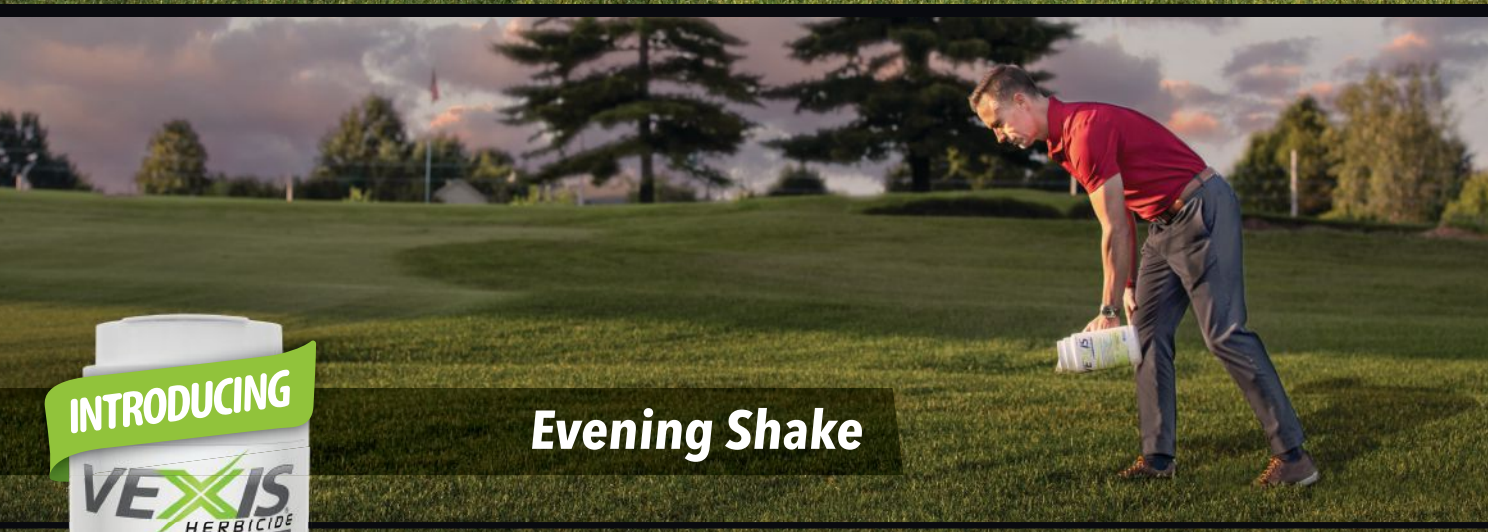
COVER PHOTO BY: LOU FERRARO, PARK SOUTH PHOTOGRAPHY



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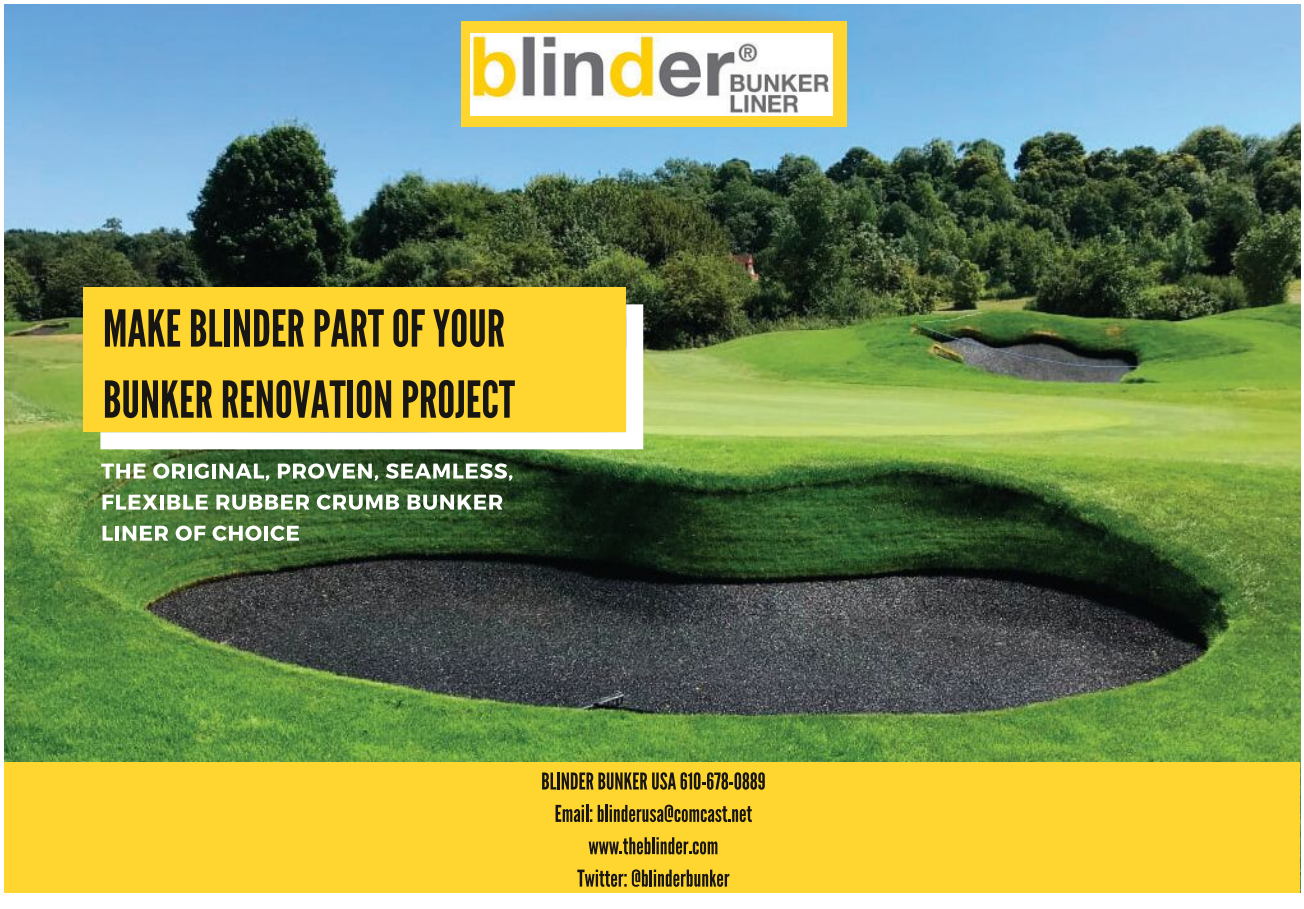

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"I never thought about taking Clark to the local country club. I just knew this was a golf course that the guys and I enjoyed, and Clark seemed like one of the guys."

SETH JONES, *Editor-in-Chief & Associate Publisher*

The doctor is out

I am sad to say that this is the last issue for our esteemed research editor, Clark Throssell, Ph.D., who is retiring. This is the last issue where Clark will provide us with a thoroughly edited scientific research article or provide the introductory page of the research section or pen his "Clark Talks Turf" column, where he typically does a Q&A with a researcher in the industry.

In his final column, I was able to convince him to divert from his normal format and instead address his many readers. He was reluctant, but agreed. That column appears on page 47.

It's shocking to think that I've been working with "Doc" for almost 20 years. Our paths first crossed when I was a young pup at GCSAA and assistant editor of its publication. I was excited that the association had hired a legitimate turfgrass Ph.D. Back then, I was mostly writing obituaries and product releases and trying to find my legs in this market. All of a sudden, I was armed with an expert resource in the building.

But the turf researcher would probably be a real stiff, right?

Then I met Clark. Definitely not a stiff. He arrived from Purdue University, where he was beloved by his students, not just for his intelligence, but also because of his classroom manner and his ability to connect with people.

Some of the guys and I invited him to join us at the local goat track — Eudora Riverview. The course was aligned by a cornfield on two sides, so a hook was deadly. It was 18 holes, but nine always were flooded. The owners, whose house doubled as the clubhouse, would tell you to just leave your money on the counter if you needed to buy anything from the pro shop.

I never thought about taking Clark to the local country club. I just knew this was a golf course that the guys and I enjoyed, and Clark seemed like one of the guys. After golf, we'd pop the trunk of my '64 Impala and crush a few cans in the parking lot as the sun went down. Those were good times.

Nine years ago, I accepted the job of editor-in-chief of *Golfdom*. I didn't know exactly what I was getting into, but I remembered the advice of surrounding yourself with good people. My first phone call was to Billings, Mont. I told Clark about my new gig with *Golfdom,* then I told him that like the Blues Brothers, we were getting the band back together.

I was lucky that he said yes to me that day, and I was able to get him on board as the research editor of this magazine.

Over the last nine years, Clark has done tremendous work for this publication and made it a better resource for readers. He spearheaded our partnership with the USGA, which allows us to publish USGA-funded research, one of only two industry mags with that honor. He got us closely involved with Paul Koch, Ph.D., and enabled us to be the first in the industry to publish his snow mold research each year. And he's brought just about every major researcher in the industry into the pages of *Golfdom* at one time or another.

Beyond *Golfdom,* Clark has served the industry as a whole, from his days at Penn State, Kansas State and Purdue to his time as the research director at GCSAA and working for LebanonTurf. Whenever I travel to a chapter meeting and find myself sitting with a stranger — if they don't know me or read *Golfdom* — I can drop Clark's name, and suddenly the stories follow.

So, thank you, Doc, for helping me out for the last 20 years of my career. The industry will always respect you, and the fish will never be smart enough to fear you.

Email Jones at:
sjones@northcoastmedia.net.

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NEWS, NOTES AND QUOTES

//TRIBUTE TO A LEGEND

Pete Dye receives the "Ambassador of Golf" award at the 2005 NEC Invitational at Firestone Country Club in Akron, Ohio, on Aug. 18, 2005.

PETE DYE DIES AT AGE 94

By Sarah Webb // *Associate Editor*

Pete Dye, legendary golf course designer, died Jan. 9 at the age of 94.

The list of Pete Dye-designed courses includes Harbour Town Golf Links, Hilton Head, S.C.; TPC Sawgrass – Stadium Course, Ponta Vedra, Fla.; The Ocean Course, Kiawah Island, S.C.; PGA West – Stadium Course, Palm Desert, Calif.; Whistling Straits, Kohler, Wis.; and the Honors Course, Ooltewah, Tenn.

"His designs matched his personality: strong, bold, smart and creative," said Tim Liddy, ASGCA, understudy of Dye and founder of Tim Liddy + Associates, a golf course design and architecture firm in Westfield, Ind. "He was a mentor to so many, a true legacy of his genius and compassion. He was my mentor, and his love of golf and golf design was infectious."

Dye was a member of the World Golf Hall of Fame and was a 1995 Donald Ross Award recipient. He also served as a past president and fellow of the American Society of Golf Course Architects (ASGCA).

"He wanted to make you think certain things. I don't know if I would have the vision of architecture that I have now if I didn't spend time with him," said Chris Zugel, superintendent at Whistling Straits GC, during his keynote presentation at the Palm Beach GCSA Superintendents meeting.

He was married to fellow designer and amateur champion Alice Dye — the first female president of ASGCA and architect of the famed 17th hole "island green" at TPC Sawgrass — who died Feb. 1, 2019, at the age of 91.

//PARTNERED UP

AQUATROLS, REDOX ANNOUNCE GOLF TURF AGREEMENT

Aquatrols and Redox Turf have announced a global exclusive agreement that makes Aquatrols the sole distributor of Redox's premier brand of turf products. This will expand the Aquatrols offering beyond the wetting agent space.

Aquatrols and Redox Turf are eager to bring together the two turf brands to enhance the resources focused on the Turf Rx line of products, according to the company. While Aquatrols will become the exclusive distributor, the products that superintendents have come to trust will remain the same, the company said.

"Soil moisture management and soil nutrition are intrinsically linked, so joining forces with the most trusted brands in the wetting agent space is a move that seemed natural for our business," said Darin Moon, Redox CEO. "We are eager to be able to offer turf customers easy access to our products through Aquatrols, who will provide global support through their 19-person sales and technical team."

//MORE MONEY, MORE RESEARCH

$3M ALLOCATED FOR TURFGRASS RESEARCH

The USDA Agricultural Research Service received $3 million in new funding for federal turfgrass research in the FY20 Federal Appropriations bill.

This new funding is allocated for research in turfgrass genomics, water-efficient grasses and systems and ecosystem services. Understanding and mapping of genomes can lead to improved genetics and subsequently, better disease-, heat-, cold- and drought-tolerant grasses.

Research on water efficiency is critical to understanding the physiology of plants and how they respond to drought, reduced irrigation and low-quality irrigation water, according to the National Turfgrass Federation. Ecosystem services refers to the contributions of turfgrass systems to the environment, society and the economy.

GETTY IMAGES. WELLGLAD / ISTOCK-GETTY IMAGES PLUS (GOLFBALL); CHRIS CONDON / PGA TOUR (PETE DYE)

//ONE SUPER TOO MANY

A husband and wife compete for same job

By Liza Chmielewki // *Sales Representative for Gertens Wholesale*

Jeremy and I met at Penn State in the fall of 2001. We were both enrolled in the two-year golf course turfgrass management certificate program, with goals of becoming golf course superintendents. After graduating, we got married, started a family and moved to be somewhere between our two families.

A nearby golf course posted a job for an assistant superintendent. We both had all the qualifications they were looking for, so we both applied and got interviews. Mine was first. I thought (the interview) went well. Jeremy's interview was the next day. He came back from the interview with the same feelings.

We both followed up our interview with a thank-you letter and waited for a response. Jeremy got the job offer and accepted. I spoke with the superintendent after all this, and he said that even though I had the better interview and was just as qualified for the job, the membership would not want to see a female working as the assistant at the course. And that was the end of my career working on a golf course.

Jeremy went on to work for this superintendent for about four months before finding a better opportunity. I worked nights waitressing before an opportunity at LESCO opened up.

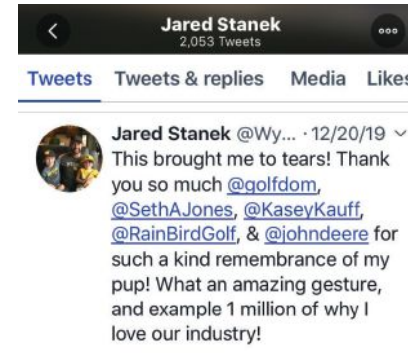
I'm not mad that this is how things played out. Two superintendents in a family is one too many, although I'm always willing and able to help him with aerification, and I volunteer when staff is short. Just don't give me any of those "girl" jobs.

