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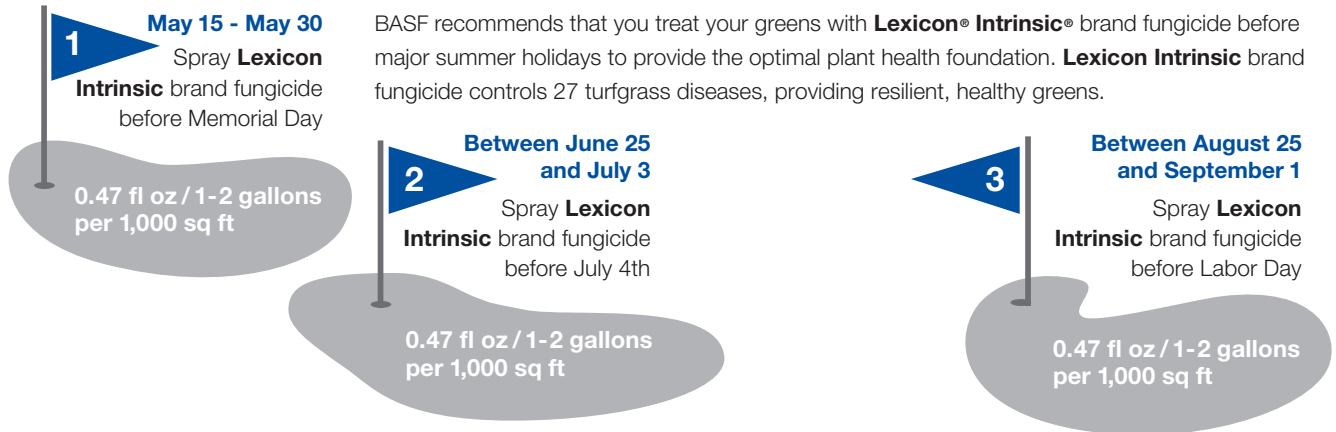
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For turf that's championship-ready,
whatever the championship may be

*The BASF Holiday Spray program
for cool-season greens*



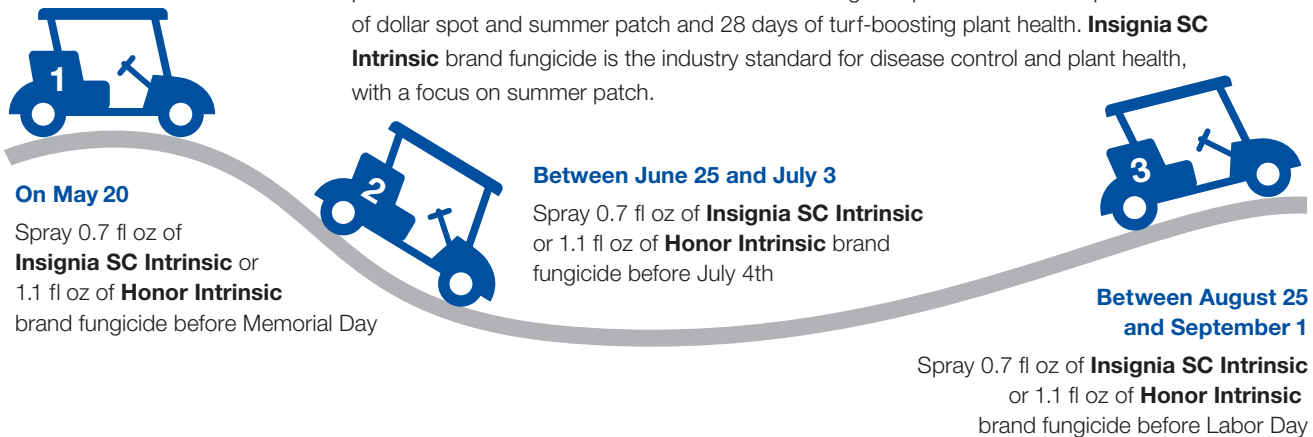
Holiday Spray program for cool-season greens:



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SO YOU'RE
CONSIDERING

THE
DARK
SIDE

Five former superintendents
share why they moved to
Green Industry sales — and what
it's like on the other side.

PLUS

2016 PLANT HEALTH UPDATE

A ROYAL GREENS CONTAMINATION

EFFECTS OF MOWING HEIGHTS
ON SHOT EXECUTION



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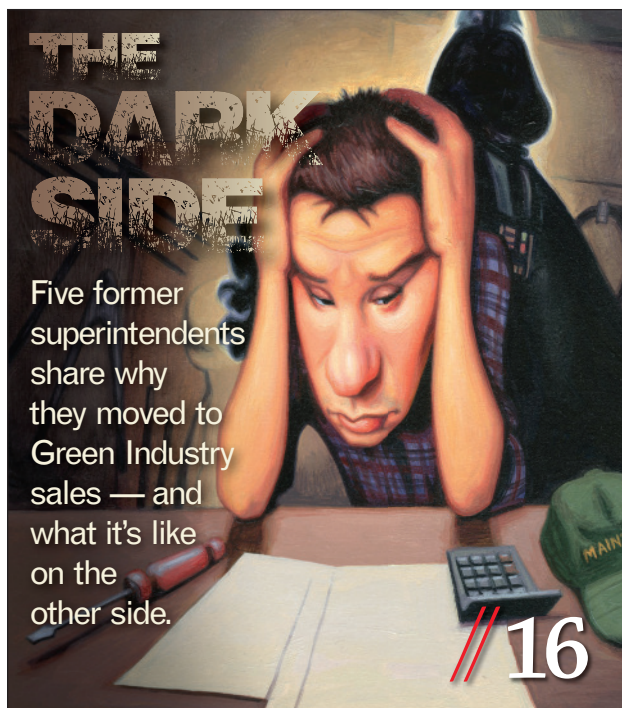
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How I survived when my greens didn't

After soil contamination wiped out his greens in 2015, a superintendent learned to control what he can control.



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PLANT HEALTH UPDATE

- // **PH1** **Delivering championship conditions, whatever the challenge.**
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* The 27 diseases includes spring dead spot. See BASF's FIFRA Section 2(ee) Recommendation for spring dead spot; see www.CDMS.net for BASF Technical Information Bulletin. Lexicon and Intrinsic are registered trademarks of BASF. © 2016 BASF Corporation. All rights reserved.



"It's not meant to be a negative story, or a story that encourages superintendents to consider leaving their jobs... It's meant to be a conversation among friends."

SETH JONES, *Editor-in-Chief*

Tales of darkness, tales of light

It's a dramatic cover this issue, but I wonder how many stressed-out superintendents can relate.

OK, maybe you've never imagined a shadowy villain lurking over your shoulder. But have you thought about leaving behind the stresses of maintaining 18, 36 or more golf holes for a job in sales? Or, as it's widely known in our business, "going to the Dark Side?"

My publisher recently received a phone call from one of our loyal advertisers. They were looking to hire a new sales rep in a certain region and wanted to know if he had any contacts in the area who would be good candidates or who could make a few recommendations.

My publisher made a call to a friend, a successful superintendent at a big-time golf club who's great at his job. He asked the superintendent, "Got any recommendations?" His response? "Yeah... me."

That phone call, as well as knowing many former supes who have permanently hung up their cup-cutters, led to this cover story. It's not meant to be a negative story, or a story that encourages superintendents to consider leaving their jobs — heck no.

It's meant to be a conversation among friends who know about turf, about being a superintendent, about having those stressed-out days, and what led them to eventually leave their jobs. And then they offer some sage advice, some insight.

I think the story is a good read for everyone in the business, from turf students to grizzled old veterans, from superintendents to sales people. Because it's a look inside the minds of five guys who have earned my respect, and they all have interesting

insights into this industry, on both sides of the desk.

If that story is about the dark side, then there's also a tale in this issue from the bright side — a superintendent who endured sleepless nights while his greens died a mysterious death. And he not only kept his job, but he successfully grew the greens back from seed in the middle of the summer in the mid-Atlantic.

Jesse Hartman's story, "How I survived when my greens didn't," begins on page 45. He wrote the story himself. He showed the story to his wife, and she was moved to tears. I think I understand why.

It's the middle of the summer. I don't consider myself a worrier, but I do worry about my readers this time of the year — heat, drought, flooding, humidity, disease

pressure. I never ask a reader how they enjoyed their 4th of July. I realize that while I was grilling, many of my readers were grinding, doing their best to keep a golf course alive and a membership happy. While I would enjoy making the small talk, I know from experience that not many superintendents have anything lighthearted to say about the weekend.

While the cover image may seem ominous, these two stories offer good advice. And they both offer hope.

The one thing that kept coming up in each story wasn't stress, the greens committee, the long hours or salaries. The one common thread was family. Even our "19th Hole" interview (page 60), mentions family, and how the birth of a granddaughter may just have extended a superintendent's life.

The shadowy figure on the cover is meant to catch your eye, to get you to open the magazine. But he's not the (death) star of this issue. The star of this issue is you and your family, and staying positive when things get tough out on the golf course.

● Another new columnist this issue. This time we have our young associate editor, Grant "Buddy" Gannon, have his say. After the week the kid had — his first U.S. Open and his first time seeing a Cleveland team hoist a trophy — he deserves it. His column, "Who's Your Buddy" is on page 15.

Email Jones at: sjones@northcoastmedia.net.

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WIDER
APPEAL

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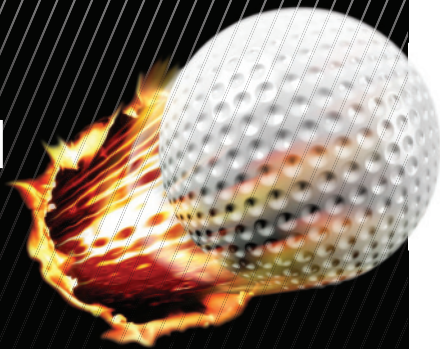
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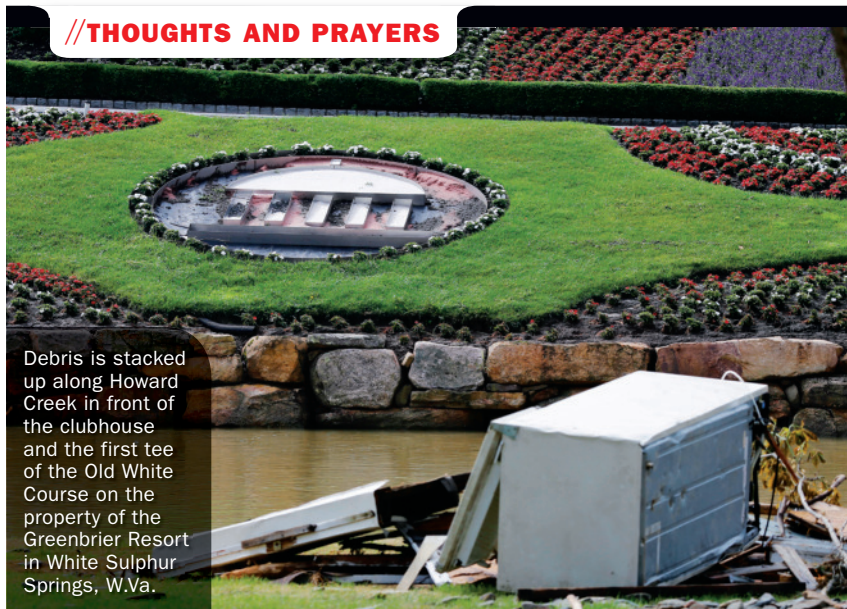


Starter

NEWS, NOTES AND QUOTES



//THOUGHTS AND PRAYERS



Debris is stacked up along Howard Creek in front of the clubhouse and the first tee of the Old White Course on the property of the Greenbrier Resort in White Sulphur Springs, W.Va.

