

Golfdom

01.19

The grass is greener in 2019

Five industry experts tell us why they're bullish on golf in 2019 — and why you should be, too

No. 15 on the North Course at Torrey Pines Golf Course, La Jolla, Calif., one of the host courses of the 2019 GCSAA Golf Championships





The Experts Put Fairway

“Research confirms that fairway rolling results in firmer surfaces significantly decreased **clipping yield, localized dry spot**”

RESEARCH AT MICHIGAN STATE UNIVERSITY

Results from a 2-year fairway rolling study using a Smithco Ultra 15 Fairway Roller with filled 150-gallon water-ballast tank.

- Fairway rolling decreased clippings yield on research fairways mowed 2x/week compared with fairways mowed 3x/week and not rolled.
- Fairway rolling also increased volumetric moisture content which significantly reduced localized dry spot.
- Results indicate fairway rolling is agronomically sound and fiscally responsible and can lead to reduced inputs and economic savings on fairways.
- Additionally, surface firmness was increased on rolled fairways which indicates longer ball roll will result and most likely increased divot fill-in on stoloniferous fairways.

RESEARCH AT UNIVERSITY OF MASSACHUSETTS

“**Third year of testing indicates up to 65% reduction in dollar spot.**”

–Geunhwa Jung and Jay Popko; University of Massachusetts

- 8 out of 9 rolling studies reduced dollar spot.
- Increased rolling frequency increased dollar spot control.
- Threshold-based programs can reduce dollar spot apps with rolling (2-3 apps vs 5 apps).
- Rolling = better spring green-up/turf quality
- Does not provide complete control, but can extend fungicide-control intervals at golf courses with difficult-to-control dollar spot.

Rolling to the Test.



which should lead to **longer ball roll**. Most important it **and dollar spot** which should lead to **economic savings.**”

–Thomas A. Nikolai, Ph.D., College of Agriculture, Michigan State University



5 gang Smithco Ultra 15 Fairway Roller with balanced hydraulic system keeps ground pressure even over its 15' swath. At 10 mph, the Ultra 15 will roll 18 acres an hour. The 3 gang Ultra 10 Fairway Roller has a 10' swath to provide 12 acres an hour of productivity at 10 mph. Both come with money-saving tow-behind design.

Research Brings Out the Best! ***Smithco.com***

Readers and pundits agree — the popularity of golf in its various forms means the grass is looking greener for the industry in 2019

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“... without her knowledge I contacted her father, Paul Richter, a longtime superintendent, to help me out with her welcome to *Golfdom*.”

SETH JONES, Editor-in-Chief & Associate Publisher

Welcome home, pigtailed toddler

This is a special month for my team here at North Coast Media (NCM). As you may have seen in our “Starter” section this month and a few months ago, some changes have occurred internally at NCM. I was promoted and handed the keys to an additional publication (*Landscape Management* — check it out at landscapemanagement.net), so I now drive the bus editorially on two fine publications at NCM. With that change, we shook up the editorial teams on both books, giving me an all-star cast of energetic, talented young editors who are going to help me keep both magazines in line and on time.

This really doesn't affect you, the reader, very much. But internally, it's a big deal to me and my team, and we're excited to get started and publish 24 magazines this year that are useful to our audience.

One of our new editors (see page 8 for the formal introduction) is Managing Editor Clara Richter. I hope she'll forgive me, but without her knowledge I contacted her father, Paul Richter, a longtime superintendent, to help me out with her welcome to *Golfdom*. The following is what Paul sent me.

Clara,

*Thought I would write and let you know how excited and proud of you I am as you join the editorial staff of *Golfdom* magazine and rejoin the golf turf industry.*

'Rejoin,' you ask? Yes, rejoin, because the golf turf industry is the world you were raised in. I never would have imagined when you were 3 years old and pushing the buttons on the irrigation controllers at Spring Lake Country Club, or as you would accompany me on my early morning rounds changing cups after getting you out of bed well before dawn and first stopping by Wesco for a jelly

filled donut, that someday you would be a part of the golf turf industry.

*For after high school, it was off to John Carroll University to major in English and then to Winona State for a master's in English, a long way in the realms of academia from turf-grass management. Then you began your career with North Coast Media as part of LP Gas magazine. I knew *Golfdom* was in the North Coast Media stable of publications, and I thought of the remote chance you would end up back in the golf turf industry by being a part of *Golfdom*.*

*Well, it happened. Your previous experience will assist you in this next step in your career. From those 18-hole early morning tours perched in the seat of the Club Car Carry All, you received your first glimpses into my world as a golf course superintendent. These observations afforded you by being raised in the family of a golf course superintendent cause you to have a level of appreciation and insight for the players in the golf course management industry. Being the daughter of a superintendent will be an icebreaker ... “My dad was a golf course superintendent,” and from that statement conversations will flow. The turf industry is small and close-knit, so there is even an outside chance they may know me, or of me. Through that connection they will know you have an understanding of their occupation and the dedication, hard work, imagination and skill required to maintain true greens and firm fairways. And, on the editorial staff of *Golfdom*, you will be able to provide ideas, information and accolades to the under-the-radar rock stars who maintain Poa, bent, bermuda and bluegrass on golf links in locales from Augusta to Anchorage.*

*I never would have envisioned as I drove that pigtailed toddler around on the Club Car so many dawns ago that career-wise, this is where you would land. It is with great pride and excitement that I have the privilege of saying this is not really a welcome to *Golfdom*, but a welcome home. 🍪*

Email Jones at:
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Starter

NEWS, NOTES AND QUOTES



// REORGANIZATION

Despite the changes in the company, Textron will continue to offer select products.



TEXTRON QUELLS RUMORS WITH STATEMENT

BY SETH JONES // Editor-in-Chief

➔ In late 2018, rumors began to swirl online that Textron, a \$14-billion multi-industry company with brands such as Cessna Aircraft, Bell and Beechcraft, as well as golf companies Jacobsen, Cushman and E-Z-Go, was shutting down parts of its golf business. The chatter caused Textron to release an official statement to put the rumors to rest. It read:

Our Textron Golf portfolio has grown significantly in recent years with the addition of Jacobsen and Textron Fleet Management to our business. As we have completed the integration of those brands and product lines into our company, we have implemented newly improved processes related to the daily operations of those businesses and serving our customers. As a result, we are reorganizing our Golf & Turf business in North America to eliminate internal redundancies and

streamline our operations.

These changes will have no effect on availability of our products or our ability to service our customers. We continue to offer E-Z-GO golf cars, Jacobsen turf equipment, Cushman utility vehicles and Textron Fleet Management systems, and to invest in the development of exciting new products and product improvements across all of our brands. And we will support all of our brands and products through our nationwide network of factory-direct sales operations and trusted distributors.

Textron informed the Security and Exchange Commission last month that it would be laying off 400 employees in its Specialized Vehicles division as a result of disappointing sales within their Arctic Cat and Textron Off Road brands. Textron's Q4 results will be released this month.

// FOUR TO LEADERSHIP

BAYER NAMES NEW T&O ROLES

The Turf and Ornamental business of Bayer, the company's Crop Science division, appointed four to leadership positions.

- Kayla Brugman, plant health and disease management portfolio manager;
- Mike Hirvela, customer marketing manager, golf and sports turf segment;
- John Wendorf, customer marketing manager, lawn care and ornamentals segments; and
- Peter Farno, ornamentals sales manager.

"In these new roles, our dedicated team will focus even more closely on customer needs as critical guideposts for innovation and new strategic solutions to support our customers," said Glenn Rougier, head of marketing for Bayer Turf & Ornamentals.

// READY FOR 2019

GOLFDOM ADDS TO STAFF

North Coast Media (NCM) has added to the staff of *Golfdom*, following the recent promotion of *Golfdom* Editor-in-Chief



Clara Richter

Seth Jones to EIC of both *Golfdom* and sister publication *Landscape Management (LM)*, as well as the promotion of Managing Editor Abby Hart to senior editor of both publications.

The team at *Golfdom* welcomes Clara Richter as managing editor and Sarah Webb as associate editor. Richter has a bachelor's degree in English from John Carroll University and a Master of Arts in English from Winona State University. She previously was the managing editor of *LP Gas* magazine, another NCM publication. Webb holds a bachelor's degree from Wittenberg University, where she studied journalism and Spanish. Webb previously was the associate editor of *LM* and will now serve double duty as associate editor of both publications.



Sarah Webb



Syngenta hosted its 10th Business Institute in Winston-Salem, N.C., Dec. 3-6.

// HEADED TO SAN DIEGO

COORE & CRENSHAW HONORED BY GCBA

The architectural duo of Bill Coore and Ben Crenshaw will be honored with the Don A. Rossi Award, given annually by the Golf Course Builders Association of America (GCBA) in recognition of their significant contributions to the golf industry.

"Bill and Ben bring their own unique perspective and style to design, but together have resurrected the timeless design of golf course architecture," said Justin Apel, GCBA executive director. "Both have earned the respect of not only our membership but the golf construction industry, and as a team are most deserving of this award."

"As golf course architects, Bill and I know when we are chosen for a job it is critical to create a team to produce a course that will provide enjoyment to golfers for many years," Crenshaw says. "We value the work of the golf course builders and construction companies we have worked with over the years and we are humbled that the Golf Course Builders Association has chosen to honor us with the Rossi Award in 2019."

The Don A. Rossi Award will be given at the 2019 Golf Industry Show to be held in San Diego, Feb. 5 during the GCBA Opening Reception.

// LIVE FREE OR DIE

GOLFDOM HEADING TO GRANITE STATE IN '19

It might be a small state, but the New Hampshire GCSA chapter came in big for the fall 2018 *Golfdom* survey. As a 'thank you' for submitting the most surveys, the team at *Golfdom* will be road tripping to a NHGCSA event in 2019, and the first round is on us!

Though he recently got the power steering fixed on his '64 Impala, *Golfdom* EIC Seth Jones says the 1,500 miles from Kansas to New Hampshire is too much for old blue ... but thankfully, Southwest flies to the Granite State. We'll see you all in 2019!

// GOLFDOM WISDOM

Culture is about having a balance. If you're always here, that's a problem.

#golfdomwisdom

— Carlos Arraya, CGCS

// A DECADE OF LEARNING

Syngenta celebrates its 10th Business Institute

➔ This year marked the 10th anniversary of the Syngenta Business Institute (SBI), held each year in Winston-Salem, N.C. *Golfdom* had the opportunity to attend and experience a little bit of what the superintendents take in over the course of the three-day event.

SBI offers superintendents a series of business classes taught by professors from nearby Wake Forest University's Masters of Business Administration program. When asked

why they took the time to come to the event, supers unanimously responded that they can't get this kind of training anywhere else.

Justin VanLanduit of Briarwood

Country Club in Deerfield, Ill., decided to attend SBI because he had heard great things about the event from past attendees. He felt attending was a necessary part of his professional development.

"The material covered through the three days were items we never really touch on in school ..."

"The material covered through the three days were items we never really touch on in school for a turf degree, so allowing us the ability to learn this information was a pleasure," he said. "I highly recommend this event

to any superintendent in the future as not only is the education top-notch, but it is a great opportunity to network and meet other people with the same passion."

Stressgard: In a league of its own

Stressgard combats golf courses' abiotic and biotic stresses immediately and in the long term.

BY CHRIS LEWIS

Simply put, there is no counterpart to Stressgard — a proprietary, stress-mitigating technology unlike anything else on the market.

Stressgard's unique properties have helped thousands of superintendents across the United States significantly reduce abiotic stress and improve turf health for more than 20 years.

But contrary to some superintendents' beliefs, Stressgard is not an active ingredient. It is a proven technology that is available in a portfolio of fungicides. It can improve the quality of turf — inside and outside — on a short- and long-term basis.

"On the inside, it helps turf sustain chlorophyll stability. By maintaining photosynthesis, turf can better withstand and recover from stressful conditions," says Chenxi Zhang, Ph.D., product development manager at Bayer. "On the outside, it improves color and helps turf manage solar radiation under various conditions — during the peak of summer or under shade."

As a result, turf can continue to produce food despite tough conditions — leading to a decrease in root loss, enhanced root function and water utilization, delayed wilting and, ultimately, greener turf for a



Stands up under pressure. This photo shows the improvement in turf health and uniformity of a Stressgard program (right) versus a normal fungicide program (left). This shot was captured in mid-July during a significant drought period. Applications began in early May.

much longer time.

Furthermore, because it is formulated with a variety of fungicides, Stressgard can be easily incorporated into superintendents' current programs without interrupting or delaying them.

Versatility time after time

Paul Giordano, Ph.D., green solutions team specialist at Bayer, has conducted on-site trials of Stressgard with superintendents across the country.

"The best way to show superintendents the benefits of Stressgard is to bring it to them," Giordano says.

As director of course maintenance at The National Golf Club of Kansas City, which features two private 18-hole courses, The National and The Deuce, Spencer Roberts has seen the positives of Stressgard firsthand. Not only did he use it for several years at facilities in Arkansas and Nebraska, but he also has appreciated



Giordano

the technology's versatility whenever he and his staff members have applied it at The National Golf Club.

"At the start of the season, usually between late March and late April, we use Tartan Stressgard. Then we'll switch Tartan with Interface Stressgard

or Signature XTRA Stressgard throughout the summer," Roberts explains. "And then we'll finish the season with Mirage Stressgard, which we've also implemented with some of our roughs."

