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Life's a Beach

How bunker renovations changed labor at two golf courses — both for better and for worse

PLUS

Seth's best of GIS 2019

Microdochium patch disease development

Off-type grasses in ultradwarf
bermudagrass greens



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RESEARCH AT UNIVERSITY OF MASSACHUSETTS

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

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



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Life's a Beach

How bunker renovations affected labor at two golf courses — both for better and worse

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EDITORIAL

EDITOR-IN-CHIEF & ASSOCIATE PUBLISHER Seth Jones

785-690-7047 / sjones@northcoastmedia.net

SENIOR EDITOR Abby Hart

216-706-3756 / ahart@northcoastmedia.net

MANAGING EDITOR Clara Richter

216-363-7920 / crichter@northcoastmedia.net

ASSOCIATE EDITOR Sarah Webb

216-363-7932 / swebb@northcoastmedia.net

EDITOR-AT-LARGE Ed Hiscock

ehiscock@northcoastmedia.net

DIGITAL EDITOR Kelly Limpert

216-363-7933 / klimpert@northcoastmedia.net

ART DIRECTOR Pete Seltzer

216-706-3737 / pseltzer@northcoastmedia.net

CONTRIBUTING EDITORS

Karl Danneberger (*Science*), Joe Gulotti, Dillan Kanya, Matt Neff,
Jared Nemitz, Clark Throssell (*Research*), Sean Tully, Mark Woodward

BUSINESS

CLEVELAND HEADQUARTERS

1360 EAST 9TH ST, 10TH FLOOR, CLEVELAND, OH 44114

GROUP PUBLISHER Bill Roddy

216-706-3758 / broddy@northcoastmedia.net

PUBLISHER Craig MacGregor

216-706-3787 / cmacgregor@northcoastmedia.net

WESTERN REGIONAL SALES MANAGER Jake Goodman

216-363-7923 / jgoodman@northcoastmedia.net

EASTERN REGIONAL SALES MANAGER Dan Hannan

216-363-7937 / dhannan@northcoastmedia.net

ACCOUNT MANAGER Chloe Scoular

216-363-7929 / cscoular@northcoastmedia.net

EXECUTIVE SALES ASSISTANT Petra Turko

216-706-3768 / pturko@northcoastmedia.net

SR. MARKETING & EVENT MANAGER Michelle Mitchell

216-363-7922 / mmitchell@northcoastmedia.net

MARKETING & EVENT MANAGER Angela Gibian

216-363-7936 / agibian@northcoastmedia.net

SR. MGR., PRODUCTION SERVICES Rhonda Sande

216-978-9778 / rsande@northcoastmedia.net

DIR. OF AUDIENCE ENGAGEMENT Bethany Chambers

216-706-3771 / bchambers@northcoastmedia.net

SR. AUDIENCE DEVELOPMENT MANAGER

Antoinette Sanchez-Perkins

216-706-3750 / asanchez-perkins@northcoastmedia.net

MARKETING/MAGAZINE SERVICES

REPRINTS & PERMISSIONS Brett Petillo

877-652-5295 / bpetillo@urightsmedia.com

SUBSCRIBER, CUSTOMER SERVICE

847-513-6030 / golfdom@omeda.com

LIST RENTAL Brahm Schenkman

800-529-9020 / bschenkman@info refinery.com

CORPORATE

PRESIDENT & CEO Kevin Stoltman

VP OF FINANCE & OPERATIONS Steve Galperin

VP OF GRAPHIC DESIGN & PRODUCTION Pete Seltzer

EDITORIAL DIRECTOR Marty Whitford

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“(Ted) Horton told a story about working for the King of Morocco that made my jaw drop. That was just one of the many highlights of the panel.”

SETH JONES, Editor-in-Chief & Associate Publisher

Don't picture me rollin'

I never know what the annual Golf Industry Show (GIS) will bring. This year, I saw so many familiar faces, made a bunch of new connections and was greeted by a lot of readers who just wanted to say hi. Here are my top four moments of GIS 2019:

4. Diversity at GIS No, Ron Burgundy, diversity at GIS does not refer to an old wooden ship! (Sorry for the “Anchorman” reference, I couldn’t resist.) This show celebrated diversity in multiple ways ... from the Powell family accepting the 2019 Old Tom Morris Award, to the two women-in-turf panels (one emceed by our own Bethany Chambers — see page 9) to the election of a Hispanic as president of the GCSAA.

As a second-generation Mexican-American myself (don’t laugh, I’m not kidding!), the last one really strikes a chord for me. I’ve known Rafael Barajas, CGCS, for years, and I’m proud of his accomplishment. The members of GCSAA should be proud, too. I’m excited to see how Rafael influences the

association and how GCSAA celebrates his year as its president.

3. Saved from the scooter by Rob The scooters were everywhere in San Diego. A quick scan of an app and you were riding a motorized scooter to your next destination for a fraction of the cost of a cab.

But two problems: First, I just wasn’t built to ride a motorized scooter. I’ve never been the most agile guy. Second, there’s no way for a man my age to look cool on a scooter. So me getting on a scooter was a bad idea from the get-go.

I was trying to follow *Golfdom* Publisher Craig MacGregor back to the convention center and rapidly was losing ground ... when I heard Rob Wagner, superintendent at

Trump National-Bedminster, holler at me from a Gaslamp bar stool.

I couldn’t ditch that scooter fast enough in favor of sitting in an open-air sports bar, reconnecting with old friends and making new ones. Why was I ever on a scooter in the first place? To hustle back to the convention center? Lesson learned: Keep my feet on the ground. “Stay in your lane, bro.”

2. Anuvia Legends experience I was thrilled to emcee Anuvia Plant Nutrients’ “Legends Initiative” panel at GIS, honoring longtime superintendent Ted Horton, CGCS. Also on the panel with Horton were old friends Matt Shaffer, CGCS, and Bob Farren, CGCS.

Prior to the panel, the Anuvia folks invited all of us out

to dinner. The stories traded at the table — Shaffer’s got a ton of ’em — will be something I’ll always remember.

The panel itself? It was fantastic. Horton told a story about working for the King of Morocco that made my jaw drop. That was just one of the many highlights of the panel. The entire panel will be posted online, and if you miss that, I’ll recap it here in the pages of *Golfdom* soon.

1. Screaming down the boardwalk on scooters Yes, I’ll complain about the scooters and commend them in the same column.

My team was invited to several parties at GIS that all happened at the same time. The challenge was getting from location to location in a short time.

We attended the Simplot customer event at the Hilton Bayfront hotel. The next stop? Harbor House Restaurant for the DryJect party, a mile away down the boardwalk ... too short to Uber, too long to walk ... but perfect for those little scooters.

Five of us *Golfdom* staffers jumped on scooters, and we zipped past people to get to the next party. A 20-minute walk along the San Diego Marina was shortened to a thrilling five-minute scooter ride. Yes, liquid courage made my ride a little less daunting.

I consider that moment a metaphor for the whole show. The *Golfdom* team at GIS 2019? We were just on a roll. 🍷

Email Jones at:
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Starter

NEWS, NOTES AND QUOTES



// GAN IS THE MAN

DEERE'S GAN GOES GLOBAL

BY SETH JONES // Editor-in-Chief

➔ In December of last year, John Deere named Manny Gan as its director of global golf. *Golfdom* caught up with Gan at the 2019 GIS to learn more about his vision for the company.

Golfdom: Tell us about yourself.

GAN: I've worked for 21 years with Deere, 17 of that 21 on the turf side. For the last eight years, I was director of marketing for our turf and utility vehicle business, which included all the golf products. I've been in the industry for a long time and I'm just thrilled to be in the golf business.

Golfdom: What direction do you bring to Deere with your new position?

GAN: For us, it's all about the customer. We start with the customer and we end with the customer. Around the globe, they have very similar customer needs. We can literally go anywhere in China, Southeast Asia, Europe or here in North America and sit down with superintendents, with GMs, understand their needs and then come back and create the right solutions and business model to help them. Investing in the people in the business is very important to us, the people who take care of the courses.



John Deere Director of Global Golf Manny Gan leans on some of his favorite equipment at the 2019 GIS.

Golfdom: What excites you the most about John Deere's current product line?

GAN: We're very excited about our new ride-on greensmower. We spent the last five years developing it and visiting with customers all over the globe from an efficiency perspective. Also, we just announced the partnership with Precision Makers (see sidebar); from an autonomous solutions perspective, we're really excited about where that takes us in the future. Many customers want to maximize their labor. If they have a crew of 15, maybe a couple of those crew members can now start doing some jobs they couldn't previously get to.

For the complete interview, visit Golfdom.com.

// LET'S STAY FRIENDS

NGCOA SETS SAIL ON GIS PARTNERSHIP

The National Golf Course Owners Association (NGCOA), the PGA of America and PGA Golf Exhibitions announced a multiyear, strategic alliance to co-locate the annual Golf Business Conference with the PGA Merchandise Show in Orlando, Fla., beginning next year.

The NGCOA will remain a partner of the Golf Industry Show (GIS) along with the Golf Course Superintendents Association of America (GCSAA). NGCOA will continue to host its semiannual gathering of the top agronomic officers at the GIS.