FLOODING CANCELS 2016 GREENBRIER CLASSIC

➔ The PGA Tour and Greenbrier Resort were forced to cancel the Greenbrier Classic because of historic flooding that led to the death of 26 people. The tournament was scheduled to be held July 7-10 on the Old White TPC.

"We are heartbroken by the devastation that the residents of West Virginia are experiencing at this time and the reports of lives lost due to the terrible flooding," PGA Tour Commissioner Tim Finchem said in a press release. "Cancelling the Greenbrier Classic is certainly the most prudent course of action, as our foremost concern is the well-being of those who are having to live through this tragic situation. Our thoughts and prayers are with them."

White Sulphur Springs, where the resort is located, received 9.17 inches of

rain during a 48-hour period, according to the *Charleston (W.Va.) Gazette-Mail*.

"It's like nothing I've seen," Jim Justice, owner and CEO of The Greenbrier, said in a statement. "But our focus right now isn't on the property, the golf course or anything else. We're praying for the people and doing everything we can to get them the help they need."

Finchem added that the Tour will return to The Greenbrier next year.

A friend of the Greenbrier's maintenance team, Brandon Reese, director of golf course operations at TPC Louisiana, started a GoFundMe page to support the members of the Greenbrier's agronomy team and their families. As of press time, the page had raised \$10,550. Kelly Shumate is the director of agronomy at the Greenbrier.

//SETTLING IN

TROJAN BATTERY NAMES NEW COO

Trojan Battery Co., LLC, recently named John Beering to the company's new role of chief operating officer.

As a member of the executive management team, Beering brings more than 20 years of experience, and most recently spent more than nine years in various general management and marketing roles with Eaton.



John Beering

Beering will report to Jeff Elder, president and chief executive officer of Trojan Battery.

"John's breadth of engineering, operations, sales, marketing and business management experience will be instrumental to Trojan Battery as we enter the next phase of our corporate growth," says Elder. "Trojan is committed to delivering unmatched deep-cycle battery technology, along with world-class customer service and support, and John's proven track record make him the ideal candidate to lead our key growth initiatives."

//THAT'S NOT MY NAME

PRIMERATURF UNVEILS NEW NAME

Primeraturf, Inc. recently changed its name to Primera, Inc. The 16-year-old business cooperative has changed its name to reflect the depth of its market expansion, according to the company.

"The new name, Primera, allows us to emphasize our wide-ranging market growth and expansion beyond servicing just the turf industry," says John Gertz, CEO of Primera, Inc. "Our name change truly represents what we have become; Primera is the broadest, highest impact, most relevant distribution company across the specialty markets. We are excited about this change and look forward to the continued partnerships within the industry that enabled us to make this move."

The new name will be implemented across the company's website and business communication throughout the remainder of 2016.

Established in 2000, Primera is a business cooperative of 59 distributors committed to supporting distribution to the professional turf, ornamental, IVM, pest control, forestry and aquatic markets.

//GOLF'S MAJORS

Baltusrol set for PGA

➔ The 2016 PGA Championship hits the calendar early this year, July 28-31, to accommodate the Rio Olympics. We checked in with Mark Kuhns, CGCS at Baltusrol Golf Club, Springfield, N.J., shortly after the conclusion of the U.S. Open to hear how the course has been faring this summer, as well as for this month's "19th Hole" interview (see page 60).

"We've been very hot, very dry," Kuhns said. "I wish we would have got some of the rain Oakmont got (during the U.S. Open.) It's cool-season turf here. I don't care how much you water it, when it gets this hot it shuts down."

Kuhns recalls having better weather in 2005 leading into that year's PGA Championship, but says the course is on track and where he wants it to be in anticipation of the PGA. The biggest difference from 2005 to 2016, Kuhns says, is the size of the event.

"It's a bigger ordeal with the number of tents, more people, more concessions — they're looking at 40,000-plus people here a day," he notes. "On No. 16 they've constructed a two-story corpo-



A two-story chalet on Baltusrol's No. 16 awaits PGA Championship fans.

rate chalet. The footprint is larger for the media. The CBS compound alone has doubled in size."

He has 75 volunteers coming in to assist his full-time crew, down from 130 volunteers in '05. He says his regular crew is better trained this time around, thus his need for a smaller group of volunteers.

Golfdom will report live from the PGA Championship beginning July 24. Visit Golfdom.com or follow us @Golfdom to stay abreast of our coverage.

THEY SAID IT

DAVID WITHERS

PRESIDENT, JACOBSEN

On the state of his native England.

"So within one month, England leaves the European Union and loses to Iceland in soccer. My decision to move to America has never looked better."

PHOTO BY: NICK ALLEY.

GO FIGURE

90

Percent of First Tee alumni who consider themselves lifelong golfers.

Source: World Golf Foundation

//WINNER, WINNER CHICKEN DINNER

AUDUBON INTERNATIONAL NAMES BIOBLITZ WINNERS

Audubon International named the winners of its BioBlitz 2016, an annual program that brings people together to appreciate the wildlife that share the golf course. This year's BioBlitz ran from Earth Day, April 22, through Migratory Bird Day, May 14.

Thirty-three golf courses found a total number of 3,118 unique species and had 1,274 total participants. Total species, which included animals, plants, fungi and insects, increased by 40 percent from 2015's BioBlitz total, and the number of participants increased by 78 percent, according to the company.

Venice (Fla.) Golf & Country Club came in first place, with 910 species found during its event. Jekyll Island (Ga.) Club had the most participants on its course, with 161 attendees. The winner of the Best Photo Contest was Shadow Wood Country Club, Bonita Springs, Fla., with a picture of a softshell turtle.

ABOUT THE COVER

Bucks County, Pa.-based artist James Bennett drew this month's cover. Bennett's creations have been featured in *Golf Digest*, *Sports Illustrated* and at the National Baseball Hall of Fame, Cooperstown, N.Y.



Caves Valley Golf Club was established 25 years ago and designed by Tom Fazio. The course played host to the 2002 U.S. Senior Open. During that championship, Fazio told reporters that people reach out to him all the time and say they have “the best piece of land you’ve ever seen” to design a course.

He added that the sentiment usually is “semi-exaggerated,” but the first time he saw the untouched “open space and trees and beautiful rolling terrain” that would become Caves Valley, “they may have under-exaggerated how good it really is.”

On the course, the ninth hole stands out from the rest, according to Steve Glossinger, Caves Valley’s golf course manager.

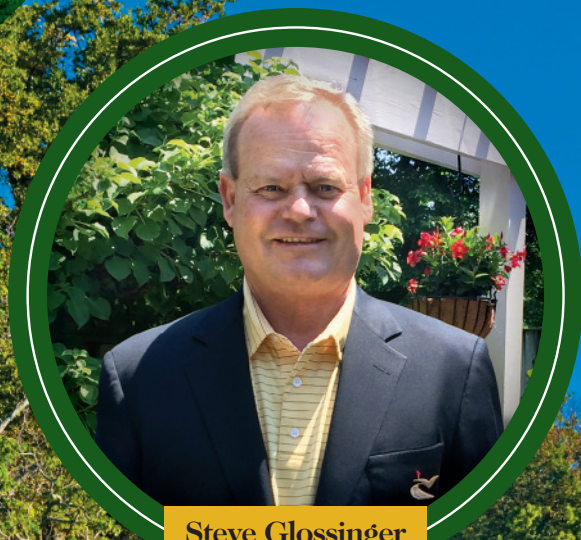
Stretching 460 yards from the tip to the green, the tee shot on this par 4 follows a meandering fairway of PennEagle bentgrass that is bordered by multiple bunkers on its left and a stream on the right. The hole gradually slopes to a plateau at the Penncross bentgrass green.

“When golfers reach the green they can look back at the valley they just climbed up,” says Glossinger. “With the wind waving the Indian-grass on both sides it’s the best view on the course.”

Dollar spot is the greatest disease pressure facing Caves Valley. Glossinger relies on Daconil Action and Heritage. These applications also help mitigate abiotic stresses during the summers.

Although it’s found mainly in the northeastern U.S., the annual bluegrass weevil can cause havoc on a course. The pest has been found in Maryland, so Glossinger has invested in Syngenta’s entire lineup of insecticides, including Ference.

“We are on a strict preventative spray program. Every two weeks we are out there spraying Daconil Action, and when it starts to get hot we use Heritage,” Glossinger says. “Their insecticides really do a good job keeping us clear of any pests, too.”



Steve Glossinger
GOLF COURSE MANAGER

Hole

Hole No. 9

Caves Valley Golf Club

OWINGS MILLS, MD

▶ 460 YARDS, PAR 4

🌿 PENNEAGLE BENTGRASS FAIRWAY
AND PENNCROSS BENTGRASS GREEN

of the Month

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GreenCastOnline.com/Ference

Golfdom Gallery

 **U.S. OPEN**
EDITION

1 Golfdom Ninja Warriors With all that walking on the course, *Golfdom*'s Seth Jones and Karl Danneberger, Ph.D., the Ohio State University, look like they just ran an obstacle course together.

2 The future looks bright The host superintendents for the 2018 and 2019 U.S. Opens were at Oakmont: Jonathan Jennings, CGCS, Shinnecock Hills GC, Southampton, N.Y., and Chris Dalhamer, CGCS, Pebble Beach Golf Links, Monterey, Calif.

3 JZ and TMIM Oakmont superintendent John Zimmers Jr., with Pinehurst (N.C.) director of grounds (and *Turf's* Most Interesting Man) Bob Farren, CGCS.

4 BASF buds The BASF guys (L to R) Brian Thompson, Jeff Vannoy and Scott Waltz, were all smiles with their inside-the-ropes access at the 2016 U.S. Open.

5 "Two Canadian geese walk into a bar..." Bill Cygan, West Course superintendent at Winged Foot GC, Mamaroneck, N.Y., gives architect Gil Hanse a few one-liners he can use, free of charge, on the Fox broadcast.

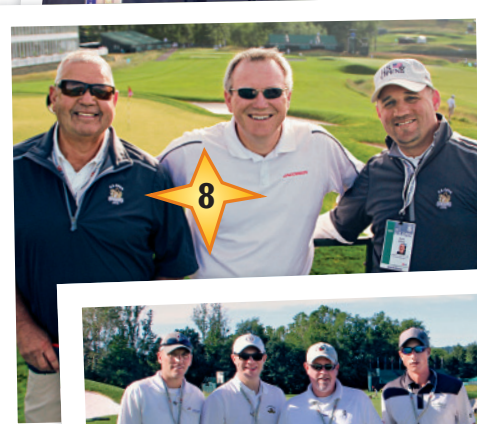
6 Early risers Jim Skorulski, USGA Agronomist, and Darin Bevard, USGA Director of Championship Agronomy, were nice enough to look into the sunrise for this photo.