This versatility in rotation has led to higher quality turf year-round, as Roberts rotates his fungicides throughout the summer, he says. Typically, he does not use each



Roberts



Zhang



Tough in any weather. *The National Golf Club experienced a wide array of weather conditions in 2018: record cold in April, record heat in May, an extensive drought in the summer and snow cover throughout November. Nonetheless, the golf club's greens are still vital, due to Stressgard applications throughout the year.*

Stressgard product longer than two weeks at a time.

“Ninety-nine percent of the products are used on our greens,” he adds. “They remained healthy this year, even though we had an extreme drought for six weeks during the summer.”

Consistent, long-lasting results

In addition to offering superintendents versatility, Stressgard also delivers consistent results. Each time the technology is used, it rapidly improves turf color and vividness. It contains a proprietary pigment unique to Bayer that provides a positive visual effect once a Stressgard product is applied. A few days after the application, the visual appearance of the pigment dissipates, so superintendents will only notice positive changes due to Stressgard’s ability to improve the turf’s natural functions.

These fast-acting benefits are also long-lasting. The plant’s chlorophyll stability and photosynthetic activity are improved considerably, leading to a much higher quality in turf color, density and overall health long term,

regardless of weather conditions.

“Most fungicide products don’t result in a recognizable improvement in turf quality just after application,” Giordano says. “But Stressgard does, while also improving certain physiological functions in the turf longer term.”

Exceeding golfers’ expectations

A superintendent’s primary goal is to exceed golfer expectations at the course. And nothing satisfies a golfer more than a beautiful, first-rate golf course that is enjoyable and playable every day of the season.

To ensure courses’ color, quality and playability exceed customers’ expectations, Stressgard not only combats turf’s biotic (fungal) stresses, but its abiotic stresses as well, including:

- > drought or high wilting potential;
- > high temperatures;
- > excessive or reduced solar radiation;
- > foot traffic;

- > high humidity;
- > aggressive mowing or growth regulation;
- > spring growth and
- > winter recovery.

“By using Stressgard, superintendents will deliver satisfaction to their customers — the golfers — over and over again,” Zhang says.

Stressgard technology can be found in a wide variety of golf course management products from Bayer.

“Every superintendent in the United States can benefit from Stressgard,” Giordano says. “Since the technology can address a wide range of abiotic stresses, each superintendent should be able to find a product that addresses their specific need within the Stressgard portfolio.”

For more information about Stressgard, visit environmentalscience.bayer.us/Stressgard.



Stressgard®

Golfdom Gallery



1

1 One bad bowtie We spotted this Chevy Silverado — proudly representing Redexim Turf Products — at the Kansas City Airport parking lot. Is your company truck cooler than this? Send us a photo and prove it.



2

2 Reunion at Reunion It was a Quali-Pro reunion at Reunion Resort during our sister publication's event, the *Landscape Management Growth Summit*. Familiar faces (they were just in "Gallery" in November!) from left to right, are Paul Fox, Florida area manager; Jeremy Moore, national accounts manager, *Golfdom* Publisher Craig MacGregor; and Nick Strain, business manager. (This photo should now make you guys even with co-worker Paul Blodorn ... so the next QP staffer in Gallery wins!)



3

3 Some losers win big Congratulations to *Golfdom* Publisher Craig MacGregor (left) who won the 2018 North Coast Media weight loss challenge — and the cash — when he weighed in at the company holiday party 27 pounds lighter than he was in mid-September. Sorry, *Golfdom* Editor-in-Chief Seth Jones (right) — all losing 26 pounds did was make you the first loser.



4

4 From way downtown, bang! *Golfdom* Group Publisher Bill Roddy admires his approach shot from 90+ yards as it found its home in the bottom of the cup for a nifty eagle.



5

5 Two tough negotiators Do you think you have what it takes to negotiate the sale of a multi-million-dollar company? If these supers were paying attention during their negotiations class at the Syngenta Business Institute, they do. Kevin Sunderman (left), of Isla Del Sol Yacht and Country Club in St. Petersburg, Fla., and Jason Bradley (right), superintendent at Memphis Country Club in Memphis, Tenn., got some hands-on practice during a session led by William Davis, a professor at Wake Forest University's School of Business.

PHOTOS BY: SETH JONES (1,2); DAN HANNAN (3); CAM COPLEY (4); CLARA RICHTER (5)



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Spencer Roberts
*Golf Course Superintendent,
The National Golf Club of Kansas City*

Jack Roberts
Son



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ENVIRONMENTALLY RESPONSIBLE, ECONOMICALLY SOUND

Enhanced efficiency fertilizers help superintendents support industry BMPs while optimizing labor and other resources

As the world becomes increasingly urbanized, golf courses provide people with valuable opportunities to enjoy nature close to home. Even so, golf course owners and superintendents have long been scrutinized for their use of water, inputs and other resources to maintain pristine golfing conditions. However, golf's reputation is changing as courses take tremendous steps toward becoming more environmentally responsible.

The Golf Course Superintendents Association of America (GCSAA) has been working with affiliated state chapters to develop Best Management Practices (BMPs) — standard practices and procedures that provide for healthy turfgrass and quality playing surfaces while still protecting the environment. BMPs can be a feature or engineered structure on a golf course, such as a retention pond, stream channel or wetland. Or, they can be an agronomic or cultural practice that benefits turfgrass, like aeration, soil testing and soil moisture monitoring.

“Our goal is to help establish golf course BMPs for all 50 states by 2020,” says Rhett Evans, GCSAA CEO. “Through this platform, superintendents nationwide can demonstrate that they truly are responsible environmental stewards. That’s not just good for their courses and the environment, but also for the entire golf industry.”



The Ridge at Castle Pines golf course looks better than ever thanks to just three applications of UMAXX per year.

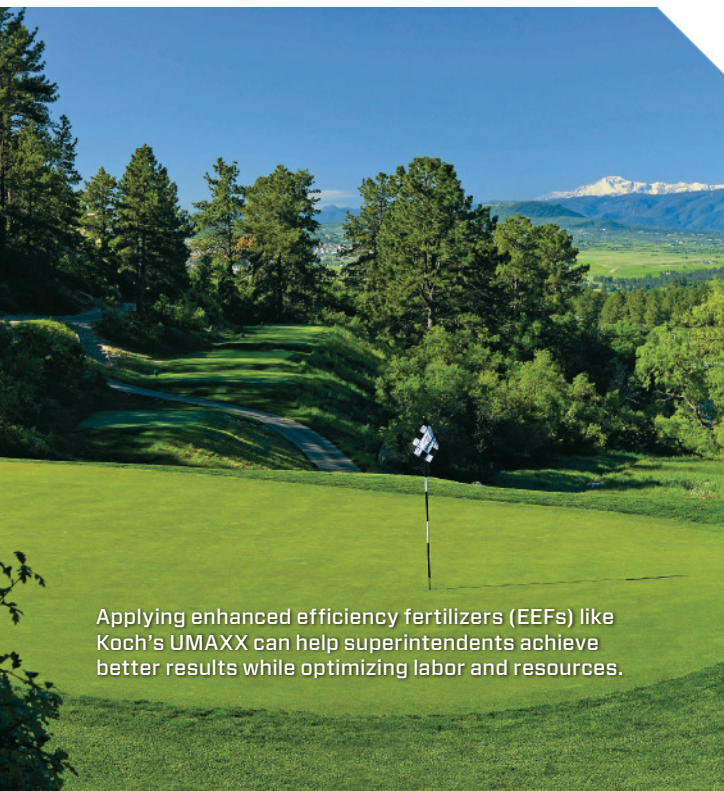
This ambitious BMP program can't happen without financial support from industry partners. In April 2018, Koch Turf & Ornamental (Koch) donated \$20,000 to the Environmental Institute for Golf (EIFG), the philanthropic organization of the GCSAA, specifically to support BMP initiatives.

“GCSAA is providing the golf industry with broad-based information and tools that promote sustainability and encourage continuous improvement,” says Marshall Bird, Koch's vice president. “We're proud to support the BMP program, which aligns with our vision of providing solutions that maximize plant performance and minimize environmental impact.”

GREATER EFFICIENCY, LESS ENVIRONMENTAL IMPACT POTENTIAL

As a global leader in the production of enhanced efficiency fertilizers (EEFs), Koch's support of BMP development isn't just financial. Their products deliver nutrients efficiently, making them environmentally responsible with low potential for nutrient loss through leaching, denitrification, runoff or volatilization. This fertilizer technology also provides an ideal solution in areas where fertilizer use is strictly regulated. Because EEFs possess characteristics that allow increased plant uptake, golf course turf gets the most from each fertilizer application.

“Enhanced efficiency fertilizers just make sense, from both an environmental and an economic perspective,” says Dr. Eric Miltner, Koch's research agronomist. “By applying a more efficient product, golf courses can achieve better results while



Applying enhanced efficiency fertilizers (EEFs) like Koch's UMAXX can help superintendents achieve better results while optimizing labor and resources.

optimizing labor and resources. And, because they're able to use fewer inputs to maintain health and playability, they're also demonstrating their commitment to a better, healthier environment. Switching to an enhanced efficiency fertilizer is a best management practice that's very easy to implement."

SUSTAINABILITY ON A BUDGET

As superintendents follow BMPs to make their courses more environmentally sustainable, they're personally discovering the value of Koch's enhanced efficiency fertilizers.

Chris Hedberg is the superintendent for The Ridge at Castle Pines, a Troon® course south of Denver that offers a high-end golfing experience. Unlike neighboring courses, the 212-acre, Audubon-certified sanctuary course is a public, daily-fee facility, and Hedberg and his team must operate within the constraints of a relatively small budget.

"We still want to provide the same conditions or better than the members-only courses around us," Hedberg says. "We try to do a lot with a little."

Hedberg and his staff emphasize environmental responsibility. They've decreased The Ridge's irrigated acres by turning seven acres into native grass. The remaining 80 acres are irrigated with reclaimed water. That same sustainable focus extends to the fertilizer that Hedberg's team applies throughout the course — Koch's UMAXX® stabilized nitrogen fertilizer. A urea-based product with a 46-0-0 analysis and dual inhibitor technology, UMAXX protects against all three forms of nitrogen loss.

"Over the past six years, it's given us the biggest bang for our buck," Hedberg says. "Its performance has even allowed us to reduce the number of fertilizer applications we make each season. We usually make three applications, maybe four depending on the weather. That's a huge timesaver, rather than having to go out once a month or every six weeks."

Perhaps even more importantly, The Ridge's turf looks better than ever. A few years ago, one of Troon's agronomists tested the course's soil and asked Hedberg what he was applying to the turf.

"I told them, 'Just UMAXX,'" he says. "Simply putting down the nitrogen we need when we need it has produced great results for us. We don't have to deplete our already limited budget by purchasing a lot of other products. UMAXX's sustainability and performance are great, and we're able to minimize the amount of fertilizer we apply."

Discover how UMAXX and other enhanced efficiency fertilizers from Koch Turf & Ornamental can help your course follow BMPs and limit its environmental impact. Contact your distributor or your nearest Koch sales representative today.

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Chris Hedberg Creates a High-End Course Experience with UMAXX® Stabilized Nitrogen Fertilizer

Chris Hedberg is superintendent of The Ridge at Castle Pines, just outside of Denver, CO. He has to get a lot done with a small crew while being as efficient as possible. For six years, Chris has used UMAXX to keep fairways and roughs green throughout his course's busy season — all with just three applications a year.

"Over the past six years, UMAXX has given us the biggest bang for our buck, and its performance has even allowed us to reduce the number of fertilizer applications we make each season."

"When three guys can spend a day applying UMAXX and you can get two to three months of performance out of it, that's a huge timesaver, rather than having to go out once a month or every six weeks."

Find out how else Chris uses UMAXX to improve the health and playability of his course at [KochTurf.com/GolfAdvantages](https://www.KochTurf.com/GolfAdvantages).

Expectations for

2019



The grass is still greener

BY SETH JONES

Readers and pundits agree — the popularity of golf in its various forms means the grass is looking greener for the industry in 2019

There are reasons to be down on the game of golf. Labor challenges, unusually wet or dry weather patterns, aging golfers, rising expenses — they can all keep a superintendent up at night.

And yet, expectations are high for 2019, with 72 percent of readers who took our fall 2018 survey reporting they are either very optimistic (20 percent) or optimistic (52 percent). Additionally, only 8 percent of respondents expect to see their maintenance budgets cut in 2019, while 39 percent expect an increase and 53 percent believe their budgets will remain flat.

Along with surveying our readers, we also reached out to several industry pundits to get their expert opinions on the upcoming year. Our conversations about 2019 included Golf Course Superintendents Association of America CEO Rhett Evans; National Golf Course Owners Association of America CEO Jay Karen; ClubCorp CEO David Pillsbury; Southeast Agronomist for Golf Maintenance Solutions (and former GCSAA President) David S. Downing II; and Aquatrols CEO Matt Foster.

All of those contacted were optimistic for 2019, and for various reasons.

ISTOCK.COM (MICHAELSVOBODA)

David S. Downing II

Golf Management Solutions Southeast Agronomist
Former GCSAA President (2008-2009)
David S. Downing II has had a diverse career in golf maintenance. From hosting 11 televised events to growing in — and opening — four courses on the same day,



David Downing

Downing has seen most everything in the golf business. He now works to share what he has learned as the Southeast Agronomist for Golf Maintenance Solutions, a company created by superintendents that advises clubs on agronomics, irrigation, construction, capital improvements and due diligence.