"We are pleased to bring the Golf Business Conference to Orlando, a popular destination among golf course operators and vendor partners, during PGA Show Week, one of the biggest weeks of the year for the golf industry," said NGCOA CEO Jay Karen, CAE.

The NGCOA joined the GCSAA — along with the Golf Course Builders Association of America, the American Society of Golf Course Architects and the Club Managers Association of America — in 2005 to form the first-ever Golf Industry Show, meant to be a one-stop show for all those in the golf business. The NGCOA represented about 500 annual attendees at the GIS, according to *Golf Inc.* magazine.

// PRECISION PARTNERSHIP

JOHN DEERE PARTNERS WITH PRECISION MAKERS ON AUTONOMOUS MOWERS

John Deere has agreed to develop autonomous mowing solutions for the golf and sports turf industry with Precision Makers, a Netherlands-based company that specializes in autonomous technology for various equipment forms.

"The turf industry is looking for more sustainable operating models to maintain precision turf, and expanding the use of technology will be critical to the future success of turf managers," said Manny Gan, director, global golf, John Deere. "With labor costs and availability becoming an increasing concern, our customers are eager to introduce autonomous equipment into their operation to ensure task completion with excellent results and precision."

PHOTOS BY: SETH JONES / ISTOCK.COM (WELGLAD)



EMAILS @ TEXTS # TWEETS

Joe, great article in *Golfdom*! (*The day we let the Mexicans rip*, February) I just retired from a 40-year career as a superintendent and did two major bunker renovations and 27-hole irrigation installation projects over the last 10 years or so; both involved Latino crews doing the bulk of the work. Very nice guys, and as you say, their work ethic is just amazing. They would work with my crew to show them the proper way to get the right amount of sand in every square inch of the bunkers, no short cuts, when the inevitable things went wrong, it was dealt with quickly and they moved on. With the rising labor costs and fewer kids, college kids, young laborers to pick from, I think there is a coming crisis for golf courses, I kinda feel I got out at a good time. Again, great article, best of luck to you.

Bucky Hall

Falmouth Country Club, East Falmouth, Mass.



It pays to be an affable editor of one of the industry's most beloved magazines. *Golfdom* EIC Seth Jones can attest to this, as not only has he been invited to some of the finest courses in the land, he also has a nice golf memorabilia collection that continues to grow. (See page 12, photo No. 3 to see his most recent prized gift.)

At the GIS, **KEITH CUTTEN** presented Jones with a signed copy of his new book, the 384-page "The Evolution of Golf Course Design."

Cutten offers all *Golfdom* readers a 15-percent discount on his book. Visit cuttengolf.com/the_evolution_of_golf_course_design/ and enter the code "GOLFDOM" to redeem.



(L to R) Jennifer Foote, Patricia Sloan, Leasha Schwab, Jessica Lenihan, Miranda Robinson, Bethany Chambers and Amanda Frend at the Women in Turf panel.

//WOMEN IN TURF

Women headline at 2019 GIS

➔ While the number of women in attendance at the 2019 Golf Industry Show was still small, their voices were strong, with two events in their honor. The "Women in Turf" panel at the Bayer booth (moderated by *Golfdom*'s own Bethany Chambers) featured an insightful discussion from some of the industry's leading ladies.

Later, the second annual "Ladies Leading Turf" event, hosted by Syngenta, gave women attendees a chance

to meet and network. In addition to the panels, the Turf and Ornamental business of Bayer within the company's Crop Science division announced it will host the inaugural North American Women in Golf event Sept. 18-20, 2019, in Raleigh, N.C. The event will bring together women in turf across the U.S. and Canada for a discussion on diversity in golf course management. For more information about the event, visit es.bayer.us/women-in-golf.

GO FIGURE

\$2,300,000,000

How much Minnesota's golf industry has generated in direct, indirect and induced economic output within the past decade.

Source: The *Economic Impact of Minnesota Golf* study, which was conducted by Jennifer Ozawa, Dylan Yetter and Peter Ryan of TEEconomy Partners, with significant contributions from individuals representing the Minnesota Golf Association and its allied associations: Tom Ryan and Barb Hanson (MGA); Jack Mackenzie (MGCSA); Jeff Hintz (MNPGA); Curt Walker (MWGCOA); Troy Nygaard (MPGMA); and Rolie Carlson (GMAA-UM).

PHOTOS BY: SAM PATTERSON (WOMEN IN GOLF); CRAIG MACGREGOR (BOOK)

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Golfdom Gallery



1 That's me! FMC's Dan Carrothers stopped by the *Golfdom* booth at the 2019 Golf Industry Show (GIS) in San Diego and was excited to see himself on the cover of the February issue.

2 One heck of a retirement party *Golfdom*'s Bill Roddy (left) and Corteva Agriscience's Karan Bansal (second from right) help celebrate the retirements of Corteva's Jamie Breuninger, Ph.D., (second from left) and Tom Linnen (right) at the Corteva Agriscience party in San Diego.

3 A sentimental souvenir Longtime Chicagoland superintendent Mike Bavier, CGCS Retired (right), stunned *Golfdom*'s Seth Jones with a program from 1974 autographed by *Golfdom* founders Herb and Joe Graffis.

4 Celebrating 10 years of SBI Stephanie Schwenke, Syngenta; *Golfdom*'s Craig MacGregor; Ryan Cummings, Elcona CC, Bristol, Ind.; and Jared Stanek, Desert Willow Golf Resort, Indio, Calif., pose together during the Syngenta Business Institute reunion party at GIS.

5 Connecting with friends in the Gaslamp (L to R) Cody Frederick and Alan FitzGerald, LedgeRock GC, Mohnton, Pa.; Jason Meersman, The Patterson Club, Fairfield, Conn.; Brian McDonagh, Lahinch GC, Co. Clare, Ireland; and *Golfdom* columnist Sean Tully, Meadow Club, Fairfax, Calif., grab a quick pint at the end of GIS 2019.

6 We found your editor Thanks to Chad Carpenter (center), Forest Park GC, St. Louis, and Tim Roethler (right), Old Warson CC, St. Louis, for finding our own Seth Jones at GIS 2019.

7 Keeping it classy (L to R) Ed McCoy, Ph.D., The Ohio State University, Jeff Broadbelt, DryJect, and *Golfdom*'s Craig MacGregor and Chloe Scouler mix and mingle at the DryJect party at Harbor House in San Diego.

PHOTOS BY: SETH JONES (1, 2, 4, 6, 7); ABBY HART (6)




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"The amount of bad or #FakeNews that is spread in online groups or on Twitter is nauseating and sometimes infuriating."

JARED NEMITZ, superintendent, *The Peninsula Club, Cornelius, N.C.*

Social media advice is far from perfect

Beware of #FakeNews, they tell us. Fake news is referenced almost every day in the political arena, but it also can be seen in the social media world of turfgrass.

I have written about the value of social media and how to use it professionally to help brand yourself and highlight accomplishments on your course. Social media applications such as Twitter and Facebook grow within the turfgrass world every year. One of my favorite turfgrass groups on Facebook has almost doubled in size this past year to more than 12,000 participants.

Learning better and more efficient ways to manage a golf course through social media can be productive. Some of the hot topics discussed on social media this year have led to great dialogue about the current labor pool, golf course expectations, products being used and how to take care of yourself both physically and mentally.

However, not all is perfect in the social media world. The

amount of bad or #FakeNews spread in online groups and on Twitter is nauseating and sometimes infuriating. Using social media to find answers to problems is good. Getting bad information and acting on it can be detrimental.

Often, an innocent question can be answered with "solutions" from well-intentioned people who are just wrong. Not just a little wrong. I mean out-of-this-world wrong. The plea, "Help me identify this disease on my course" turns into a listing of every disease in the textbook.

Social media can't be a replacement for solid agronomic and scientific facts that help solve a challenge. Colleagues in this industry can be some of the most helpful resources, but you always must weigh where the information is coming from and discover if there is some-

one more qualified to help. If something is intriguing and looks like it may work for you, reach out to that person and get more information. A snapshot on the internet may not always be what you think.

Golfers incessantly compare maintenance and green speeds of local golf courses. With the rise of social media, golfers are able to not only compare your golf course with one down the street, they can compare your golf course to one halfway across the world. With superintendents posting more behind-the-scenes information, golfers now can question why their courses aren't using similar procedures and achieving similar results.