7 See you next year Erin Hills GC, Erin, Wis., hosts the 2017 U.S. Open, where we'll be seeing a lot more of these two: assistant superintendents Alex Benson-Crone and Adam Ayers.

8 How about those greens? Jacobsen's Regional Sales Manager Mike Pena, President David Withers and Krigger and Co.'s Andy Billing admire those Oakmont greens, which are maintained with Jacobsen PGMs.

9 Two loyal readers Matt Shaffer, Merion GC, Ardmore, Pa., with semi-retired superintendent Richard Bator.

10 Just divot The divots at Oakmont didn't stand a chance with the divot team's "just do it" attitude.



PHOTOS BY: SETH JONES



“Superintendents share many tales of condition complaints, and the sad fact is that most amateur golfers have no clue about what it takes to groom a golf course to 'perfect' playing conditions while keeping the turf healthy.”

JOEL JACKSON, *Senior Contributing Editor*

The days of whine and poses

The era of Arnie, Jack, Lee and Gary is over, and we are now in the days of Jordan, Jason, Rickie and Rory and a host of other new faces on the Tour.

While modern golfers hit the ball longer than their golfing forefathers could, thanks mainly to advances in equipment, their tolerance for less than ideal course conditions seems to be growing shorter.

The player's publicized complaints and negative comments about course conditions, especially at last year's U. S. Open at Chambers Bay and the green speeds at this year's Masters and TPC Players Championship, were totally out of order. And the dropped club and hands-in-the-air poses are a bit dramatic.

Of all people, golf professionals should approach each round with one thought: “Play the course as you find it.” That means adjusting your game to meet the conditions. Everyone plays the same course on the same

day. So those “fast and/or bumpy” greens you three putted are the same ones that John Doe birdied.

Golf courses never are “perfect” all the time. Granted, when tournament officials tell the superintendent to jack up the green speeds and perhaps set pin locations in dicey spots, the going can get tough, especially when Mother Nature is on a rant. But that's when the tough get going.

This mania over perfect conditions isn't limited to the PGA Tour. Superintendents share many tales of condition complaints, and the sad fact is that most amateur golfers have no clue about what it takes to groom a golf course to “perfect” playing conditions while keeping the turf healthy.

I have to give GCSAA and involved superintendents

around the country a big “atta boy” for their efforts in the National Golf Day event in Washington and for the meetings with state and local governments on regulatory and environmental issues like runoff and water use. And GCSAA's work with the Golf Channel on the “Thank Your Superintendent” pieces is a good start to educate at least the golf-playing public about superintendents.

But the PGA Tour and the broadcast networks could do a much better job of showing clips of maintenance work being done for course prep instead of showing a golf pro drinking a bottle of water or eating a banana while walking down a fairway or waiting to hit when there's slow play.

I learned to take course criticisms in stride and context during my days as a superintendent at Walt Dis-

ney World. Disney hosted the Oldsmobile Classic each year in the fall, which consisted of a weeklong pro-am event the week before the PGA Tour event. So we worked a three-shift, 24/7 schedule for two weeks. Yeah, two weeks of mayhem instead of one!

We worked long and hard under the direction of the PGA Tour's agronomy team, which made periodic visits in advance of the event to monitor conditioning, green speeds and firmness. They might request some modifications, like firming up the sand in some greenside bunkers or installing drainage in a fairway or rough.

When the tournament began and articles appeared in the local paper, we were eager to see player comments about our beloved courses, which we worked so hard on to “perfect” for the best players in the world. That's when I learned my lesson about dealing with complaints.

For example, perhaps one of the pre-tournament favorites might be quoted as saying, “The greens were a little bumpy out there today!” Sure enough, the big scoreboard by the putting green showed his 72 or 73. Meanwhile, another pro shot a 66 and the greens were great.

So chill out, you guys. Make a million bucks or hundreds of thousands of dollars a week on Tour and play the course as it is, not as you think it should be!

Joel Jackson, CGCS-Ret., is senior contributing editor for *Golfdom*. Email him at firgn@aol.com.

The Golfdom



FROM THE ARCHIVE

The title of “golfinest county in the country” might be claimed by many locations across the United States, but in January 1961, *Golfdom*’s Bob Lynch crowned Florida’s Broward County. At that time, the county had 22 golf courses and a population of 330,000. Now? There are at least 65 golf courses, and the population is an estimated 1.8 million, according to the Broward County Golf Guide and the United States Census Bureau, respectively. To read the full article visit golfdom.com/exclusive.

Golfinest county in the country!

BY BOB LYNCH

Broward county is Florida’s golf mecca!

Visitors to Florida become more and more amazed each year at the state’s rapid golf growth. When they’re asked to choose an area with the best facilities, the smartest surroundings and the most ideal playing locations, the vote likely as not goes to Broward County.

Ten years ago, tourists found just six courses to satisfy their needs — the Stirling GC in Dania, the current Ft. Lauderdale CC South course, the first 18 holes of a present 36-hole layout at Hollywood’s Orange Brook GC, Sunset GC in Hollywood, Ft. Lauderdale’s Plantation GC and the Hollywood Beach Hotel’s picturesque 18-hole course.

This month there will be 22 links ready for an ever-growing tourist population and a rapidly expanding residential figure. There are 13 standard layouts with pars of 70, 71 or 72, five 9-hole courses and four other 18-hole locations whose pars range from 54 to 60. A total of 351 golf holes are to be found in Broward County. The population is around 330,000, and an influx of winter plea-

sure seekers raises the total to well above a million persons annually.

Mushrooming from Ft. Lauderdale in the early 1950s, the construction calendar took care of Pompano Beach CC, another nine holes at Orange Brook, the par-3 course and a second 18 at Ft. Lauderdale CC.

The last half of the decade produced the Margate GC, Coral Ridge and the American Golfers Club, Lauderdale Lakes, Sunrise and Cooper Colony CC, Dania CC and the 18-hole Diplomat Country Club in Hollywood. The year 1960 brought 18 holes at Rolling Hills CC, Tamarac G & CC, and Palm Aire CC, the fourth nine at Orange Brook and a new par-3 installation at the Diplomat.

MORE TO COME?

There’s no indication that 22 courses mark the end of the building line . . . not when talk continues about sites in Deerfield Beach, Margate, West Hollywood, Davie and Hollywood. Convenience is the keynote when one discusses Broward’s offerings. From Pompano Beach CC a person can drive to the southernmost club, Hollywood’s Diplomat, in 40

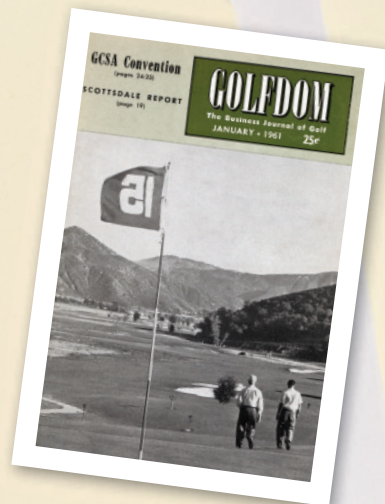
minutes. Others are even more easily accessible — both in time and distance.

Golfers from miles around have come to Hollywood to enjoy 27 holes in past years, and another nine holes should serve only to heighten the enthusiasm. Designed by Miami architect Mark Mahannah, the addition has been incorporated perfectly into the tropical locale that characterizes Orange Brook.

WILSON AND KROLL TEAM UP

Tamarac brings together the talent of veteran architect Dick Wilson of Delray Beach and the professional ability of Ted Kroll, the current Florida PGA champion and the former all-time money winner on the PGA circuit. Wilson and Kroll were a “daily double” team at Sarasota three years ago when the DeSoto Lakes CC was opened. Ted has lived in Ft. Lauderdale for five years, as have fellow pros Julius Boros and Lew Worsham, the wintertime director of activities at Coral Ridge.

Rolling Hills and Palm Aire are the products of designer William F. Mitchell, who recently purchased a home in Lighthouse Point, near Pompano Beach. In Rolling Hills, construction experts found one of the most scenic plots of ground in all Florida — studded with oaks, boasting some of the hilliest terrain the state has to offer. A onetime thoroughbred breeding farm, Rolling Hills is located in Davie, just a short drive from downtown Ft. Lauderdale.





"It was eerie being practically alone at an event prepared for thousands. Inside the ropes looked fine, but many bunkers were washed out."

GRANT B. GANNON, Associate Editor

A wet U.S. Open and ending Cleveland's drought

June brought two exciting first experiences in my young life — I attended my first U.S. Open and I saw Cleveland's first championship by a major sports team in 52 years. Who would've thought that those two things would happen on the same weekend?

Typically, Editor-in-Chief Seth Jones is the one making the trip to the U.S. Open, but the 2016 championship at Oakmont (Pa.) CC was practically in my backyard of Cleveland, Ohio. Jones was at the course from Sunday to Wednesday, then I picked up the torch to finish out our field coverage.

It's a good thing I was there, because that's when things got wet and wild. While riding up to Oakmont on Thursday morning, spectators already were walking away from the course because play had been suspended for the first time that day.

This became the theme of my first day at the Open, with two more delays before play was officially suspended at

4:34 p.m. after 2.3 inches of rain fell on the course in less than 24 hours. I decided to walk around the course to get an idea of what the maintenance crew of 190 was going to contend with.

It was eerie being practically alone at an event prepared for thousands. Inside the ropes looked fine, but many bunkers were washed out. Water was abundant outside the ropes, supersaturating the turf and walking paths.

I finally ran into life — some crew members, of course — at 6 p.m., working on bunkers. For the next two hours I ventured around the course as the maintenance crew shoveled, pumped, raked and pushed water and

sand. (*Editor's note: A recap of the event from a maintenance point of view appears on page PH4. For our extended coverage of the U.S. Open, including 88 photos and seven videos, visit Golfdom.com.*)

After Oakmont, my fiancée and I quickly turned around on Sunday to get home for game seven of the NBA Finals. We had tickets to the watch party at the Cavs home court, Quicken Loans Arena.

Yes, we paid \$5 per ticket to watch a basketball game on a giant television screen, and it totally was worth it.

That night we watched the "curse" on Cleveland lifted for the first time in 52 years. I won't bore you with a play-by-play of the game, but I can tell you that it wasn't until the

clock hit triple zeros that the arena erupted and the party began.