Based on what he has seen over the last couple seasons, Downing casts his vote in the “optimistic” category.

“We’ve been excited about all the renovation work that’s going on. It tells us that the cash situations are getting better,” Downing says.

A couple of downers Downing notes are that golf rounds are flat, and many courses are still struggling. But he believes the latter can be fixed when courses start operating more “precisely.”

“From my perspective, there are still a lot of poorly run businesses,” Downing says. “They’re not managing all their resources

as accurately or precisely as they could be, so they’re not getting the best buys. There’s a lot of, ‘This is what I’ve always done, this is what I’ve always used, and it works.’”

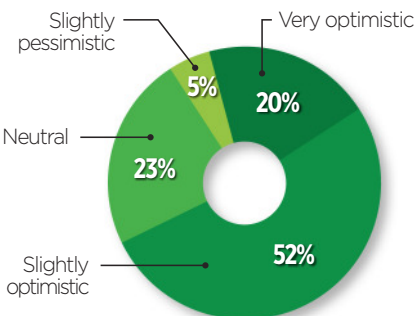
The cost of maintaining a golf course has “exploded” over the last 15 years, Downing says. As more courses do their homework and better analyze their

productivity, they’re seeing more success.

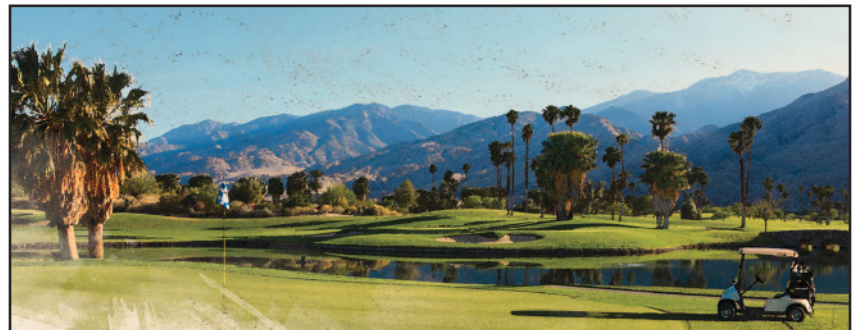
“There isn’t a lot of business help out there,” Downing says. “How can we balance productivity and get more production from a labor force that is becoming harder to find? It’s just a challenge, it comes down to people need to make better decisions.”

Continued on page 18

HOW WOULD YOU DESCRIBE YOUR EXPECTATIONS FOR THE GOLF ECONOMY IN 2019?



Note: “Very pessimistic,” for the first time, received zero votes.



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// EXPECTATIONS FOR 2019

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Rhett Evans, GCSAA CEO

In late 2018, the staff at GCSAA celebrated a milestone. That's just one reason why Rhett Evans, CEO of GCSAA, was feeling good about 2019.

"The indicator I look at is our membership numbers, and today we are over our goal of 18,000 members," Evans says. "Interest in the association is high. We're seeing a lot of interest in our equipment manager class, in our students. Seeing this activity bodes well for our future."



Rhett Evans

Evans anticipates 2019 to be a busy year for the team at GCSAA headquarters.

"I would check 'optimistic' (in the survey) and for a couple reasons ... through my lens, our key initiatives — the Environmental Institute for Golf, government affairs, professional development — we've got some great initiatives that will be at full-tilt in 2019."

Evans is bullish on the association's Best Management Practices (BMP) initiative, with its goal of having individual BMP manuals for all 50 states completed by 2020. The BMP manuals will provide the general public with a document describing how each state's golf courses are being proactive in properly using inputs to maintain conditions.

"We've got 20 states that are 'all systems go' for 2019," Evans says. "That's a major win for the industry, to have these documents in place. It leads us to being able to effectively lobby for golf."

Jay Karen, NCGOA CEO

Jay Karen, CEO of NCGOA, chose "optimistic" for the *Golfdom* survey. It's because he believes courses are pursuing new and different revenue streams to make their facilities profitable.

"More courses are stepping out on the limb and investing into new technologies," Karen says. "Maybe it's Toptracer out on the driving range, making the range more of a golf simulator and entertainment venue. Courses are building their business and making it better to make a profit. They're getting smarter."

Karen advises that all golf courses look beyond how many golfers play the course and instead consider the different ways a course can pull in customers.

"You have to diversify the business and update the customer experience," Karen says. "Try different areas as entertainment zones ... build bays on the driving range. We're observing the



Jay Karen

Continued on page 20

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Quali-Pro at GIS!

Continued from page 18

Topgolf phenomenon closely — it's the darling of the industry. But what can we learn (from Topgolf) at 14,000 golf courses? It's that we need to add fun and entertainment."

An advantage Topgolf has over the common golf course is that it's weatherproof, Karen says. When the weather gets bad, courses lose inventory, and there is nothing the facility can do about it.

Or can it?

"The golf course of the future will be indoor and outdoor, both under the sun and under the moon," Karen says. "The operators will get there, but this is just the tip of the spear. The question is *how* does the operator get there?"

David Pillsbury, ClubCorp CEO

ClubCorp owns and operates more than 200 private golf and country clubs. ClubCorp CEO David Pillsbury selects "very positive" as how he views the golf economy in 2019, with two caveats.

"One, the broader economic environment has been very good," he says, "but there's no telling what 2019 brings, and two, 2019 will be an El Niño year, and it's hard to say how that will influence golf in 2019. But I'm very optimistic about golf. There is no prob-

lem with the demand for golf. The challenge we have is converting people interested in the sport into actual golfers."

Pillsbury notes the PGA of America is making tremendous strides in connecting interested people with the game. He adds



David Pillsbury

that data he has seen tells him that half of all nongolfers who played Topgolf are interested in learning more about playing the game on a green-grass golf course. (The company announced in December that it had purchased the controlling interest in BigShot Golf, a golf simulator game similar to Topgolf.) While his core business re-

volves around golf and country clubs and city clubs, he finds himself spending more time watching how the technology around the game is influencing today's golfer and nongolfer.

Something Pillsbury says he thinks is improving in the game is resolving what he calls a "friction" problem.

"We need to remove that friction out of the experience for the people who want to dip their toe into the water," Pillsbury says. "It's like when you walk into a bar and everyone turns and looks at you and it suddenly gets quiet. What are you going to do? You're going to walk right back out. It's a visual demonstration of what happens too often (in golf.) You have to create a warm welcome, magical moments and a fond farewell."

Matthew Foster, Aquatrols CEO

"When you're in the water management business, you look forward to not having one of the wettest years ever in the east," laughs Matt Foster, CEO of Aquatrols. With the 2018 weather behind him, he's "optimistic" for 2019.

Every course can't be a top 10 course, Foster says, but every course can understand the wants of its local golf market.

"As a lifelong golfer, a former superintendent and a businessman, when I look at the dynamics of the golf industry — it's not that unique," Foster says. "No one wants to play golf again as much as the person who just shot their handicap, as opposed to the golfer who just got his teeth kicked in for five hours. The courses that understand the value proposition for a round of golf will have as much golf as they need. Demand creation won't come from acronym-based organizations or Tee it Forward, that's too simple. You have to rely on repeat play and excellent course conditions, and that one is where Aquatrols wants to be in the conversation."

Foster admits he's biased toward the game. He says he'll always bet on golf because of its importance to families and communities.

"(But) I think today's golfer cares for their time more than their dollar," Foster says. "If they have a good time, they'll be back." ©



Matthew Foster

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GIS 2019 Preview

Our preview of this year's show, plus the latest products
from top golf industry suppliers



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See it in San Diego

The world of golf comes together at the annual Golf Industry Show. Here's a sneak preview of some of the new tools that will be on display.

BY THE GOLFDOM STAFF

The average temperature in San Diego in early February is between 63 and 67 degrees. But beyond the great weather, the annual Golf Industry Show is the largest education conference in the world of golf maintenance. This year's GIS offers 89 fee-based seminars (38 of those seminars are new this year), 21 free sessions and new sessions for Spanish-speaking attendees. Likewise, the GIS trade show will feature more than 500 exhibitors showcasing the newest tools to overcome the many challenges of maintaining a golf course efficiently.

"If you want to make 2019 a great year, get to San Diego (for the GIS), it's a great city," says Rhett Evans, CEO of GCSAA. "It's a chance to refresh your network, refill your professional development and see the products that are new to get you energized for the rest of the year."

This year's GIS takes place Feb. 2-7 at the San Diego Convention Center. *Golfdom* will be there reporting on the event — follow along on Twitter and Facebook to keep up with the action.

In the meantime, here are some of the products and events that we're looking forward to seeing in San Diego.

Bayer Environmental Science

Booth #3736

Bayer Environmental Science will showcase a host of activities, including panel discussions with industry leaders, educational opportunities and chances to win

free innovations from the Bayer portfolio.

"The Bayer experience at GIS 2019 is designed to create an extraordinary experience for all involved," says Mike Hirvela, Customer Marketing, Bayer Golf & Sports Turf Segment. "Through engaging discussions, new research and live demonstrations, our hope is that each superintendent can take away a new perspective, strategic approach or opportunity to experience Stressgard innovations firsthand."

Bayer will reveal the latest research on the benefits of the Stressgard portfolio products in two ways: a live panel discussion with superintendents as well as an interactive poster session to allow for continued dialogue and more in-depth technical discussions.



Additionally, every qualified booth visitor will receive a key to try their luck at unlocking a box with premier solutions from the Bayer fungicide portfolio. Winners who successfully unlock the box can then choose between Signature XTRA Stressgard, Interface Stressgard or Exteris Stressgard fungicides.

John Deere Golf & Sports

Booth #3037

With a complete line of bunker rakes, greens mowers, aerators, utility vehicles

and more, John Deere has the game of golf covered from the tee to the green. At this year's GIS, the company again will have its E-Cut Hybrid and PrecisionCut fairway mowers on display, as well as an assortment of Gator utility vehicles and walking greens mowers. As for a sneak preview of what's new at this year's show, Deere offers the GPS PrecisionSprayer.

The GPS PrecisionSprayer for the John Deere ProGator line provides professionals with invaluable insight into their applications. Designed with customers in mind, operators can now increase productivity and reduce overlap by utilizing AutoTrac. Other standout features include individual nozzle control, automated documentation of spray events, simplified operator inputs that reduce operator fatigue, the ability to designate 'no spray zones' and a remote diagnostic capability to ensure quick resolution to questions.

Syngenta

Booth #3222

Syngenta will highlight new turf products, including the fungicides Posterity and Secure Action, and Manuscript, an herbicide.

Additionally, as part of the company's "Condition. Perform. Recover." platform, which focuses on turf health and superintendents' personal wellness, attendees can participate in the Health in Action 5K fun run and receive free wellness checkups at the Mobile Wellness Unit. Health counseling for medical concerns and informational brochures discussing health and wellness topics also will be provided



 **golf industry show**



At GIS 2019, John Deere will introduce the GPS PrecisionSprayer for the ProGator line. The sprayer features AutoTrac, designed to boost productivity and reduce overlap.

at no cost.

“We are excited for superintendents to learn about our latest innovations in disease, weed and insect control,” said Stephanie Schwenke, turf market manager at Syngenta. “We’re proud to provide educational activities like our in-booth trivia challenge and the Shop Talk sessions on the show floor.”

Textron Golf – E-Z-GO, Cushman, Textron Fleet Management
Booth #2139

Together, E-Z-Go, Cushman, Jacobsen and Textron Fleet Management comprise the brands of Textron Golf. Backed by the resources of Textron, a Fortune 500 company known worldwide for its numerous brands, including Cessna and Beechcraft, Textron Golf says it utilizes innovative technology to create a more efficient, reliable product.

Cushman’s new Hauler 800 ELiTE is the industry’s first lithium-powered utility vehicle for clubs and courses. Activated by Samsung SDI lithium technology, the Hauler 800 ELiTE offers a zero-maintenance battery with a five-year unlimited amp-hour battery warranty, consistent

power and increased energy efficiency.

Textron Fleet Management Shield Plus is designed for professional turf equipment and utility vehicles. The system utilizes real-time data and enables superintendents to monitor usage, mileage, hours and idle time, and leverage work efficiency reports to maximize a crew’s productivity and workloads. A web-based solution, accessible from any device, Shield Plus utilizes geofencing and restricted speed zones to protect your course and crew.

The new Cushman SprayTek XP offers the widest range of turf spray booms for increased productivity and superior precision. An advanced low-profile tank, designed with high pressure agitation, ensures a properly mixed product. A wide array of optional controls allows the SprayTek XP to easily fit any application and features automatic rate control, which adjusts flow for consistent coverage in varying speeds. Upgrades include a sophisticated GPS mapping system and individual nozzle control that reduces chemical consumption and increases accuracy.

Golfdom
Booth #2018

Of course, we want you to stop by our booth too! Come say hello to Seth, Ed, Abby, Clark, Karl and the rest of the *Golfdom* gang (and if you come by the booth and don’t see us, catch up with us after the show closes — we’ll most likely be at The Dubliner, 554 Fourth Ave.) Get to the booth early to nab a *Golfdom* hat, grab an extra copy of the 2019 Underdogs of Turf calendar and then apply for the 2019 *Golfdom* Summit.