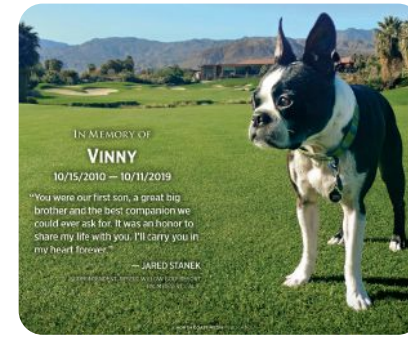
For the full version, visit **Golfdom.com**.

Husband and wife Jeremy and Liza Chmielewki both competed for the same assistant superintendent job.

PHOTO COURTESY OF LIZA CHMIELEWKI

EMAILS @ TEXTS # TWEETS





— Jared Stanek @WyoJared

//NEW FACES IN NEW PLACES

SIPCAM ADDS NEW SALES MANAGERS

Sipcam Agro USA hired three new sales managers for its turf and ornamental division: Linda Satter, Tony Atchison and Mike Mumper.

"We're excited to have Linda, Tony and Mike join our team," said Todd Mason, director of national sales and development for specialty at Sipcam. "They each have different backgrounds in the golf industry, which means they have unique experiences and insights that will be valuable as we focus on meeting our customers' needs and helping them achieve their highest level."

Satter joins the Sipcam family as manager, southeast territory. Atchison will serve as Sipcam's new manager, south central territory. Mumper joins Sipcam as manager, north central territory.

Golfdom Gallery

Golfdom Summit EDITION

1 Summit 2019 Steve Merkel, CGCS, Landscapes Golf Management (left), and Tyler Geissler, Frost, bat leadoff for our 2019 *Golfdom* Summit photo parade.

2 Fresh off the plane (left to right) Kasey Kauff, Trinity Forest GC, Donald Cross, CGCS, Skokie CC, Brian Bossert, CGCS, Bryn Mawr CC, Brian Moore, Glen View Club, Drew Barnett, Knollwood Club, and Charlie Aubry, East Lake GC, shake off the jet lag with a quick clubhouse lunch … or beer.

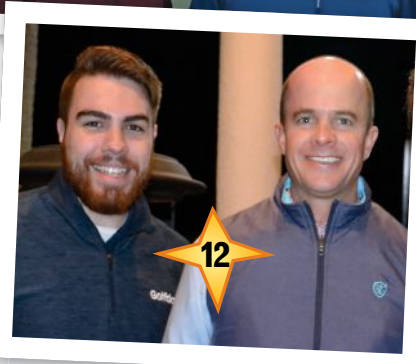
3 Not quite Kafkaesque Not with those ever-present smiles! (Left to right) *Golfdom*'s Dan Hannan with Tiffany Koss and Glenn Kafka of Kafka Granite.

4 Massachusetts men New Englanders Christopher Benevides (left), FairwayiQ, and Kevin Banks, Vineyard GC, look pretty happy to be in Orlando in December.

5 Always on the clock (left to right) After morning meetings and swinging the sticks all afternoon, Matt Cavanaugh, Rush Creek GC, Aaron Johnsen, WinField United, Alex Stuedemann, CGCS, TPC Deere Run, and John Smith, WinField United, continued their Geo Tech conversation at the BBQ dinner.

6 Big 12 rivals Loyal Kansas Stater Tim Davis, Legacy Ridge GC (left), and Nate Bolhous, Naperville CC, an Iowa State Cyclone.

7 Denver sneaks in with Chicago All the Chicago guys (left to right) — Barnett, Cross and Moore — were cool with letting a Denver guy sneak into this pic, Steve Sarro of Denver's Pinehurst Country Club.



8 **Making friends in Florida** Three longtime turf pros (left to right) Smith, Bossert and Mike Valiant, CGCS, Glenwild GC & Spa, trade turf stories at the Summit.

9 **Long road traveled** The one international attendee was Chip Caswell, Santa Maria GC (far left), who came from Panama. Also traveling a great distance to attend the Summit were (left to right) Eric Johnson, Chambers Bay GC, Scott Ramsey, CGCS, Yale GC, and Bolhous. Thanks for making the trip, guys!

10 **'90s alternative rockers** These three diverted the conversation from turf to concerts. (Left to right) *Golfdom's* Seth Jones, Garrett Luck, CGCS, Hidden Glen at Bentdale Farms, and Davis have seen their fair share of shows.

11 **Some view** (Left to right) Chris Durig, BlueBird Turf Products, Jason Bastille, Wentworth by the Sea CC, Brian Pirl, Aqua Vac, and Nate Watkins, The Seagate CC, wrap up their round with the sun setting on Reunion Resort.

12 **Out from behind the camera** *Golfdom's* Tyler Gunter (left) set down his camera for a minute so he could be featured in this month's Gallery, pictured here with Michael Heustis, Biltmore Forest CC.

13 **Southern gentlemen** (left to right) Micah Pennybaker, Carmel CC, Brian Godwin of Turfco and Aubry.

14 **New Hampshire GCSA reunion** You could count on (left to right) Jones, E.J. Chea, Pease GC, Bastille and Cam Copley, Nufarm, to shut down the party on the last night of the 2019 *Golfdom* Summit.

PHOTOS BY: GOLFDOM STAFF

Right place, **right time**

Superintendent Kelly Kuchelmeister attended Bayer's Women in Golf event to connect with like-minded women and grow her career

Many female golf course superintendents are familiar with being the "first" or "only" women in their roles. Take Kelly Kuchelmeister, for example.

The superintendent of Rockford (Ill.) Park District's Sinnissippi Golf Course still remembers her introduction to golf course maintenance in 2006. She was a recent high school graduate working in the clubhouse at Countryside Golf Club in Kaukauna, Wis.

"They were shorthanded for a tournament, and they asked if I'd be interested in helping out mowing," she recalls. "They threw me on a fairway mower, and I was pretty much full time on the grounds crew after that."

She was the first female grounds crew member at Countryside, which has gone on to hire other women since then, says Kuchelmeister.

"Golf has always been male dominated," she says. "I just don't think most girls think about it as a career. I was in the right place at the right time."

Kuchelmeister quickly learned she loved golf course maintenance.

"My boss taught me everything, so I got to work on the equipment, work out on the course and see the changes you can make out there," she says. "I like seeing the product of the hard work we put in on the course. It's as good as you want it to be."

In 2010, she moved from Wisconsin to Rockford to attend Kishwaukee College, where she got a two-year degree in sports turf management and sustainable horticulture.

She was first hired by the Rockford Park District to work at Aldeen Golf Club; next, she did a full grow-in on another course. In 2017, she was promoted to superintendent of Sinnissippi. She is the only female superintendent among the park district's five golf courses.

That fact led her to another unexpected opportunity last spring when two of her male colleagues saw an advertisement for the Bayer Women in Golf conference and encouraged her to apply to attend. The event brought 50 women from the United States and Canada to Raleigh, N.C., for a few days of networking, education and engaging with one another.

"I applied but thought there was no way I'd get picked — I'm just from a small course in Illinois," she recalls thinking. "I still remember getting a phone call, saying 'congratulations,' that I was picked. I was sitting out in front of the shop. I never expected it. I was shocked and excited."

Since attending Women in Golf in September, Kuchelmeister has had diversity and inclusion on her mind. For her, that means making a concerted effort to reach out to other women in the industry — but it also goes beyond gender.

In January, she met with her boss to discuss kicking off a new program to hire people with disabilities to work for the park district.

"It's all about looking outside the box; for example, not just going after your typical labor pool of men or retirees," Kuchelmeister says. "When you're bringing in people from other backgrounds, you're going to bring in new ideas that you

PHOTO BY: MADELINE APPINO

otherwise wouldn't have."

She'd also like to connect with veterans as a potential pool of applicants, knowing the healing power of working outdoors.

"I had a lady who worked for me who was a former police officer with severe PTSD," she says. "She said working on the golf course was the most therapeutic thing she's ever experienced."

She points out that this inclusive mentality also can help struggling golf courses grow their customer bases.

"Now is the time to diversify the people working around you to bring in new ideas and different ways of looking at things," she says. "We're also trying new ways to bring in nontraditional golfers to show people it's a fun sport and a fun place to work."

The Women in Golf experience also has prompted Kuchelmeister to reflect on her career. She says she has been lucky to work with supportive and respectful mentors, peers and staff.

However, she acknowledges that being the lone female often means she has the urge to work longer or harder than others to prove herself.

"I still feel the need to outwork the guys to show I can do this job," Kuchelmeister says.

Letting go of that mentality is one concept that was reinforced at the Women in Golf event when Kimberly Erusha, Ph.D., spoke. The former managing director of the USGA's Green Section addressed work-life balance and the importance of maintaining relationships off the golf course.

"Work is important, but it's also important to find that balance," says Kuchelmeister, who also will attend this year's Golf Industry Show as part of the Bayer Superintendent Grant Program, which is covering the cost for 12 superintendents to attend the annual trade show and conference in 2020. This year's program emphasized diversity and inclusion — embracing and encouraging individual differences, life experiences, knowledge, innovation, self-expression, unique capabilities and talent that superintendents invest in their work.

Looking back on Women in Golf, Kuchelmeister is grateful for the opportunity to be around other women who have the same interests and experiences she does, and she is encouraged it will open up more opportunities for herself and others.

"Women in Golf is spotlighting diversity, and that's going to help us reach out to other women in the industry and push each other to get ahead," she says.

PHOTOS COURTESY OF: BAYER

WOMEN IN GOLF

The 2019 Bayer Women in Golf event brought 50 women involved in the turf and golf industry from the United States and Canada to Raleigh, N.C., for three days of education and engagement. The agenda included insightful presentations from Bayer professionals and third-party experts who led discussions and participated in panels. These women shared their stories openly with the goal that attendees would learn from their personal and professional experiences.

Interested in attending the 2020 Women in Golf event? Stay tuned to @bayergolf on Twitter for this year's dates and application information.

"I gingerly walked across the gravel parking lot to my car in my bare feet, and my only hope was to get home safely without getting pulled over by a cop while wearing nothing but boxers."

JOE GULOTTI, *superintendent, Newark (Del.) CC*

A grueling grow-in

Witnessing a blank canvas blossom into a golf course is perhaps the coolest thing a greenkeeper can experience. I have been fortunate enough to work on several grow-ins during my career, one as an intern and two others as a superintendent. It's problem-solving at its finest, and during my internship, a situation occurred that led to the hardest day I have worked in my life.

The pond we used for storing irrigation water wasn't stabilized with vegetation. The edge of the pond was surrounded by the site's native clay soil, so when it rained, all the clay on the slopes would wash into our irrigation water supply.

The water in that pond resembled the river from one of my favorite childhood movies, *Willy Wonka and the Chocolate Factory*. And watering turf with what looks like chocolate milk over an extended period of time isn't good. Continued use of this contaminated water eventually would build up a layer of silt, suffocating and killing the turf.

Gypsum was the cure for this ailment because the mineral contains positively charged ions. The hypothesis was this: Treat the pond with gypsum, and it would attract negatively charged ions that are prevalent in clay soils. Basically, the clay particles would attach to the gypsum like a magnet, and once these positively and negatively charged ions bonded, the combined weight of the sediment would sink to the bottom of the pond.

After experimenting with various forms of gypsum, we decided to use a powdered version through a hydroseeder. On a beautiful morning in late May, an 18-wheeler appeared in our shop parking lot with 100-pound bags of powdered gypsum loaded from front to back on the rear of its exposed trailer bed.

Our mechanic and I were instructed to unload the truck and start hauling the bags to the pond. We finished staging the entire load by lunch, and after a much-needed break, we were told to head back to the pond to help the construction contractor apply the gypsum.

It took us a bit to get into a groove because handling 100-pound bags of powdered gypsum is no joke. It's not like they were 100 pounds of dead weight. They were 100 pounds of powder, which made picking them up, cutting the bag open with a knife and pouring its contents into the hydroseeder quite cumbersome. We quickly learned that if the bag wasn't balanced properly, half the bag would shift to the heavier side, almost assuring a drop. There were a lot of drops that day.

By late afternoon, about a quarter of the pond was finished, and we were covered in gypsum. Exhaustion set in as we loaded each bag into the clangorous hydroseeder. My arms and legs were burdened with weariness, and conversation was pretty much out of the question because the machine was making such a racket.

The day was long, and the sun had just set as we loaded the final bag into the hydroseeder. When the last of the gypsum vomited from the hose of the hydroseeder, the jerk from the construction outfit gave us the thumbs-up, and we headed back to the maintenance shop as evening gave way to night.

I was a mess, and before leaving, I disrobed by the dumpster. Everything but my drawers went into that piece. I gingerly walked across the gravel parking lot to my car in my bare feet, and my hope was to get home safely without getting pulled over by a cop while wearing nothing but boxers.

Powdered gypsum was the answer to our mess of an irrigation pond. In fact, it worked so well that the following week, algae started blooming everywhere because the water was so clear. It seemed so fitting of that summer. Just as a problem was solved, another would arise.

Joe Gulotti (hardg43@gmail.com) is the superintendent at Newark (Del.) CC. To read his blog, visit thewalkinggreenkeeper.com.

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FMC TRUE CHAMPIONS

FMC would like to thank all golf course superintendents who attended the 2019 Golfdom Summit. This event offers an opportunity to come together to understand the evolving needs of our industry. As a result, we will continue to break ground on new solutions and improve the way superintendents manage their courses.

FMC is proud to support the golf industry with the launch of our FMC True Champions program, which will provide an ongoing commitment to the industry by giving back a percentage of Fame® SC fungicide and Rayora™ fungicide sales directly to local GCSAA chapters.

To learn more, visit FMCTrueChampions.com.

FMC

A CLASS ALL ITS OWN

Remember Spring Break '19? Good! We'll never have another one. - Matt

Celebrating the *Golfdom* Summit class of 2019—the people, the products and the memories

BY THE *GOLFDOM* STAFF

Here's to you, *Golfdom* Summit Class of 2019. You couldn't hit Sipcam Agro's 30-foot by 20-foot Coastal banner from 60 yards, but you sure did create the memories.