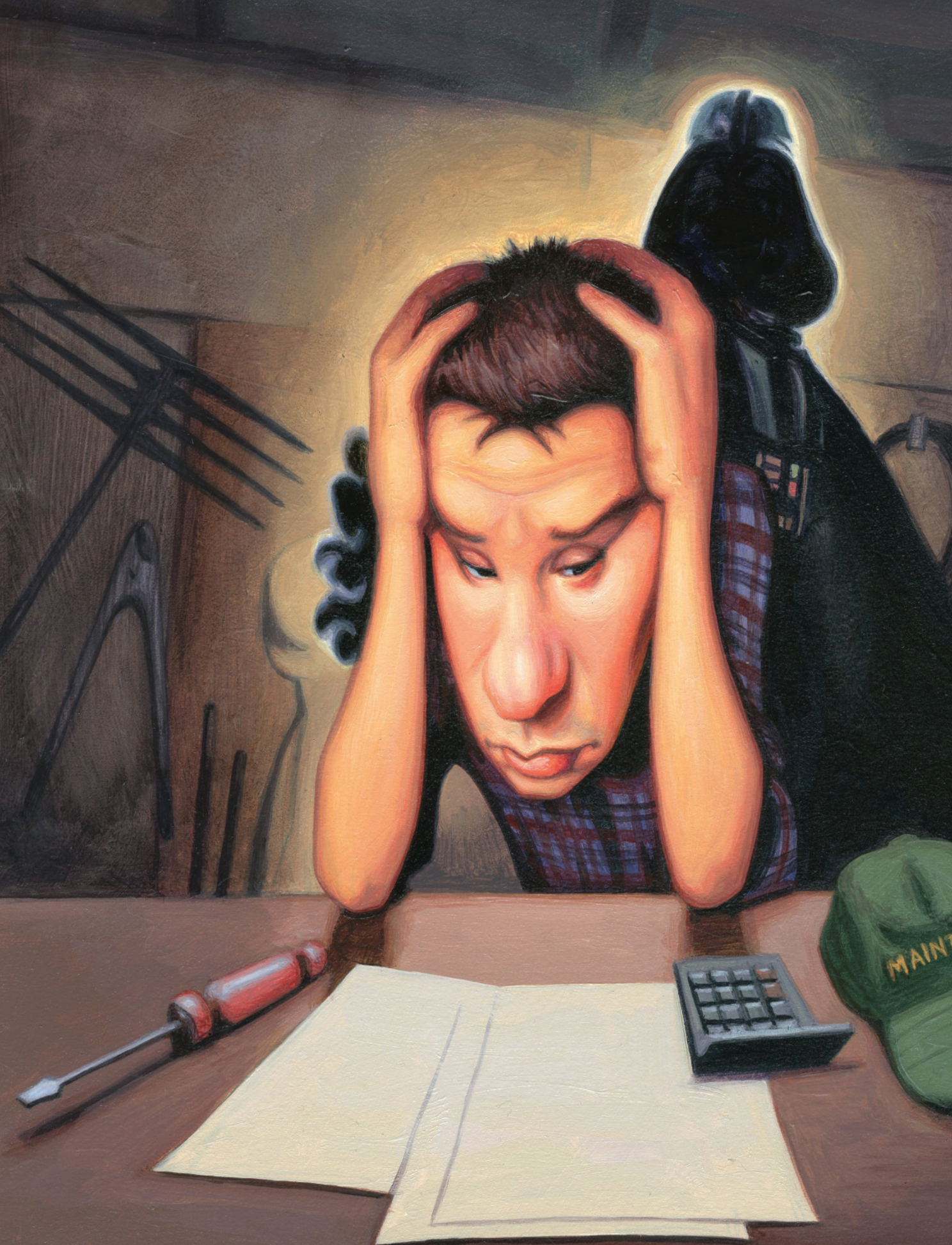
Then we went onto the streets. The city was a single mind, celebrating the championship it had been waiting for so long. We hit the sidewalk and were among fellow Clevelanders of every color, race and age giving high fives and shouting "Go Cavs" to one another. It's a sight I will never forget.

My biggest shock? The lack of alcohol in bars after the game. We went to one near North Coast Media's headquarters, and I was able to snag four Corona Lights before they closed. A guy approached me and offered to buy two of them for \$20. Sold!

I then realized that was a grave mistake, because most of the bars downtown ran out of beer and had to close down. It was more than an hour later that we found another establishment that had anything, which was (ugh) hard cider. But like my dad always tells me, "Buddy, there's only two types of beer in this world: warm beer and cold beer. I'll take mine cold."

Those were the most refreshing cold cider beers I've had in my life. I just hope the bars have enough beer the next time a Cleveland team wins a crown — and that I don't have to wait 52 years to taste it.

Grant "Buddy" Gannon is associate editor of *Golfdom*. Email him at ggannon@northcoastmedia.net or @GrantBGannon on Twitter.





LET'S TALK ABOUT

THE

DARK

SIDE

Golfdom EIC Seth Jones sits down with five friends of the magazine to ask them why they left their jobs as superintendents, and if you should, too.

ILLUSTRATION BY JAMES BENNETT

Gentlemen, thanks for taking the time.

First, let me introduce everyone.

Ryan Bourne is from my home state, Kansas, and has worked at three great clubs in the Sunflower State: Wichita CC, Dodge City CC, and most recently, Terradyne CC, where he was superintendent for eight years. Last year he left his job to sell fertilizer for Pride Ag Resources (prideag.com), based in Dodge. He's also a K-State fan, but he roots for the Royals as well, so he's good by me.

You might recognize **Jim Rattigan**

from the cover of *Golfdom*. He was our Herb Graffis Businessperson of the Year in 2014. Jim was named superintendent of his hometown course, Schuylkill CC, in Orwigsburg, Pa., in 2002, then promoted to general manager/superintendent in 2007. In 2015 he took the job of Southeast regional director for the Plant Food Co. (plantfoodco.com) and now is based in Florida.

I met Jim's co-worker **Rich Sweeney**, CGCS, recently at the 2016 Golf Industry Show, then got to hang out with him at the

Continued on page 18

THE DARK SIDE

Continued from page 17

Masters this year. Rich has been in the golf industry almost 25 years as an assistant, a superintendent and a general manager, mostly in D.C. and Philadelphia, but I'm pretty sure he knows everyone in the Mid-Atlantic.

Chris Jennings is from Maryland and he's a U of M Terrapin, but he made the move across the country to California to take an assistant job at beautiful Pelican Hill Golf Club in Newport Beach. After almost four years he was promoted to superintendent over the two courses under Steve Thomas, the director of grounds there. After seven years in that position he made the leap to join Simplot Partners (**Simplot.com**).

Finally, there's **Anthony Williams**, CGCS, who worked as a superintendent under the Marriott Golf umbrella for most of the last 30 years, most recently at Stone Mountain GC. He's won about every environmental award in the industry and was Georgia's superintendent

of the year in 2014. He was named director of sales and marketing for Green Technologies (**green-edge.com**) three months ago.

NOW THAT EVERYONE'S BEEN INTRODUCED, MY FIRST QUESTION: HOW LONG WERE YOU CONSIDERING MOVING OVER TO SALES — AKA "THE DARK SIDE" — BEFORE YOU MADE THE LEAP? AND WHAT INSPIRED YOU TO MAKE THE MOVE?

Jennings: It was three years for me. My director (Thomas) and I had a good relationship, but my wife and I have four kids. Life gets more serious. I wanted a better work/life balance.

The internal struggle I had... during the 70

Continued on page 20



Chris Jennings



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THE DARK SIDE

Continued from page 18

hours a week I was on the golf course, I felt like I needed to be back home. And then the time I was at home I was always worried about the golf course. There's a proverb: A double-minded man is unstable in all his ways.

Bourne: I never thought I'd be in sales; I always thought golf would be all I ever did. We took a trip to Branson, Mo. It was my 10-year-old's first hotel stay. He was more excited about the hotel than anything else.

I realized after I got home that my wife was married to a golf course. I wasn't giving my family enough time.

Williams: I only considered it on the day they told me they were eliminating my job and I could retire with 30 years of service. I never had one serious thought about leaving the profession until they sat me down and said, "Let's make a deal." That was the first moment I ever considered going to the Dark Side.

Rattigan: I never considered being a sales

person. The Plant Food Co. had some really great things going on. Tom (Weinart, vice president of Plant Food Co.) had joked about it for a while. Through the year I started thinking about it, looking into the company. Then I put things on paper, the pros and cons, and it looked interesting.



Jim Rattigan

Why did I consider it? There may have been that one long morning and night — when I'm the first one there in the morning and I'm there all night, then I was the first one back again the next morning.

Sweeney: I never thought about it either. I was very secure, very happy, when Tom (Weinart) approached me. I thought about it for three months. I discussed it with my family. It was the right move at the right time.

Continued on page 22

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THE DARK SIDE



Continued from page 20

WHAT WAS IT LIKE, THAT FIRST DAY WHEN YOU WEREN'T A SUPERINTENDENT ANYMORE BUT WERE IN SALES?

Sweeney: I had a nice transition, shadowing who I was replacing for a full year. He was retiring. And being a customer for many years made the transition even easier.

Jennings: It was a big weight off my shoulders. I wasn't responsible for a couple acres; I was just responsible for myself. It was liberating. I didn't have to tend to things constantly. I had weekends! That was nice.

Bourne: It was a somber day. I slept in until 7 a.m. My office is in my house. I don't remember the exact details of that first day, but I do remember it was quite a change.

Williams: You find yourself wanting to water something!

I made some calls, I had a checklist. Then, after lunch, was when it hit me. "I need to check my greens." *Whoops.* No, what I really need to do is go make another sale.

Sweeney: It took me a full year not to worry about syringing greens on a hot summer day. It's in your system. There definitely is a transition, and it's one I'm still getting used to. My biological clock still wakes me up at 5 a.m. every day.

Rattigan: I was nervous about my first day, but mostly excited. I wanted to grow and build something. I felt like at Schuylkill, the growth had started to slow down. I was more excited about Plant Health growing than about not being a superintendent anymore.

NOW THAT YOU'VE BEEN ON THE DARK SIDE, WAS IT THE RIGHT MOVE? DO YOU ENJOY IT?

Rattigan: I do. I wake up in the morning and look forward to my day. I enjoy seeing other guys, sharing information and helping.

Williams: There are good things and bad things. I've seen more golf courses in the last

three months than I did in the previous 10 years.

I don't like being gone (from home). All those years as a superintendent, I worked a lot of hours. But at the end of the day, I was back in my own bed at my house with my family.



Anthony Williams

Bourne: I'm happy with the lifestyle change. It being a newer company, it's still stressful at times and there's so much competition. I'm just trying to get my foot in the door. Now I'm trying



Ryan Bourne

to meet with lawn care companies and school districts. I'm a year in and I'm still learning.

Jennings: I feel the same way, I was a superintendent for 17 years, then at age 35 I was starting a new career. I was ignorant about sales and distributorships. I had a lot to learn and I felt like I was starting over.

But I definitely enjoy it, my time on the weekends with the kids, being able to take them to school... I still work quite a bit, it's just in our nature.

My success and my failure is all up to me now. In golf, Mother Nature doesn't always do what you need her to do, or you have some unhappy golfers. Knowing it's up to me whether I'm a success or a failure is what I like most, because I'll always be a hard worker.

HOW ABOUT REGRETS? WHAT DO YOU REGRET ABOUT LEAVING BEHIND THE LIFESTYLE OF A SUPERINTENDENT?

Bourne: I miss my crew. That's the biggest thing. And the self-gratification of walking away from the golf course when you know it looks great.

Rattigan: I miss riding around the course in the early morning with a cup of coffee. But now I do something similar with other people.

Jennings: I miss growing turf. I think I'll always have that desire to grow turf. I'm getting

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A SUPPLEMENT TO

Golfdom

PLAYERS

UPDATE

Volunteers work on a bunker at Oakmont (Pa.) after storms during the 2016 U.S. Open.