Speaking of the 2019 *Golfdom* Summit, there’s only one sure way to be on this year’s guest list: Place a winning bid on the Golden Ticket at the Environmental Institute for Golf’s silent auction. Visit the silent auction booth (#2916) in person or place a bid online at **BiddingForGood.com/EIFG**.

The following pages (pages 24-45) contain more exciting new products that will be on display at the GIS and available to golf courses in 2019, as well as descriptions on how these products can help your course, from the companies themselves. **G**



The Cushman SprayTek XP offers sophisticated GPS mapping and a wide range of spray booms. Textron Fleet Management uses real-time data to help monitor usage.

PHOTOS COURTESY: JOHN DEERE, CUSHMAN, TEXTRON

Golfdom Product Showcase



Q+A

with **John Paddock**
Owner and President

DRYJECT

How do your products or services save golf course superintendents time?

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How do your products or services save golf course superintendents labor?

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How do your products or services help generate additional revenue for golf courses?

Using the DryJect service will aid substantially in retaining the golf course's normal rounds played pattern when compared to coring, topdressing and aggressive dragging which diminishes the putting surface playability (or the golfer's perception of playability). Whether the course is daily fee or private, using DryJect will prove to retain golfers to maximize revenue streams.

In what other ways do your products or services make golf courses profitable?





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“Our data shows that when we core aerate and topdress in early September, we see about a \$30,000 drop in revenue over the next two weeks. When using DryJect, we realize only one day of lost revenue. We estimate a \$19,000 savings in using DryJect over core aeration.”

**Justin Smith, General Manager,
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Golfdom Product Showcase



Q+A

with **Ken Rost**
Founder and CEO

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How do your products or services save golf course superintendents time?

Three ways. When GPS spray control can make the decisions about which nozzles should be on or off, it takes the decision-making burden off the operator so he can focus more on piloting the sprayer. This allows the operator to be more efficient. Second, with our dual nozzle configuration, a wider range of speeds can be achieved. At low speed the smaller nozzle is on, a little faster speed and it switches to a larger nozzle. At top speed both nozzles are on and the spray pressure is reduced. The result is faster spray speeds with no increased drift. Lastly, our Kubota Ninja sprayer has a high-range transmission to allow transport speeds up to 25 mph. That allows for a significant reduction in time spent between spray jobs.

How do your products or services save golf course superintendents labor?

With our dual nozzle feature mentioned above, the increased productivity for a single operator typically allows five fairways to be sprayed in the time three were done without our system. Because of this productivity, many customers have been able to spray with one sprayer instead of multiple sprayers. This includes freeing up a sprayer operator to do other work.

How do your products or services save golf courses materials?

Spray product savings with increased accuracy in application and reduced overlap saves between 8-15 percent with an average of 12 percent. When variable rate maps are used, savings of up to 30 percent have been seen. Easy math can be used to know how that translates into dollars and ROI.

How do your products or services help generate additional revenue for golf courses?

If you can open up play earlier because your spray program is more time efficient using GPS sprayers, more rounds can be accommodated and golfers don't need to see the sprayer on the course.




In what other ways do your products or services make golf courses profitable?

The first way to profitability is a reduction in input costs. Whether it's spray product savings, increased efficiency in equipment usage and/or labor, GPS spray systems contribute greatly. But GPS spray systems also help produce higher quality turf that golfers see. For instance, if more accurate applications of PGRs on greens and fairways is done with GPS, collars and approaches don't go into suppression from being oversprayed. That might make the difference for your course getting a big tournament, or whether a new potential member joins your course or the one down the road. Besides the input savings, it's about using a tool to help get the healthiest turf.

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Golfdom Product Showcase



Q+A

with **Dr. Gordon Kauffman III**
Technical Manager

GRIGG

How do your products save superintendents time?

GRIGG proven foliar nutrients are safe, compatible and easy to use. They tank mix without issues and are available with a complete nutrient package, built-in adjuvants and buffering agents to increase nutrient uptake and keep pH stable.

How do your products save labor?

GRIGG products are built for application speed, safety and effectiveness. Every GRIGG formulation is inter-compatible in the line, which means there is no guesswork when it comes to tank mixing. Many GRIGG products are also multi-functional with nutrition, adjuvants and buffers built into one formulation for application convenience and better results.

How do your products save materials or fuel?

Gary's Green Ultra offers two formulations in one convenient application. The complete and balanced amino acid-based nutrient formulation contains macro- and micronutrients as well as sea plant extract and other natural biostimulants. This provides the same value and benefit as several products, all packaged into one formulation for mixing convenience and application efficiency.

How do your products help improve golf course conditions and make them more playable?

GRIGG foliar fertilizers boost turfgrass vigor, improving its performance and playability. These effects are most notable under environmental stress conditions when golf course superintendents need it most. In addition, GRIGG nutrient formulations provide a fast improvement in turfgrass color and health.

In what other ways do your products make superintendents/golf courses successful?

GRIGG products are science based and research driven. Our products are backed by years of university and field testing that demonstrates increased nutrient



uptake efficiency. This is why GRIGG products are used and trusted by some of the most notable golf courses and athletic fields in the world — including the Rose Bowl Stadium. When the world is watching and a turf manager needs the best, they turn to GRIGG because they know and trust that our products are going to perform and will be safe.



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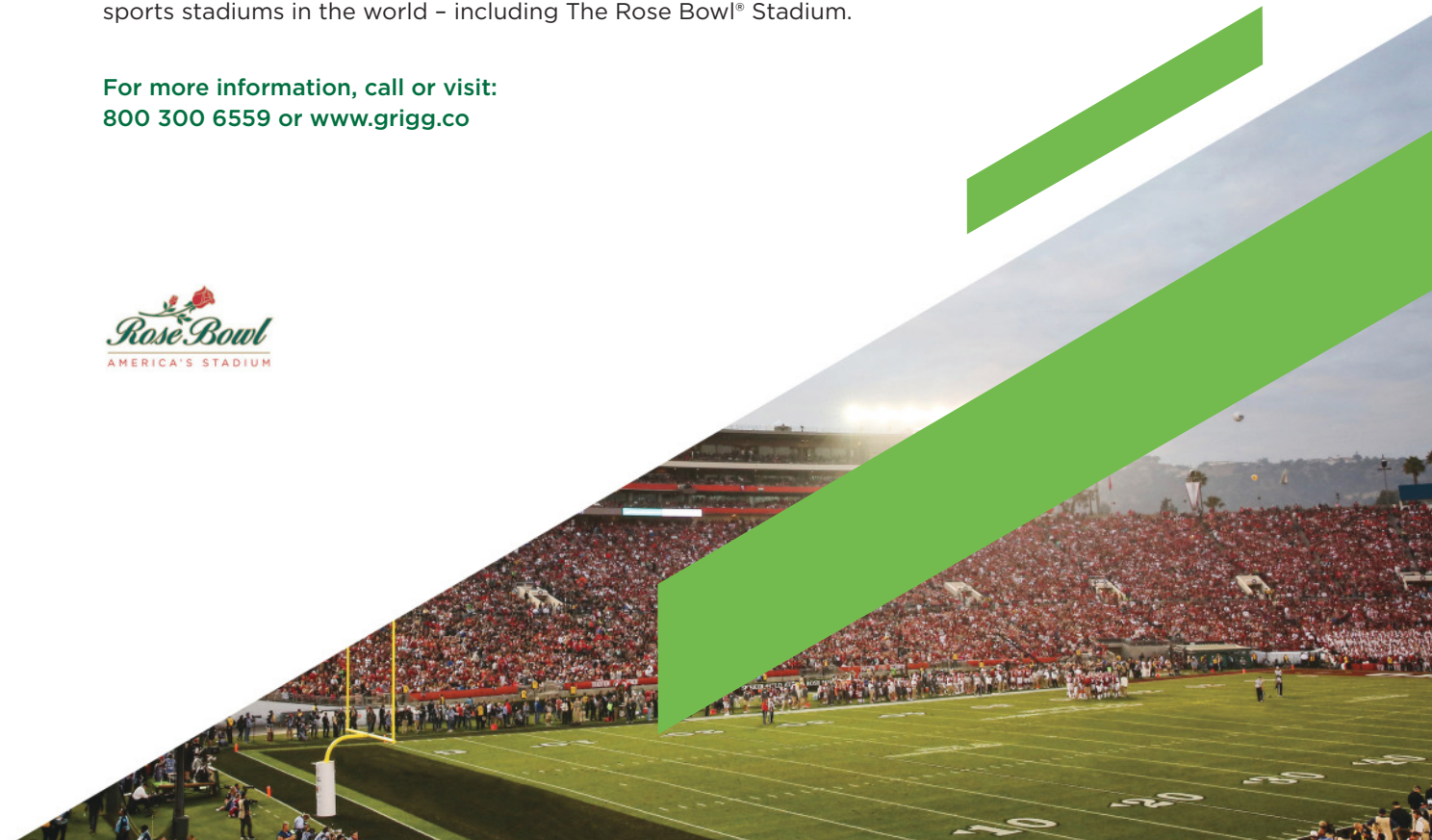
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Golfdom Product Showcase



Q+A

with **Brooks Hastings**
Product Manager

JOHN DEERE

How does your product save golf course superintendents time?

This year at the Golf Industry Show in San Diego we are launching our GPS PrecisionSprayer, a proven solution that increases application accuracy and consistency. Compatible with the John Deere ProGator line, the GPS PrecisionSprayer is easy to use and will increase spraying precision, productivity and efficiency during spraying applications.

One notable feature is AutoTrac, which helps with spraying predetermined areas in less time with greater pass-to-pass accuracy. Additionally, the machine captures all spray data and analyzes the results to streamline documentation and provide robust analytics. When designing the GPS PrecisionSprayer, we wanted to provide golf courses with a solution to increase efficiency on the course, giving them more time to tackle other jobs.

How does this product improve golf course superintendents' productivity?

The GPS PrecisionSprayer is an easy-to-use, productivity-boosting solution for superintendents. Many of the manual operator inputs have been eliminated so the job of spraying fairways, tees and greens is exceptionally easier while reducing operator fatigue. Depending on the needs of the course, the GPS PrecisionSprayer helps solve labor issues by improving operator productivity and efficiency.

How does your product help save golf course materials?

With the GPS PrecisionSprayer, golf courses are able to pair individual nozzle control with AutoTrac Guidance to reduce wasted product by pass-to-pass overlapping and off-target applications. Individual nozzle control not only minimizes application errors, but also reduces the stress level of the operator. The operator does not need to focus on manually turning boom sections on and off. This helps reduce fatigue and helps less experienced operators more accurately perform spray applications.

The new ProGator GPS PrecisionSprayer is a solution that will decrease input costs such as chemicals and utilizing AutoTrac Guidance will translate into labor savings and reduced operator fatigue. Automated documentation eliminates the need for manual recording and increases accuracy of recording spray event information. This is a complete integrated solution and the only OEM that has 20+ years of GPS experience to support the customer.



In what other ways do your products make golf courses profitable?

As a leader in the golf industry, John Deere develops innovative products and solutions designed to increase operator productivity, machine efficiency and, ultimately, course profitability. With a wide range of equipment solutions, from greens and fairway mowers to our robust line of ProGator utility vehicles, John Deere is committed to being a partner to golf courses. With the introduction of our GPS PrecisionSprayer, we are continuing to serve our customers by providing an innovative solution that allows them to be more productive and accurate when maintaining courses. When developing the GPS PrecisionSprayer offering, we utilized a proven solution to ensure accuracy and precision. Understanding the challenges our customers face daily, we strive to develop more innovative solutions, such as the GPS PrecisionSprayer, that will positively impact their operations.



JOHN DEERE

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JOHN DEERE
GOLF

Golfdom Product Showcase



Q+A

with **John Ammons**
Vice President

KLINGSTONE, INC.

What does Klingstone do?

Klingstone cures to an inert, plastic-like substance when it penetrates the soil base of the bunker cavity. It is a low viscosity, single component (no mixing) liquid which penetrates soils and binds them together. This keeps soil particles from migrating into bunker sand or drainage systems.

What are the benefits of Klingstone?

- Prevents contamination of bunker sand from below
- Prevents erosion of bunker faces and resultant contamination
- Maintains integrity of bunker drainage systems
- Lowers routine bunker maintenance costs going forward — no clogged or slow drains, therefore no ground under repair or sand replacement due to the dreaded post storm “brown ring” in the low spot of the bunker. Sand displaced in a weather event stays clean and is easily moved to its proper location in the bunker.
- In-house personnel can easily renovate bunkers as time and budget permits by installing Klingstone on a few holes per year. Superintendents can keep these projects in-house, keep annual renovation costs reasonable, and, best of all, not need to start again on the first three holes when the last three are complete.

How long does Klingstone last?

We don't know yet. The liquid product penetrates the base soils producing an inert plastic-like (permanent) barrier. The polyurethane in the soil will not break down over time unless exposed to direct UV light for prolonged periods, which is unlikely when covered with sand. Our oldest installation is in Minnesota and going strong since 1999, despite the severe climate.



How does Klingstone outperform other bunker lining systems?

- Textile liners can be slightly cheaper to install. However, they typically fail over time — making them substantially more expensive in the longer term. Grooming equipment tines can catch and tear the fabrics, causing unsightly (and dangerous) tufts of fabric to stick up through the sand. Additionally, mechanical staples can lose their hold, especially in sandy or loamy soils, causing the fabric to separate from the subgrade. As a wise man once said, “You buy cheap, you buy twice!”