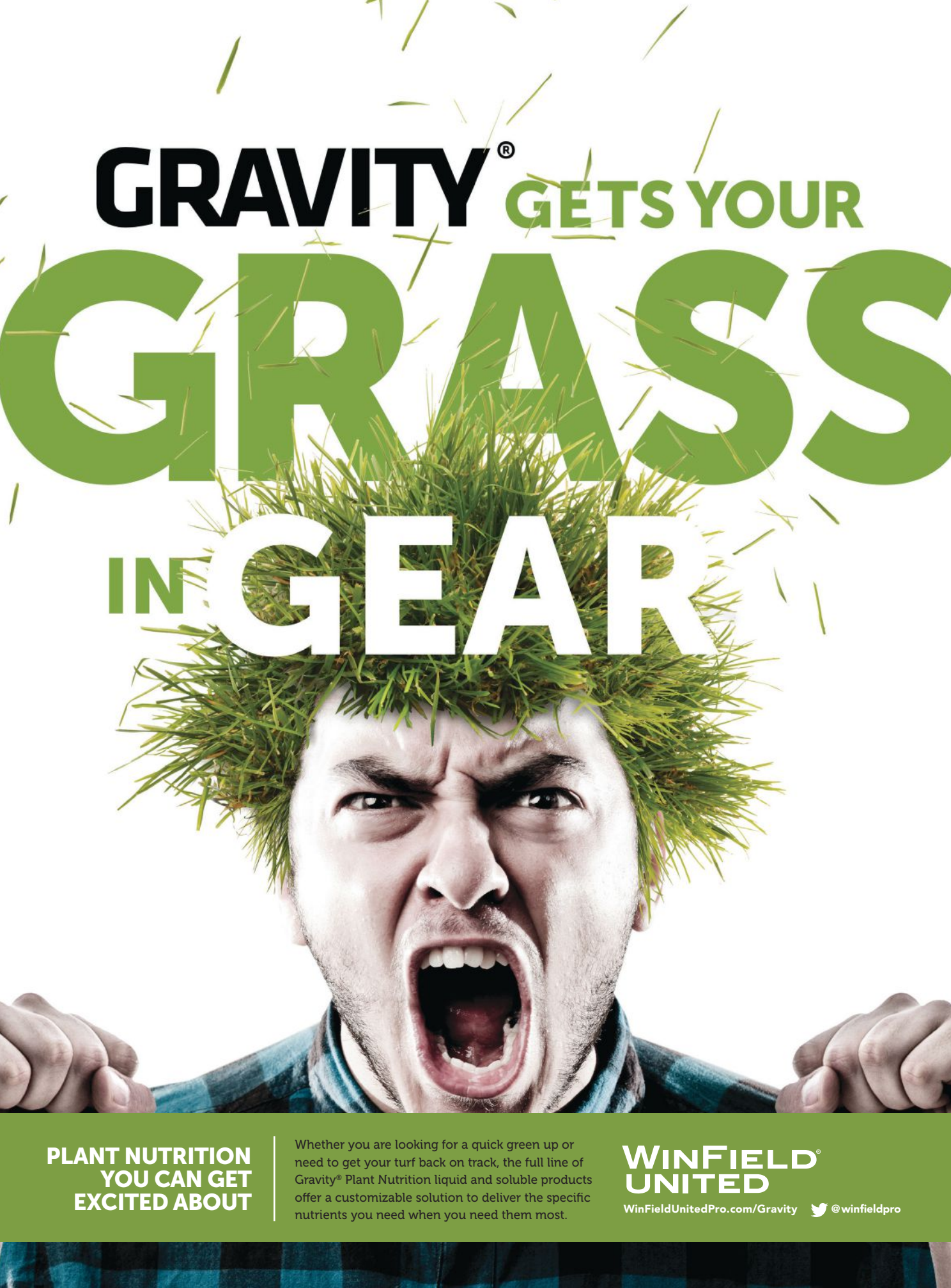
Turfgrass managers also are falling into the "keeping up with the Joneses" mentality. If someone posts something that you may not be doing on your course, you may

start to question yourself. You end up chasing a false reality that can lead to anxiety, second guessing and a lack of confidence in what you are doing.

We also must be careful in our personal lives of what we perceive to be reality. Seeing only the good pictures that people post creates a nonexistent reality that is envied and cannot be achieved. The same can be said in comparing courses across social media. What is right for one golf course's budget and short- and long-range goals may not be right for yours. Being compared to local courses by golfers was hard enough. Now we are comparing our management strategies to courses we have never visited and people we have never met.

Social media represents one giant group chat. Be prepared when you present a question for answers from all over the spectrum of knowledge, expertise and geographical locations. Just because something sounds or looks right on the internet does not make it right. Don't let these answers be your final step. Once pointed in the right direction, gather more information based on proven science from trustworthy resources such as professors, agronomists and trusted colleagues. Be confident in your practices, not #FakeNews, and do what is right for your course, not theirs. **G**

Jared Nemitz is superintendent at The Peninsula Club, Cornelius, N.C. He can be reached at jared.nemitz@thepeninsulaclub.com or followed at [@jarednemitz](https://twitter.com/jarednemitz).



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Life's a Beach

How bunker
renovations changed
labor at two golf
courses — both for
better and for worse

**BY SETH JONES
AND CLARA RICHTER**



The new bunkers at The Country Club at Castle Pines stand up to heavy rainstorms and wildlife alike.

A sandstorm in California

At Palos Verdes Golf Club, the bunkers now drain like a dream, but the crew still finds that they're too often working in and around the beach

BY SETH JONES

Located in sunny Southern California, Palos Verdes Golf Club was built in 1924 and designed by George C. Thomas and William P. "Billy" Bell. The duo also designed nearby Riviera CC, Bel-Air CC and Los Angeles CC North. Measuring 6,200 yards from the tips, the course utilizes small greens and the natural terrain to defend par.

Pat Gradoville, CGCS, has served the members at Palos Verdes GC as superintendent for 21 years. About six years ago, the membership told him that the bunkers needed a significant renovation.

"We had very poor drainage, that was the driving reason (for a bunker overhaul)," Gradoville says. "And the

other key was it seemed every bunker had a different kind of sand — the members wanted more consistency."

Armed with a budget for a complete bunker renovation, Gradoville started doing research. He called several different bunker companies as well as a few trusted superintendent colleagues. It was a conversation with an old Iowa State University classmate that turned him on to Klingstone. Tim Johnson, superintendent at Spring Hill GC in Wayzata, Minn., had success with Klingstone and recommended Gradoville give the technology a try.

"He said, after installing the bun-



Pat Gradoville

kers 13 years ago, (Spring Hill's bunkers) were unchanged; it was still the same thing as when they originally did it," Gradoville says. "So, my thought process was, if it can go through the freezing/thawing of a Minneapolis climate, it would certainly work in Southern California."

Klingstone is a patented spray-on polymer liner that requires no mixing. A loaner pump, a portable compressor and a garden hose with a nozzle are the required tools.

"The best way to describe it is you saturate it one-half inch on top of the native soil on top of the bunker," Gradoville says. "It cures to a very hard plastic that bonds to the base of

Continued on page 18

// LIFE'S A BEACH



The spray-on Klingstone bunkers can be installed using a loaner pump, portable compressor and garden hose with a nozzle.

Continued from page 17

the bunker. You don't have any soil or a black polymer — it's the same color as your sand."

Gradoville hired a contractor, Wisconsin-based Oliphant Golf, and the project was complete on all 75 bunkers in about five months.

Six years after the fact, Gradoville still is thrilled with the performance of the bunkers, especially with some heavy rains hitting the area in recent months.

"The sand has stayed up on the faces, even with heavy rains," Gradoville says. "Shoot, with our old bunkers? We'd be out there for days. Now, I would say within four hours, we had all the sand that had slipped down (fixed) — and this was after a couple inches of rain in a day; it was a fairly good-sized storm that went through. I'm real happy with the way the

Continued on page 20

COURTESY OF KLINGSTONE.
CASTLE PINES (PREVIOUS PAGE & PAGE HEADERS)



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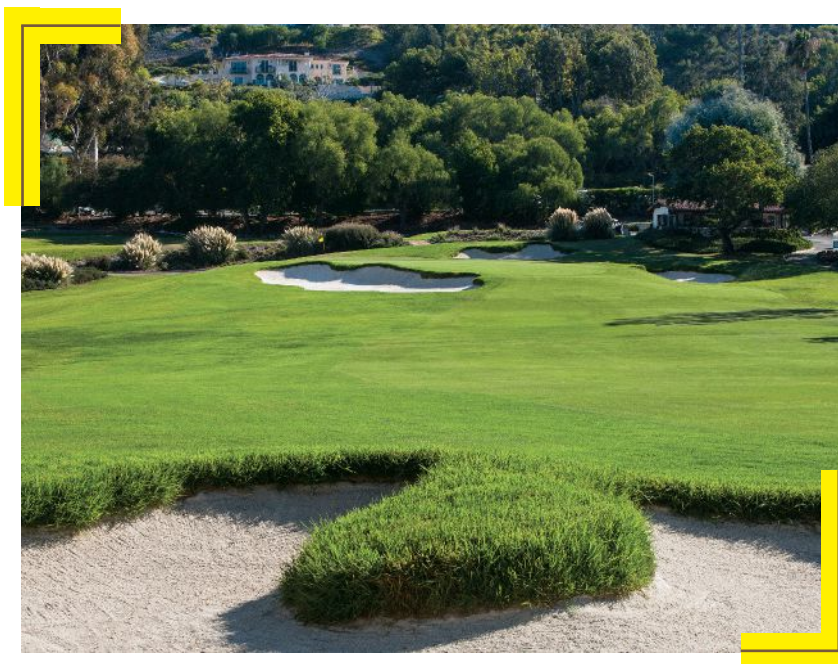
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At Palos Verdes, kikuyu grass can be found all the way down the face of the bunkers.