INSIDE

A WORD FROM THE SPONSOR... *PH3*

OAKMONT STANDS UP TO THE CHALLENGE... *PH4*

NOTHING VENTURED, NOTHING GAINED... *PH11*

COMMUNICATING AND EXECUTING PLANT HEALTH... *PH16*

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Delivering championship conditions, whatever the challenge



BY JEFF VANNOY

Dear Golfdom Readers:

Recently, I had the good fortune to see firsthand what it takes to host a major tournament. During my visit to Oakmont Country Club in June as they prepared for the U.S. Open, I had a rare look behind the scenes at the programs, coordination, contingency planning and plain old-fashioned hard work that's required. John Zimmers, Oakmont's superintendent, and David Delsandro, Oakmont's director of U.S. Open operations and projects, were impressively organized and in control during the months of work that led to the event.

We at BASF were honored to work with them, and equally honored to sponsor the volunteer superintendents — more than 150 in total — who worked the event. Through it all, they dealt with epic rain, washed-out bunkers and a freak lightning strike on one of the rare trees on the course. Watching them handle every challenge and still deliver championship conditions was a reminder that it's critical to plan ahead and control those things that are under your control.

Preventing disease from becoming a problem on your own course is a prime way to plan ahead. Products like Lexicon® Intrinsic® brand fungicide, a foundational product for greens, and Honor® Intrinsic brand fungicide, for fairways, tees and bunker faces, help you deliver championship conditions. These innovative, dual-action fungicides control many of the toughest diseases, resulting in turf that's healthier

and more resilient.

Speaking of healthier turf, we at BASF know that turf health is the direct outcome of your careful agronomic practices and sound rotation programs. But while all of us understand what turf health means, the term “plant health” has lost much of its meaning. Yet, the truth is, years of research and proven science are behind BASF plant health innovations.

We've learned that plants, like people, are healthier when they're fit. Intrinsic brand fungicides help your turf become physically fit by enhancing growth efficiency for stronger roots and giving turf the tools to fight disease. And, when you and I are healthy, we bounce back faster. That's true of your turf, too. With Intrinsic brand fungicides, your turf can rebound faster from stressors like drought and aeration.

So, whether you call it “turf health” or “plant health,” BASF innovations can further the hard work you do, day in and day out, to ensure healthier, stronger turf.

Please enjoy this special expanded issue of the *Golfdom* Plant Health Supplement, and best wishes for a successful season.

Jeff Vannoy is Senior Product Manager, BASF Professional Turf & Ornamentals.


We create chemistry

Oakmont stands up to the challenge

Despite strong Wednesday/Thursday storms, the 2016 U.S. Open course passed the test.

BY SETH JONES

Things got a little weird at the 2016 U.S. Open, as Dustin Johnson didn't know his score coming down the stretch. A one-stroke penalty might have been in the back of his head, but it was not on his card. That's because the USGA told Johnson during his final round (on No. 12 tee) that they would review video and let him know after the round if he caused his ball to move on No. 5 green, which would result in a one-stroke penalty.

While the final score was in doubt, the result was not. Johnson made it all a moot point, walking off the course with a commanding four-stroke lead and his first major championship.

The condition of the golf course was also up in the air. While conditions early in the week were excellent, the forecast for strong storms threatened the crew's hard work. The storms came, dumping almost 3 inches of rain on Oakmont's *Poa annua* greens on Wednesday/Thursday.

But Oakmont stood strong and once again delivered. The 2016 U.S. Open was an exceptional test of championship golf — an example of

what is possible in course conditioning with modern technology and hard, hard work.

'BEST IN THE WORLD'

The tent constructed for the maintenance crew and the volunteers (190 strong) at Oakmont was decorated like a college dorm room, but instead of one college being proudly represented, there were several. Along with the many banners of turf schools also hung signs from sponsors, wishing the crew luck. Pittsburgh area teams — including the NHL's Penguins, which had just won the Stanley Cup that Sunday — were prevalent.

And there were also a few words of inspiration. One banner read, "Show me what you got," quoting Oakmont superintendent John Zimmers Jr. from when the course hosted the U.S. Open in 2007. Another was a new quote, from singer Rihanna, and it simply read, "Work, work, work, work, work, work..."

That's exactly what this crew did to get Oakmont, legendary for its difficult conditions, to be as attractive as it was difficult. Zimmers challenged the crew to do their best to maintain the impeccable conditions they had thus far.

"Nothing is more important than your name," Zimmers told the group. "Put your name on your quality of work. You're the best in the world at what you do. We're going to hold you at that standard... you're only going to take what's out there and make it look better."

"ANOTHER STRATOSPHERE"

Industry pundits raved about the appearance of Oakmont on multiple fronts, from its renewed beauty fol-

lowing the removal of thousands of trees, to its vibrant appearance combined with firm conditions.

“In terms of preparation of the event, it’s amazing to see a golf course on this level,” said Tom Marzolf, ASGCA, of Fazio Golf Course Design. “The quality of the turf here now is as good as any club in America. I’ve never seen a golf course look this good, this ready, for the toughest test of the year.

“The conditioning is even firmer than in 2007 (for the ’07 U.S. Open) or 2010 (for the U.S. Women’s Open) — firmer approaches and firmer greens,”

Marzolf continued. “The work that (Zimmers) continues to do to improve approaches and greens is showing up in the health of the turf.”

Longtime superintendent Richard Bator, who has maintained such courses as Pine Valley, Merion and Oakmont, had similar feelings.

“Up until now I thought the ’97 U.S. Open at Congressional under Paul Latshaw was the best conditioned U.S. Open,” Bator said after the tournament concluded. “In my opinion, the conditions of Oakmont will never be reached again. The approaches

were rolling at 10-and-a-half (on the Stimpmeter). They’re in another stratosphere.”

After his practice round Tuesday, Brandt Snedeker said he believed the course was ready for the U.S. Open to start that day.

“You know (the course) is right where they want it,” Snedeker told *Golfdom*. “Depending on the weather and what happens, it’s in great shape. I wish we could tee off tomorrow, but we’ll see how it turns out on Thursday.”

Continued on page PH9

A view of the clubhouse on the 18th hole during a practice round for the U.S. Open.





No golf course in American golf history has hosted the U.S. Open more times than Oakmont Country Club. The storied course, located outside Pittsburgh, PA, is perhaps one of the toughest golf courses with some of the most challenging greens in the world. As a highly respected superintendent, John Zimmers is known for cultivating turf of the highest standards and playability and for his leadership in mentoring many of golf's future superintendents.

John Zimmers
Superintendent,
Oakmont Country Club

An Interview with

John Zimmers,

Oakmont Country Club's Superintendent

Oakmont Country Club and BASF collaborated to incorporate BASF chemistry into Oakmont's agronomic program, helping Oakmont become ready for tournament play.

BASF Senior Product Manager Jeff Vannoy spoke with John Zimmers and asked about his preparations for another major championship.

BASF: John, you're known for having some of the toughest, fastest greens each year. What's your secret in ensuring the greens are ready June 13th for the U.S. Open®?

JZ: Our secret is pretty simple – execute sound, fundamental agronomic practices to the best of our ability. This relies on agronomic testing, soil testing, fungicides, fertility, water management, aerification, etc.

Continually monitoring the health and performance of the turf helps guide us in closely managing the grass ensuring it is ready for the championship.

BASF: You're not new to hosting major championships at Oakmont and in your past career at Congressional Country Club. How do you motivate the staff so they see the same vision as you in getting the course ready for an event?

JZ: We strive every day to provide the best conditions for our membership. Therefore, we approach everything with that attitude, with the expectation that the same mindset will carry over

leading into the championship.

BASF: There are many agronomic aspects to preparing for a championship. One aspect is making sure your fungicide program is tight and well-planned out. What are you doing differently this year in your fungicide program?

JZ: One of the adjustments we have made this season is working with the BASF team. We have consulted with their researchers and representatives over the last several months to learn about their products and devise a plan that utilizes their plant health technology. A number of key applications will be made on the course.



OAKMONT
COUNTRY CLUB





BASF: In thinking back to the lessons learned early in your career from your mentor Paul R. Latshaw, what lessons have stuck with you all these years?

JZ: Mr. Latshaw stressed to me, and I carry this with me today, to execute the basic fundamentals correctly – mowing, applications, watering, staff management, etc. Control the things you can control and do your best to manage through other items out of your control.

BASF: What does it mean to you as a superintendent that over 150 colleagues donate a week of their time to help make the championship a success for Oakmont?

JZ: I am truly Honor(ed)! It is certainly one of the most gratifying experiences in my career to have my colleagues donate their time and expertise to ensure we have a world-class national championship.

BASF: We understand that you were able to bring back a key team member in order to help prepare for the U.S. Open - can you tell us about that?



David Delsandro

Director of U.S. Open Operations & Projects, Oakmont Country Club

JZ: One of my protégés, David Delsandro, left Oakmont in 2010 to pursue a superintendent's job in Long Island, NY. Upon completing a greens reconstruction project, regarded by many as one of the most successful putting green renovations in recent history, David returned to Oakmont as the Director of U.S. Open Operations & Projects in the fall of 2013. David worked with us for Oakmont's three previous major championships, providing valuable leadership, talent, and experience. In addition, David utilized BASF chemistry during his time in Long Island and has been instrumental in employing BASF's technology, research, and product line at Oakmont to maximize turf health and playability.

Oakmont Country Club has integrated BASF fungicides into the agronomic plan.

Below is a summary of the BASF fungicide portion of their agronomic program.

Lexicon® Intrinsic® and **Honor® Intrinsic®** brand fungicides were dispatched on various playing surfaces (greens, tees, fairways, etc.). Upon reviewing the research and efficacy of these products, their use enabled long lasting control of several disease pathogens in addition to the plant health benefits they provide. **Xzemplar®** fungicide was also applied as a solid rotational product to the **Intrinsic** brand fungicides and granted a different chemistry capable of withstanding the rigors of championship-driven maintenance. Lastly, all of the aforementioned BASF fungicides (**Lexicon Intrinsic** and **Honor Intrinsic** brand fungicides, and **Xzemplar** fungicide) were applied to turf maintained to championship specifications, including graduated rough, bunker banks, and low-mow areas around bunkers. The benefits of their application to these intensely managed, non-traditional areas confirmed the value of their technology, efficacy, and residual control.

“Monday, they had this place in really, really good turn,” Furyk said. “It felt like Thursday or Friday at the U.S. Open on Monday, and I guess that was probably due to knowing the forecast and knowing what was coming.”



PHOTO BY: SETH JONES

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Jim Furyk echoed those comments when asked about the course during a media conference.

“Monday, they had this place in really, really good turn,” Furyk said. “It felt like Thursday or Friday at the U.S. Open on Monday, and I guess that was probably due to knowing the forecast and knowing what was coming.”

RAINY START

By Tuesday afternoon, Zimmers and his crew knew what was coming: rain. The only question was how much.

“We’re in a really good place, the volunteers had a great start,” Zimmers told *Golfdom* (click over to **Golfdom.com** to see interviews with the Oakmont

crew). “We’re trying to plan for this storm, trying to execute what we need to do, and balance the dry conditions we have now... but also think about how we do if we get rain on Thursday.”

Sure enough, Wednesday night and Thursday morning storms rolled across Pennsylvania, with Oakmont right in the crosshairs. Before it was all over, almost 3 inches of rain tried to downgrade the conditions for which the crew was striving.