There was class clown Tim Davis making *bee-boop-bop* noises while describing a future where robots crawl out of the maintenance shop like crabs, all for *Golfdom* TV. There was the most likely to break something — the formidable Alan FitzGerald and his inability to keep the LCR dice from bouncing off the table. Most likely to be a motivational speaker — Matt Cavanaugh — inspired us when he grabbed the microphone and made a presentation on native grasses, complete with a PowerPoint presentation, with only a few hours' notice.

And don't forget about the partners — 20 partners in all, making for the largest *Golfdom* Summit ever. There were the originals — Smithco and Turfco — present every year since the beginning. And there were the *Golfdom* Summit freshmen, companies like Aqua Vac, well known to the industry but new to the event, and Maredo, not only new to the event, but also new to the American market. It's a Dutch company founded by the son of the inventor of the VertiDrain.

"Along the nine years we've been hosting this event, it feels like we've vastly expanded our network of people who we can trust and rely on," *Golfdom* Publisher Craig MacGregor told the crowd at the opening night reception. "Thank you for your support, thank you for your trust and please … stay in touch."

And now, a closer look at the *Golfdom* Summit Class of 2019.

The Andersons

For The Andersons, the *Golfdom* Summit was a great opportunity to share

Continued on page GS4

The Summit gave WinField United the chance to talk to superintendents about GeoTech (see page GS14).

PHOTO BY: CLARA MCHUGH
COVER BACKGROUND IMAGE: TURK_STOCK_PHOTOGRAPHER / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES

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with superintendents that "we are not just a granular fertilizer company," said Tyler Warner, territory manager. Warner said the company used the time with superintendents to walk them through the company's Turf Nutrition Tool (TNT). TNT is a web-based and mobile-friendly platform that allows turf managers to create custom nutrition programs.

"We used our new TNT to show superintendents how to pick the right fertilizer at the right time of year to produce the results they are looking for, based upon the area of the country they are located," Warner said. "The TNT tool takes into account the average high and low temperatures and rainfall throughout the year to model the release of our different fertilizers to help them manage their fertilizer programs effectively and efficiently."

The company also spent time educating superintendents about The Andersons' new Genesis Rx 5-7-5 patented dispersing-granule fertilizer. Genesis Rx 5-7-5 is developed for construction, renovation, aerification, sprigging, sodding and seeding.

As far as interactions with supers, he said the Summit "exceeded the expectations that I had with customer interaction and event planning."

Not surprised you were voted Most Likely To Be (GCSAA) President.
– Steve

Aqua Vac

Water use and conservation is a big topic in the golf course industry. And Brian Pirl, vice president of operations for U.S. Aqua Vac, said that in one-on-one meetings, he and Sam Birchfield, Aqua Vac account representative, had discussed how Aqua Vac's services could help superintendents conserve water on their courses.

"Many golf courses don't have it in their budget to shut down the course to have a big mechanical dredging operation happen," he said. "It is messy and causes a lot of damage to the landscaping. No one wants to deal with the money or deal with red tape from permits."

Water savings are top of mind for many superintendents. Brian Pirl from Aqua Vac discussed how their product can help save water on the golf course.

Pirl explained what his company can clean, whether it's ponds with liners or waterways with mucky sediment that could be responsible for environmental damage. This not only impacts the waterway, but irrigation systems, too.

"Our services reestablish a pond's bottom and greatly reduce the number of bacteria, toxic gases, ammonia, bad odors and algae that accumulate over time, instead of using outdated, costly and less-effective drain-and-dig methods," he said.

Meetings with superintendents in the Northeast, in particular, proved to be extremely helpful to both Aqua Vac and the superintendents. Pirl said they discovered there are unique problems these superintendents face, but they often assumed the problem was beyond the realm of what Aqua Vac could do. However, he said, the solutions the company provides could be quite beneficial.

"We found out that we can save them big money," Pirl said. "In one situation, maybe even a savings of $100,000-plus."

BlueBird Turf Products

BlueBird Turf Products is launching a new battery-powered equipment line this year, and the *Golfdom* Summit provided a great opportunity to discuss new and existing equipment.

This new battery-powered line includes walk-behind aerators, power rakes, hover mowers, a self-propelled 22-inch walk mower, a detachable string trimmer with a pole saw and hedge clipper attachment, a standard rear-handle chainsaw, a top-handle chainsaw, a handheld blower and a standard rear-handle hedge clipper.

As the company unveiled its plans during the *Golfdom* Summit, Chris Durig, vice president of sales and marketing, was heartened to

PHOTO BY: CLARA MCHUGH

BlueBird Turf Products showed off existing equipment at the Summit and talked to attendees about its new battery-powered equipment line.

learn that some superintendents are readily seeking out battery-powered equipment.

Superintendents took an interest in the line, as it could reduce noise from equipment in use, cut down on maintenance or equipment downtime and reduce the need for oil changes, air filters or spark plugs.

"It allows the crews to work much closer to the players on the course, and throughout the day, it reduces their downtime and work stoppage as people play through," he said.

BlueBird's four-wheeled gas-powered sod cutter, Durig said, was another of the company's offerings that superintendents took notice of because it holds hills well.

"With our four-wheel unit in weather-damp areas, sod doesn't get sliced at all, and it also makes it a one-person job to get the four-wheel-drive over and walk right through the weather-damp area," he said.

Durig said the sod cutter's threaded-pin depth adjustment feature also hit home for the superintendents.

"Once they set it at the depth they want, it's impossible for it to come out of alignment," he said.

FairwayiQ

Managing employees and equipment can be a tedious job for superintendents, no matter the size of the operation. FairwayiQ's sensors track equipment-use hours and can be paired with systems such as taskTracker, a digital job board, to track man-hours.

"Superintendents now have actionable data that they can make decisions off of," said Dave Vanslette, CEO. "It's not so much guesswork anymore; it's real-life information based on what's happening on their property."

One question Vanslette and Christopher Benevides, business development manager, said superintendents asked is how to justify the cost to employers.

"Because we do collect a lot of information related to quantitative data, how long it takes to mow fairways, how long it takes to mow tees or rake bunkers, we're able to translate that information into dollars being spent on the property," Benevides said.

Vanslette acknowledges that superintendents often ask how people react to being monitored, as FairwayiQ can pair employees with equipment used.

"What we usually point to is the fact our cellphones today track so much of our behavior — that we've made pretty common choices to allow these to track us," he said. "We're not doing that extensive of tracking, but we're doing something that's been around for a few years, at least on mobile."

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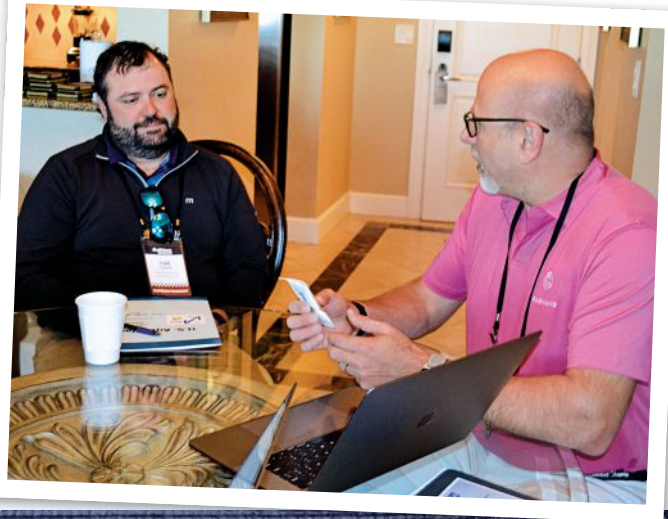

FairwayiQ's technology allows users to track equipment-use hours and man-hours, allowing them to calculate dollars spent on the property.

PHOTOS BY: CLARA MCHUGH

Ryan Swilley, left, superintendent at Gulf Stream Golf Club, with Sam Wineinger of Sipcam Agro. Swilley was the winner of Sipcam Agro's chipping contest.

PHOTO BY: SETH JONES

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FMC

At the *Golfdom* Summit, attendees had the chance to learn about FMC's new demethylation inhibitor fungicide, Rayora, which can be used to treat dollar spot. During one-on-one meetings with superintendents, the company also highlighted its Fame fungicide, which incorporates the active ingredient fluoxastrobin and targets brown patch, summer patch, fairy ring and *Pythium* dysfunction.

One of the specifics of these products that struck home with attendees, said Mike Sisti, FMC golf and lawn care market manager, was that the company has pledged to donate a percentage of purchases back to local GCSAA chapters.

"Rayora has a strong performance on preventive and curative dollar spot and early activity on brown spot, which could eliminate a tank mix, which helps budgets. That was also appreciated," Sisti added.

The unique format of the *Golfdom* Summit allowed superintendents to give instant feedback about FMC's products and offer their perspectives on the brand, the products it currently has in the market and new products it will bring to market.

"The intimate setting allowed for direct conversations, and a wide array of geographical and turfgrass species and cultivars allowed us to hone our approach going forward," Sisti said. "It allowed our end users to speak directly to marketing in a real-time format and communicate real versus perceived obstacles."

Frost

The message Frost shared with attendees of the *Golfdom* Summit was a fairly simple one: the value of GPS technology in spray applications and the return on investment that comes from implementing it.

"The evidence of application seemed to be a pretty big message, and having that record to show immediately after the job was something we talked about quite a bit," said Tyler Geissler, sales and marketing specialist for Frost.

Ken Rost, CEO of the company, said that one of the benefits of the format was that some of their current customers attended the event and "wouldn't shut up about how excited and pleased they were with working with us."

He added that those conversations spilled over to other attendees and that it validated that the company is doing the right thing in the market.

Jacobsen

Textron Specialized Vehicles' product range has grown beyond E-Z-Go and Cushman in the last 10 years.

On the golf and turf side, the company's products include E-Z-Go and Cushman, as well as the Ransom brand, which is based in the U.K. "When you think about Textron vehicles, we've got a huge array of different vehicles for different applications," said Kevin Boocock, corporate account manager.

The message Textron shared during the *Golfdom* Summit was that it wants to be a one-stop shop for anyone in the golf industry with Jacobsen, Cushman and E-Z-Go, but also with a product called Textron Fleet Management.

"Everyone calls it GPS, but it's so much more than that now," Boocock said.

The product has applications on the player and the agronomy side, giving superintendents the ability to track every vehicle on the property in order to measure productivity.

The company also emphasized its Growing Greens initiative, which is now four years old. "For every unit purchased by a superintendent, $50

is donated back to (his or her) local association," explained Neil Perez, director of sales, North America. "We are appreciative of what you do, and you're important to the industry, so that's how we show our appreciation."

Kafka Granite

Kafka Granite was a new partner at the *Golfdom* Summit this year, so the company's focus was introducing itself and its products — which include erosion-resistant crushed stone pathway materials and bunker sands — to the superintendents who attended, said Tiffany Koss, director of sales and marketing.

"We started each conversation with understanding what the supers had been using already and what some of their challenges were with walking paths, cart paths or bunker sands," she said. "Once we understood what they currently used and what their struggles were, we talked about what might be a solution for them."

The one-on-one meetings gave Koss and owner Glenn Kafka a chance to hone in specifically on the superintendents' struggles and finding solutions. According to Koss, one message that resonated with superintendents was the amount of time savings the product could afford them by freeing crews up from having to maintain cart and walking paths.

A lot of the questions Koss and Kafka received were common sense questions about how the product is maintained, how it's made and how it's installed.

"The great thing about working with supers is they have a lot of common sense because they're in the field with their guys. They understand products on a deeper level than some of our other customers," Koss said.

Klingstone

For Klingstone, a veteran-owned business that manufactures bunker liners, the *Golfdom* Summit was an opportunity to build relationships and find out information that was more helpful than that typically found at trade shows, according to John Ammons, vice president of the company.

"No one had classes to attend or old friends to catch for a meal," he said. "We were all there together with no distractions, and we had the undivided attention of each attendee for a portion of the event."

During the event, Klingstone showcased its bunker liner product.

"All the attendees were curious about our bunker liner," Ammons said. "Some had liners they weren't satisfied with, others had none. Their interest showed us that even the attendees who had tried other liners hadn't found a solution they were happy with."

Ammons said the company's message at the event was that while bunker maintenance and renovation can be an expensive endeavor, Klingstone's product is cost effective and boasts a successful 20-year history.

"Customers that trusted us 10, 15, 20 years ago are happy they did," Ammons said. "Cost is always an early question, and we're happy to be very competitively priced. Longevity is another, and with our 20-plus year track record, it becomes clear that the product pays for itself over the long term for

Continued on page GS8

For Kafka Granite, the one-on-one nature of the meetings at the Summit gave the company a chance to address superintendents' specific questions.

PHOTOS BY: SETH JONES

Voted most likely to join a motorcycle gang? Nate Bolhous, who looks comfortable on a Skooza.

Just remember, the grass is always greener ... at my place.
– Tom

Continued from page GS7

someone willing and able to invest in their course."

I thought I'd be really good at Weed Identification when I enrolled . . . turns out, different class than I expected. — Thad

LebanonTurf

One major benefit of being a partner of the *Golfdom* Summit is the instant feedback from the superintendents on all aspects of a product, according to Christopher Gray Sr., golf channel manager for professional fertilizers at LebanonTurf, headquartered in Lebanon, Pa.

"This feedback allows us to understand what part of the market positioning of the products is regarded as valuable and meaningful and which ones aren't," he said.

Of all the one-on-one meetings, Gray recalls a few where attendees were in the process of reverting back to granular fertilizers after primarily using liquid products.

"These guys were interested in some in-person follow-up site visits to help them choose what specific products would work best for their individual golf course," Gray said. "This type of lead is, by far, the most valuable because it creates a solid follow-up action plan to help expand our current customer base."

Throughout the Summit, LebanonTurf touted the message that each year it offers new products that help superintendents successfully manage their courses easier and more effectively, according to Gray.

Additionally, the company primarily showcased two product lines during the event: Emerald Isle Solution products, which are designed to get into the plant with smaller components, make them more efficient and deliver a better value; and Country Club MD products, which include stress-buffering biostimulants that are incorporated into homogeneous granules to help manage plant stress and provide premium nutrients to deliver healthy, playable turf all season long.

Maredo was a first-time partner at this year's Summit. The company introduced attendees to its myriad attachments for triplex greensmowers.

PHOTO BY: SETH JONES

Maredo

Maredo, a Dutch company that develops and sells turf maintenance machines, joined the *Golfdom* Summit as a partner for the first time in 2019.