- Cement- or concrete-based products crack, break into chunks, and disintegrate from weather-related soil expansion and contraction. Klingstone is a plastic, not a concrete — and it is hard to a rap from the knuckles, but will yield slightly to a fingertip. So, Klingstone moves with the soil rather than fighting it. We have many satisfied customers in Michigan, Minnesota, Ontario and other locations with harsh environments.
- Klingstone is the only bunker liner that seals off the bunker substrate, eliminating contamination of the sand and drainage systems. We know of no other system that protects the integrity of your drainage the way Klingstone does ... that means faster-running drains, faster drying of the sand, and faster to get bunkers back in play.

Klingstone
the permanent bunker solution

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Longevity? 19 years...and counting...

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US Patent No. 6,467,991

Golfdom Product Showcase



Q+A

with **Jason Dowgiewicz**
VP of Research & Development

PLANT FOOD COMPANY, INC.

Why did you choose to showcase this product?

Hydration A-Plus is a solubilizing surfactant that delivers a powerful result, dissolving soil bicarbonates and releasing tied-up soil calcium for the plant. This simple-to-use solution has recently been one of the hottest products in our lineup; growing in popularity just as quickly with our newly established customers as it has with our veteran clients. We are showcasing this product because we believe it truly encompasses the Plant Food Experience that we strive for in developing all our exclusive solutions.

How does your product help superintendents be more efficient?

Hydration A-Plus is efficiency in a bottle. It is fully tank compatible which eliminates the need for separate applications. As an even greater time saving benefit, our post application "watering in" recommendation is simply running a normal 5-minute irrigation cycle within 12 hours or before the next mowing rather than the excessive irrigation requirements that often follow traditional wetting agent applications.

How do your products impact fertilizer and chemical budgets?

We can say with confidence that our products and programs will work to reduce your inputs of chemicals and fertilizers. For well over 15 years Plant Food Company has studied the efficacy and efficiency of our exclusive liquid fertilizer solutions by including them in annual university turfgrass disease research, traditionally intended for researching the effectiveness of chemical control solutions. The results have consistently proven that a well composed and advanced fertilizer program such as Plant Food Company's will yield such levels of plant health that the need for traditional chemical controls are dramatically reduced, and in some instances, eliminated.

How do your products influence playability?

Improving playability falls second only to plant health when we are making product recommendations. Our products are intended to provide superintendents



with control over their nutrient inputs, producing firm, healthy surfaces rather than yielding a bumper crop of clippings or requiring an abundance of water to be used post application — both of which hinder playability.

Why does your company continue to invest in university research?

We are in constant pursuit of progression. Always striving to improve ourselves and provide our customers with validation and assurance through consistent research results. Our products are ever-evolving as are the regulations and restrictions impacting this industry around the world. It is our responsibility as a product manufacturer and supplier to ensure that our customers have the tools they need to comply with those restrictions without fear of sacrificing the quality of their golf course conditions.

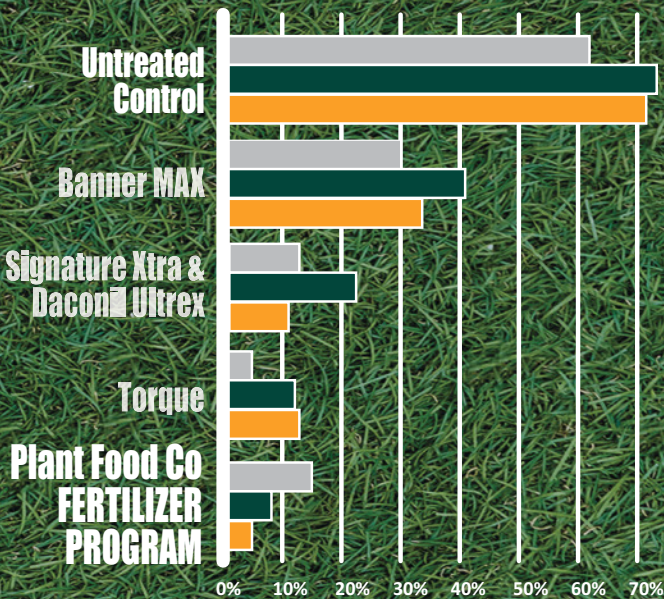


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Proven Results From Both Sides of The Pond

United States Rutgers University

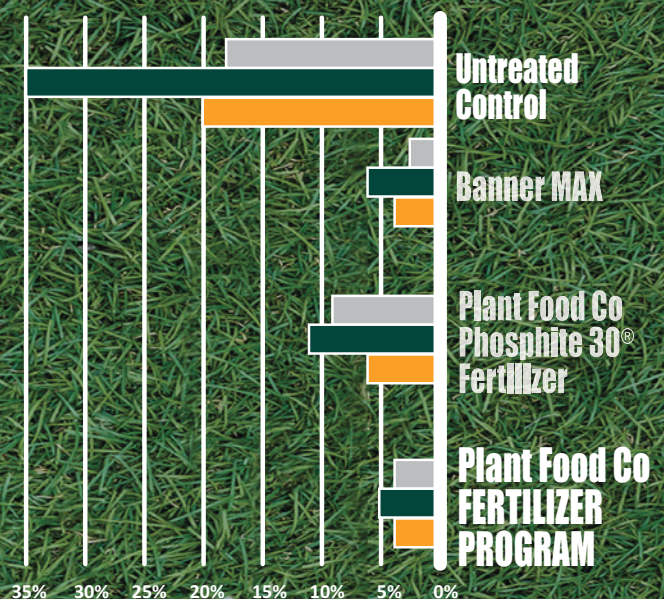


PERCENT ANTHRACNOSE INFESTATION

Bruce Clarke, PhD | 2017

7/2/17 7/11/17 7/21/17

Ireland Royal Curragh Golf Club



PERCENT ANTHRACNOSE INFESTATION

John Dempsey, PhD | 2018

8/13/18 8/28/18 9/4/18

Plant Food has been a part of our Rutgers turfgrass research trials for over 15 year. - Bruce Clarke, PhD

The results of Plant Food's Fertilizer Programs are truly impressive. - John Dempsey, PhD



**PLANT
FOOD**
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The Liquid Fertilizer Experts

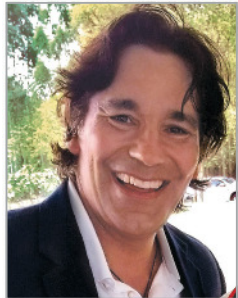
Visit us online to find out what products were part of the Plant Food Co Fertilizer Program.

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Plant Food Company, Inc. is a family-owned business established in 1946. We are a liquid fertilizer manufacturer and golf course industry supplier of plant health and soil amendment solutions.

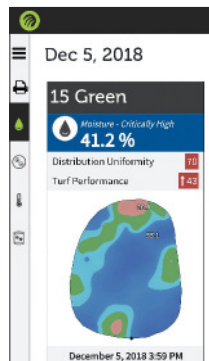
Golfdom Product Showcase



Q+A

with **Carmen Magro**
Vice President/Chief Agronomist

POGO TURF PRO



improve the natural performance of turf to meet the demands of the game. POGO is the only scientifically-based monitoring and analytical system in the industry that never requires calibration and always measures the most influential component of the turf system that impacts surface performance and true health. It remains accurate and precise through the ever-changing dynamics of turf systems and allows for instantaneous mobile mapping analytics.

How does POGO impact revenue?

It is difficult to put a price on the loss of value due to sub-optimal conditions. Such a loss has terrible consequences on facilities and the quality of life of the superintendent and staff. The POGO system can help prevent the loss of revenue by informing superintendents of turf stress long before symptoms appear. Making the best decisions for advancing turf performance requires knowing what the turf conditions are and where they are going with every influential variable that impacts it. The POGO system is the staple monitoring and analysis system that the industry depends on to know what the actual conditions of the turf system are. Simply put, the absolute best decisions cannot be made without using the POGO system. To be profitable, every golf course operation must utilize its given resources to the best of its ability. There is no better way to do that than to know that each practice and product application impacts the operation positively and as intended.

How does POGO save time?

Superintendents demand precision. Without it, failure is imminent. The POGO Turf Pro system allows supers to know precisely the true condition of their turf, while providing many other insights and measuring stress on turf performance. POGO helps superintendents make the best use of their time with only minutes per day, as we understand both the short- and long-term impacts of less-than-optimal decisions.

How does POGO save labor?

All superintendents want to know their operations are efficient and precise. The POGO system clearly indicates what the turf sees and what influences it, bad or good, so that the right decisions can be made quickly and efficiently. Further, it is especially insightful at trending conditions and predicting the impacts of current or planned irrigation, fertilization or cultural practices, allowing users to make efficient labor decisions. With POGO's innovative

mapping features, users can quickly visualize their practices and see the results of their operations over time while logging features and attributes specific to their property.

How does POGO save materials?

In only minutes a day, POGO provides supers with the knowledge that they are using materials efficiently and effectively. With the world increasingly putting pressure on the green industry to utilize strong fundamental practices in lieu of pesticides and other plant protective products, we must be efficient and precise in our decision-making now more than ever. This is especially true with the use of water, nutrients and cultural practices designed to



Superior insight | Better decisions | Healthier turf

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Drop By at GIS 2019 and See What's New

POGO^{Pro+}

New 3rd-generation POGO is smarter, easier to use and more powerful.

Bluetooth, infrared surface temperature sensor, USB charging, soil depth sensor, and more!



New App

Completely redesigned with feedback from thousands of users!

Integrated live satellite mapping and positioning: locate features and see POGO location in real time, and so much more!



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Golfdom Product Showcase

Q+A

with **Taylor Pursell**
Chairman

PURSELL AGRI-TECH

How does your product save golf course superintendents time?

PurKote adaptive nutrient technology allows golf course superintendents to make fertilizer applications that release nutrients on a specific timeline. Instead of having to apply multiple applications, PurKote's patent pending controlled release technology removes the need for constant fertilizer application during this planned timeline. Less time worrying about getting nitrogen on the course, more time for all of the other endless tasks facing the modern-day superintendent. The release of these substrates through the coating allows for precise feeding of the turfgrass on a schedule that fulfills the plant nutrient requirements while meeting performance expectations. Precision use of fertilizer allows the golf course superintendent to be more efficient with their time.

How does your product save golf course superintendents labor?

Traditional uncoated fertilizer substrates have to be applied monthly in some

cases where PurKote will release nutrients over as much as a 180-day period. This release is determined by the agronomic plan developed by the golf course superintendent. Fewer applications over broad acres saves significant labor and reduces overapplication of nutrients.

How does your product save golf courses materials or fuel?

When applying PurKote, the golf course superintendent is using the latest and greatest development in controlled release fertilizer technology. Using PurKote reduces the number of fertilizer applications and improves the efficiency of every ounce of nutrient applied. This helps save both fuel and materials.



How does your product help generate additional revenue for golf courses?

The Pursell family has created PurKote as the next generation of fertilizer coating. This new technology works like no other fertilizer products in helping create lush, green and healthy golf courses incorporating materials for people to use that have not been widely available before. Beautiful courses translate into more rounds and more revenue.

In what other ways does your product make golf courses profitable?

Fewer applications, more precise use of fertilizer leads to less waste and affords the golf course superintendent to be a better steward of nutrients applied. Fewer applications that are more productive and efficient lead to bottom line savings in a superintendent's budget.



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Adaptive Nutrient Delivery

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To learn more
Visit us at the **GIS Show** at booth **#1215**

Golfdom Product Showcase



Q+A

with **Scott Kinhead**
Executive Vice President

TURFCO

After 100 years of your family's participation in the golf industry, what do you see as the key challenges?

I grew up working in this industry at a time when labor was plentiful and superintendents had more resources. Now labor shortages are a key challenge, and productivity has become more crucial to achieve the same results. At Turfco, we listen to superintendents and ask crews what would help them be more productive. Their suggestions lead to new and sometimes surprising innovations. Not just improvements to products, but entirely new products like the Torrent 2 Debris Blower and the TriWave 45 Overseeder. Our focus when we design new equipment is on how to make staff more productive and free up a superintendent's time.

What else is Turfco doing to help solve these problems?

The Torrent 2 is a good example. We observed that if an operator's nozzle angle is too low or too high by 30 degrees, it



could cost up to two hours per day in productivity. When superintendents demo our product, with faster, more precise wireless nozzle rotation, they say, "Why has no one done this before?" The idea for an instant idle/resume button also came directly from operators. "Can this be done?" they asked. We thought, why not?

You've talked about the edge-to-edge method of topdressing. Why does that matter?

It matters for several reasons. If you have to do overlapping spreads to achieve an even distribution, it translates into more passes and more traffic on the greens. The Turfco WideSpin 1550 with even feathering on the edges can save one to four passes per green. If you calculate that over 18 holes throughout the year, a superintendent could save up to 720 passes per year. With savable presets, you can get your preferred application every time. If you're not happy with your application, you need to see the 1550.

How do you bring productivity to the seeding process?