“The course is draining as well as it can, and guys are working around it and that’s all you can do,” Mike McCormick, Oakmont first assistant superintendent, told *Golfdom*. “We just need to control what we can control, make the right decisions and make

sure we don’t get too aggressive.”

Following the tournament’s conclusion, champion Dustin Johnson said that while the rains slowed the course for a couple days, the speed of the greens never was in question.

“The greens were fast every day,” Johnson told the media following his victory. “(Sunday) they were even that much faster. With the pins they had out there, I thought the golf course played really difficult. It was really hard to get it close to the hole. And even when you were on the green, I had a few putts that were close putts — inside 15 feet — but you’re almost putting defensively because you don’t want to run it 4, 5, 6 feet by.”

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APPRECIATE GOOD CONDITIONING

After the tournament concluded, Johnson took time to pose for a photo with the maintenance team while holding the U.S. Open trophy. For Johnson, who has had several near-wins in majors, there was a look of relief. For the maintenance team, it was a look of satisfaction.

"It was great (taking a photo with Johnson), he had kind words about the golf course and our efforts," Delsandro says.

But he adds that he didn't take too much time to savor the moment. He's just not wired that way.

"I'm not the type of person who reflects much," Delsandro says. "I'm just thinking, 'What have we got to

accomplish tomorrow?' There's just so much infrastructure on the course now, getting it all off is going to be a big task."

The golf course and the maintenance team again were subplots of the main drama, and rightfully so. Still, Oakmont's conditions took center stage on more than one occasion, like when architect Gil Hanse, hired by Fox Sports to be an on-air commentator for the U.S. Open, took time to tip his cap to Zimmers and the superintendent profession as a whole.

"You probably know the three of us better than you know John, but the most important guy up here is that guy," Hanse said, boldly gesturing past PGA Tour player Brad Faxon and USGA CEO Mike Davis. "Superintendents, they work their butts off

day in, day out, to give the conditioning that every single golfer respects and understands. Probably not many people in the room will play the game as well as (Faxon). They may not look at it from a design standpoint like we do. But every single person in this room appreciates good conditioning, and (Zimmers) is one of the best in the country, and he is just a shining example for his industry, which I think is under appreciated."

"I just want to say thank you to (Zimmers) and the rest of the industry for all the work they do," Hanse concluded. "At the end of the day, they make us look good, and they provide the conditions that these guys can play on." 📸

Associate editor Grant B. Gannon contributed to this story.



Early week preparations at Oakmont.

PHOTO BY: SETH JONES

Nothing ventured, nothing gained

BASF's Elite Rejuvenation program convinces two superintendents to step outside their comfort zones in hopes of achieving better conditions.

BY GRANT B. GANNON

Superintendents who struggle with plant health on their courses can be wary of stepping out of their normal routines. Pressure to keep the course playable always is high. One wrong application could mean being out of a job.

BASF started its Elite Rejuvenation program in partnership with *Golfdom* as a way to get four courses to test old and new chemistries free of charge. As an added bonus, they do this under the watchful eye of an industry expert.

The four superintendents and their respective courses selected to participate in the program are:

- **Chris Ellsmore**, Mohegan Sun Golf Course, Baltic, Conn.
- **Shawn Gill**, Prince Williams Golf Course, Nokesville, Va.
- **Nick Janovich**, Oglebay Resort, Wheeling, W.Va.
- **Matthew Stout**, LuLu Country Club, Glenside, Pa.

As introduced in the May edition of *Golfdom*, Kyle Miller, senior market development specialist at BASF,

heads the program and is excited to have these superintendents see the benefits of the company's products on their courses.

"There are plenty of golf courses and superintendents that haven't used a bunch of BASF products in the past," Miller says. "We thought this

would be a great opportunity to share our new technology with these superintendents so they can really take advantage of some of the things that these products bring to them from a solutions standpoint."

A FRIEND, INDEED

Miller will make an initial visit to each of the participating courses and walk through the fungicide and herbicide spray programs of each superintendent. (*Golfdom* will also visit the courses and report on the results each course sees as the season rolls along.)

Miller and the superintendents will discuss things like the products they have been using and where and when they apply these chemicals. Miller then will suggest which BASF products will work best on their specific courses and create a spray schedule for each superintendent.

Miller will check in at each of the courses throughout the summer and will keep in regular contact with the superintendents to make sure the applications are going smoothly.

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"We hope this shows the superintendents that there is technology out there that can give them a leg up from where they are at the beginning of the program," Miller says.

ANALYZING PERFORMANCE AND COST

The BASF team at the end of February reached out to Nick Janovich, superintendent at the Oglebay Resort, Wheeling, W.Va. Janovich oversees four courses on the resort's property, but the Elite Rejuvenation effort has been focused on the premier golf course, the Jones Course.

Janovich exemplified what BASF was looking for in program participation because he was unhappy with the results when he tried to control dollar spot on his fairways while using two generic products on a 28-day schedule.

"While Kyle visited the course we took my current spray program and analyzed it," Janovich says. "(We discussed) why we



Nick Janovich

are doing it this way, and most of the time it came down (that it) was the most cost effective way to go about it."

Miller and Janovich had a frank discussion about performance when it comes to cost efficiency.

"When we took a step back and analyzed it again for the same price or not a drastic increase, we could have a lot more effective control," Janovich says. "(Miller) kind of opened my eyes up to their products."

Miller suggested that Janovich start with BASF's Emerald fungicide after analyzing Oglebay's spray program. After 28 days the program told

Oglebay Resort's Jones course and Palmer course sit in the foothills of the Appalachian Mountains.



Janovich to apply Xzemplar and after another 28 days they recently completed a second spray of Xzemplar.

"Before the program I never would have considered stretching out my fungicides for 28 days but this opportunity has opened my eyes," says Janovich. "BASF's products cost a little bit more but I can really see the savings at the end of the month when I make one application instead of two."

Although Oglebay started with Emerald for dollar spot control, Janovich is most excited about getting his hands on BASF's Intrinsic brand of fungicides. These products are designed to control fungal diseases as well as improve stress tolerance and increase plant efficiency processes.

"I'm hoping that I see the benefits of the Intrinsic products. I've used them some in the past but I haven't been able to analyze them," Janovich says. "This is the perfect opportunity to see the results from those products."

As part of the Elite Rejuvenation program, *Golfdom* will monitor the results that Janovich sees at Oglebay

Resort. To see a video of the BASF chemistry in action as of late June and to hear from Janovich, check out the video available on Golfdom.com.

NOT WITHOUT DRAMA

For Janovich and Oglebay Resort, the Elite Rejuvenation program is an opportunity to experiment and step out of their comfort zone. For LuLu Country Club on the outskirts of Philadelphia, it's a chance to continue the club's revitalization.

LuLu CC, a Donald Ross design established in 1912, recently has seen trouble, including poor turf conditions and a clubhouse that burned down. But its new ownership group and driven superintendent now are determined to return the club to its glory days.

"In the 1960s LuLu Country Club was the place to be," says Matthew Stout, who spent a decade at Hopewell (N.J.) Valley Golf Club before being hired at LuLu CC last October. "Golf royalty like Sam Snead and Arnold Palmer used to come play the course."

The course is proud of its history.

All anyone wanting to know who designed the more than century-old course has to do is look at the sign at the front, which reads “Donald J. Ross Design.”

According to Stout, Ross designed many unique features into the course, but time eroded its characteristics. More recently, course maintenance began to deteriorate.

Stout interviewed for the job in front of an ownership group that purchased the club last summer. While visiting the course during the final stages of the interview process, Stout discovered that the fairway on No. 1 had been neglected and was half dirt and half crabgrass.

“I decided to leave Hopewell because the course was listed for sale and coupled with budget cuts and low membership it made the decision to leave easier,” says Stout. “Although Lulu wasn’t in the best shape I felt it had tremendous potential. With Lulu being under new ownership and owners willing to do what it takes to bring the course back to a championship quality level I knew this was the

right move.”

Adversity struck the club again three weeks after Stout started at LuLu when the clubhouse burnt to the ground.

Despite the drama, Stout still believes he was fortunate because last fall was “really good” and he was able to get a quick stand of grass growing across the property before winter.

Perhaps LuLu’s luck is about to turn around. Stout was approached last winter about the Elite Rejuvenation program and he started in April with applications of Emerald.

“I’ve known about BASF’s products for a long time, but I thought the program was a great chance to continue to improve the course,” Stout says. “We had a very wet May, and it




LuLu CC's superintendent Matthew Stout hand-watering one of the club's greens.

has been nice having the products on hand. It's a night-and-day difference compared to when I started.”

Stout adds that members, who are using double-wide trailers as a temporary clubhouse while a new one is being built, also are taking notice.

“Golfers who have been members of the club since the mid-80s have told me that the course has never looked so good,” Stout says.

With the height of summer stress here and a happy membership ready to take advantage of a playable golf course, Stout has made a short-term goal for the season and another long-term goal for the course.

“I know that BASF’s products can help keep the course healthy during the dog days of summer, but I want to utilize them to produce championship-quality conditions that members can be proud of,” Stout says. “Eventually I would like to host some kind of qualifying event on the course.” 



The green of hole No. 6 at LuLu Country Club, Glenside, Pa.

PHOTOS COURTESY MATTHEW STOUT

New greens for Old Memorial

There are many things that make Old Memorial Golf Club stand out.

Located in Tampa, Florida, it is 18-hole walking course, with single-bag caddies advising golfers on its challenging but beautiful layout. It's also highly regarded, landing on several rankings for best golf courses soon after it opened in 1997.

It is the fast and firm greens, surrounded by large bunkers, which have become Old Memorial's calling card. So much so that some members questioned the decision to include them in a recent major renovation that included re-grassing the entire course, building six new greens, overhauling all the bunkers and adding another lighted practice green.

"I had some members who asked us, 'Why would you touch the greens? They were perfect,'" says Trent Inman, certified golf course superintendent at Old Memorial Golf Club. "They weren't going to stay perfect forever. You have to take a step backward to move forward."

Disease control plus plant health

It proved to be a big step forward after Inman treated the bermudagrass greens with Lexicon® Intrinsic® brand fungicide from BASF, which delivers disease control and plant health. It took only a week after application for Inman and his grounds crew to notice an improvement in the greens.

Well, six of them.

During the renovation, Old Memorial initially treated just six of the greens with Lexicon Intrinsic brand fungicide, using two different products on the other 12 holes. That quickly changed.

"I was so impressed with it that a month after we had stopped spraying those, we did a Lexicon application on all the putting surfaces," Inman says.

Lexicon Intrinsic brand fungicide, which BASF introduced in 2014, combines two active ingredients: fluxapyroxad and pyraclostrobin. It controls 27 diseases, including brown patch, dollar spot, summer patch and fairy ring. It doesn't contain a DMI, making it ideal to use year-round on any bermudagrass or bentgrass green. Research trials have confirmed that both bermudagrass and bentgrass reach a new level of plant health after use of the product.

"Plant health is how far we can push our plants to still stay relatively healthy but also provide the quality that we're looking for on the putting surfaces," Inman says. "We know that Lexicon is a great fungicide, but there are other benefits with increased rooting and density that are going to be very important to us."