Continued from page 18

bunkers perform, especially after rain events.”

So, do all those saved man-hours on bunkers go into other areas on the golf course in need of attention? As in life, nothing is perfect. The crew at Palos Verdes still finds that life, too often, is spent on the beach.

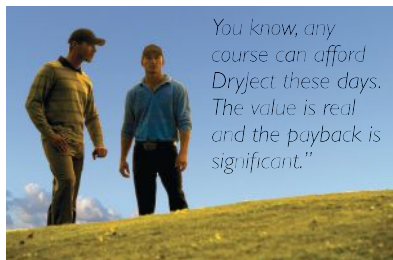
“I think our labor on bunkers has only changed. Before, we spent a lot of time pushing the sand up and trying to get it to be better than it was,” Gradoville says. “One of the key changes with the renovation was we brought the kikuyu grass all the way down into the face of the bunkers. We have these great big lips and faces that are grass now, they could be 12 to 24 inches. We have to go in there and do a lot of handwork on the surrounding turf around the bunkers. And we still have

Continued on page 22

PHOTO BY: PALOS VERDES GC

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Continued from page 20

to spend a lot of labor moving the sand around and keeping it level on the bottom, taking sand off the face so the ball rolls back down and doesn't plug, and so forth. We're still spending a great amount of time weed eating and maintaining the lip and the face around the bunkers ..."

Also, more bunker work is on the horizon. In 2019, Palos Verdes is getting new sand in all its bunkers. The membership has elected to go with a more angular sand that packs tighter, something that many clubs in the area are doing, Grado-ville says.

"It's interesting, in speaking with my cohorts, it just seems that members everywhere always prefer the bunkers of the club down the road," Grado-ville says. "It's just that feeling that the neighbors are always somehow doing better — everybody else's sand is better than your own."

Beating the one-two-three punch

When the bunkers at The Country Club at Castle Pines became washed-out, wildlife-harboring, pseudo-water hazards, the club knew it was time for a renovation

BY CLARA RICHTER

Poor drainage, washouts and contamination were three major factors that drove the decision to renovate the bunkers at The Country Club at Castle Pines, located about 20 miles south of Denver.

"The bunker sand had become so contaminated from washouts and heavy rainstorms (that) the soil became mixed with the bunker sand, and the bunkers no longer performed how they should from a drainage or playability standpoint," says Sean McCue, superintendent at Castle Pines.

To make matters worse, wildlife also was doing a number on the bunker lining,

McCue adds. In the winter, deer and elk roam Castle Pines, ripping out and destroying liners. The bunkers needed a liner that would hold sand in place, prevent contamination and flooding and stand up to the wanderings of the course's hoofed residents.

The Jack Nicklaus-designed course has a total of 52 bunkers, all of which were renovated between the winter of 2014 and the winter of 2015. The linings had all been replaced six years prior, but the various liners installed at that time were doing nothing to reduce the amount of erosion and keep sand in place, McCue says.

After spending about a year testing a

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couple different products, McCue settled on Better Billy Bunker as his choice of liner. A Better Billy Bunker team from Tennessee came out to Castle Pines to help install the test bunkers. It was a good way to introduce the product to him and the crew and to see how it worked in their environmental conditions, he notes.

"The main thing that led me toward the decision of the product was the flexibility of the product when applied to gravel," he says. "It does flex. It moves with wildlife walking on it during the winter. It's resistant to the mechanical bunker rake."

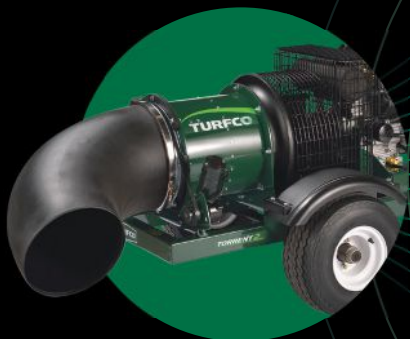
Once McCue chose a product, most of the renovation work was done in-house by a crew of 12 to 15 workers. "The main reason we did the work in-house was for a cost-saving standpoint," McCue says. "I have the skilled labor on staff to be able to do that, so it made the project more affordable."

Continued on page 24



Before the renovations at Castle Pines, the bunkers were negatively affected by heavy rainfall and erosion.

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THE LEADER.



Most of the bunker renovation work was done in-house by the crew at Castle Pines.

Continued from page 23

For the greenside bunkers — which were renovated from October 2014 to April 2015 — Castle Pines staff removed old sand and pea gravel before placing new gravel. Once that was done, the same Tennessee crew from Better Billy Bunker sprayed the polymer on top. The sand was replaced, and the bunkers were ready for play.

The second phase of the renovation — the fairway bunkers —

was completed during the fall and winter of 2015. For this half of the project, McCue's crew once again removed old material and placed new gravel, but this time, a nearby contractor came out and sprayed the polymer. The results of the new liners, McCue says, were immediate.

Once the Better Billy Bunker liners were installed and sand was placed in the bunkers, the playability improved dramatically. "We get some pretty significant downpours," McCue explains. "After the Billy Bunker was installed, our repair time is virtually nonexistent. It's saved us an incredible amount of labor."

Members also are happy with the change. According to McCue, they love how the bunkers look and play. They have seen the effort required to update the liners, and they're happy to see that a lot of labor isn't being used to repair bunkers after rain events.

As for future renovations, McCue doesn't see anything on the horizon. "We're hoping to ride out the lifespan of the liners and enjoy the success we've had with those in place," he says. **G**

MORE ONLINE | Visit Golfdom.com/exclusive for two more bunker projects, including the installation of Blinder Bunkers at Spring Ford CC in Royersford, Pa., and a Polyplast project at Mission Viejo (Calif.) CC.

PHOTO BY: THE COUNTRY CLUB AT CASTLE PINES



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Last month we recapped the discussions that eight different *Golfdom* Summit partners had with superintendent attendees. Those companies were Bluebird Turf Products, FairwayIQ, FMC Professional Solutions, Sipcam Agro, Smithco, Textron, Turfco and Nufarm.

Next month we will conclude our recap of the Summit with profiles of The Andersons, Capillary Concrete, Cub Cadet, Intelligro and Quali-Pro. Superintendents interested in attending future *Golfdom* Summits can apply at GolfdomSummit.com.

Winfield United

What do dairy and butter have to do with Winfield United, a crop input services company? Well, not a whole lot, but believe it or not, the company is owned by Land O'Lakes. Heavy cream, though, was not on the menu for superintendents at the *Golfdom* Summit.

Winfield has a three-pronged value proposition for superintendents, said Aaron Johnsen, Midwest regional director and national tech services director for Winfield. The first of those is service, the second is solutions and the third is insights, the focus of the company during the Summit.

The company has a suite of tools designed not necessarily for its products, but to help superintendents understand their courses, what they're doing and how to do it better.

Winfield also works to be an innovator in the industry, Johnsen explained to attendees. It has a research facility in western Wisconsin where an agronomy staff tests products and how they work in various environments.

The company pairs with manufacturers it supports and adds to its portfolio that way. It focuses on adjuvants, plant nutrition products and wetting agents, Johnson said. Winfield also partners with

vendors and has an early order program supers can participate in.

GeoTech, another focus of the company during the Summit, allows supers to map data on their courses. It also has a scouting aspect and can be programmed so supers can write prescriptions in the tool.

Healthy Grow

Healthy Grow, an organic product made from chicken litter and other organic materials, is manufactured by Pearl Valley Farms. Founded in 1987, the family-owned company has three locations in Illinois and about 2 million egg-laying chickens in production.

"It's a nice, small company that does some really big things," said Jeff Leuzinger, sales manager of Healthy Grow.

it clean and consistent," Leuzinger said. "Also, our compost has incredible fungal and bacterial activity."

He added that Healthy Grow has undergone several soil analyses within the past few years, which found that the product has helped improve turf quality in a variety of applications. For example, according to Leuzinger, Healthy Grow has helped with snow mold issues in the Midwest when applied in late fall. It also can assist in getting sand-based soil systems in Florida to percolate.

"The compost is really able to break down that organic matter," Leuzinger said.

PBI-Gordon

For this year's Summit, PBI-Gordon began with an introduction to the company, which began in 1947 as Private Brands Inc. and became one of the first companies to recognize the need for turf solutions designed specifically for golf course superintendents.

Golfdom and PBI-Gordon go way back, and *Golfdom* received a special shoutout in the company's presentation: The first advertisement for its broadleaf herbicide Trimec ran in the February 1970 issue of the magazine.

In the one-on-one meetings, PBI-Gordon reps wanted to take a more tailored approach to their discussions with superintendents.

"We were trying to avoid 'selling' to them," said Jim Goodrich, product manager, fungicides and insecticides. "We wanted to have more of a conversation about what problems they were encountering on their golf courses and helping them with solutions for those problems."