We saw that traditional seeders were complicated and hard to hook up, causing mixed results. Our TriWave 45 Overseeder is easy to tow behind any turf vehicle. The quick seeding delivery system reduces waste and ensures over 30 percent better

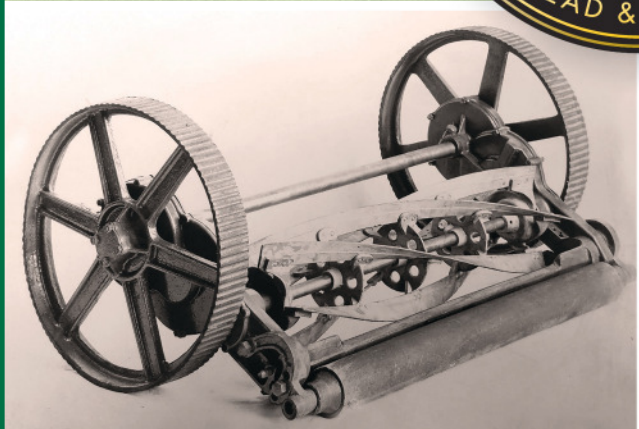
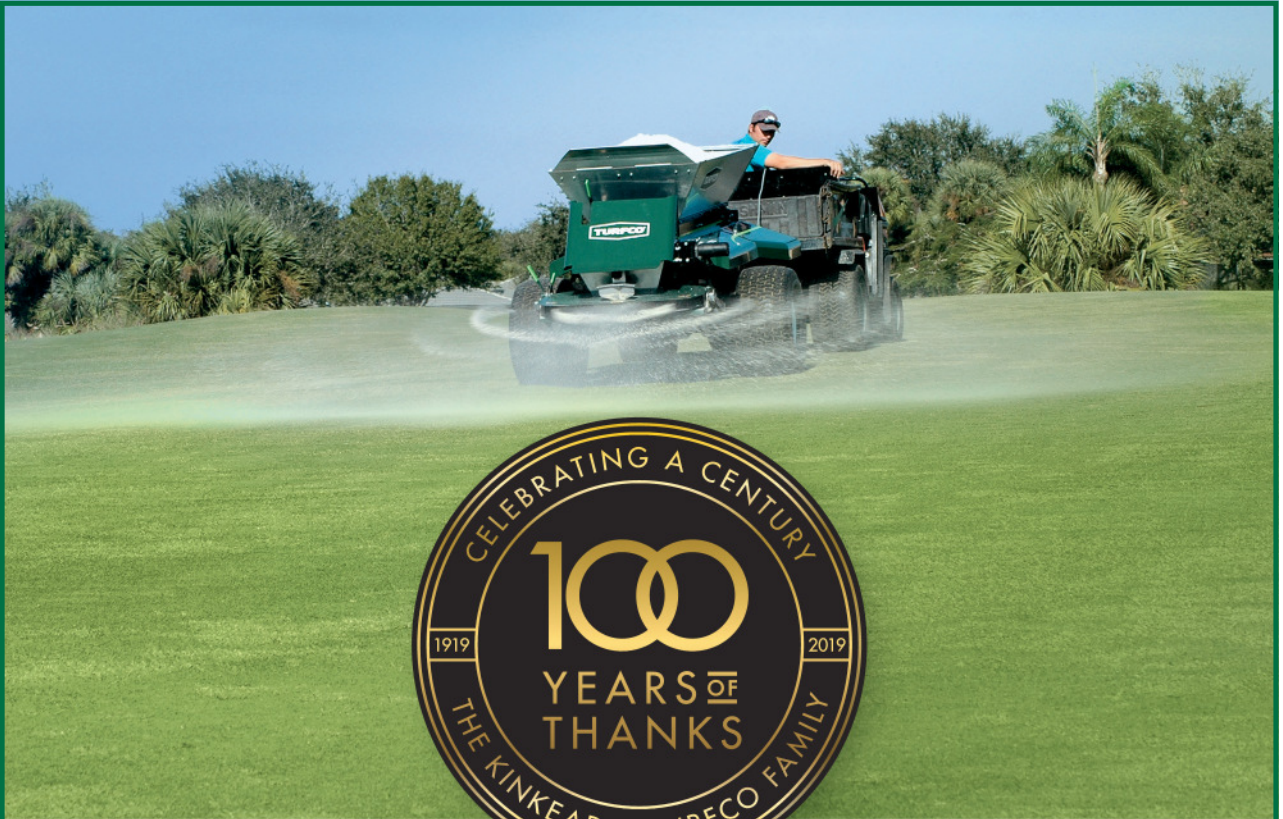


germination. Plus, our floating heads follow the contours of the terrain for consistent seed depth. Now seeding damaged or weak areas is fast, easy and you get the results you want.

How do you come up with your innovations?

We're in the field on a daily basis, watching how crews and superintendents use their equipment. That's where the ideas come from. We love working in this industry and are always challenging ourselves to introduce innovations that streamline and improve maintenance practices especially in this labor economy. The right equipment really can make a difference.





We run this ad every 100 years.

It reminds us of what it takes to maintain and grow—the purpose, the pride and the passion this business requires. From our grandfather who started National Mower in 1919, to our father who launched Turfco. We recognize the privilege of being part of an industry where we all love what we do, and pledge to continue the tradition of bringing innovations to beautify the game. We look forward to working with you for the next century.



*Thanks,
The Kinkead Family*

Golfdom Product Showcase



Aaron Johnsen
Director of Regional Sales
& Proprietary Products

Q+A



Patrick Cooper
Sales Representative

WINFIELD UNITED

Wetting agents can help solve a number of course issues, including dry spots and soft surfaces. What can you do to optimize conditions for your turf? WinField United's experts Aaron Johnsen and Patrick Cooper have the answers.

What are wetting agents and how do they work?

In general, wetting agents help move water to where it needs to go and are commonly categorized as penetrants or retainers.

Penetrants are developed to move water from the surface down into the soil. Think of it as a ladder in the thatch, allowing water to easily travel from the surface and into the soil profile.

Retainers bind to material in the soil and provide an attachment point for water. They act like a claw that grabs water as it goes by.

Wetting agents are easy and effective to use since they can be added to preemergent, fungicides and nematicides to help reach the right areas in the soil.

What is the latest approach to wetting agents?

It has long been known that wetting agents break down due to microbe activity. Rather than the traditional program approach of applying a set amount of wetting agent per month, superintendents are experimenting

with varying rates and combinations based on the weather and applying every week or two weeks at a lighter rate. This enhanced flexibility gives superintendents more opportunity to dial in their water management even more.

How do WinField United wetting agents save superintendents time, labor and resources?

Labor and water are your most valuable and expensive resources. Wetting agents allow managers to optimize the amount of moisture on their courses and ensure the root is getting what it needs depending on the soil conditions. When you optimize your water consumption, you reduce the amount of water used, the electricity from running pumps and labor costs from dragging hoses and treating problems from too dry or too wet conditions.

How do WinField United wetting agents help improve golf course conditions and make them more playable?

Aquiflo Plus helps improve water penetration in hydrophobic soils and through thatch layers. As a penetrant, Aquiflo Plus can get water off the surface and uniformly distribute through the soil profile which makes for a consistent

playing surface.

Aquicare resists excessive water retention at the soil surface, reducing the occurrence of oversaturation and soft surfaces while keeping more moisture at the root level. It's designed to support the firmest playing surfaces over other wetting agents.

Aquisync has the benefits of both Aquiflo Plus and Aquicare. It acts as a penetrant to promote movement of water into the soil and retain more moisture in the root zone for healthy plant growth. In all, Aquisync is designed to reduce water consumption and costly labor in non-sand-based soils, such as fairways and tees.

What's the best way to start or optimize wetting agent usage?

Work with your WinField United sales rep. They are the experts in their regions and can help pull cores, test soils and develop the best program for your specific course and conditions. For more information, visit winfieldunitedpro.com.

**WINFIELD[®]
UNITED**
Professional

PUT WATER IN ITS PLACE WITH THE



Aquiflo™ Plus
a.k.a. “the penetrator”
Punches water through soil with ease so it doesn't pool and reaches the roots faster



Aquicare™
a.k.a. “the retainer”
Saves turf from embarrassing dry spots and soft playing surfaces



Aquisync™
a.k.a. “the dual force”
Infiltrates and hydrates to reduce water requirements and chemicals needed in spray tanks.

**Take control of the water
on your turf**

— put WinField® United's A-Team to work today.

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UNITED**
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Golfdom Product Showcase



Q+A

with **Kevin Norcross**

Division Manager, Marketing & Sales

YAMAHA GOLF-CAR COMPANY

How does your UMAX light utility model save superintendents time?

Our UMAX gives superintendents the storage space to carry everything they need, saving time from unnecessary back and forth trips; and a 402cc engine with more than enough power for going through any rugged shortcut or back-forest terrain.

How does it save labor?

Productivity is key. So we engineered the UMAX to not have down time. As long as the maintenance staff needs to be out on the course is exactly how long the UMAX will work for them, and then some.

How does it save on fuel?

Electronic Fuel Injection (EFI) method of power provides industry-leading fuel economy giving superintendents more mileage for their gas bucks.

How does it help improve golf course conditions and make them more playable?

The UMAX helps the maintenance team keep the course in pristine condition for players to have the best experience with each visit.



In what other ways does your UMAX make superintendents/golf courses successful?

When superintendents are working as hard as they do, the last thing they want to feel is the wear and tear of each day.

Keeping this in mind, we equipped the UMAX with luxurious bucket seats, an automotive-style dash to keep water, snacks and mobile devices, a one-handed tailgate release and an effortless dump bed so that each day can be filled with comfort and ease.



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The Golfdom



FROM THE ARCHIVE

Looking ahead to next month's Golf Industry Show (GIS), it's easy to be hypnotized by the shiny new equipment and all the latest technology that's designed to help superintendents keep their golf courses in perfect condition. *Golfdom* features professional-grade gear in "The Shop" every month, and this month, in addition to "The Shop," we offer the latest equipment from 14 golf industry innovators in our GIS preview.

Purchasing aside, there's always the thorny issue of where you'll store that new equipment. In the January 1967 issue of *Golfdom* — the Convention Preview issue — Verne Floyd took a look at two golf course maintenance sheds. One of those sheds formerly had been a large dairy barn. In comparison, Floyd details a modern maintenance building for the time, complete with insulation and infrared heaters.

How would your facility stack up against the golf course sheds of the '60s?

To read this article and other *Golfdom* Files, visit golfdom.com/exclusive.

'Super sheds' for course maintenance

Whether a handsome old barn or a modern building, superintendents' sheds are no longer shanties.

BY VERNE FLOYD

As golf course construction nears completion, the problem of where to properly keep maintenance equipment and supplies generally is debated over and over. Extra expense is usually the main topic.

In some cases, the selection of maintenance buildings is planned in advance, as at Wilmington Country Club in Delaware. A spacious barn stood on the nearby Henry DuPont property that fit in well for access to all 36 holes of the golf course. Harry McSloy, superintendent at Wilmington CC, says that the large barn now offers ample space for his operations there. First floor dimensions of the old but solid structure measure around 180 feet x 40 feet. In separately walled sections of the first floor, equipment for everyday use is kept, and here also are located the shop, soil storage, fertilizer and superintendent's office.



The most active area of the former dairy barn is where the cows were milked. Here, on a concrete floor, are the green-mowers, oil and grease, shop and plenty of room where 25 men eat lunch. In the silo, McSloy stores his chemicals.

On the second floor, which is ground level at the back of the barn, large equipment such as fairway mowers and most other tractor-towed accessories, sprinklers and pipe are kept.

The maintenance building facility at Wilmington CC complements the surrounding area, whereas many other fine courses plant trees and shrubbery in an attempt to hide their inadequate golf course maintenance headquarters.

In contrast, a modern structure designed to fill the needs of today's golf course may be seen at Cavalry Country Club, located in Manlius, N.Y.

Tom Bowen, superintendent, describes his new maintenance building as the envy of many of his golf superintendent pals in central New York state.

A fireproof structure of Republic Steel Trusspan, the building is 140 feet long and 30 feet wide. Six bays 20 feet x 30 feet each shelter the equipment and departmentalize the operation.

Six overhead doors 10 feet x 12 feet are at the front, with four at rear, permitting access from either side of the building to four bays. Windows are located in each floor at head level. With 10 steel girders per bay, the roof can support any possible snowfall. Clearance height of the interior is 14 feet. It is equipped with steel sash windows throughout, with fluorescent lighting adequate for night work. Much of the building is insulated and has infrared heaters.

The floor of the building at Cavalry CC is concrete. Three rooms, 10 feet x 10 feet each, at one end serve for office, utility and storage, locker and toilet.

Superintendent Bowen is proud of his maintenance building, just as he is proud that the outstanding Cavalry CC golf course was opened one week less than a year after construction started. 



Super Science

// ACHIEVING IRRIGATION REDUCTIONS

MIDWEST COOL-SEASON FAIRWAY WATER REQUIREMENTS

By Jada Powlen and Cale Bigelow, Ph.D.

Fairways are some of the largest areas of irrigated golf course turf. Although regions like the Midwest, Mid-Atlantic and Northeast (where creeping bentgrass is widely used) are considered “humid,” acute drought can persist for weeks. Combine drought with water scarcity concerns, and efficient water use on courses is essential. This leads to the questions: How much water does creeping bentgrass need in the Midwest, and are there alternative grass species or cultivars that require significantly less water compared to creeping bentgrass?