Peak health in peak season

Plant health also helps combat other stresses, like low light and cooler temps. That's especially important at Old Memorial because, being in Florida, its busiest time of year is in the winter when the weather is cooler. But that's not the growing season for the turf, so at the time the course is seeing its highest traffic, the grass does not have as much ability to recover.

Having its peak season occur when stresses are high and turf growth is not great presents another challenge. As a national club, many Old Memorial members golf there only a couple of times a year. That puts pressure on the grounds crew to have the course in good shape at all times so as to not make a bad impression on members who aren't there often.





Inman plans to apply Lexicon Intrinsic brand fungicide to the Old Memorial greens four times a year to keep the putting surfaces in top form. Already, the early returns have earned praise from members.

"Honestly, if I could change it, knowing what I know, I would have just gone straight with Lexicon from the get-go," he says. "We would not have tried different products."

Need for dense greens

Perhaps the most significant result from the Lexicon applications has been improved density on the greens. Density is critical to Old Memorial.

One reason is it factors into the playability of the course. Playability is so important to the club that it was a driving force for the renovation.

Old Memorial was designed with ball roll in mind — down the fairway, using the green slopes on an approach shot, movement on the greens — and having firm and fast surfaces is part of that.

Also, while one might assume that a lack of carts helps with turf management, a walking course actually puts extra stress on the greens. Think of it this way.

If 100 people play golf in a day, that's 200 people walking on greens when you add caddies. Root density helps a putting surface hold up better to foot traffic.

"Lexicon definitely goes a long way in helping us achieve that balance — which can be sometimes tough to do — of keeping the plant right on that edge of great playability, but we also want to keep it relatively healthy at the same time," Inman says.

Those members who thought the Old Memorial greens were already flawless? They have a new perspective on what perfect can be.

"The renovation was a huge hit," Inman says.

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We create chemistry

Communicating and executing plant health

Communication is key

BY STACIE ZINN ROBERTS

Rory Van Poucke kills his golf course every year. ¶ Or put another way, every year, Rory Van Poucke grows in a brand new golf course. But unlike most grow-in superintendents, he doesn't travel to new locations to do it. No, Van Poucke grows in the same nine-hole golf course on the same piece of Arizona property year after year. That's because he turns the water off every May at Apache Sun Golf Club in San Tan Valley and lets the grass die.

Located some 50 miles south of Phoenix, Apache Sun bakes in the triple-digit heat all summer. Rather than keep the water on when play among his snowbird clientele slows to a trickle, Van Poucke — whose water budget already is more than \$100,000 for eight months each year in southern Arizona — realized it would be more cost effective and yield stronger turf plant health to just overseed into the existing grass mat each October.

"We have to overseed with about 14,000 pounds of seed, spread it out, rake it in, and use an asphalt roller to roll in. We water and fertilize it and start cutting in two and a half

weeks. We open on the 25th of October. More courses are starting to look at this. It's a way to better utilize the



Rory Van Poucke

water and maximize the profits," says Van Poucke, a certified golf course superintendent who grew up in the golf industry. He's been a superintendent for 27 years, and until 2005 was the owner of Apache Sun.

Fairways at Apache Sun are overseeded with perennial ryegrass. Greens are overseeded with a mix of

bentgrass, *Poa trivialis*, fine fescue and perennial rye.

LIVE AND LET DIE

Plant health is critical to Van Poucke's success at Apache Sun, not just because he has such a short window to grow in his golf course before golfers start playing on it, but because the young turf will need to hold up to more than 30,000 rounds of golf each season before it is sacrificed to the desert sun the following May.

"You need a strong plant because you are starting something new. Like with a baby, you make sure it's healthy, make sure it's got vitamins. When turf is healthy it has got more resistance. It's tougher. It can fight off disease. A stronger plant allows you to water more efficiently, not as frequently," Van Poucke says. "It's so important to give it all the tools that are necessary to survive in the Southwest."

Plant health is dictated so much in Arizona by the availability of water (or lack of it), that it has prompted Van Poucke, who serves as president

Wilderness Country Club, Naples, Fla.

“You can’t send out enough information on what’s going on and what we are doing to improve the health of the turf.”

— STUART TAYLOR

of the local Cactus & Pine Chapter of the GCSAA, to take a more active role in his state’s governance of water issues. He’s running this November for a seat on the board of directors of the Central Arizona Project, the entity that oversees the resource management programs for the 336-mile canal system that brings water through Arizona.

“Golf needs to have a voice at the table,” he says. Van Poucke is running in order to ensure that water is available not just for his golf course, but for all golf courses in Arizona, where golf’s annual economic impact was estimated in a 2006 study to be more than \$3 billion.

A NOD TO EL NIÑO

Not every superintendent employs such drastic measures to achieve strong turf and optimum playing conditions, but each region and location yields its own unique challenges, especially when plant health is the ultimate goal.

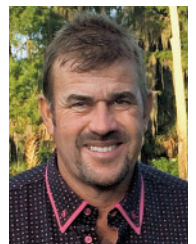
At the private 18-hole Wilderness Country Club in Naples, Fla., Superintendent Stuart Taylor manages a crew of 17 and a budget of approximately \$1.7 million. Greens are grassed with TifEagle bermudagrass. Collars are TifGrand bermudagrass. Fairways are SeaIsle 1 seashore paspalum.

Last summer, Taylor began a renovation on some of his greens complexes. The young turf that grew in

during the summer took a beating over the winter when the impacts of El Niño caused stress not only at Wilderness, but on golf courses all over southwest Florida in the Naples/Fort Myers region. Low light and lots of rain, when the weather should have been sunny, dry and mild, had a negative impact on turf health and caused many turf professionals to worry about their job security.

“The cloud cover had greens thinning. We had some bare spots on

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Stuart Taylor

Continued from page PH17

greens that we had to patch due to lack of sunlight. We got excessive rain through the wintertime that created weak turf and optimum conditions for fungal activity,” Taylor says. “Last winter, there were a lot of superintendents in south Florida who didn’t sleep due to El Niño.”

MORE THAN JUST AGRONOMY

That’s right, plant health is about more than just agronomy. It’s the criterion upon which golf course superintendents are measured.

“We had some greens that were thin, and we got some questions from the membership,” Taylor says. “Then they played other clubs with similar issues and they realized it wasn’t just us. We have a very forward-thinking membership. They will spend the money if they find it justified to protect their investment. We spent a lot of money this winter on fertilizers and fungicides to combat the weather.”

Wilderness is the fourth oldest club in Naples and was the first gated community in this city, which boasts not one but two Ritz-Carlton hotels and is said to have more holes of golf per capita than any other city in the nation. As the club’s name implies, Wilderness is a heavily wooded golf course with many old-growth trees, which is atypical of the open fairways of most Florida golf courses.

“The main ingredient that turf needs is sunlight,” Taylor says, adding that some of the challenges he faced last winter were “self-inflicted” because of all of the shade trees. He approached the membership, and with their permission removed some of the shade trees around problem greens.

Communication with and education of the membership, Taylor says,

is critical, especially in times like last winter, when outside forces such as El Niño create challenges.

“I do a blog or newsletter article monthly. I used the USGA El Niño literature and I blogged it to all of my members so they knew we weren’t the only club having trouble. They started to understand the situation a little bit more,” Taylor says. “You can’t send out enough information on what’s going on and what we are doing to improve the health of the turf.”

TURF HEALTH’S ECONOMIC EFFECT

At Pine Brook Golf Course, an 18-hole municipal course that is part of the Monmouth County Parks System in Manalapan, N.J., Superintendent Bill Murray says “without healthy turf, there is possibly no job,” and adds, “plant health to me is what my career has been all about. I really love what I do, and without good, healthy turf, I am sure I would be in some other line of work by now. Doing something other than this profession is just un-

thinkable,” says the 20-year veteran of turf management.

Murray operates Pine Brook with a crew of two full-time employees and five part-time staff. His budget is \$400,000 to maintain the tees, fairways and roughs, which are grassed with a mix of bluegrass and *Poa*, and greens that are grassed with a bentgrass/*Poa* mix.

Turf health has an economic impact on the golf course, Murray says.

“Good turfgrass quality at our course ensures our customers the best playing conditions, which enables us to keep the golfers happy. The bottom line,” he notes, “is that they get what they expect and our course gets repeat players.”

He agrees with Taylor that educating golfers is a key component of his job.



Bill Murray



Pine Brook Golf Course’s par-3 hole No. 17.

PHOTO COURTESY BILL MURRAY

"One of the main things we do here in the county is keeping the golfers informed of what and why we do the things we do. I like to make sure I visit the golf shop enough for players to get to know me and not be intimidated to ask questions. Talking about frost delays, aeration schedules, pesticide applications is just a small way of educating your golfers, which in turn opens both our eyes to each other's expectations and makes your life easier," Murray says.

CREATIVE THINKING

Brian J. Stiehler, CGCS, has been the golf course superintendent at Highlands Country Club in Highlands, N.C., for the past 13 years and manages 30 employees in the golf, landscape and practice facility departments. The 18-hole private club has a combined maintenance budget of \$1.6 million. Fairways and tees at Highlands Country Club are grassed with bentgrass. Roughs are grassed with Kentucky bluegrass. Greens are

"Plant health is the goal that I aim for over the course of a season. It involves going back to the basics to ensure the plant is given what it needs to live in its environment."

— BRIAN J. STIEHLER, CGCS

Penn A4 bentgrass.

"Plant health impacts my job daily because this is our primary goal," Stiehler says. "Plant health is the goal that I aim for over the course of a season. It involves going back to the basics to ensure the plant is given what it needs to live in its environment. This means a well-drained soil, proper fertility, adequate sunlight and air movement in addition to providing chemical treatments when needed. It involves a regular cultivation program, and entails making adjustments throughout the season on factors like height of cut to allow the plant to have a competitive advantage over everything else. A healthy plant is able to tolerate pests and recover faster from stress or cultural practices."

Stiehler advocates for creative thinking, not managing by rote, to maintain optimum plant health.

"We no longer aerify in September and April because 'that's what we've always done,'" Stiehler says. Instead, he uses the agronomic and scientific tools available to him to give the plant what it needs when it needs it.

"We can get organic matter percentage data that shows us where we should focus our attention and how much attention," Stiehler says.




Brian Stiehler

"Tissue testing, soil testing and visual assessments all give us insight into what the soil and plant needs. I overcompensate for those things we have control of in order to overcome the challenges that Mother Nature offers."

For Van Poucke, plant health is a fundamental part of his job as a golf course superintendent.

"Plant health — I equate it to your body, to a human being, to our health. What is the color of the plant? How is the plant holding up to stress issues? What is the growth rate of the plant? Is it growing or not growing? Those are the main things I look at. I look at it visually and that tells a lot," Van Poucke says. "I do soil tests in the spring or the fall to see what my soil is lacking, like doing your blood work. It's the basis of what the plant needs — what you're lacking in vitamins or nutrients. If a plant is stronger and looks healthy, it has a better chance to fight off crisis. You can water more efficiently, withstand drought issues. Strong and healthy turf does better without as much water."

Plant health is so simple, yet so critical for the successful daily management of a golf course.

"The healthier the plant," Taylor says, "the quicker the recovery from damage from carts, divots and generally mowing stress, heat stress, drought stress. Healthy turf tends to recover from stress a lot quicker than weak turf." 