"I really liked the concept and decided to join," said Marinus Reincke, president of Maredo. "Because we could talk to all of (the superintendents) personally, we could explain all these new technologies in detail."

The company's main goal was to spread the message that it offers a solution to make turf maintenance machines more versatile: the GT Series heads, which can be attached to triplex greensmowers. The heads can transform a triplex greensmower into an interseeder or corer.

"Most of the attendees didn't know about these heads and were very interested," Reincke said. "This was a great opportunity for them to ask me all kind of questions about these innovative Maredo heads."

At its booth, the company demonstrated its VibeSpike-Aerator head, which relieves compaction in stressed turf because the vibrating spikes crack the soil and punch holes to get air into the ground, according to the company.

Reincke said attendees also were interested in the company's HiSpeed Corer heads, which attach to a triplex greensmower and turn it into a coring machine to remove thatch; the VibeSpike Seeder, which plants seeds and helps yield a high germination rate; and the VertiDrain, which can help aerate greens, tees and fairways.

"People were impressed," Reincke said. "During my brief introduction, I told the people that my father invented the VertiDrain and that I have been the chief engineer for many years."

Nufarm

Meeting with the superintendent attendees proved to be a highlight of the *Golfdom* Summit for Nufarm, according to Cam Copley, golf national accounts manager for the company.

"The goal of our meetings was to get to know the superintendents better and learn more about their properties," Copley said. "We looked to be of help to them for any issues they may have. We knew superintendents were giving up their valuable time to be at the Summit, and we wanted to discuss things that were of value to them. Superintendents were eager to share their Nufarm experience and give us feedback on things they needed from our company."

As for products, Nufarm aimed to discuss Anuew, a plant growth regulator that's designed to save time with less mowing and fewer clippings, while improving the overall playability of greens, tees and fairways, according to Nufarm.

"Superintendents were either using or are interested in using Anuew," Copley said. "We were able to discuss how it would fit into what they need from a growth regulator."

Copley said he particularly enjoyed the relaxed atmosphere surrounding the one-on-one meetings with superintendents.

"While the meeting times were fairly short, they were in a comfortable environment," he said.

Oregon Outdoor Power Equipment

It's fair to say that Oregon Outdoor Power equipment made an impression at the *Golfdom* Summit this year — even on the Reunion Resort turf itself.

"(The battery-powered mower) has so much power and torque, if you go back to Reunion Resort, there's tread marks on the ground," said Joe Amalfitano, business development manager for Blount International, the company that owns the Oregon brand. Weighing in at 124 pounds, the new commercial-grade, self-propelled mower was one of the top draws for Oregon at this year's event.

"When we put (the mower) in high

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Oregon's Joe Amalfitano, left, chatted with Summit attendees about the company's new commercial-grade battery-powered mower.

PHOTO BY: SETH JONES

Continued from page GS9

speed, it literally peeled out — the superintendents weren't expecting it," he recalled. "The guys said, 'This thing's a tank!'"

Oregon has a motto for when it presents to a new group of superintendents. "We're always trying to debunk the stigma that battery-powered equipment lacks power, it lacks durability, it lacks run time," Amalfitano said.

During the Summit, a few superintendents said they used battery-powered equipment, and one mentioned using a 48-volt blower that just didn't have the velocity he needed.

Amalfitano and Blount National Accounts Manager Izzy Rodriguez looked to blow those perceptions out of the water while demoing the 120-volt professional lineup, which includes the aforementioned mower, as well as a string trimmer, edger, hedge trimmer, handheld blower and backpack blower.

The handhelds are lightweight, have longer run times (90 minutes on the handheld blower and on up to seven hours on the string trimmer) and run off the same battery, Amalfitano said. The charge time for the batteries is three or five hours depending on the battery size.

Amalfitano said once superintendents use the tools and get comfortable with them, what's needed to charge and maintain them is next on their minds. "You can take a standard wall outlet and charge up to five batteries on a 15-inch circuit," he said. "Most golf courses only need one or two circuits."

PBI-Gordon

Between meetings, keynote speakers, meals and golf, three days flew by fast for attendees of the Summit. To keep meetings flowing and ensure that superintendents were able to get their questions answered, PBI-Gordon did a bit of reconnaissance before touching down in Orlando.

The results of the company's pre-Summit questionnaire to attendees showed that Pedigree and native areas were top of mind for superintendents — specifically, the efficacy of Pedigree's liquid formula on brown patch and fairy ring, as well as weed control for native areas.

A former superintendent himself, Jim Goodrich, product manager, appreciates that the Summit allows superintendents to spend 20 or 30 minutes to discuss their specific challenges with companies.

A superintendent had questions about Vexis, a granular sedge control product that doesn't have to be applied to wet turf. Aside from the ability to throw bags of the product into the hopper of a spreader, the product also comes in a 2-pound shaker can. "(Superintendents) can just throw the shaker can on the cart and as they see spots, they can spot treat," Goodrich said. In addition, Vexis does not have to be watered in right away.

Union fungicide, a premix formula to treat *Pythium*, also was a popular product.

Goodrich appreciated the conversations and the attendees' general curiosity about the products and how they might help solve their challenges. "We're talking about the top-tier golf courses and the top-tier guys in a one-on-one setting — it's invaluable," he said. "It's a mission for us to thank superintendents that we do business with, and for those who may have been customers in the past, to regain their trust."

Pogo Turf Pro

Despite being in the golf market since 2013, Pogo Turf Pro has battled the same misconception for years.

"Almost everyone came into the room thinking Pogo is a moisture meter," said Carmen Magro, vice president, business development/agronomy of Pogo Turf Pro.

"Pogo is not a moisture meter, it's

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YEARBOOK

THE SUPERINTENDENTS

Always remember, green side up. -Damon






Charles Aubry
Kevin Banks
Drew Barnett
Jason Bastille
Nathan Bolhous
Brian Bossert, CGCS






Chip Caswell
Matt Cavanaugh
E.J. Chea
Steve Cohoon, CGCS
Chris Cook
Donald Cross, CGCS





John Cunningham, CGCS
Tim Davis
Shawn Emerson
Alan FitzGerald
Steven Friedell
Matt Gaver






Michael Heustis
Jason Hollen
Eric Johnson
Tim Johnson
David Jones
Kasey Kauff






Garrett Luck, CGCS
Steve Merkel, CGCS
Brian Moore
Tim Nielsen
Greg Niendorf
John Patterson






Micah Pennybaker
Scott Ramsay, CGCS
Duane Sander, CGCS
Steve Sarro
Matt Schuldt
Alex J. Stuedemann, CGCS




YOU WERE A FUNGI TO HANG OUT WITH!
- JESS

Ryan Swilley
Rick Tegtmeier, CGCS, MG
Mike Valiant, CGCS
Nate Watkin

Continued from page GS10

not a GPS tool, it's not a salinity analyzer, it's not a mapping device," he explained. "It's really an extension of everything the superintendent is trying to do — a complex system of collecting the most important information that they're already trying to capture anyway."

The Pogo Turf Pro system measures a variety of data, including soil salinity, temperature, moisture, as well as ball speed and firmness — and helps superintendents understand how those factors interact.

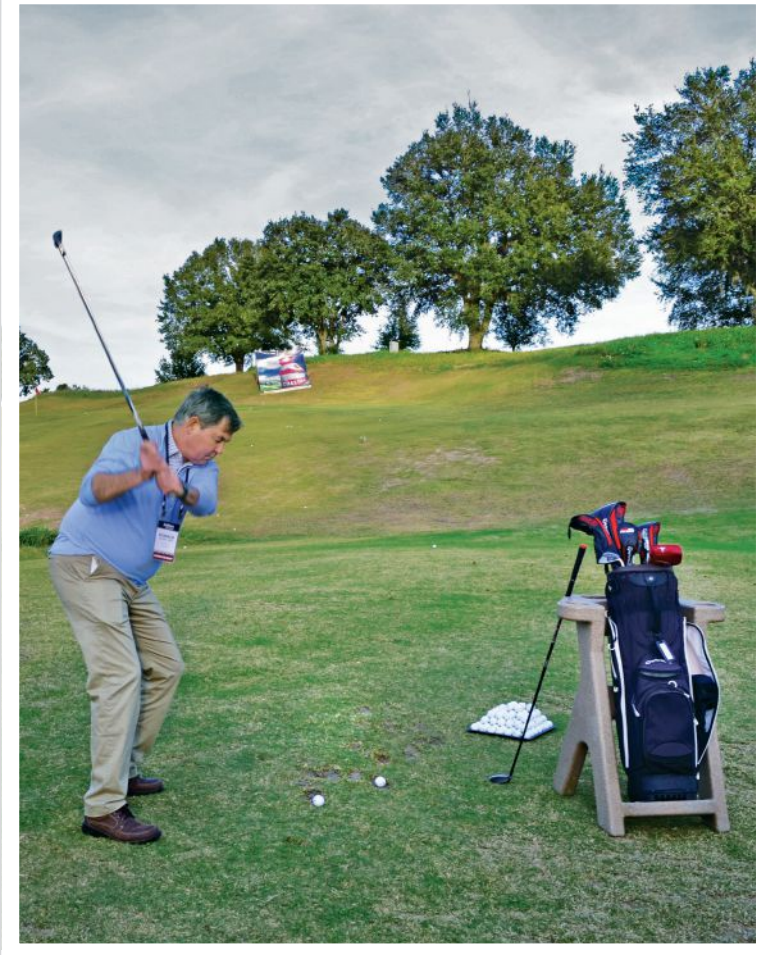
"Once people realized what it does, there were six or seven (attendees) who bought it right on the spot," Magro said.

"When they start talking about what it is they want to do — to improve irrigation or reduce members' complaints about conditioning — then I explain that Pogo works kind of like your brain. It takes in a lot of information, applies it to what you're trying to achieve and in the end, gives you the confidence you need to do what you're trying to do."

Superintendents who are curious about the Pogo Turf Pro but are concerned about major changes to the system can rest easy. "We decided to stabilize the hardware for the next couple of years, and we built this latest model last February to be expandable into the future," Magro explained.

"Even though the Pogo is fairly new, the sensor's been around for 40 years," Magro said, noting that the technology has been used for years by governmental agencies and NASA. That could explain why the Pogo Turf Pro isn't just becoming more popular in the United States; it's now the standard monitoring system for The R&A's tournament and preparations.

Is Silvery Thread Moss really a thing? –Julio



As part of its launch of Coastal herbicide, Sipcam held a contest to see who could hit a banner sporting the product's logo. It was tougher than it looked.

PHOTO BY: CLARA MCHUGH

Quali-Pro

Quali-Pro is a longtime *Golfdom* Summit partner, but even veterans can be surprised by what they learn at the event.

In addition to the typical diseases superintendents want to discuss, Nick Strain, Quali-Pro's business director, said there was a new popular topic this year. "With the talk that Matt (Cavanaugh) did on native areas, the conversations were sort of building on themselves," he said. "All these guys have some type of native areas that they're dealing with — and mosquitos and ticks on those areas."

Those conversations brought the company's Proflex product into the spotlight. Though the product isn't intended for turf, it's effective for mosquito and tick control in native areas. "We intended to talk about Proflex, but we didn't think it would be as big as it was," Strain said.

Quali-Pro also played up Negate for *Poa* control, and according to Strain, it's cost effective and treats a broad spectrum of golf course weeds.

As in past Summits, dollar spot was

a prevalent topic. Quali-Pro's Enclave works on dollar spot, snow mold and a range of other diseases, and it can be applied on cool- and warm-season turf.

"For Enclave, we have data from Jim Kerns, Ph.D., at North Carolina State University for spring dead spot and Paul Koch, Ph.D., at University of Wisconsin for snow mold — so it really shows that (the product) really does travel north and south," Strain said.

Aside from the new findings that native areas are a big concern for superintendents, Strain said that the Summit was also an opportunity to educate superintendents on the business behind Quali-Pro.

"It was a chance for people to learn more about Quali-Pro as a brand and Control Solutions Inc. (CSI) as a company," he said. "None of the superintendents knew anything about CSI as a pest control company."

Sipcam Agro

2019 saw a major product launch for Sipcam Agro, one that the company was happy to ballyhoo in style at the *Golfdom* Summit.

"For our southern superintendents, we were introducing Coastal — bringing awareness to our 2019-registered herbicide," said Sam Wineinger, manager, turf and ornamental marketing for Sipcam Agro. "This is the first new season of Coastal as a *Poa annua* resistance management tool, with pre- and postemergent weed control to use as a rotational product in weed resistance management. It's extensively researched and demonstrated at southern universities, with the overarching message that it is the most economical *Poa annua* control product on the market."

Sipcam Agro even celebrated the launch of Coastal with a golf challenge.

PHOTO BY: CLARA MCHUGH

Smithco's primary goal while at the Summit was to show attendees what the future of its product offerings might look like.

The company made sure that the northern superintendents didn't feel left out.

"For our northern superintendents, we spent a great deal of time talking about ETQ, our Enhanced Turf Quality products and the benefits of them," Wineinger said. "How — scientifically — it's not just a dye or a pigment; it's actually a turf-quality enhancement product. That's backed by university science and research."

Smithco

Golf equipment manufacturer Smithco is one of two companies that has participated in all nine *Golfdom* Summits. With this much experience, the company has figured out how to get the most out of the event.

"Our primary goal is to show superintendents products we're working on in terms of futuristic ideas and the behind-the-scenes development of products," said Don Smith, Smithco president. "We want to make sure (the products) aren't something we're wasting our time on, that they're something (superintendents) want."

The two products that Smithco was demonstrating for attendees at the 2019 *Golfdom* Summit were a 500-gallon capacity sprayer and an electric bunker rake. And according to surveys Smithco distributed at the event, superintendents liked what they saw.

The greens are always fastest ... right before they die. - Tim

"We try to create things that the competition doesn't have," Smith told *Golfdom*. "Our 500-gallon sprayer gives us that, and it puts us in a class all by ourselves. For multicourse operations like Reunion Resort, (the sprayer) makes sense. It cuts their time down, in that they don't need to go back and refill the sprayer once they get out there."

Smith said the electric bunker rake is something the company has been "knocking around" for years. He said now is the time to finally bring it to market.