A two-year field study was conducted in West Lafayette, Ind., on a silt-loam soil under a fixed-roof rain-out structure to examine the supplemental water



Overview of the field study area showing differences in various cool-season fairway species when subject to two supplemental irrigation programs.

needs of six potential fairway species: creeping bentgrass, colonial bentgrass, perennial ryegrass, Kentucky bluegrass (three cultivars), fine-leaf fescue (a blend or single species) and turf-type tall fescue (two cultivars). The grasses were seeded in Sept. 2016 and allowed to mature until the trial began in 2017. Once established, the grasses were maintained using two supplemental irrigation programs: irrigation three times per week at 80-percent evapotranspiration (ET) replacement using data from an on-site weather station, or

a green color-threshold response approach. For the green color threshold, digital images determined the percentage of green turf. When an individual plot exceeded the threshold, water was applied. The green turf thresholds were 55 percent or 65 percent, and water applied at 0.25 inch or 0.3 inch for years 1 and 2, respectively.

For more than 75 days in year 1, the 80-percent ET turf received 10.9 total inches of water. By contrast, all species maintained using the green color threshold needed substantially less water. Creeping bentgrass required 4.5 inches and the fescues and one Kentucky bluegrass cultivar needed only about 3 inches of water. These results indicate that significant reductions in fairway irrigation needs could be achieved by maintaining alternative species and/or different approaches to determining supplemental irrigation needs. ©

Jada Powlen and Cale Bigelow, Ph.D., are at Purdue University. You may reach Jada Powlen at jpowlen@purdue.edu for more information.

NEWS UPDATES

BAYER FACILITY WINS 2018 BEST OF CLAYTON AWARD

The Research and Educational facility of Bayer Environmental Science, a Business Unit of Bayer Crop Science, has been selected for the 2018 Best of Clayton Award in the Laboratory category.

Each year, the Clayton Award Program recognizes companies that have achieved exceptional success through service to their customers and the community.

“The research and development efforts at the Clayton facility are fundamental to the discovery of new solutions and cutting-edge expertise for our customers across the globe,” said Jake Doskocil, Ph.D., Bayer Clayton site manager and principal scientist. “It’s an honor to have been recognized by the Clayton Award Program, and we are grateful to be part of an impressive community that generates important work not only for this community, but for the broader turf and ornamentals industry.”

In 2018, the development staff at the Bayer Environmental Science Development and Education Facility in Clayton conducted more than 160 biology-based trials in the facility’s laboratory, greenhouse and field to test and measure the efficacy of insect, disease and weed management technologies.

“... DURING BOTH YEARS OF OUR STUDY, MORE DOLLAR SPOT WAS OBSERVED ON CHAMPION COMPARED TO MINIVERDE.”

Phillip L. Vines

(see story on page 49)



“Americans are courageous, conscientious, resilient, optimistic and confident. Above all, when they are knocked down, they get back up.”

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

Characterizing a country

The golf course management business is a global endeavor. I have been fortunate over the last 30 years to be part of it, traveling to places throughout Europe, Asia, the Middle East, Africa, Australia and South America. It's a small world, in that we share similar goals and technology to deliver the best playing conditions in a variety of climatic and social conditions.

For me, these travels have been more than just meeting great golf managers and observing how various turfgrasses are managed. It's also involved trying to understand the culture of these countries. At the end of a visit and prior to heading home, I often look for a bookstore. If I am fortunate enough to come across a salesperson or a customer, I ask, “Is there a book that captures the essence of this country?” I am not looking for a boring history or geography book, but rather one that speaks to the characteristics of that country's people. Two examples stand out from that ongoing exercise.

Returning from Japan, I was struck by how kind and cordial the Japanese are — not just to me — but as an overall characteristic of the population. My dad served in World War II in the

Pacific Theater, so I've always been a WWII buff. Talking to some of my colleagues during the trip, I wondered, given that the Japanese show such deference and kindness, how could something like WWII happen? A colleague suggested I read the book “Flyboys” by James Bradley. Although the book centers on nine American pilots (one of which is George H.W. Bush), it really looks at the war through individuals on both sides. It is an eye-opener.

Another book suggestion that stands out to me occurred when I was returning from one of my trips to South Africa. As I was standing in a bookstore strumming through a book, a salesperson asked if she could help. I told her what I was interested in, and she recommended the book “The Bang-Bang Club” by Greg Marinovich

and Joao Silva. The book is about four young white photographers who covered the “Silent War” of the early 1990s — the last and darkest days of apartheid.

I've pondered what book I would recommend to an international visitor, one that I hope would speak to what America is. Looking for such a book, I focused on the essence of America. A quote from Condoleezza Rice captures this essence: “... It is an idea that you can come from humble circumstances and do great things. That it doesn't matter what you came from but where you are going.” Americans possess this idea and have the characteristic of what I believe is true grit.

Americans are courageous, conscientious, resilient, optimistic and confident. Above all, when they are knocked down, they get back up. I can think of several books that represent this, and most of you could probably think of one or two. However, the book capturing the essence — the grit — that stands out to me is “Clearview: America's Course, the Autobiography of William J. Powell” by Ellen Susanna Nosner.

I was extremely surprised and pleased when I found out that the Golf Course Superintendents Association of America has named Renee and Lawrence Powell, the daughter and son of William Powell, as the 2019 Old Tom Morris Award recipients. I won't recite the details of the Powell family story, what they have done for breaking down racial barriers and what they have meant to Ohio. This has appeared recently in several publications and in the previously mentioned book. However, it's not only golf that has benefited from all the work the Powells have done and continue to do. They also remind us of the characteristics that make us American. ☪

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

//CULTIVARS, CULTIVATION AND CHEMICALS

Leaf spot and dollar spot on ultradwarf bermudagrass greens

By Phillip L. Vines and Maria Tomaso-Peterson, Ph.D.

Ultradwarf bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) is the predominant putting green turf in the southern U.S. This grass, however, produces profuse amounts of thatch, which leads to increased disease pressure from leaf spot (Figure 1), caused by *Bipolaris cynodontis*, and dollar spot (Figure 2), caused by *Clarireedia monteithiana* (syn. *Sclerotinia homoeocarpa*).

Disease management programs typically include strategic implementation of resistant turfgrass cultivars, cultural management practices and chemical pesticide applications. The objective of this research was to better understand how each of these management factors influences leaf spot and dollar spot of ultradwarf bermudagrass.

EVALUATING STRATEGIES

We conducted experiments in 2012 and 2013 on 4-year-old ultradwarf bermudagrass turf at Mississippi State University in Starkville, Miss. The turf was maintained to golf course putting green standards, with daily mowing at 0.10 to 0.15 inch.

Cultivar resistance

We included Champion and MiniVerde ultradwarf bermudagrass cultivars in our study to represent two commonly used cultivars at the time of the study.

Cultural management practices

We applied cultural management practice treatments using the TrueSurface Trekker Greens Care Collection inserts by Turflite. The cultural management practices we included were as follows:

1. Standard weekly applications of vertical mowing (VM) using the Vacu-Cutter insert at 0.15 inch below the cutting height and blades spaced 0.4 inches apart. We applied this treatment weekly in two perpendicular directions.

2. Weekly applications of vertical mowing with once-monthly substitutions of slice (VM plus slice). We made weekly vertical mowing applications using the Vacu-Cutter insert as described for treatment 1, and we made slice applications in a single direction (direction changed each month) using the Deep Slicer insert at a 0.75-inch depth with blade spacing 1.5 inches apart.

3. Weekly applications of vertical mowing with once-monthly substitutions of spike (VM plus spike). We

Continued on page 50

FIGURE 1



Leaf spot disease symptoms on an ultradwarf bermudagrass putting green.

PHOTOS BY: MARIA TOMASO-PETERSON

FIGURE 2



Dollar spot disease symptoms on an ultradwarf bermudagrass putting green.

Continued from page 49

made weekly vertical mowing applications using the Vacu-Cutter insert as described for treatment 1 and made spike applications in a single direction (direction changed each month) using the Greens Spiker insert at a 0.75-inch depth with spikes spaced 2.4 inches.

4. Weekly applications of vertical mowing with once-monthly substitutions of scarify (VM plus scarify). We made weekly vertical mowing applications using the Vacu-Cutter insert as described for treatment 1 and made scarify applications in a single direction (direction changed each month) using the Vacu-Scarifier insert at a 0.4-inch depth with 1.5-inch blade spacing.

5. Once-monthly applications of slice alone using the Deep Slicer insert as described for treatment 2.

TABLE 1

Application timing of cultural management practice treatments on Champion and MiniVerde ultradwarf bermudagrass during 2012 and 2013 in Starkville, Miss.

Application date		Cultural management practice treatment						
2012	2013	VM	VM + slice	VM + spike	VM + scarify	Slice	Spike	Scarify
8-Jun	12-Jun	VM	VM	VM	VM	–	–	–
15-Jun	19-Jun	VM	VM	VM	VM	–	–	–
22-Jun	26-Jun	VM	Slice	Spike	Scarify	Slice	Spike	Scarify
29-Jun	3-Jul	VM	VM	VM	VM	–	–	–
6-Jul	10-Jul	VM	VM	VM	VM	–	–	–
13-Jul	17-Jul	VM	VM	VM	VM	–	–	–
20-Jul	24-Jul	VM	Slice	Spike	Scarify	Slice	Spike	Scarify
27-Jul	31-Jul	VM	VM	VM	VM	–	–	–
3-Aug	8-Aug	VM	VM	VM	VM	–	–	–
10-Aug	14-Aug	VM	VM	VM	VM	–	–	–
17-Aug	21-Aug	VM	Slice	Spike	Scarify	Slice	Spike	Scarify
24-Aug	28-Aug	VM	VM	VM	VM	–	–	–
31-Aug	5-Sep	VM	VM	VM	VM	–	–	–
7-Sep	12-Sep	VM	VM	VM	VM	–	–	–
14-Sep	19-Sep	VM	Slice	Spike	Scarify	Slice	Spike	Scarify

6. Once-monthly applications of spike alone using the Greens Spiker insert as described for treatment 3.

7. Once-monthly applications of scarify alone using the Vacu-Scarifier insert as described for treatment 4.

Application timing of the cultural management practices is described in Table 1.

Chemical control

The fungicide treatments in the study were either the application of a seasonal fungicide program or no application of a seasonal fungicide program. We designed the seasonal fungicide program to resemble a typical fungicide spray regime employed by golf course superintendents managing ultradwarf bermudagrass in the Deep South at the time of the study. The seasonal fungicide program is described in Table 2.

OUR FINDINGS

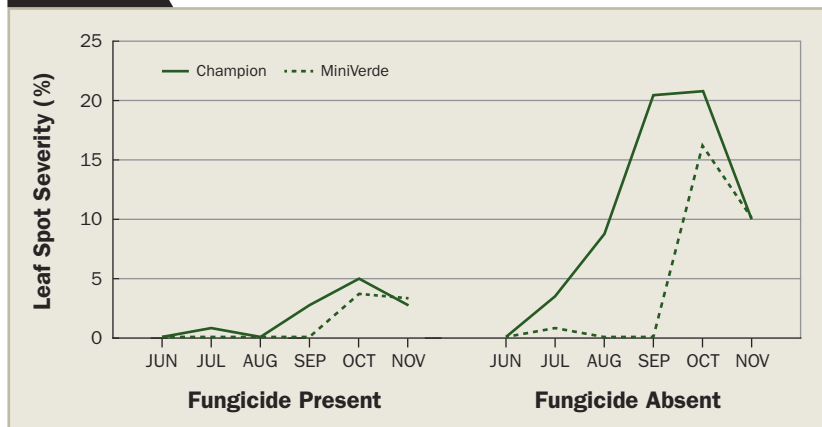
Cultivar resistance

There were differences between the two cultivars in our study with respect to leaf spot and dollar spot resistance. When fungicides were applied, leaf spot was similar on Champion and MiniVerde (Figure 3). However, when fungicides were not applied, more leaf spot was observed on Champion than MiniVerde (Figure 3). Similarly, during both years of our study, more dollar spot was observed on Champion compared to MiniVerde when differences occurred (Figure 4).

Cultural management practices

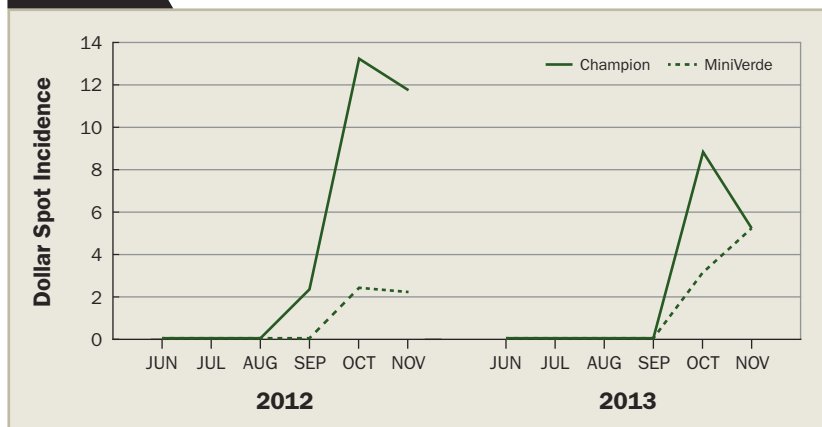
Standard weekly vertical mowing practices resulted in the most leaf spot and dollar spot of all the cultural management practices in the study (Table 3). Once-monthly substitutions of spike and scarify practices in weekly vertical mowing regimes reduced leaf spot and dollar spot compared with standard vertical mowing practices (Table 3). Once-monthly applications of slice, spike and scarify practices alone resulted in the least leaf spot and dollar spot of all the cultural management practices (Table 3).