The ongoing labor shortage was a frequent topic. To cut back on labor needs and costs, many courses have added more native areas. More native areas have led to more issues with grassy and broadleaf

Continued on page 26

SUMMARIZING THE SUMMIT

In Part 2 of our three-part *Golfdom* Summit recap, we visit with turf experts from Winfield United, Healthy Grow, PBI-Gordon, PondHawk, POGO Turf, Frost Inc. and Steiner

BY THE GOLFDOM STAFF

"Our core business is eggs, and then we handle the back end of things," Leuzinger joked to *Golfdom* Summit attendees, referring to the 500 tons of manure that Pearl Valley Farms composts and processes each week for Healthy Grow products.

The result, Leuzinger said, is two grades of fertilizer: one for greens and one for fairways. The products are created through an aerobic, indoor air-drying compost process.

"What we've done for the last 31 years is refine the composting process to get

// GOLFDOM SUMMIT RECAP PART 2

Continued from page 25

weeds, including Queen Anne's lace in the North and Japanese switchgrass in the South.

Superintendents also raised concerns about the diseases they saw this year, including dollar spot and Pythium root rot.

"A lot of guys are coming up against Pythium root rot in every part of the country," Goodrich said. "We kept hearing that guys are thankful for our Segway product — it was resounding; a lot of guys were really pleased with the way Segway has performed for them. We've done a lot of work over the past couple of years to get Pythium root rot on our label. We've constantly been tweaking our label to include that language."

PondHawk

If there was an award for the most prepared company at the 2018 Summit, PondHawk would be a strong contender for first place. As soon as superintendents entered the room and sat down with Sandra Burton, president and CEO, and Craig Burton, COO, they were presented with aerial photos — of their own courses.

"We did quite a bit of homework and had a good idea of what the water assets were at each course," Sandra Burton said. "That allowed us the opportunity to get site-specific with each attendee's water assets."

PondHawk is a fully integrated solar-powered pond aeration system that delivers algae-eliminating bubbles to any pond without the expense of wiring for electricity.

"(Superintendent attendees) were like, 'Wow, we've been waiting for something like this,'" Burton said. "The guys who have put electricity in all over their course are interested in the energy savings. And the others (without electricity) are looking at us as a first line of defense ... energy delivery to the back nine can be cost-prohibitive. By being able to deliver pond aeration via solar power, we offset a lot of costs."

When asked if there was one meeting that stood out, Burton recalled the excitement one superintendent had when he learned about the solar-powered technology.

"He immediately understood the value because he had already priced out installing electric at his course," Burton said. "This was going to save his course thousands. Boom! He placed an order right there."

Frost Inc.

In its third year as a partner at the *Golfdom* Summit, Frost was all about showing off its GPS-guided spray equipment.

"This technology has become more reliable ... making you more efficient with your chemical applications because you're not creating big triangles of overlap or underlap," said Ken Rost, president and CEO of Frost. "You're able to get more done faster because the operator is not making judgments about turning on and off boom sections. It's all done autonomously through GPS guidance."

Rost adds that Frost's systems incorporate dual nozzles, one for slower speeds, one for faster speeds. To achieve top speeds, both nozzles activate together.

In addition to installing GPS spray control systems on new or used sprayers, the company has recently paired up with Kubota to offer the Ninja GPS spray control system on the Kubota RTV-X1140 vehicle platform.

The RTV features 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.

Additionally, Rost said, the machine allows the operator to travel at speeds up to 12 mph when spraying and up to 25 mph when traveling from site to site.

"I hear what you all are saying in your heads," Rost said to Summit attendees. "'You're not going to drive 10 to 12 mph on my golf course.' But the star of this piece of equipment is four-wheel independent suspension. It's the smoothest and quietest sprayer I've ever been on."

Pogo Turf

"(Pogo) stands for 'poke and go,' but it's not really a tool, it's a system of analysis," explained Carmen Magro, vice president

Continued on page 28



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// GOLFDOM SUMMIT RECAP PART 2

Continued from page 26

and chief agronomist at Pogo Turf Pro, to attendees of the *Golfdom* Summit.

Pogo is a division of Portland, Ore.-based Stevens Water Monitoring Systems.

The system gives superintendents an in-depth analysis of various measurements they can take on their courses. The sensor measures things such as moisture, salinity, surface temperature and soil temperature, among others. Most important, Magro said to attendees, the tool allows supers to see how turf responds to watering and fertilizing.

"We all know there's a perfect soil out there that has just the right amount of water and just the right amount of air, but nobody really knows what that is," Magro said. "I assure you, it's nothing related to what they teach you out of a textbook. It's more related to how your turf responds to what you do."

The Pogo system allows supers to un-

derstand how trends impact the way turfgrass performs over time. The sensor on the Pogo is a probe implemented exclusively by the U.S. Department of Agriculture and has even been used on Mars.

The system has allowed supers to see black layer develop before it appears. It also has helped clarify the correlation between watering cycles and fairy ring. The system also allows supers to map their courses, including sprinkler heads and cup placement.

It's not a tool, Magro emphasized, it's a system.

Steiner

Visibility and versatility. Those are the two V's that drive the design of Steiner's tractors and attachments, Michael Slattery, director of product management, explained to Summit attendees. Slope capabilities and low ground disturbance

make Steiner products ideal for golf applications, Slattery added.

The tractors have an oscillating and articulated-steering frame, which decreases ground pressure and increases maneuverability without creating disturbance. The hydraulic weight transfer feature shifts weight off of the attachment back onto the front tires without the operator having to stop the machine.

Attendees took a look at the slope capabilities of the 450 DX tractor and learned that it could operate on a 30-degree slope. The flex deck has four decks as opposed to three, has an 80-inch cut and comes with a high lift blade and a side discharge.

Adjustments are easy, explained Slattery. A lever on the front of the attachment raises and lowers tension to change the belts and raises and lowers the deck, reducing trips back to the shop to grab hand tools to do the job. ☺



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// EFFECTS OF NPK RATES AND COMBINATIONS

MICRODOCHIUM PATCH DISEASE DEVELOPMENT

By Brian McDonald, Emily Braithwaite, Alec Kowalewski, Ph.D., and Clint Mattox, Ph.D.

Microdochium patch (*Microdochium nivale*) can severely damage annual bluegrass turf when it's cool and wet for long periods. This disease has been controlled with fungicides, but applications of urea to reduce wear from golfer traffic have been known to incite the disease. The purpose of this three-year experiment is to determine whether different rates of nitrogen and/or NPK combinations influence Microdochium patch disease levels on an annual bluegrass putting green.

Treatments were applied monthly from October 2017 through April 2018 on an annual bluegrass green (Bos Sod, Canada) built with 12 inches of sand meeting USGA guidelines on top of soil with drainage. Treatments were urea (46-0-0) at 0.10 and 0.20 lb. N/1,000 sq. ft.; 0.10 lb. K (potassium chloride) at both N rates; 0.025 lb. P (phosphoric acid)/1,000 sq. ft. at both N rates; and 0.025 lb. P plus 0.10 lb. K at both N rates.

In order to mitigate extremely high disease levels, elemental sulfur (0.25 lb. S/1,000 sq. ft./app) plus Duraphite (3.2 fl oz/1,000 sq. ft./app) was applied monthly October through April.

As expected, the high rate of nitrogen resulted in the most disease across all P and K levels (29 percent versus 19 percent). Also, as expected, plots treated with only nitrogen had the most disease (26 percent for the 0.10 N lb. rate and 36 percent for the 0.20 N lb. rate, respectively). Surprisingly, plots treated with N plus K had the least disease at both nitrogen levels (15 percent for the 0.10 lb. N rate and 22 percent for the 0.20 lb. N rate, respectively). This trial is funded by the USGA and the GCSAA. ©

Brian McDonald and Emily Braithwaite are research assistants, Alec Kowalewski, Ph.D., is a turfgrass scientist and Clint Mattox is a Ph.D. student at Oregon State University. You may reach Brian at brian.mcdonald@oregonstate.edu for more information.

NEWS UPDATES

NUFARM WELCOMES 11 ASSISTANT SUPERS INTO LEADERSHIP PROGRAM

Nufarm added 11 assistant superintendents to its EXCEL Leadership Program at the Golf Industry Show. The new class members convened in San Diego along with the returning EXCEL class to kick-start a year of expert-led and peer-explored leadership development.

"It was amazing to see the first-year EXCEL class be so proud of their group and eager to pass on good things to this year's new class. They radiate confidence now," said Katie Beth Groover, Nufarm's turf and ornamental marketing and communications manager.

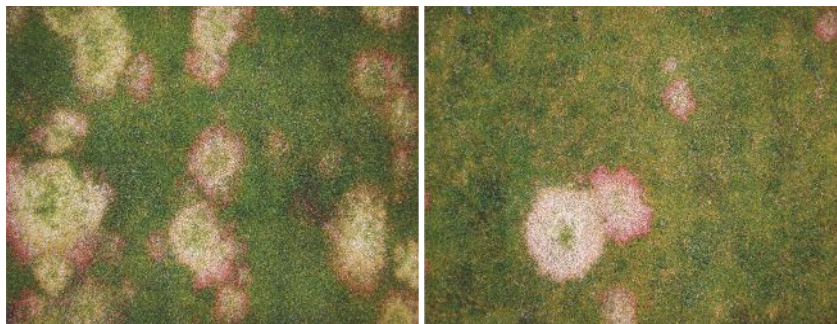
The EXCEL Leadership Program, a Nufarm and GCSAA collaboration, offers development opportunities for assistant superintendents.