"A golf course is supposed to be a quiet, peaceful place," Smith said. "This machine is about noise

Continued on page GS14

Continued from page GS13

control. The crew can be working right next to golfers, and the golfers won't even notice. With other bunker rakes, the operator is obligated to stop and turn off the engine, let the group hit their shots, then turn it back on once they've moved on. We also made it operator friendly; this drives more like a car or truck. We really think we're on to something, because the superintendents loved it."

Turfco

The other company to have participated in every *Golfdom* Summit? Minnesota-based Turfco, manufacturer of topdressers, blowers, overseeders and more.

"Our mantra is 'The beauty of productivity.' We're creating products that will help the staff be more productive and free up the superintendent so they can create the beauty that they want to create at their facility," said Scott Kinkead, executive vice president of Turfco. "How do we help them with the labor challenge … how do we free their time up so they can move on to other tasks? All of our equipment is designed to live up to that."

Turfco explained to superintendents that the company has looked at the whole job of topdressing, not just the topdresser itself.

"The task of topdressing needs to be more productive," Kinkead said. "We can help a superintendent reduce the number of passes on a green — up to 720 passes a year — by ensuring they get even, edge-to-edge spreading. Also, a superintendent can save their preferred settings for greens, approaches, tee boxes or different widths at the same rate. They can save those like the way they save a radio station on a car stereo. So now, they don't have to take time to reset the topdresser or even be involved in the setup of the topdresser."

Scott Kinkead, executive vice president of Turfco, demonstrates the company's blowers to a Summit attendee.

The Kinkead family celebrated 2019 as the 100th year the family-owned company has been in the golf business. Scott Kinkead said his company gets satisfaction in helping superintendents find "a better way."

"It's great to hear guys say that they appreciate us trying to help them with their labor challenges. We had one guy come up and say, 'You brought up problems I didn't even realize I had, but now that I look at it from that standpoint, wow, there's another way we can approach our productivity challenges.'" Kinkead said. "I think a lot of superintendents have figured out how to make it work. Our task is to actually make it better. That's what's fun for us — to say, there can be a better way."

WinField United

For superintendents who dream of having an eye in the sky to look down and monitor their golf courses, meeting with WinField United was an eye-opener.

"Most of the superintendents were really interested in GeoTech, because most are thinking about variable rate sprayers, or GPS-enabled sprayers, have them or are looking at them at the Summit, so it's a very easy jump into GeoTech," says John Smith, director of marketing for WinField United. "GeoTech is a satellite site management tool, we're using satellite imagery to measure NDVI (Normalized Difference Vegetation Index). So essentially the plant health of the turf, the light reflectance of the turf demonstrates how much photosynthesis is taking place in the plant."

Smith says superintendents can use the information to manage future applications. The data from GeoTech can be exported to the company's GPS-enabled sprayers to variable rate apply products on their golf course, whether it's nutrition, wetting agents or fungicides.

Chinch bugs, manganese … a lot of people don't even know what that is! —Carl

PHOTO BY: CLARA MCHUGH

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Recognize Anyone?

"**We had a great year here at Anglebrook** and it looks like a beautiful fall is upon us. The best part of this year was we finished the bunker project. **After six years and 54 bunkers we are done. The Klingstone was the best decision we made, it has performed exactly as advertised. The bunkers we first did in 2010 look just as good as the last bunkers we did this year.** The sub-soil has been sealed in place and our sand is no longer being contaminated after a heavy rain. We could not be more pleased with the application and finished bunker look that Klingstone provides."

Louis S. Quick, CGCS
ANGLEBROOK GOLF CLUB, LINCOLNDALE, NY

"**We have had Klingstone in our bunkers now for 18 seasons and the only place we have had problems is where we tried to skimp on the product. Where we applied the product properly, the Klingstone has held up very well to the rains as well as the freeze/thaw cycles of the winter.** Our original goal of reducing or eliminating the contamination of our bunker sand has been a success with Klingstone."

Tim Johnson
SUPERINTENDENT
SPRING HILL GOLF CLUB, WAYZATA, MN

"**In the fall of 2015 our course was flooded 3 times — 10" of rain in October, 14" in November, and another 12" in December. Our Klingstone bunkers performed GREAT throughout these floods!"**

Jorge M. Croda, CGCS
(2015 FINALIST, TURFNET SUP'T OF THE YEAR)
SOUTHERN OAKS GOLF CLUB, BURLESON, TX

"**My members AND crew loved our bunkers this year. Given it was the wettest year ever, that's saying something."**

Bob McCurdy
GOLF COURSE SUPERINTENDENT
COUNTRY CLUB OF DETROIT, GROSSE POINTE FARMS, MI

"When I took over the maintenance operation at Country Club of Detroit, I'll admit **I was skeptical of the Klingstone which had been installed a few years prior — but it really performs, I'm a believer!"**

Ross Miller
GOLF COURSE SUPERINTENDENT
COUNTRY CLUB OF DETROIT, GROSSE POINTE FARMS, MI

"The final stage of our bunker renovation just started last week and I will help endorse your product to any superintendent who is going to be undertaking a bunker renovation. **I have built and re-built many bunkers in my career and this product is superior to anything else on the market."**

Kevin Collier
GOLF COURSE SUPERINTENDENT
RIVERBEND GOLF COMMUNITY, LONDON, ONTARIO, CANADA

"**We researched all the hardcoat liner systems prior to our full renovation. We chose Klingstone, with zero regrets — it does it's job with no surprises, is simple and faster to install, and it's less expensive!"**

Pat Gradoville, CGCS
PALOS VERDES GOLF CLUB, PALOS VERDES ESTATES, CA

"**Why isn't everybody using this stuff?"**

Armen Suny
PRINCIPAL, SUNY ZOKOL DESIGN
CASTLE PINES, CO

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SIPCAM AGRO USA, INC.

Trees, shrubs and weather, oh my!

WORDS AND PHOTOS BY JOHN C. FECH

When a fairway or green turns off-color or loses density, what do you do? You usually get down on your hands and knees with a hand lens and inspect the leaves, crowns and roots, looking for abnormal appearances. You also consider recent pesticide or fertilizer applications, traffic patterns and of course, weather. Putting all of this together often yields an initial diagnosis and course of remediation. The same course of action is appropriate for woody plants in the golfscape.

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Trees tolerant of periodic flooding include baldcypress.

// ACCEPT THESE EVENTS AND MOVE ON

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With trees or turf, weather can cause hard-to-determine damage. It's a major influence, with nothing like it terms of impact. Why?

- It's multicomponent: winds, flood, hail, heat, drought, sun, rain, snow, ice.
- It's all-season and ever-present: There's no break from the weather.
- It's dramatic: Extremes are seemingly commonplace these days.
- It's a mimic: Weather-related maladies often are difficult to diagnose because they can closely resemble insect- or disease-related injury causes.

Weather extremes can both cause problems or encourage healthy growth. When "bad weather" or "adverse environmental conditions" are brought up, it's automatically considered to be the cause of an unhealthy group of plants. On the other hand, mild weather — or a lack of extremes — generally is considered to result in healthy, well-functioning plants.

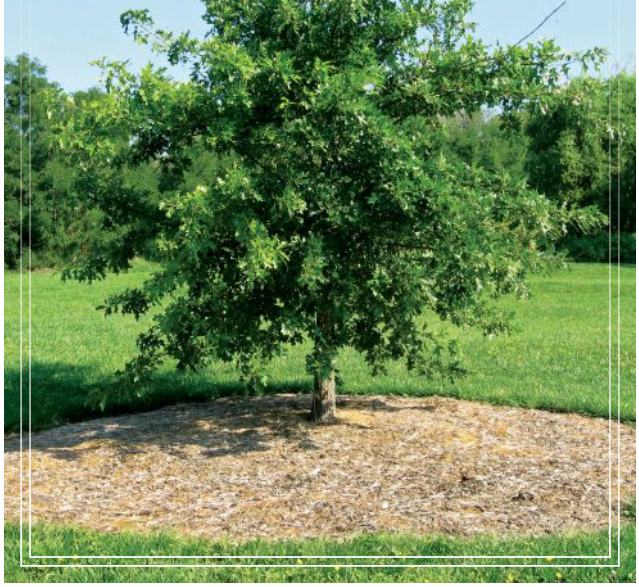
There are some "tough as nails" plants such as eastern red cedar, coreopsis, yarrow and Osage orange that perform well despite drastic fluctuations, but significant fluctuations mostly cause headaches for those caring for ornamental plants. Success for any planting means knowing how well-adapted a particular species is to extremes, especially in terms of soil moisture and temperature.

Bad weather is a tough thing. There's absolutely no control. Mother Nature is not going to provide two hours of gentle rain three to four days a week at 4 a.m. Instead, our weather efforts should focus on preparation, not control.

Prevent weather damage: General guidelines

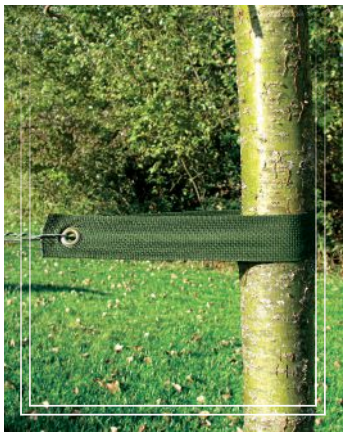
We prepare for weather influences generally and specifically. Four actions can condition plants to be as sturdy and well-healed as possible before weather extremes begin to degrade their health.

1. Choose well-adapted trees and shrubs. Each USDA hardiness zone sets some guidelines for selecting plant material. Also, microclimates exist in the golfscape, created by slope, shade and wind blockage (or lack thereof) that can have dramatic influence. For example, a redbud may be adapted to zone 5, but if planted in an area open to wind, struck by afternoon sun and on a slope that limits regular water infiltration, it likely will fail. If placed in afternoon shade on a gently sloping site, it likely will succeed. For specific information on these subtleties, consult local Extension professionals and botanic gardens.
2. Mulching provides many benefits for trees, shrubs, groundcovers and flowers. Organic materials such as wood chips and pine needles help suppress weed growth, retain soil moisture and moderate temperatures, creating suitable growing conditions for roots. As mulches break down, organic matter disperses into the soil profile adding humus, further enhancing soil health.
3. Stake trees planted in persistently windy sites. It's highly desirable for trees to move slightly after planting as this encourages



Proper mulch placement in the golfscape.

stabilizing root growth. If the wind is strong and constant, however, the opportunity for this to occur is lost. In these areas, using a T-post and loosely tied canvas material around the trunk aids in proper development of the root system, girding it for the long haul.



Use canvas attachment fabrics when staking.

4 Good bed design, specifically separating turf from ornamentals, is perhaps the most important general prevention standard. Trees and shrubs commingled with turf commonly are overwatered and overfertilized, especially in the moderate-to-high course areas. Again, depending on species, most woody plants need about a third of the water and fertilizer that fairways and areas surrounding tees need. Beds created in well-defined masses and watered and fertilized on a different schedule are well prepared for weather extremes.

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Turf and ornamentals have different needs and should be separated in the golf landscape.

Drought effects are enhanced on slopes in the golfscape.

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Repairing weather damage: General guidelines

Whether it's a major life event or just an unfortunate incident, acceptance is necessary to move forward. Weather events on golf courses are much the same. You have to let them soak in to your cognitive functioning to start recovery.

Once this acquiescence takes place, the repair process moves to observation and evaluation of symptoms. Asking "What do I see?" and "Was this here before the event?" is helpful. Noting details like a leaning tree — and comparing it to your recollection — is in order. Was it leaning that much before, or has it worsened?

Symptoms often point to a weather-related causal agent. These influences can be easily discernible or quite nebulous. Getting help from fellow superintendents, consultants and university Extension specialists is a good step for hard-to-figure-out symptoms. After the diagnosis is confirmed, it's time to assemble control and restoration options, eventually choosing the best option among them.

Common weather influences

There are at least nine specific weather influences superintendents must deal with. The influence is different in some cases, but the care actions are the same.

Dormancy breaks/frost

Warm winter temperatures often cause dormant plants to break dormancy earlier than desirable. They will "break bud" and begin to grow during brief periods of warm temperatures. When temperatures soon drop to normal levels, damage occurs to newly emerged plant tissue. Frost effects are similar, occurring with colder-than-normal temperatures after vegetative plants have been installed or woody plants are growing on schedule.

Location often plays a role in this type of damage, so preventive actions include choosing specimens that are well adapted to the course's USDA hardiness zone, paying attention to overnight weather forecasts, bringing potted plants indoors if temperatures are forecast for 39 degrees F or lower, watering woody plants and ground beds in late fall so they enter winter moist (not soggy or dry), avoiding fertilizing roses and herbaceous perennials and covering susceptible low-growing plants with sheets, blankets or tarps. Corrective actions include allowing damaged leaves to fall from the plants naturally, cutting off blackened stems with a bypass hand pruner or lopping shears, avoiding fertilization until the plants recover and keeping the soil evenly moist.

Drought

Drought is extended precipitation deficiency, usually lasting a season or more. It's often associated with warmer-than-normal temperatures and is much easier to prevent than cure.

Drought prevention includes identifying drought-prone plants and replacing them with tolerant ones, mulching with wood chips to retain soil moisture, limiting competition from weeds, watering thoroughly and evenly, clustering ornamental plants with similar water needs together in beds separated from turfgrass and evaluating the plants' importance.

Removal of susceptible plants is a good preventive step in some

cases. Recovery from drought is difficult and takes time. Examine stems to determine which have desiccated, and remove damaged portions. During the growing season, avoiding fertilization assists recovery until thriftiness recurs, keeping the soil moist (not soggy), followed by applying 2 inches of wood chips to keep roots cool and moist.

Flood and heavy rain events

Ornamental plant roots need oxygen just as much as they need water. When the voids between soil particles fill with water for extended periods, plants become stressed and begin showing symptoms such as leaf-yellowing and drooping stems/leaves.

Site selection and choosing plants that tolerate periodic flooding are the best preventive steps, as well as installing bioswales, rain gardens and low berms that help slow water movement, allowing it to soak in and redirect rainwater and limiting flooding potential. Regular core aeration of turf adjacent to ornamental beds is helpful as well. Because root damage usually occurs with extended soil moisture, I recommend contracting with an ISA-certified arborist to spot symptoms of root rot and catastrophic failure. Initially after flooding, pull back the mulch layer to help bring soil moisture to a healthy level.