FIGURE 3



Mean leaf spot severity of Champion and MiniVerde ultradwarf bermudagrass from June to November 2012 and 2013 in Starkville, Miss., presented with and without the presence of a seasonal fungicide application. Leaf spot severity was determined by a visual estimation of percentage symptomatic area (0-100 percent).

FIGURE 4



Mean dollar spot incidence of Champion and MiniVerde ultradwarf bermudagrass from June to November 2012 and 2013 in Starkville, Miss. Dollar spot incidence was determined by a visual assessment of the number of dollar spot infection centers present.

These findings suggest that the standard weekly vertical mowing practices that are used for thatch management may increase foliar disease outbreaks on ultradwarf bermudagrass putting greens. We speculate that the increased disease incidence associated with weekly vertical mowing is due to increased mechanical injury to turfgrass leaf blades. Such injury could weaken the plants, and the wounding of leaves could provide an ease of entry for pathogens into the plant to incite infection. However, we cannot be certain that

is the cause for our observations, as we have not tested this theory in detail.

Chemical control

As expected, seasonal fungicide applications reduced leaf spot and dollar spot compared to no applications of seasonal fungicides.

OUR RECOMMENDATIONS

Based on this study's findings, we offer the following suggestions for golf course superintendents managing leaf spot and dollar spot on ultradwarf

Continued on page 52

TABLE 2

Seasonal fungicide program used for leaf spot and dollar spot control on Champion and MiniVerde ultradwarf bermudagrass during 2012 and 2013 in Starkville, Miss.

Application date		Trade name	Application rate
2012	2013		
5-Jun	7-Jun	Honor	0.457 lb. pyraclostrobin/acre, 0.305 lb. boscalid/acre
10-Jul	12-Jul	Interface	2.92 lb. iprodione/acre, 0.177 lb. trifloxystrobin/acre
17-Aug	15-Aug	Heritage	0.405 lb. azoxystrobin/acre
14-Sep	13-Sep	Chipco Signature	1.63 lb. Aluminum tris/acre

TABLE 3

Mean leaf spot severity and dollar spot incidence in response to cultural management practices on Champion and MiniVerde ultradwarf bermudagrass during 2012 and 2013 in Starkville, Miss. Leaf spot severity was determined by a visual estimation of percentage symptomatic area (0-100 percent). Dollar spot incidence was determined by a visual assessment of the number of dollar spot infection centers present. Within each column, means followed by different letters are significantly different.

Practice	Leaf spot severity	Dollar spot incidence
VM	9.3 a	5.5 a
VM + SL	7.1 ab	3.8 ab
VM + SP	5.2 bc	2.7 bc
VM + SC	4.1 cd	1.6 cd
SL	1.6 d	0.4 d
SP	2.3 cd	0.9 cd
SC	1.9 d	0.9 cd

Continued from page 51

bermudagrass putting greens.

First, consider the cultivar being used — host resistance is the first line of defense for managing diseases. If your greens were recently established, or no plans for greens renovation are in the works at your course, you must move forward managing the diseases that may occur on the cultivar you have. If your course is contemplating a greens renovation, be sure to thoroughly study your cultivar options. Contact university personnel and industry colleagues to acquire as much performance data as possible on available ultradwarf bermudagrass cultivars.

Next, evaluate your cultural management program. Thatch is a concern in ultradwarf bermudagrass management and limiting thatch accumulation must be a priority for your cultural management program. However, we suggest you consider substituting a vertical mowing event with a spike or scarify practice, especially during times when disease pressure is high or environmental conditions are conducive for disease development. This practice could reduce your dependence on chemical control for disease management, which would provide cost saving benefits.

Finally, we suggest that superintendents apply fungicides with utmost thought and consideration for control of leaf spot and dollar spot on ultradwarf bermudagrass. Be sure to account for host, pathogen and environmental conditions when applying fungicides for disease management. In addition, follow fungicide application guidelines with respect to application rate, application interval and rotation of chemistries to promote continued control with the use of chemical pesticides. **G**

Phillip Vines is a Ph.D. candidate in turfgrass breeding and genomics at Rutgers University, and Maria Tomaso-Peterson, Ph.D., is a turfgrass pathologist at Mississippi State University. You may reach Vines at plv19@scarletmail.rutgers.edu for more information.

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Things I learned at the *Golfdom* Summit

The *Golfdom* Summit is one of my favorite golf events of the year. The reason is simple. It is an opportunity to talk to superintendents and industry reps in a casual, relaxed atmosphere over the course of three days. The format allows ample time for in-depth discussions during the meetings and social events. Below are a few highlights of what I learned at the 2018 *Golfdom* Summit.

- Thom Nikolai, Ph.D., of Michigan State University was the keynote speaker, and he discussed findings from his rolling research. Thom and his colleagues have examined the effect rolling has on many aspects of turf management. Besides the obvious improvements, rolling provides for firmer, faster greens. Thom shared data (his as well as other turf scientists') on fairway rolling, and I was struck by the reduction in dollar spot from rolling. In addition, he showed a couple of images from a demonstration project where regular rolling of a newly seeded green dramatically improved establishment. Thom would like to investigate this response in more detail.

- I discussed with several superintendents the lack of new assistant superintendents entering the profession. All agreed that low starting salaries, a long period of serving as an assistant before moving up to superintendent and the long hours and rigors of being an assistant are barriers to becoming an assistant superintendent. Add to that the money and time devoted to earning a four-year turf degree along with the student loans needed by many to complete their degree, and it becomes clear why fewer new assistant

superintendents are entering the profession. Identifying the barriers is a good first step. Superintendents can and need to address some of these barriers by increasing salaries for assistant superintendents and reducing work demands.


“The *Golfdom* Summit is a great event. It’s an opportunity to learn from colleagues and industry reps and have some fun.”

- The labor force at many golf courses has changed dramatically. While the traditional 40 hours (or more) per week employee is still common, many golf maintenance staff members are part time in every combination you can imagine. Some work two or three days a week, some work only weekends, some work only four hours a day, three or four days a week. The superintendents I spoke with told

me that this is the new reality, and you better learn to work with this type of labor force or do the job yourself. And doing the job yourself is not an option.

- I learned about FIRE (financial independence, retire early) from Dave Schlagetter. Dave and I both are closer to the end of our careers than the beginning, and retirement is on our minds. There is ample information on FIRE available by doing a Google search. The concept intrigues me, and the focus on retiring early is so you can use your time to concentrate on people/things/organizations/causes that are important to you that you might not have time to embrace while working full time. Advocates of FIRE stress limiting spending and expenses and maximizing saving and investing to achieve financial independence. Whether FIRE is a good fit for you or not, I know retirement comes faster than I ever expected, and having more free time is a higher priority in my life now than ever before.

- The Wee One Foundation does great work and deserves our support. The Wee One Foundation was developed to assist golf course management professionals (or their dependents) who incur overwhelming expenses from medical hardship and are without comprehensive insurance or adequate financial resources. Since its inception in 2004, the Wee One Foundation has given more than \$1 million to those in need. You can learn more about the Wee One Foundation at <https://weeone.org/>.

The *Golfdom* Summit is an opportunity to learn from colleagues and industry reps and have some fun. Make it a goal in your career to get on the invite list of this one-of-a-kind event. 



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

The Shop

// MUST-HAVE NEW EQUIPMENT

1



3



2



1 | Pro XD UTV

The PRO XD line by **POLARIS COMMERCIAL** comes in three models: the two-passenger PRO XD 2000D — available in two-wheel drive or all-wheel drive — and the four-passenger PRO XD 4000D, available in all-wheel drive. The UTV provides a payload of 1,930 pounds and towing capacity of 2,500 pounds. The machines feature a Kubota industrial diesel engine; a new rigid chassis design; a rust-free and dent-resistant composite bed large enough to fit a full-sized pallet, sealed driveline components; a 26-inch, nondirectional job site tire; and engine maintenance intervals of 200 hours.

Commercial.polaris.com

2 | Premier Series memorial benches

PARIS SITE FURNISHINGS' Premier series memorial benches are a great way to honor a specific golfer. A contemporary look and comfortable seating make the bench ideal for interior or exterior installations. Available in 4-foot or 6-foot lengths, each steel, powder-coated bench features a vandal-resistant design. The one-piece, ready-to-install benches are available in standard colors. Manufactured in Princeton, Ontario, the benches are available factory direct or through distributors and dealers throughout North America.

PEML.com

3 | Sod cup kit

The sod cup kit from **RAIN BIRD GOLF** reduces the risk of rotors negatively impacting play on closely mowed approaches to golf course greens and makes it possible to spend less time trimming around rotors. Installing the kit on Rain Bird 551 and 700/751 Series rotors can be done without tools. After installation, when the rotor is popping up or retracting, its self-flushing action sends a burst of water through the case, protecting the rotor's internal components from debris and irrigating the turf that's growing in the sod cup.

Rainbirdgolf.com



4



5



6

CHECK OUT MORE NEW EQUIPMENT ONLINE

To stay up to date on all the latest products and services, visit golfdom.com/category/products

4 | SmartControl fuel can system

Crafted with a push spout, the SmartControl containers from **SCEPTER** are designed for fast fills without spills. The user-controlled flow makes it easier to direct the amount of fuel being dispensed, and because the container stores with the spout on, users' hands always stay clean. The containers exceed ASTM and CPSC minimum standards. Each product includes a child safety lock and flame mitigation device for added protection. Available in 1-, 2- and 5-gallon sizes, the line includes containers for gasoline, diesel and kerosene. Scepter.com

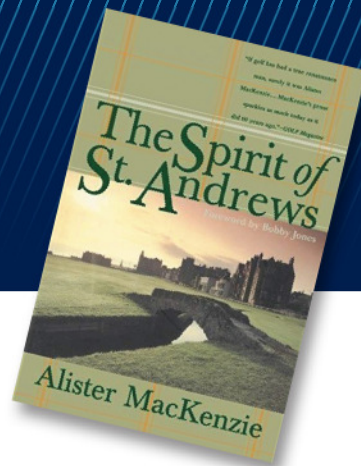
5 | XT8 stand-on aerator plus 30-inch drop seeder attachment

Superintendents can easily get to those narrow and hard-to-reach areas on the course with **TURFCO'S** patent-pending drop seeder attachment for the TurnAer XT8 stand-on aerator. The seeder has a 30-inch seeding width that matches the XT8's aerating width, holds up to 65 pounds of seed and mounts directly to the front of the XT8 so crews need to only make a single pass to aerate and seed. Additionally, the XT8 offers zero-turn agility, auto-depth control, protected drive chains and zero-grease zerks. Turfcodirect.com

6 | Ninja GPS spray control system

The Ninja GPS spray control system by **FROST** is designed for the Kubota RTV-X1140 vehicle platform. The RTV boasts a Kubota diesel engine, hydrostatic transmission with high and low range, four-wheel drive and all-wheel independent suspension. The sprayer carries 200 gallons and has a 15-gallon clean water rinse system. Other features include a 20-foot X-fold boom, rear nozzle camera and spray illumination. The result is a quiet, smooth and stable machine with the intelligence to spray only where it should. Frostserv.com

The 19th Hole



Mike McCormick

SUPERINTENDENT // The Apawamis Club, Rye, N.Y.



Mike, what can I get you?

I'm a simple guy ... I'll have a Bud Light.

Congratulations on getting married!

How did you and Jamie meet? When I was the first assistant at Oakmont, she was the event coordinator. It was six months before the U.S. Open in 2016 and Jamie was working on a rather large event that would be hosted outside. I ended up helping her organize a few things that were related to the golf course. Shortly after the party, she asked me out.

I heard you sang and played piano at your wedding?

Music is my big thing. I've been playing piano since age 6, guitar since college. I played in a blues band in college. At the wedding, I played "Tiny Dancer" for her, then we sang "Landslide" as a duet.

OK, let's talk turf. What's your favorite tool in the shop?



// BEST ADVICE

"MR. (DICK) BATOR TOLD ME TO ALWAYS HAVE A SENSE OF URGENCY AND PAY CLOSE ATTENTION TO THE DETAILS, AND TO GET A PREMIUM PRODUCT, YOU HAVE TO BE HANDS-ON AND LEAD BY EXAMPLE."

648 aerifier. I've done a lot of research on the different spacing of tines, and I even had JRM custom-make me a 5/8-inch hollow tine.

That machine is my bread and butter — the flexibility of that machine is unparalleled for removing organic matter.



What's your favorite book? "The Spirit of St. Andrews" by Alister MacKenzie. He wrote it a hundred years ago, and everything he wrote about architecture and maintenance still holds true today. I read it on the flight over to visit St. Andrews ... it was life changing.

Who or what is your archenemy?

I'm deathly afraid of snakes. I don't think I could ever work at a golf course that has

rattlesnakes or copperheads. If I'm flipping through channels and I see a snake on Discovery Channel ... it ruins my day.

What's the most memorable bet you've made?

It's the last bet I made. When I was an intern working for Jeff Corcoran at Oak Hill, I bet everyone \$20 that Tiger Woods would win the PGA Championship. I had Tiger, everyone else had the field. Tiger had a huge lead on the weekend ... and that was the year Y.E. Yang took Tiger down. I lost a couple hundred dollars.

Fill in the blank: When I'm having a bad day, I remind myself _____.

I remind myself that it could always be worse. It's always hotter, wetter or more humid somewhere else!

As interviewed by Seth Jones, Dec. 17, 2018.

3

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