Each class participates for three years, meeting three times during each year, to receive in-depth professional development that focuses on one fundamental growth area each year: personal development in 2018, leadership development in 2019 and community stewardship in 2020. The curriculum repeats until all class members have been immersed for a year in each topic.

Classmate Josh Lemons of Olympic Hills Golf Club said, "I like that there are companies and industries investing in the future of golf — and its people. It's a better view of the industry than just growing grass."

“... OFF-TYPES WERE A PROBLEM IN OLDER BERMUDAGRASS PUTTING GREEN CULTIVARS AND CONTINUE TO BE AN ISSUE IN CURRENT ULTRADWARF CULTIVARS.”

Eric H. Reasor, Ph.D.
(see story on page 30)



Effects of monthly urea applied fall through spring at 0.20 lb. N per 1,000 sq. ft. (left) versus the combination of 0.10 lb. N per 1,000 sq. ft. plus 0.10 lb. K per 1,000 sq. ft. (right).

//USING PGRs TO MANAGE

Off-type grasses in ultradwarf bermudagrass greens

By Eric H. Reasor, Ph.D.

Golf course superintendents have reported issues with off-type grasses in ultradwarf bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) putting greens over the past several years. These “weedy” grasses have disrupted putting green aesthetics and surface uniformity (Figure 1).

Fundamentally, off-type grasses are defined by differences in morphology and performance when compared to the surrounding desirable turfgrass. Furthermore, a genetic distinction does not have to exist for a grass to be considered an off-type. Leaf texture, turfgrass color and density as well as response to management practices are reported differences among off-types and desirable cultivars.

ULTRADWARF GREEN HISTORY

It’s important to understand the history and development of ultradwarf bermudagrass putting greens to better understand the issue with off-type grasses.

Ultradwarf cultivars such as Champion, MiniVerde and TifEagle were selected from natural or induced mutations of older cultivars (i.e., Tifgreen 328 and Tifdwarf). These selections primarily were based on desirable differences in morphology and performance when compared to the surrounding turfgrass.



Therefore, ultradwarf cultivars were once desirable off-type grasses.

The propensity of off-type development in bermudagrass putting greens is largely unknown. Tifgreen and Tifdwarf were reported to be genetically unstable compared to Tifway; however, the origin of this genetic instability

is unknown. Several hypotheses concerning genetic instability have been summarized, but none have been confirmed by research. Regardless of the origin, off-types were a problem in older bermudagrass putting green cultivars and continue to be an issue in current ultradwarf cultivars.

OFF-TYPE MORPHOLOGY AND GENETICS

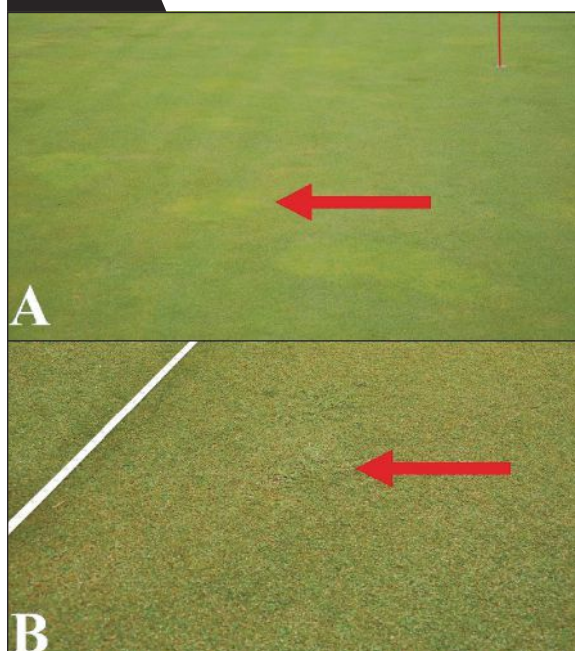
We conducted research from 2013 to 2017 at the University of Tennessee to better understand off-type morphology and genetics. In the first step of this research, we built an off-type collection. Beginning in summer 2013,

we harvested 52 samples from 21 golf courses in Alabama, Arkansas, Florida, Mississippi, South Carolina and Tennessee. The superintendent at each golf course determined the difference between an off-type and a desirable grass. It’s important to note that off-types were found in Champion, MiniVerde and TifEagle putting greens.

The next step was to characterize the morphology of sampled bermudagrasses. We measured internode length and stolon diameter between the third and fourth node and quantified leaf length and width using the outer leaf from the third node. All measurements were made using digital calipers.

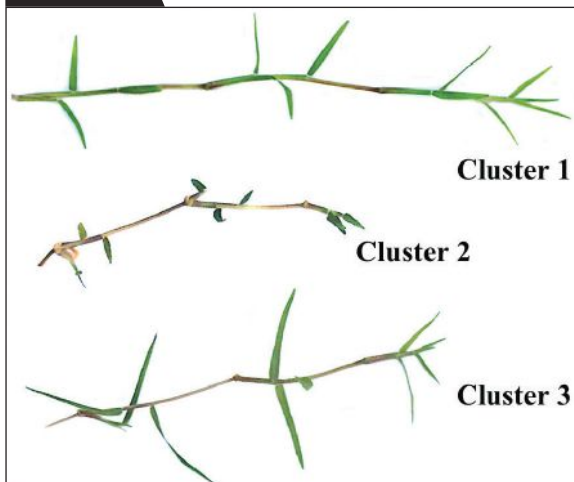
We analyzed the morphological data using a cluster analysis, with the goal of

FIGURE 1



A) Off-type grasses (lighter in color and noted by red arrow) present in an ultradwarf bermudagrass putting green.
B) Close-up of an off-type grass (noted by red arrow) present in an ultradwarf bermudagrass putting green.

ALL PHOTOS BY ERIC REASOR

FIGURE 2

Photographs of samples representative of each morphological cluster. Grasses in cluster 1 had significantly longer internode lengths than those in clusters 2 and 3. Grasses in cluster 3 had significantly longer leaves than those in clusters 1 and 2.

grouping these grasses according to the variability among samples. This analysis grouped all the measured samples into three distinct morphological clusters (Figure 2).

Each morphological cluster included off-type and desirable samples. Internode length and leaf length were statistically different among the three clusters, whereas stolon diameter and leaf width were similar. Figure 2 contains a representative sample from each morphological cluster. Internode and leaf lengths varied greatly among desirable and off-types as well as grasses measured during other experiments. This is an indication of the amount of morphological variability that can occur in an individual putting green, both golf course to golf course and cultivar to cultivar. Moreover, differences in internode and leaf length within the same putting surface can lead to decreased turfgrass density and reductions in putting surface quality and playability.

INCONSISTENCIES AND DIVERSITY

The inconsistencies of morphological measurements among bermudagrasses used on putting greens suggest genetic techniques may be more accurate in evaluating the diversity of these grasses. Several methods (i.e., DAF, AFLP and SSR) have been used to explore the genotypic differences among bermudagrass cultivars and off-types. Most previous experiments have shared the same conclusion: Cultivars within the Tifgreen-derived family are not readily distinguished from one another.

One molecular marker method, genotyping-by-sequencing (GBS), had not been used. This method is capable of efficiently identifying large numbers of single-nucleotide (DNA base) variants for genetic comparison.

Based on the robustness and its successful use in other grasses (switchgrass, wheat and barley), we hypothesized that GBS may be able to identify genetic variation among off-types and desirable ultradwarf cultivars.

We included samples of Champion, MiniVerde, Tifdwarf, TifEagle and Tifgreen as standards in the analysis, along with off-type samples from putting greens. The GBS results were surprising because most samples harvested from golf courses clustered with the standard cultivars (Figure 3).

“It’s important to understand the history and development of ultradwarf bermudagrass putting greens to better understand the issue with off-type grasses.”

This clustering suggests that these samples were similar genetically to those cultivars. Only five (~11 percent) of the 47 unknown off-type samples were genetically divergent from the standard cultivars. Furthermore, this method failed to identify Tifgreen and Tifdwarf from the ultradwarf cultivars. Our results using GBS were similar to previous molecular genetics research, which also failed to readily distinguish among ultradwarf cultivars and most off-type grasses.

So why did most of the grasses included in our experiment (and others) exhibit variable morphological characteristics while being genetically similar?