Until fully determining the extent of root damage, avoid fertilization and probe the soil periodically to know when to reapply mulch to keep newly developing roots moist, not soggy or dry. Some ornamental plants don't show symptoms of flooding damage until the year following the weather event. Documenting this is helpful in future management decisions.

Frequent light rain events

Periods with many light-rain events can be quite problematic. They often cause heavy disease pressure as the localized

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Diplodia tip blight, rhizosphaera needle blight, apple scab and cedar apple rust are encouraged by frequent, light rainfall events.

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environment is enhanced.

Preventing rainfall is impossible, but monitoring it will help manage pest populations as the season progresses. Choosing disease-resistant cultivars of trees, shrubs, perennials and annuals often results in lighter disease symptoms. For example, there are approximately 500 cultivars of crab apple, approximately half of which are susceptible to fire blight, cedar apple rust and/or apple scab; the other half is resistant. Adequate air circulation around specimens through proper spacing helps prevent these maladies, and consulting a respected landscape designer/architect is worth the cost versus dozens of fungicide applications each year.

Hailstones can cause major injury to tree limbs.

Corrective actions to respond to damage from pathogens and frequent light rain include removing highly susceptible plants, replanting with disease-resistant cultivars, amending flower bed soil to facilitate drainage and appropriate fungicide application to properly placed/highly functional/good-condition plants.

Hail

Hail forms when rain/ice particles are carried in the updrafts and downdrafts of thunderstorms, then collide and freeze onto one another, growing into larger pieces of ice. Hailstones damage leaves, stems and fruits. The size of the hailstones, the amount of hail, time of year and wind speed play a big role in the amount of damage.

Superintendents' options to prevent damage to woody plants are limited, but you can bring potted trees, shrubs and patio planters into covered areas until the hail threat has passed. You can cover certain highly prized plants with floating row covers. Recovery from hail damage involves hiring a certified arborist to remove heavily hail-damaged tree limbs and broken perennial and shrub stems. Leaving a few lightly damaged stems encourages seasonal photosynthesis, as does replanting badly damaged annuals. Hail is a major stressor. General recovery means avoiding fertilization, keeping soils evenly moist and mulching with 2 inches of wood chips, as well

as monitoring for pathogenic-and mechanical-cankers.

Ice/snow

Ice forms, of course, when liquid precipitation falls on surfaces having temperatures below 32 degrees F. Higher ice thickness and wind speeds increase damage potential.

Pruning, or "training," early in a plant's life prevents ice damage. A strong tree and branch structure goes a long way toward the goal. Woody plants that have been rounded or topped are susceptible to injury because of the weak branch angles that develop from these procedures. You can lessen snow damage from mice, rabbits and other four-legged critters by installing hardware cloth or PVC drain tiles, especially on specimens under five years old. Once ice forms on branches, wait until it melts off naturally before attempting corrective action. After growth resumes in spring, follow the general recovery steps for hail.

Tornado/high winds

Storms with high winds uproot trees, cause plant material to fall on other plant parts, break or crack branches and cause other injury that reduces plant life span, pest susceptibility and vigor.

In addition to the preventive steps for ice and snow, a good

Typical marginal moisture loss symptoms.

"before the storm" step is to target prune to remove co-dominant leaders, broken limbs and diseased tissue. Avoiding root masses with twisted and tangled roots encourages development of wide, well-branched and strong root systems that can resist uprooting, which is why close inspection during planting is so important.

In addition, place roots at or slightly above grade to greatly decrease the failure potential. Stake a tree for a year or less to prevent dependence on the anchoring system. Following a high wind event/tornado, consult with an ISA-certified arborist, who can guide follow-up pruning, straightening and removal of injured plants.

Desiccation/leaf scorch

Desiccation occurs when leaf and stem tissues lose moisture faster than the roots can absorb it and move it throughout the

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plant. These tissues are part of the permanent structure of a shrub, tree, perennial or ground cover. It's usually caused by extended extreme winds and cold/hot temperatures.

Avoiding plants with a history of desiccation injury in the course's general area is a good preventive step. Others include applying an antidesiccant spray to conifers at the onset of winter and every six weeks during winter, installing burlap screens around susceptible plant material and watering ornamentals thoroughly in late fall and early summer.

You can almost use sunscald incidence as a "compass," as it occurs on the southwest side of a tree trunk in most cases.

Recovery from symptoms is difficult and often takes a full growing season. Generally, light pruning to remove dried tissues is the only reliable solution. The desire to abundantly water, fertilize and provide other care only worsens the appearance, so it's best to allow plants to recover, then resume normal maintenance.

Sunscald

Sunscald results from repeated heating and cooling of bark tissues during winter. It typically occurs on thin-barked trees on the south, west and southwest sides of trunks.

Prevent sunscald by identifying species prone to damage such as maple and honey locust and by installing white- or beige-colored covers to reduce the bark's warming. Working with a botanic garden, landscape designer/architect or university Extension horticulturist to choose trees not historically affected by sunscald is the best long-term approach.

John C. Fech is a horticulturalist with the University of Nebraska-Lincoln and a certified arborist with the International Society of Arboriculture.

South Forsyth High School's turfgrass program aims to introduce interested students to the turfgrass industry.

PHOTO BY: RUSS BAYER

Help is on the way

What one Georgia high school is doing to engage students in the turfgrass industry

BY SARAH WEBB

Students interested in turfgrass management at South Forsyth High School in Cumming, Ga., already have a leg up on the competition when it comes to both turf knowledge and know-how — all thanks to the school district's newly developed turfgrass management career path.

"We're engaging students who have a passion for anything from golf course maintenance to the landscaping industry to athletic facilities and anything in that spectrum," says Russ Bayer, turfgrass management instructor and head baseball coach at South Forsyth High School.

Inspired by similar programs for other professions in Georgia as well as turfgrass programs in Florida and the Midwest, South Forsyth's turfgrass program began during the 2019-2020 school year, with much of the instruction taking place outside of the classroom.

Russ Bayer

"I wanted to do everything I can to make sure there's a new wave of kids who come into the industry," says Tommy Hewitt, the regional superintendent at Windermere Golf Club in Cumming, who has helped develop the program at South Forsyth. "I think a lot of people have lost sight of what the industry is and what it can be."

A growing program

South Forsyth High School's turfgrass management program currently has 12 students enrolled, ranging in age from ninth graders through 12th graders. The majority of them are underclassmen. Enrollment in the program for the 2020-2021 school year has nearly doubled, according to Bayer.

Prior to enrollment, South Forsyth's counseling staff meets with students to discuss their interests and goals. Because the high school considers the course a "career pathway," students who live outside of South Forsyth School District but within Forsyth County also can take part in the pathway.

Throughout the next few years, the program will be flushed out to three separate, year-long courses: Turf 1, Turf 2 and Turf 3.

Turf 1 (now in its inaugural year) will introduce students to agricultural education, the Future Farmers of America, warm- and cool-season grasses, irrigation techniques and soil sciences at the grassroots level.

Turf 2 will delve deeper into the soil sciences.

The curriculum for Turf 3 may vary by students' individual interests and will depend on what aspect of the turfgrass field they wish to pursue. The hope, Hewitt says, is that Turf 3 will take on an

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Students learn skills necessary in the turfgrass world in a hands-on fashion.

PHOTO BY: RUSS BAYER

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internship-type style.

"It will be a real-world immersion of what they've learned," Hewitt says.

When the weather cooperates, Bayer says he tries to get the students outside three of the four days a week that the class meets, with one classroom session set aside for a traditional lecture-style setup.

"The first couple of months, I tried to get the kids familiar with the equipment we had from our athletic fields, to get their hands on it, to understand and respect it, but also to see what the use of that equipment can accomplish," Bayer says.

Hewitt adds that parts of the course focus on new technology such as GPS mapping for soil analysis and using drones to analyze a golf course.

"That's the kind of thing we're trying to show them, because they are of a technology age," he says. "We're also trying to look at things they're learning from a perspective of not what we did 20 years ago, not what we're doing today, but what are we going to be doing or expecting from the industry in 10 years?"

Field trips have included visits to various golf courses and athletic fields, including those at Clemson University and Auburn University.

Bayer admits that an early challenge proved to be figuring out what would hook the students and keep them interested.

"It was just keeping them active and engaged and giving them something that reflects the effort they put into it," Bayer says. "It's finding that balance between being in the classroom versus being outside and active."

Upon graduation from high school and completion of the program, students will receive a Career, Technical and Agriculture Education designation on their diploma to signify that they participated in a college prep or technical prep program.

Garnering support

For other high schools interested in incorporating similar programming, Bayer suggests leaning on the turfgrass industry for help.

"Don't be afraid to reach out to people in the turfgrass industry," he says. "They've been willing to answer questions, help us out, point us in the right direction."

Bayer says he got feedback from turfgrass programs at universities such as Penn State, Auburn and Clemson about the foundation students interested enrolling in collegiate-level turfgrass programs should have. He also sought advice from high schools in the Midwest that have similar programs already in place.

"A lot of (what they said) was just being able to speak the language and terminology, having respect for and being comfortable with the equipment and having the initiative and ability to work with each other as a team," Bayer says.

While procuring the equipment for the class was challenging, many local manufacturers and distributors, including SiteOne and Textron, stepped up and donated thousands of dollars' worth of equipment to the program, including a fairway mower, a trim mower, carts and an infield rake.

"The last thing I wanted in a class of 14 kids (was) for one of them to be operating a blower or weed eater and the other 13 just looking at (him or her)," Hewitt says. "I want to make sure they have as much opportunity to be doing something, not just standing around, be-

Many of the younger students enrolled in Turf 1 will continue the turfgrass track to complete the Turf 2 and 3 courses over the next few years.

PHOTO BY: RUSS BAYER

cause if they're going to stand around, they're not going to stay in the business."

Bayer adds that the school district and local turfgrass community have been instrumental as well.

"It's really gained a lot of traction," Bayer says. "The turfgrass industry had been outstanding with helping us out, reaching out and trying to get involved and making sure we're steering these young men and women in the right direction."

The impact

While all the students have some interest in the turfgrass industry, Hewitt says the inaugural group is diverse in that while some students plan to attend a four-year university, others plan to attend a technical institute and still others may enter the workforce immediately following graduation from high school.

Already, Bayer adds, many of the students have had a hand in preparing for the sporting events held at the school's athletic fields.

Additionally, Hewitt says several students from the class were hired to work at four local golf courses after school and on the weekends.

"We're trying to give these kids an opportunity to learn about the careers that are available and work at golf courses and show them what's in this," Hewitt says. "Obviously, labor is an issue, but we're also trying to help these kids make some money, stay out of trouble and create a work ethic. It'll also help the golf courses with employees who I think are actually going to care and be interested in learning more."

Hosted by Clark Throssell, Ph.D. | *clarkthrossell@bresnan.net*

Super Science

// A NEW LEADER

SANDOR SETTLES IN AT VIRGINIA TECH

By Clark Throssell, Ph.D.

Daniel (Dan) Sandor, Ph.D., joined the Virginia Tech Turfgrass Science faculty as assistant professor of turfgrass science in December 2019. Sandor arrived in Blacksburg after spending 18 months as a postdoctoral associate in the Turfgrass Science Program at the University of Minnesota-Twin Cities, where he developed and provided outreach/education programming and conducted field research. He earned his Ph.D. in plant science in 2018 at the University of Arkansas under Douglas Karcher, Ph.D. His dissertation research focused on best management practices for water conservation in residential and commercial turfgrass systems.

Dan Sandor, Ph.D.

Sandor's primary responsibility at Virginia Tech will be to take a lead role in enhancing curricula, developing an outstanding turf teaching program and expanding the visibility of Virginia Tech's Turfgrass Science Program. He will establish new courses and learning initiatives and also will develop online educational coursework in collaboration with other Virginia Tech faculty and staff.

His additional responsibilities include coordinating turfgrass internships and undergraduate research programs, as well as being the primary faculty advisor to turfgrass science undergraduate students. Sandor also will continue to foster cooperative relationships with stakeholders in developing experiential learning opportunities and will be responsible for developing an active student recruitment program.

Sandor is excited to join the team of faculty and staff already present at Virginia Tech. He also is looking forward to working with regional and state industry partners and organizations to help enhance the Virginia Tech Turfgrass Science Undergraduate Program and to further serve these industries and member organizations. He is passionate in encouraging his students to go beyond simply earning good grades in the classroom and challenges them to take advantage of outstanding internship and experiential learning opportunities that will prepare them for rewarding future careers as turfgrass scientists, professionals and proud graduates of Virginia Tech.

Contact Sandor by email at dsandor@vt.edu.

NEWS UPDATES

MACH 1 BERMUDAGRASS RECEIVES PATENT

Modern Turf's Mach 1, a new ultradwarf bermudagrass available for golf course greens, has received its plant patent.

Developed by Rod Lingle, CGCS, Mach 1 sets itself apart from previous ultradwarf releases with a super fine texture for superior ball roll, excellent response to growth regulators and incredible visible purity, said Modern Turf.

As part of Mach 1's introduction to the market, courses around the world from Florida to Vietnam planted trial plots for evaluation. Trump National Golf Club Charlotte in North Carolina is the first to install the new ultradwarf for permanent play. Its new Fazio-designed par-three practice facility, Fazio Five, features Mach 1 on all greens.

"We were surprised at how quickly the Mach 1 grew in," said Trump National Director of Grounds James Sowers. "We planted in June for a September grand opening, but the greens were almost completely covered in just six weeks. It's a really tight-looking plant, upright with excellent color and good, thick, healthy roots."

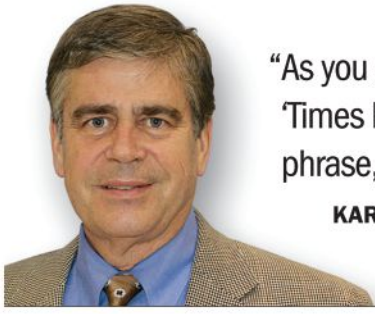
Turfgrass production company Modern Turf in Rembert, S.C., is the exclusive grower of Mach 1.

"FUNGICIDES ARE THE MOST COMMON MEANS OF CROWN- AND ROOT-DISEASE SUPPRESSION."

Wendell Hutchens, et al.

(see story on page 44)

PHOTO COURTESY: DAN SANDOR



"As you get older, it's easy to say, 'Times have passed me by.' I hate that phrase, even though I've used it."

KARL DANNEBERGER, PH.D., *Science Editor*

Stop letting time pass you by

The holiday season is a time to get together with family and friends. In our family, it also means doing something competitive. This past holiday, my sons and I, along with their friends, took on our annual Miner 49er mini-golf challenge (**miner49erminigolf.com**).

Miner 49er mini-golf challenge courses are not associated with the Professional Putter Association (PPA), under which I grew up playing and watching tournaments on Saturday mornings. Longtime TV basketball broadcaster Billy Packer announced those championship events.

Of course, putt-putt golf is still around, with most courses found in the southeastern and southwestern U.S. Putt-putt-branded courses are similar in design, with each hole set to a par 2. A score of 18 for 18 holes would be possible, an accomplishment done four times since 1959. Par for mini-golf courses varies, usually 2 to 6 par, and mini-golf has unusual challenges like putting through an elephant.

The Miner 49er putting course is a mini-golf course indoors. The two rooms I went through to get in were lit with ultraviolet light, making the course and everything around it glow. I learned quickly that a white golf ball is not the best choice in a black-light environment.

When I registered, some players were purchasing a drink with their round. I looked over the selection, which ranged from hard seltzers to New England IPAs and pastry-flavored stouts. I asked if they had a Bud Light. The response was, "We might have one in the back."

Anheuser-Busch will be coming out with a Bud Light Seltzer in 2020. It's a sign of age when you're no longer part of the target market. The mini-golf customers were millennials, young couples and families. I went with the hard seltzer.

Eight of us showed up to play, all contacted a few hours earlier by group text or something similar. While it was a good time, everyone took the tournament seriously, much more so than I expected. Rules included no relief from the boards, one foot on the back flooring behind the carpeted mini-golf teeing spot — to discourage "creeping up" — and hitting a ball off the course meant a retee with a one-shot penalty. These rules were strictly enforced.

After the round, I expected everyone to get out their wallets and settle all the side and game bets. But "cash" isn't transferred like that among these players. They use the phone app Venmo to receive and transfer cash from bank accounts. I scrambled to upload the app under black-light conditions.

I have played golf for 50 years, caddied, worked as a staff member on a golf course, continued my agronomy education through advanced degrees in horticulture and plant pathology and am now a turfgrass professor. Though I think I know what is going on in the world of turfgrass, it's always changing.

As you get older, it's easy to say, "Times have passed me by." I hate that phrase, even though I've used it. It's just another way of saying I've not paid enough attention, interacted or cared enough about changes around me. To stay aware requires learning and personal interaction outside of your normal group.

Golf course superintendents have had to adjust their management styles to a changing workforce. This adjustment comes through understanding staff expectations. I wonder if we pay that same attention to the expectations of members/golfers. Do these golfers look at the golf experience and expectations differently from those in the past? Do they want fast greens or perfect conditions? Or, do they want something different? I don't know.

To recognize potential changes in golfer desires, take the time to play golf or walk the course with younger golfers to see what their expectations are and how they interact with the course. You may find that what you assumed to be the norm has changed.

Karl Danneberger, Ph.D., *Golfdom*'s science editor and a professor at The Ohio State University, can be reached at danneberger.1@osu.edu.

//SOIL SURFACTANTS CAN HELP

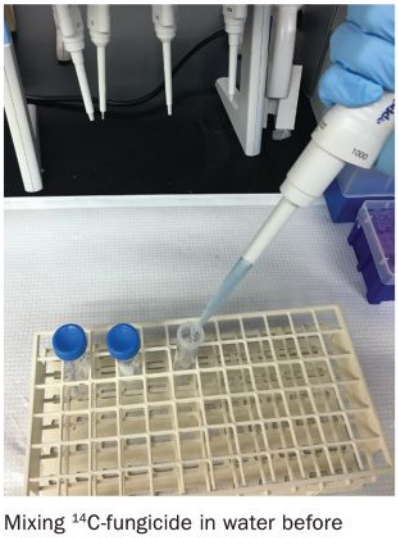
Moving fungicides down in soil

By Wendell Hutchens, Travis Gannon, Ph.D., Dave Shew, Ph.D., Khalied Ahmed and Jim Kerns, Ph.D.

Crown- and root-infecting pathogens cause many of the most devastating disease outbreaks in all species of turfgrass. Diseases caused by them include *Pythium* root rot (*Pythium* spp.), take-all root rot (*Gaeumannomyces* spp.) and spring dead spot (*Ophiosphaerella* spp.).

Many of the more problematic plant parasitic nematode species belong to this group of pathogens as well. Damage caused by crown- and root-infecting pathogens can be economically and aesthetically detrimental to golf courses, athletic fields, sod farms and home lawns. Therefore, effectively managing these pathogens preventively or therapeutically through cultural and chemical practices is paramount to maintaining healthy turfgrass.

Fungicides are the most common means of crown- and root-disease suppression. However, many effective fungicides are costly, so optimizing the efficacy of the product is economically advantageous as well as beneficial to turfgrass health.



Mixing ^{14}C-fungicide in water before applying to soil.

TABLE 1

Soil surfactants used in fungicide movement studies

Soil Surfactant	Active Ingredient	Manufacturer
Aquifer	propoxylated polyethylene glycols	Aqua-Aid [Rocky Mount, N.C.]
Fleet	polyoxyalkylene polymers	Harrell's [Lakeland, Fla.]
Revolution	modified alkylated polyol	Aquatrols [Paulsboro, N.J.]

A majority of the fungicides superintendents use in turfgrass management are contacts, localized penetrants or acropetal penetrants. None of these topical modes of action have the capability to move down through the phloem to the basal portions of the plant. Therefore, application methods that aid downward movement of fungicides have the capability to increase efficacy against crown- and root-infecting pathogens.

Post-application irrigation has been shown to increase downward movement of fungicides and efficacy against summer patch. Research has determined that applying fungicides at a higher carrier volume increases deposition and coverage of basal portions of the turfgrass plant, thereby increasing efficacy against large patch (*Rhizoctonia solani*). Moreover, soil surfactants could offer the potential for increased distribution of fungicides in the soil. The purpose of our studies was to examine the effect of three commonly applied soil surfactants (Table 1) on myclobutanil distribution in bare soil, as well as the influence of the soil surfactant Revolution (Aquatrols, Paulsboro, N.J.) on movement of azoxystrobin and propiconazole in bare soil.

TWO LAB STUDIES

We conducted two laboratory studies in Raleigh, N.C., in 2018 to determine the influence of soil surfactants on fungicide distribution. All fungicides tested in each study were tagged with a ^{14}C-isotope to track the movement of the fungicide through the soil column. For each study, we applied ^{14}C-fungicides and soil surfactants with a pipette to a bare 90-percent sand/10-percent peat moss by volume United States Golf Association putting green soil mix contained within a lysimeter (2.5 inches by 8 inches). We then irrigated the soil with a pipette immediately after application with ¼ inch of water.

In the first study, three treatments included a positive control and negative control. The treatments were as follows: ^{14}C-myclobutanil plus Aquifer, ^{14}C-myclobutanil plus Fleet, ^{14}C-myclobutanil plus Revolution, ^{14}C-myclobutanil alone (positive control) and no ^{14}C-myclobutanil or soil surfactant (negative control). We applied soil surfactants four weeks

PHOTO BY: WENDELL HUTCHENS

before ^{14}C-myclobutanil treatment, two weeks before ^{14}C-myclobutanil treatment and at ^{14}C-myclobutanil treatment. We sampled columns 14 days after ^{14}C-myclobutanil treatment (Photo 2), and the data are presented in Figure 1.

The second study followed the same methods as the first, except we treated lysimeters with ^{14}C-azoxystrobin or ^{14}C-propiconazole and only used the soil surfactant Revolution. Moreover, we applied Revolution six, four and two weeks prior to ^{14}C-fungicide application as well as at ^{14}C-fungicide application. The data for this study are presented in Figures 2 and 3.

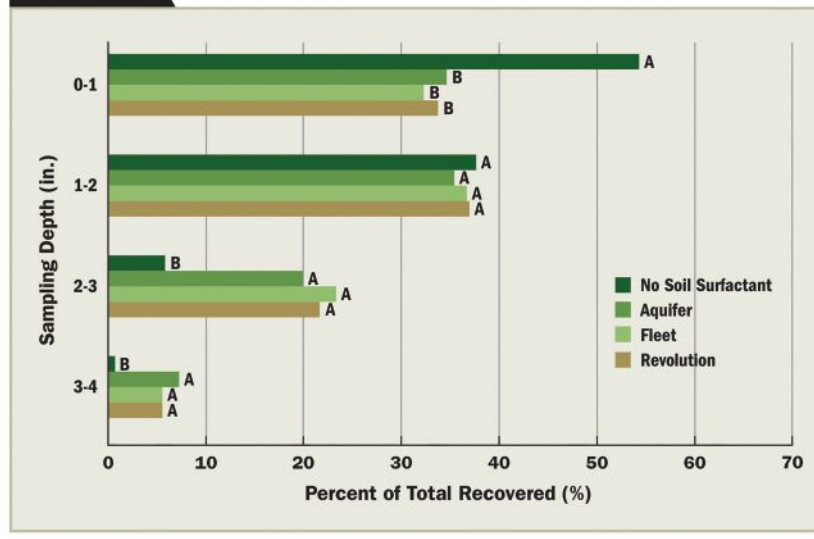
RESULTS

^{14}C-myclobutanil plus soil surfactants study

For this study, recoveries of ^{14}C-myclobutanil per lysimeter ranged from 74 percent to 116 percent of the original applied amount. Data were analyzed as percent of ^{14}C-myclobutanil of the total amount recovered.

At least 32 percent of the recovered ^{14}C-myclobutanil remained in the top inch of soil for every treatment (Figure 1), highlighting the limited mobility of ^{14}C-myclobutanil. However, soil not treated with one of the three soil surfactants retained at least 19.4 percent units more ^{14}C-myclobutanil in the top inch of soil than soil treated with a soil surfactant, suggesting that soil surfactants increased the downward movement of ^{14}C-myclobutanil. Recovery of ^{14}C-myclobutanil at the 1-inch to 2-inch sampling depth was similar among all treatments, yet at the 2-inch to 3-inch sampling depth, recovery increased by more than 14 percent of units when soil was treated with one of the three soil surfactants compared with nontreated soil. At the 3-inch to 4-inch sampling depth, ^{14}C-myclobutanil recovery increased by at least 4.9 percent units for soil that was treated with surfactants compared to nontreated soil. We recovered no ^{14}C-myclobutanil below 4 inches for any treatment. Moreover, ^{14}C-myclobutanil recoveries were the same among the three soil surfactants tested at every sampling depth.

FIGURE 1



Effect of soil surfactants on ^{14}C-myclobutanil movement in a bare 90-percent/10-percent sand/peat moss (v/v) soil. Bars represent mean percent recovery from three replications. Bars with the same letters within each sampling depth are not significantly different, according to Fisher's LSD t-test ($P < 0.05$).

^{14}C-azoxystrobin and ^{14}C-propiconazole plus Revolution study

Recoveries ranged from 73 percent to 88 percent of the total applied for ^{14}C-azoxystrobin, and 73 percent to 96 percent of the total applied for ^{14}C-propiconazole (Figure 2 and Figure 3). Similar to the ^{14}C-myclobutanil experiment, data were analyzed as the percent of ^{14}C-fungicide of the total recovered.

In the ^{14}C-azoxystrobin study, Revolution had no effect on fungicide movement in the top 2 inches of soil. However, from the 2-inch to 4-inch depths, there was more ^{14}C-azoxystrobin recovered in the soil treated with Revolution compared with the nontreated soil. There was no ^{14}C-azoxystrobin recovered below 4 inches in the soil. Similar trends to the ^{14}C-azoxystrobin study existed in the ^{14}C-propiconazole study, with more ^{14}C-propiconazole recovered from 2 to 4 inches when treated with Revolution compared with the nontreated soil. As with the ^{14}C-azoxystrobin, we recovered no ^{14}C-propiconazole below 4 inches in the soil.

Sectioning soil into 1-inch increments to recover applied ^{14}C-fungicide.

PHOTO BY: P. MAXWELL

Continued on page 46

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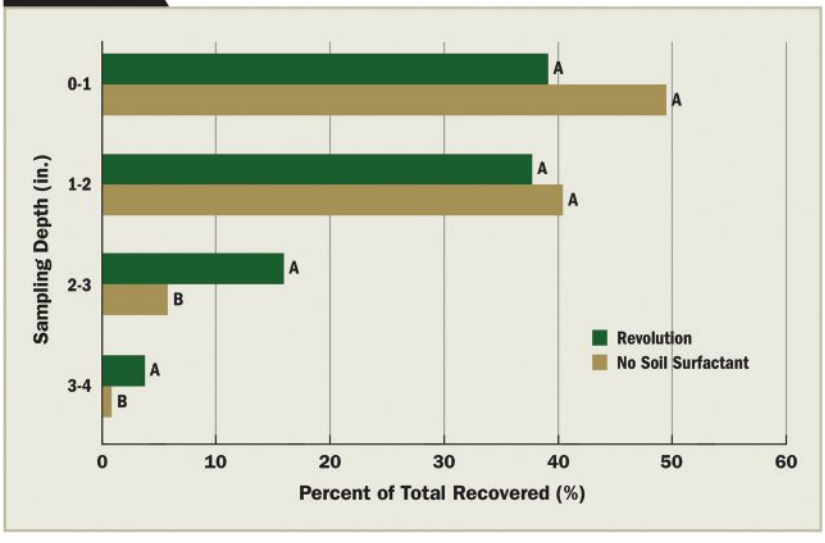
INCREASED DOWNWARD MOVEMENT

Our data from these studies indicate that soil surfactants increase the downward movement of fungicides in soil. Previous research has found results similar to our study with the nematicide abamectin (Avid, Syngenta Crop Protection). Furthermore, a programmatic approach to soil surfactant applications could be more beneficial than only applying soil surfactants at or a few days before fungicide application. It's been shown that one Revolution application a day before fungicide treatment did not increase downward movement of the fungicide. In our study, we applied soil surfactants three to four times prior to treatment and saw increased downward movement of the tested fungicides.