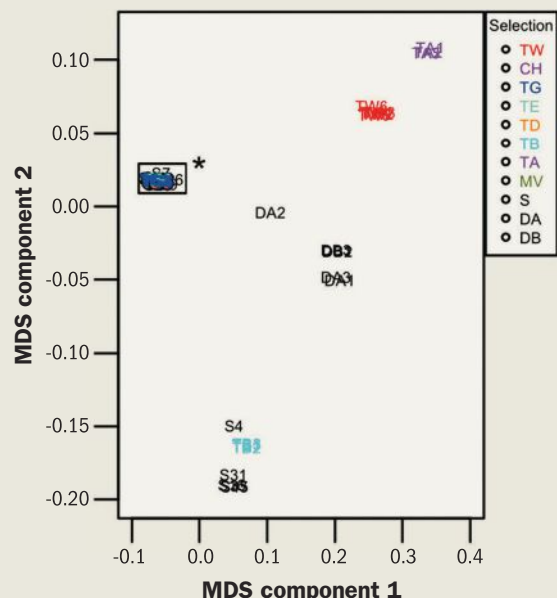
The majority of bermudagrass putting green cultivars were selected from other bermudagrass cultivars, and the off-types studied herein also were selected from existing plantings. The difference in morphology could be driven by differential gene expression influenced by environment or management practices. The intense management practices implemented on ultradwarf putting greens could result in the up-or-down regulation of genes that control important turfgrass characteristics (i.e., internode and leaf length). However, no research has been conducted to explore this hypothesis.

PGR RESEARCH ON OFF-TYPES

Anecdotal observations during off-type sampling suggests the off-types and ultradwarf cultivars respond differently to plant growth regulator (PGR) applications. Therefore, the next step in this research was to evaluate response of three off-types and ultradwarf cultivars (Champion, MiniVerde and TifEagle) to trinexapac-ethyl applications. One off-type was selected from each distinct

Continued on page 32

FIGURE 3



Multidimensional scaling plot (MDS) of nucleotide variants from 47 off-type and desirable bermudagrasses sampled from golf course putting greens, six bermudagrass cultivars (Champion, MiniVerde, Tifdwarf, TifEagle, Tifgreen and Tifway) and two progenitor species (*Cynodon dactylon* and *C. transvaalensis*). The asterisk and box note the region with the majority of off-type and desirable samples from golf course putting greens and ultradwarf cultivars and samples in this region are considered genetically similar.

Continued from page 31

morphological cluster previously mentioned. The grasses were established in greenhouse culture in a sand/peat mix meeting USGA root-zone specifications. Trinexapac-ethyl (Primo MAXX, Syngenta) was applied at rates of 0, 0.1875, 0.375, 0.75, 1.5, 3, 6 or 12 fl oz/acre. Daily clipping was suspended at the time of trinexapac-ethyl application and growth above one centimeter was harvested every 7, 14, 21 and 28 days.

Primo MAXX applied at 3, 6 or 12 fl oz/acre led to similar growth suppression. However, the six tested grasses responded differently. Off-types from cluster 1 were less sensitive to trinexapac-ethyl and produced 21 percent to 27 percent more clippings than Champion and MiniVerde but was similar to TifEagle (Figure 2). In addition, the three ultradwarf cultivars had a similar response across all trinexapac-ethyl rates. Off-types present in putting greens similar to off-types from cluster 1 have the potential to disrupt the functional and aesthetic characteristics because of differential susceptibility to trinexapac-ethyl.

Prohexadione-calcium is a PGR active ingredient with a similar mode of action as trinexapac-ethyl. Based on golf course observations, prohexadione-calcium has the potential to help manage off-types in putting greens. A second PGR experiment evaluated the response of the same six grasses in greenhouse

culture to applications of trinexapac-ethyl (Primo MAXX) and prohexadione-calcium (Anuew, Nufarm). The six grasses were treated with Anuew at 6 oz./acre, Primo MAXX at 3 fl oz/acre or Anuew+Primo at 6 and 1 oz./acre. Clipping yield was measured using methods similar to the previous experiment.

Application of Anuew at 6 oz./acre resulted in less growth regulation than an application of Primo MAXX alone (3 fl oz/acre). However, an application of Anuew (6 oz./acre) combined with Primo MAXX (1 fl oz/acre) yielded similar growth regulation compared to Primo alone and minimized the rebound effect that occurred after growth regulation subsided. The lower rebound growth associated with Primo MAXX and Anuew combinations may aid in management of off-types. This response is likely to help balance the growth between off-types and ultradwarf cultivars. Moreover, this response may explain anecdotal improvements in putting green quality observed by golf course superintendents following applications of Anuew+Primo.

OFF-TYPE MANAGEMENT USING PGRs

The off-types sampled in this research had varying morphology compared to ultradwarf cultivars Champion, MiniVerde and TifEagle. Despite these differences, most off-types were genetically similar to ultradwarf cultivars. Certain off-types are less sensitive to trinexapac-ethyl applications compared to ultradwarf cultivars, and this can make managing growth rate difficult in putting greens. The off-type characteristics associated with lower trinexapac-ethyl sensitivity are long internode and leaf length as well as a lighter green when compared to ultradwarf cultivars. Therefore, it's important to have an idea of the off-type present in the putting green.


FIGURE 4



Response of three ultradwarf bermudagrass cultivars and three off-type grasses 28 days after initial treatment (DAIT) following trinexapac-ethyl application (12 fl oz/acre Primo MAXX). An off-type of morphological cluster 1 (OTC1), 2 (OTC2) and 3 (OTC3) are included with Champion, MiniVerde and TifEagle cultivars.

Two information-gathering methods can better identify off-types present in ultradwarf putting greens. One method is to collect an off-type and desirable sample and grow them at your facility without clipping. You can observe and measure morphology as the samples grow. The second method is to send samples to the University of Tennessee Weed Diagnostic Center (www.weeddiagnostics.org). This service provides an off-type assessment to morphologically characterize off-type and desirable samples. Knowledge of the specific off-type at the facility can further refine PGR management of this issue.

The first PGR consideration for off-type management is to not apply more than 3 fl oz/acre Primo MAXX in a single application. Our research suggests there is no benefit when off-types are present in ultradwarf putting greens. Another consideration is to apply Anuew in combination with Primo MAXX. The addition of Anuew with Primo MAXX lessened the rebound growth of off-type grasses, which likely will help balance the overall growth rate among off-types and ultradwarf cultivars.

This PGR and off-type research was conducted in greenhouse culture on bermudagrass samples not maintained at golf course putting green mowing heights, and results of this research need to be confirmed in the field. However, this initial research provides insight on how PGRs have the potential to lessen the impact of off-types in ultradwarf bermudagrass putting greens. 

Eric H. Reasor, Ph.D., is a turfgrass scientist and the Southeast research scientist for PBI-Gordon.

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Superintendents Association for supporting this research.

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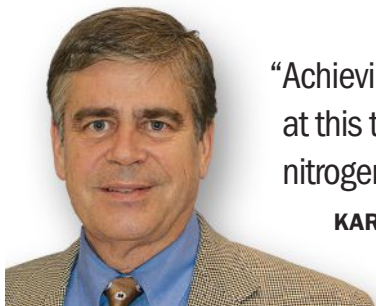
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“Achieving a uniform green color at this time often leads to applying nitrogen frequently and excessively.”

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

A spring burnout

Finally, the first day of spring. It's still cool, but it's sunny, and the snow is finally gone. After five months of storage, I lift the garage door, revealing my 1969 Pontiac Firebird. It's one of the year's most exciting days.

Turning the key and hearing the engine fire up is special. As I back the car out slowly and shift into drive, the only thing I'm thinking about is mashing down on the gas and doing a burnout. The smell of burning rubber and the appearance of white smoke is the announcement that spring is here!

Unfortunately, the problem with this first burnout — really all burnouts — is there is more to it than just stomping on the brake and gas pedal. Factors like weight distribution, tires, brakes, throttle control, rear differential and driver experience need to be considered when doing a burnout. If everything's not right, you can end up sideways, potentially crashing into barriers or fences, or worse, other vehicles. Or maybe burn up a clutch, destroy a drivetrain or throw a rod. A failed burnout can make someone go from being “cool” to being a “fool.”

After doing a poor burnout, the arduous process of repairing and paying to fix the car begins.

The first chance to play golf in the northern U.S. is an exciting event as

well. After a long winter, golfers and superintendents are excited to get on the course. That excitement is not always matched by the course's appearance.

Early spring is a quirky time for cool-season turfgrasses. Both air and soil temperatures are generally on the cool side, resulting in differential growth among turfgrasses. For example, tall fescue starts shoot growth sooner than most turfgrasses, including Kentucky bluegrass and perennial ryegrass. Because of this difference, the pronounced clumping of tall fescue is most evident.

On putting greens, annual bluegrass (*Poa annua*) often is green and growing at a relatively rapid rate. In contrast, creeping bentgrass is growing at a much slower rate and often appears to not be growing at all. In response to the difference in growth, it's not uncommon to see blotchy purple and green patches on greens.

Achieving a uniform green color at this time often leads to applying nitrogen frequently and excessively.

Creeping bentgrass, however, is on a different biological clock than annual bluegrass. Research looking at both shoot and root growth reports creeping bentgrass growth occurs later in the spring. If you have a solid science-based fertilization program, don't do a “burnout” on creeping bentgrass by stepping on the nitrogen. The negative impact of too much nitrogen applied at the beginning of spring will cause problems much later into the season for both grasses.

Creeping bentgrass will start actively growing when it's ready. If you are concerned with differential growth between creeping bentgrass and annual bluegrass, manage differential growth rates through applications of a plant growth regulator.

Although I've focused on cool-season turfgrasses, an early-spring nitrogen application to bermudagrass may not be desired. Fifty years ago, Texas research described an occurrence at the time known as root dieback. On warm-season turfgrasses, specifically bermudagrass and St. Augustinegrass, root dieback can occur at the time of first leaf emergence. Roots that were white and healthy quickly turn brown and die.

Root regeneration occurs rather quickly, but mechanical practices at the time of first leaf emergence are detrimental. Root dieback does not occur every year and may be extremely sporadic. I've seen no research cited recently referring to this event. I would still be cautious with any aggressive management practice, including a hit of nitrogen during this short time of first leaf emergence.

This spring, fertilize in moderation and don't start too early. If you do a “burnout” too early, you will be trying to fix your turf for the rest of the year. **G**

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

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Genesis Open PGA Golf Tournament



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A return to my beginnings

I had the good fortune in early January to attend the Indiana Green Expo, the turf and landscape conference in Indiana. For me, it was a return to where I started my career.

My first professional position following graduation was teaching, research and conducting Extension programs at Purdue University, from 1985 to 2001. The annual turf conference was and still is the major event for the turf program at Purdue and the Midwest Regional Turf Foundation (MRTF). I was thrilled to attend, and it was great to see many friends. A few things struck me at the conference.

before 2007, there was little discussion about the cost of golf course maintenance, but today the cost of maintenance dominates conversations.

Indiana is no different than the rest of the nation; it is difficult to find people to work on a golf course maintenance staff. Low starting salaries are seen as a big obstacle, as is competition for employees from many other industries. Add in the fact that many people

“Several of the more experienced superintendents remarked that before 2007, there was little discussion about the cost of golf course maintenance, but today the cost of maintenance dominates conversations.”

Aaron Patton, Ph.D., Cale Bigelow, Ph.D., and Doug Richmond, Ph.D., are doing a great job growing the turf program at Purdue. In today's world, it is no easy task to find the funding necessary to support a turf program. They are doing a great job and are conducting innovative research to advance the turf industry.

At least in the hallways, the conversations centered on economics. Some golf courses with which I was familiar have closed, and others are struggling. Too much supply and not enough demand is the overall problem, especially at moderate-to-high-end public golf courses. Several of the more experienced superintendents remarked that

are reluctant to take a job that requires being up early and working outside, plus the physical demands of the job, and the labor pool is limited even more.


Brian Chalifoux retired as superintendent after more than 30 years of service to Fort Wayne Country Club in Fort Wayne, Ind. Throughout his tenure at Fort Wayne CC, Brian consistently received the highest compliment one can receive from his peer superintendents; day in and day out, he maintained the best-conditioned golf course in the area. And it wasn't even close.

Brian had high standards and met or exceeded them every day. He imparted his high standards to all who worked for him, and those whom he mentored

carried those high standards to their places of employment. Brian was generous with his time and talents, helping many people along the way, including me. He was and is an ardent supporter of the turf program at Purdue. Thanks, Brian, for all you did for the golf industry and for me.

Rick Latin, Ph.D., was awarded the MRTF Distinguished Service Award. Rick is a turfgrass pathologist and has retired after 37 years at Purdue, where he taught, conducted research and provided Extension programs. He is an outstanding educator and scientist.

As a scientist, Rick has been thoughtful, careful, creative and meticulous in his research. As a result, when Rick offered a recommendation, it worked. You may know Rick as the author of “A Practical Guide to Turfgrass Fungicides,” or maybe you have taken a seminar he taught, so you likely know Rick is passionate about his work and spot-on with his information. I was lucky to work with Rick for many years, and I personally thank Rick for all he did for the golf industry and for me.

The Indiana Green Expo was a fun opportunity to reconnect with former students, former colleagues and many, many friends in the turfgrass industry. The turfgrass industry is great place to call home, and we all should be grateful for the opportunity to be part of it. 



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

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1 | Cushman Hauler 800 ELITE UTV

Textron Specialized Vehicle's Cushman Hauler 800 ELITE electric utility vehicle is powered by Samsung SDI lithium technology. The vehicle offers a towing capacity of up to 900 pounds and is equipped with zero-maintenance lithium batteries that don't require watering, terminal post checkups or cleaning like traditional lead-acid batteries, **TEXTRON** says. It features an ergonomic dash, offering plenty of storage for clipboards, radios and other tools, as well as a flexible bed that can be customized to securely carry the equipment and materials needed for the task at hand.

Textron.com

2 | Greenkeeper Pro

The Greenkeeper Pro features **PITCHFIX USA's** RepairTec pin technology. It's a 33-inch-long tool designed to easily repair ball marks with just one injection into the green without bending down. The tool is constructed of a rubberized handle, carbon fiber shaft and a spring-loaded steel-cast head with stainless steel "teardrop" pins. With one push down on the handle into the ball mark, the stainless-steel prongs in the head pull up, creating a level finish and a fixed ball mark, according to the company.

PitchfixUSA.com

3 | BPLR animal-proof waste and recycling receptacles

Constructed of galvanized steel, **PARIS SITE FURNISHINGS'** BPLR receptacles help keep out raccoons, birds, squirrels and even bears. Dual streams in the units allow users to separate garbage from recycling, organics from plastics and pet waste from general waste. With a mounting system built into the bottom of the bin's base, the units can be mounted to an optional precast concrete pad. The receptacles are available as model BPLR1 (single 32-gallon-capacity units) or as model BPLR2 (double with 64-gallon-capacity units) in a variety of standard colors, with a textured powder coat.

PEML.com



4 Range Tape

EASY PICKER Range Tape is designed to replace tee line ropes on driving ranges and practice facilities. It helps enhance the tee line appearance and confine players to designated hitting areas. Superintendents can customize the range tape to include a desired logo, slogan, tagline, graphic or pattern, according to the company.

EasyPicker.com

5 Litter Mate

STANDARD GOLF updated its Litter Mate for 2019 to feature an updated shell and a lower price. The shell is thicker, stronger and has easy-grip handles molded into the side, according to Standard Golf. In addition to these improvements, the Litter Mate is now 28 percent less expensive than it was in 2018, the company says.

StandardGolf.com

6 UMAX Rally 2+2

YAMAHA's new UMAX Rally 2+2 features a completely redesigned rear-facing seat kit with large bucket seats, according to the company. Powered by a 402cc low-emission, single-cylinder Yamaha engine, the vehicle features a towing capacity of 1,200 pounds, a fuel tank capacity of 5.2 gallons and a top forward speed of 15 miles per hour.

YamahaGolfCar.com

The 19th Hole



Ian Daniels

SUPERINTENDENT // Teugega CC, Rome, N.Y.



Ian, what can I get you?

A beer — something dark. Ithaca Beer Co. has some good options.

Tell me about your family. I've been married to my lovely wife, Rachel, almost 12 years. We have three active boys that keep us busy, Boyd who is 9, Grey who is 6 and Bennett who is 5.

How do you pronounce 'Teugega' and what should I know about your club? It's tee-YOU-juh-guh. It's the Native American name for the Mohawk River that runs through our town. The original club was built in 1899, six miles away. In 1919, the local businessmen decided they wanted a better golf course so they commissioned Donald Ross. Ross is quoted as saying the original course was the second-worst golf course he had ever seen, only behind a course he saw that was built in a swamp. During construction, Ross became engaged to Susan Aldridge of Rome. He spent considerable time here, and his thumbprint is all over this course, from the unique layout to the greens complexes. One of the good things about our course is we haven't had the money to screw up his original design; the bad thing is we haven't had the money to put in some of the improvements that might make us be more recognized.

What's your favorite tool in the shop? The Turfmaster cup cutter (from Wittek Golf). It has two blades, and you can hammer it down with a



//BEST ADVICE

"MY MENTOR, STEVE HAMMON AT TRAVERSE CITY (MICH.) G&CC, TOLD ME TO ALWAYS BE AWARE OF WHAT YOU'RE SAYING AROUND MEMBERS. THE 16-YEAR-OLD NOT RAKING HIS FOOTPRINTS OUT OF THE BUNKERS COULD ALWAYS BE YOUR BOSS IN 5 YEARS."



mallet. There's a lot you can notice about the course when you step foot on every green first thing in the morning.

What teams do you root for? I'll watch any live sports, especially college football and golf. I transferred to Clemson in 2003 and graduated from there in 2005, so the last few years have been a good time to be a Clemson fan.

I looked you up on Golfdom.com and saw that you were featured in Golfdom in 2005 when you were an intern at Pinehurst. Yeah, my experience there was a lot of fun. I still have that magazine in a drawer somewhere here in the office.

Fill in the blank: The hardest-working person in golf is _____?

Probably divorced. I have a family, and I consider myself hardworking ... but it's tough to balance both work and family. I think we're getting better at it, as an industry. But the hardest-working person in golf probably doesn't have a family.

If I'm in Rome, N.Y., what's one thing I need to be sure to do? You have to play my golf course then sit on the back patio and have a beer by the fire



pit that overlooks Delta Lake. I'm biased, but I think this golf course is the highlight of Rome.

As interviewed by Seth Jones, Feb. 13, 2019.



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