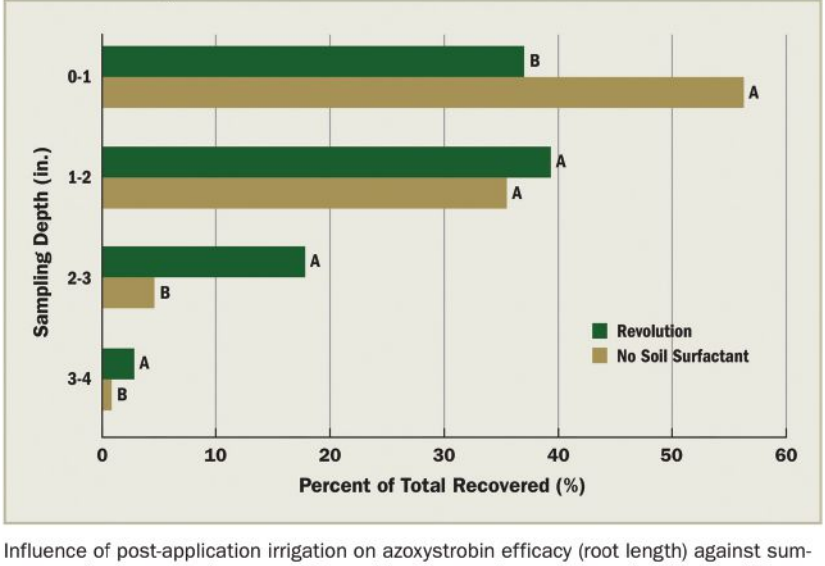
Implementation of strategies to increase downward distribution of fungicides could be beneficial for turfgrass managers facing crown and root diseases. Our recommendation for turfgrass managers applying fungicides for crown and root diseases is to apply with a water carrier volume of 2-4 gal/1,000 ft², irrigate with 1/8-1/4 inch of water immediately after fungicide application and programmatically spray wetting agents before and at fungicide application.

FIGURE 2



Influence of post-application irrigation on azoxystrobin efficacy (average turf quality) against summer patch of creeping bentgrass. Bars with the same letter are not significantly different, according to Fisher's LSD *t*-test ($P < 0.05$).

FIGURE 3



Influence of post-application irrigation on azoxystrobin efficacy (root length) against summer patch of creeping bentgrass. Bars with the same letter are not significantly different, according to Fisher's LSD *t*-test ($P < 0.05$).

Wendell Hutchens conducted the research discussed in this article while earning his MS degree at North Carolina State University and is now a Ph.D. candidate at Virginia Tech University. Travis Gannon, Ph.D., Dave Shew, Ph.D., Khalied Ahmed and Jim Kerns, Ph.D., are at North Carolina State University. You may reach Wendell at wendelljh@vt.edu for more information.

Acknowledgements

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//THE FISH ARE JUMPING

Thanks, and farewell

It has been my good fortune to spend my entire work life in the golf world. Since this is my final regularly scheduled column before I ease into retirement, I would like to take this opportunity to say thanks to a few of the many people who helped me have an enjoyable career.

My first job in the golf world was in 1974, working on the golf course maintenance staff at Hilands Golf Club in Billings, Mont. Thanks to Don Tolson for hiring me and giving me an opportunity — and more importantly — encouraging me to pursue a career in turfgrass management. Don always was extremely supportive of me and my career.

I met Joe Stribley while at Hilands, and we have been friends ever since. Joe spent most of his career as the superintendent at Yellowstone Country Club in Billings. Joe and I retired on the same day, Dec. 31, 2019. We celebrated with a couple of beers and a phone call to Don Tolson to thank him for getting us started in the golf world.

The single best decision I made in my life was to attend graduate school at Penn State University. That experience opened my eyes to an entire world that I had no idea even existed. Joe Duich, Ph.D., provided me with a wonderful opportunity to earn my MS degree, taught me so much and always was in my corner throughout my career. Don Waddington, Ph.D., and Tom Watschke, Ph.D., were great mentors to me as well.

I earned my Ph.D. at Kansas State University working with Bob Carrow, Ph.D. It was my good fortune to work with Bob, as he was an outstanding scientist and an even better person.

My academic career began at Purdue University, where I taught and conducted research for 15 years. So many people helped me have a successful experience at Purdue that I could fill my entire column recognizing them individually. A few who stand out are Don Scott, Ph.D., Tim Gibb, Ph.D., Rick Latin, Ph.D., Ron Turco, Ph.D., and Zac Reicher, Ph.D. The golf course industry in Indiana was so incredibly supportive of me and the turf program at Purdue. I thank them for their generous gifts of time, expertise and funding.

> **"... I would like to take this opportunity to say thanks to a few of the many people who helped me have an enjoyable career."**

After Purdue, I spent nearly 10 years at GCSAA, where I worked with a fantastic group of people, including Steve Mona. Working with Steve was one of the best work experiences of my life. Steve is as fine a person as I have known in my life, both personally and professionally.

The last 10 years of my career I have worked for myself. I am grateful to Dave Heegard and Kathy Bishop at LebanonTurf for providing me the opportunity to work in the private sector. It has been a great learning experience to see a different aspect of the golf world.

It has been a joy to work with Seth Jones and everyone at *Golfdom*. More importantly, Seth gave me free rein on the research section of the magazine and provided me with an opportunity to express myself in this column. Seth's confidence in me has been greatly appreciated.

There is one final thought I would like to share with you. The quality of turf and the condition of golf courses have improved dramatically since I started working on a golf course in 1974. No doubt about it. But for recreational golfers, is the game of golf any more fun today than it was in 1974? To my mind, it is not. For all the money spent on golf course maintenance, we have not added to the fun and enjoyment of golf.

Thanks to all who have made my career in the golf world so rewarding and enjoyable. And now, I have fish to catch.

Clark Throssell, Ph.D., loves to talk turf. Contact him at clarkthrossell@bresnan.net.

Spring dead spot is evident as turf greens up, but fungicide applications need to be made in the fall once the soil temperature falls below 70 degrees F.

Spring dead spot:
A disease that keeps on giving

Spring dead spot (SDS) is a predictable disease because once established, it tends to show up in the same area every year, especially in the Transition Zone, where bermudagrass and zoysiagrass are common. The fungus, *Ophiosphaerella spp.,* weakens the plant in the fall, and the turf can't survive the winter due to cold injury.

"Since SDS is connected with cold injury, you'll see it more severe on north-facing slopes and in shady areas," says Lee Butler, director of the Turf Diagnostics Lab at North Carolina State University.

It's a good idea to document areas of SDS because symptoms start to appear at green-up, primarily because "that coming fall, when you make your fungicide applications, you know where to zero in on if you want to save money by not having to treat everything," Butler says.

While it's fairly easy to diagnose, there are three different species of fungi that cause SDS, and each species responds differently to cultural and chemical controls.

Butler said he and his research team found calcium nitrate is effective at controlling *O. korrae,* the most common species in the Mid-Atlantic, and ammonium sulfate is effective at controlling *O. herpotricha,* which is more common in the Midwest. It's also a good idea to send in samples for species identification to incorporate that into your overall management plan.

Succinate dehydrogenase inhibitor (SDHI) and demethylation inhibitor (DMI) fungicides are most effective, but those applications must be made in the fall once soil temperatures reach 70 degrees F and watered in immediately with an 1/8-inch to 1/4-inch depth to be effective.

"Once symptoms appear in the spring, there is not much you can do from a fungicide standpoint. So, it's all about recovery," Butler says. "We tell turfgrass managers to treat it like a grow-in, not necessarily to give it more fertilizer or more water. Just do it more frequently to encourage growth back into the dead patches."

You want the turf outside the spring dead spot areas to grow back in the middle. Butler says superintendents should avoid dinitroaniline herbicides commonly used for preemergent weed control in areas with known SDS, as those root-pruning herbicides will inhibit the bermudagrass or zoysiagrass from spreading into the patches.

PHOTO BY: LEE BUTLER

Quali-Pro

IAN RODRIGUEZ
Technical services manager

Spring dead spot (SDS) primarily affects bermudagrass that goes completely dormant and that's been established for three years or more. It can occur on some zoysiagrasses. It's most likely to occur in fairways, tees and greens. Symptoms of SDS become apparent as circular spots up to 3 feet in diameter that fail to green up. Recovery depends on regrowth from the outer edges, which can be slow. This disease is difficult to manage because it requires preventive fungicide application in the fall when symptoms are not present, and good control can take two years or more. Superintendents should note where symptoms appear in the spring for a directed approach in later months. Sound cultural decisions such as avoiding heavy fall nitrogen are helpful.

Prime Source

BRET CORBETT
Director of technical services

Ophiosphaerella korrae and *O. herpotricha* are the two most common pathogens causing spring dead spot in North America. These fungi are active during fall and spring when soil temperatures are cooler. Spring dead spot primarily affects bermudagrass and zoysiagrass, and symptoms appear at spring green-up as necrotic, circular patches ranging from 6 inches to several feet in diameter. Patches commonly recur in the same area and can increase in size from year to year. Superintendents use many fungicides for spring dead spot suppression. To be effective, applications need to be made when soil temperatures are between 55 degrees F to 80 degrees F and irrigated in. SDHI and DMI fungicides are efficacious, but results vary depending on which *Ophiosphaerella* species is present.

PBI Gordon Corp.

BRIAN AYNARDI, PH.D.
Northeast research scientist

Spring dead spot is a disease caused by three species of fungi from the fungal genera *Ophiosphaerella* and occurs predominately on bermudagrass. The signs of these ectotrophic root-infecting fungi may be visualized with a hand lens or microscope by viewing the dark pigmented hyphae along the roots, rhizomes and stolons. SDS occurs on greens, tees, fairways and rough. The symptoms are dead circular areas up to several feet in diameter. Only preventive fungicide applications initiated in the fall provide control. Sequential applications of isofetamid fungicide at 1.6 fluid ounces of product per 1,000 square feet provide the best available control. There is no curative remedy for spring dead spot other than to promote growth of healthy turf over the dead areas.

Syngenta

LANE TREDWAY
Technical services manager

If you're growing bermudagrass in the Transition Zone, you're probably going to get spring dead spot. The pathogen seems to be widely dispersed throughout the region. For reasons we don't understand, the disease becomes more severe in some locations than in others. Assume the pathogen is present, and employ sound cultural practices. Preventive fungicide applications in the fall when soil temperatures are below 70 degrees F can provide effective control. We recommend two applications on a 21- to 28-day interval. Sprays should be watered in immediately with 1/8 to 1/4 inch of irrigation to move the active ingredient into the soil and root zone. Spring fungicide applications after symptoms have already appeared are not as effective as fall applications but may help speed recovery in some cases.

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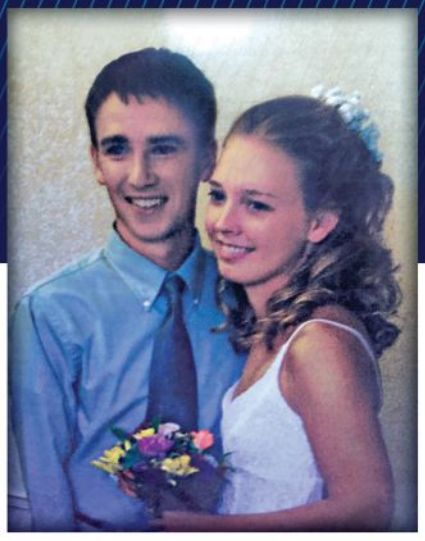

Matt Cavanaugh

ASSISTANT SUPERINTENDENT // Rush Creek GC, Maple Grove, Minn.

Matt, what can I get you?
A Dr. Pepper.

Tell me about your family. My wife of 18 years is Lisa. We have two boys, Declan — he turns 8 today — and Soren, who is 6. The boys are monsters (laughs) ... Soren and I are oil and water; we're both so stubborn.

You showed me your wedding photo ... did you and Lisa elope in high school? (Laughs) No, we were high school sweethearts, though. She's the only girl I've ever kissed. I proposed between my junior and senior year at Kansas State. That next year, I graduated in May ... I had a full-time job in June ... we bought a house in June ... we got married in July. 2002 was a big year.

What do I need to know about Rush Creek? It's a high-end public facility. If you've got the green, come play. It's on the outskirts of Minneapolis, not many houses, but that will change as people move in. Amazingly, people rarely leave here. I'm one of the shortest-tenured people here, and I've put in 17 years. The owner is amazing, and that's reflected in the staff ... I've never been at a place where the clubhouse staff and the maintenance staff get along so well.

You worked in academia, you worked for a chemical company and now you're a superintendent. What's one commonality across all segments? Every industry works hard. From the superintendent standpoint, we all say, "Ahh, they got it easy." Each part of the industry has its unique challenges. In the end, for me? I came back to this side because it was the easiest! And I have no problem with you putting that in print because I worked in all three, and I got that perspective.

We had a speaker call in sick for the *Golfdom* Summit, and you filled in last minute. Do you always travel around with a Power Point presentation ready? I have a few subjects I know pretty well from my time in academics and working for PBI-Gordon. I do enjoy public speaking, and I always have a presentation in the can. Someone asked me to do a new one that I'm working on now — how to make work fun.

What's your favorite tool in the shop? A shovel. We dig holes in the ground and grow grass for a living. It's the only tool I keep in my cart 100 percent of the time.

Fill in the blank: My favorite thing about winter in Minnesota is _____?
It lets me be lazy! There's not a lot of grass growing in Minnesota in the winter. I don't know how the southern guys do it.

//BEST ADVICE

"WHEN I WAS CONSIDERING GOING BACK TO SCHOOL, ERIC WATKINS, PH.D., TOLD ME, 'MATT, I DON'T KNOW WHAT DOORS MORE EDUCATION WILL OPEN ... I JUST KNOW IT WILL OPEN SOME DOORS.' AND IT HAS."

As interviewed by Seth Jones, Jan. 21, 2020.

PHOTO OF MATT & HIS BRIDE COURTESY OF MATT CAVANAUGH; PHOTO OF MATT CAVANAUGH: LOU FERRARO, PARK SOUTH PHOTOGRAPHY; GETTY IMAGES: ZARGONDESIGN / E+ (PODIUM), APCORTIZASJR / ISTOCK-GETTY IMAGES PLUS (SHOVEL)

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– Zachary Reineking
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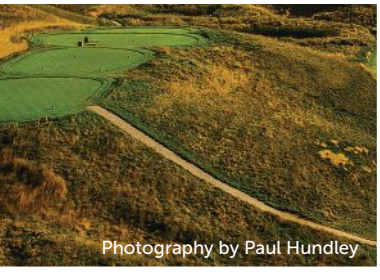

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