PLAY FIELD

UPDATE

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into sports fields and helping guys with their ball fields, even though it isn't my expertise.

Sweeney: The beautiful thing is you can still volunteer at LPGA events, PGA Tour events, majors. It's just different, the time your days starts, how it progresses, there's no greens committee meetings...

Thankfully I had a lot of friends who were superintendents and then went to the Dark Side. The Dark Side is a misperception — what's so dark about it? I'm still in the same business, I'm still seeing the same guys.

Jennings: I love the green industry; I didn't want to leave it and get into real estate. This is my passion. But I have a better balance of family and career now. I felt like, the way jobs were going — at least in our area — jobs and salaries were stagnant. And I knew I wanted to be a better help to my wife.

HOW DID YOU KNOW YOU WERE READY TO MAKE THE CHANGE?

Sweeney: I got some good advice a long time ago from a friend who made the change. He simply told me, "You'll know when you're ready." It's when you don't have that fire in your belly.

About eight years ago I was offered something and I said no because I still had the fire.

Bourne: You just have to follow your heart. My family meant more to me than the golf course. I decided I was tired, I was done.

If there was a cloud building I'd stay up until 2 a.m. to turn off my irrigation system from my iPad if it rained. It was \$3,800 for that one overnight cycle of irrigation in the Kansas wind on a hot day. I was just tired of that grind.

And Seth, I'm not saying I'm out forever. I love the turf industry and everybody in it. I still stay in tune with the industry. I still read every issue of your magazine. Once my kids get old enough and go to college, I might get back into it.

Jennings: My work situation was unique. I had a great relationship with (Thomas.) He wanted success for me. My work situation was so good it made it hard to leave.

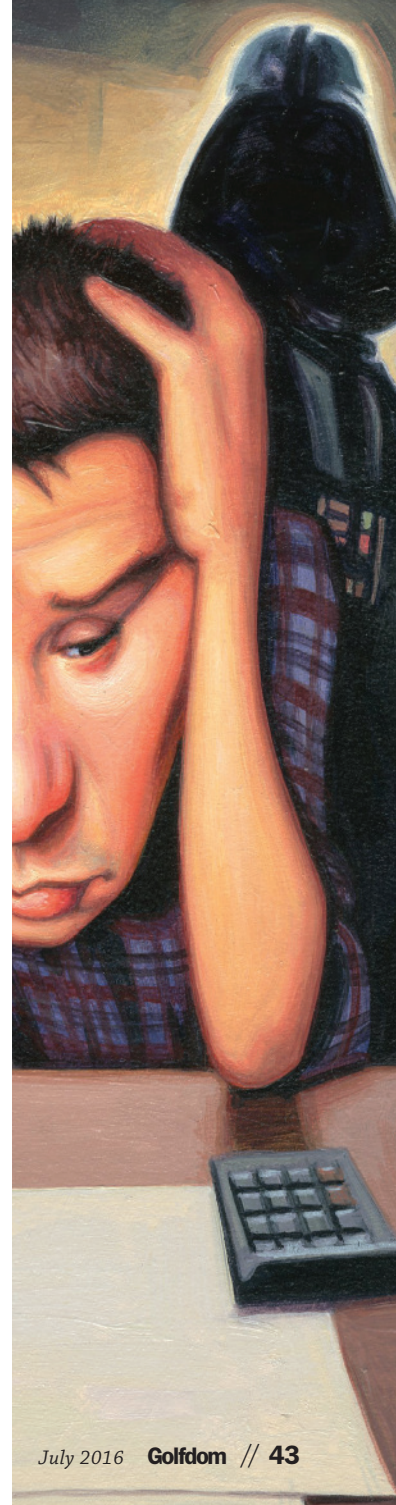
Williams: You need to look around you. If the course is in financial trouble, or if the politics of the course is starting to spin out of control, or if the new general manager is younger than your work boots, you might need to consider it.

If you can do it on your own time, it's better than being reactionary.

Sweeney: The day you drive over a piece of trash on the golf course is the day you look for a different job. If you've lost that fire, open up to it. Either start looking for a new superintendent job or something else to do, a change of scenery.

Continued on page 44

THE DARK SIDE



"You just have to follow your heart," says Bourne, pictured with son Blaine. Bourne adds that he hasn't shut the door on being a superintendent again.

THE DARK SIDE

"And if you see something you think you can do and it interests you, keep in mind it might not be there in six months or two years," says Williams.

Continued from page 43

Williams: And if you see something you think you can do and it interests you, keep in mind it might not be there in six months or two years. That's my spin. If you're 50/50 on your job, if you're having doubts, there's a reason for it.


GUYS, I LOVE THE COLLECTIVE WISDOM YOU'RE GIVING ME AND I APPRECIATE YOUR FRANKNESS. SO LAST QUESTION: GIVE MY READERS ADVICE ON THE DARK SIDE. ONE THING THEY SHOULD KNOW OR UNDERSTAND.

Rattigan: You have to believe in the product you're selling, believe in the company and believe in the people. I wouldn't do this unless I was 100 percent into it.

Williams: Finding that right fit can be complicated. If you don't want to be gone for long, find a small territory. If you like fertilizer, stick with fertilizer, or irrigation or iron.

Sweeney: Be a good listener. Be open minded. And purchase satellite radio for your truck (laughs.)

Bourne: Listening is so important. When I was a superintendent, a salesman would come see me, and if I was having a stressful day they were my sounding board. Now I go out with that guy on the course and he's spilling his guts to me. It's fine, I know where he's coming from.

Jennings: You know me, Seth, I'm spiritual. I prayed about it for a long time. You have to be level headed, don't just get frustrated and leave. Lay it all out on the table and look at the Xs and Os. 



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How I survived when my greens

After soil contamination wiped out his greens in 2015, a superintendent learned to control what he can control.

BY JESSE HARTMAN

The alarm would ring at 4 a.m., but it didn't matter because I regularly sat on the edge of my bed for most of the night staring at the wall.

This happened most nights in May 2015 as my greens slowly died. I didn't know how to stop it. During my second full year as superintendent of Royal Manchester Golf Links in York, Pa., I encountered an issue with my greens. They didn't recover after aerification in early May. At the beginning of June, I realized they were dying because of a contaminated chemical unknowingly

released to our industry and applied on my greens.

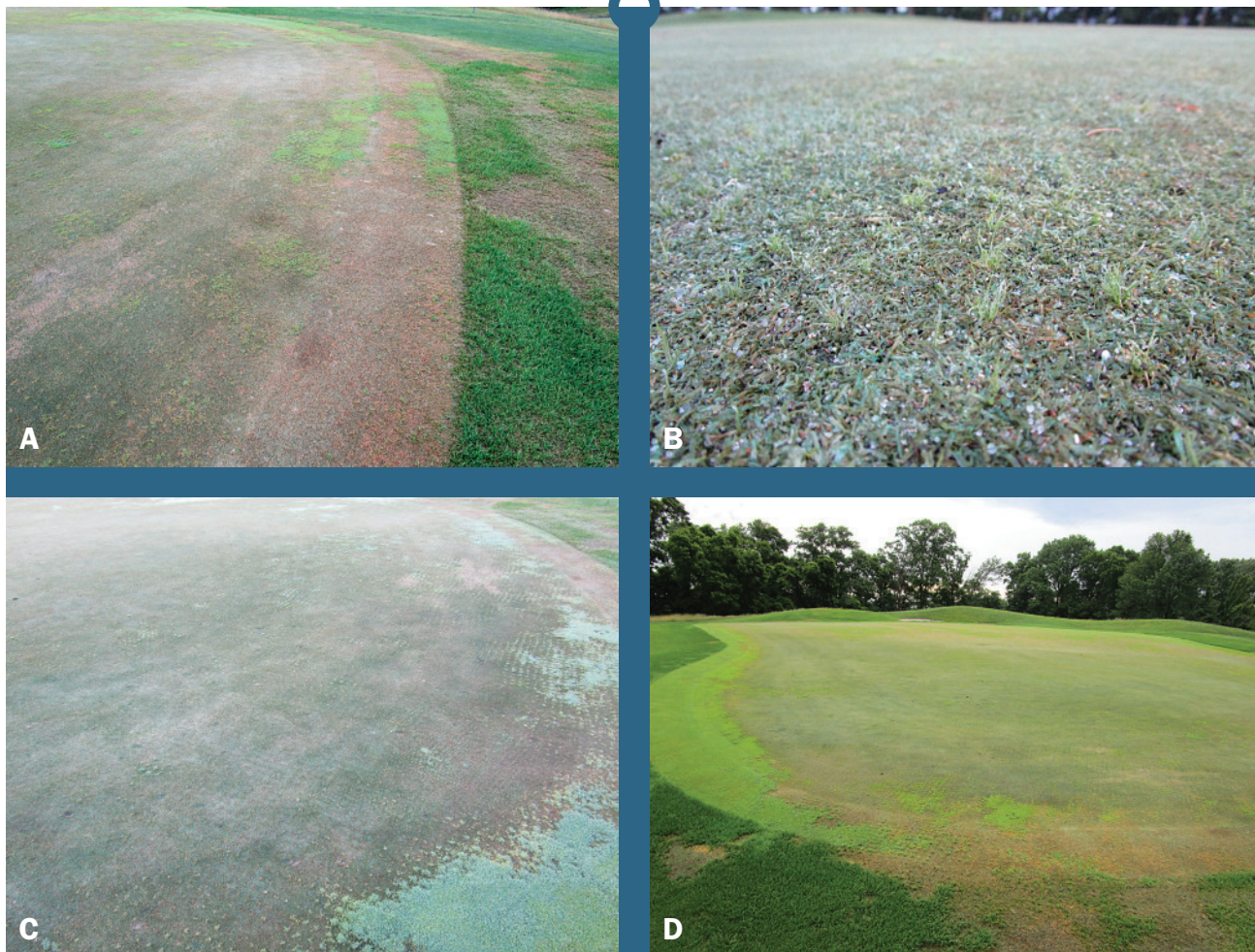
That year was a journey of emotions. I hope that the many key lessons I learned can help other superintendents who go through the loss of turf at some point in their careers. Some of these keys include faith, communication, camaraderie, work ethic and fear management.

I will now be much better prepared when issues arise, and it's my desire that superintendents learn from my story so we all can succeed in this business.

Continued on page 46

didn't





The greens at their worst. **A** Green No. 1 before seeding. **B** Practice green before seeding. **C-D** Green No. 11 before seeding.

Continued from page 45

Trouble 10 days out

After having a great 2014 season and seeing rounds and reputation rising for 2015, I tried to remain humble, knowing how quickly things can turn from great to bad. Unlike most of my local superintendent brethren, we had no winter injury on greens that spring. Having faith in God and choosing to be humble allowed me to start on a better footing as I entered the most difficult situation of my professional career.

The greens were healing nicely 10 days after aerification. It was time for a light PGR and fertility application, along with what I will refer to as “Fungicide X.” Three to four days after that application I noticed that we were still picking up sand when we mowed and we weren’t getting much grass. By May I was thinking that we had gotten a little sting from the fertilizer or PGR, even though everything was at low rates.

I tried using small amounts of other fertilizers to help the grass push out of the sting. The color of the greens started looking darker, almost water-soaked, a kind of *Pythium* look, but that

wasn’t it. I then started seeing small patches of turf beginning to grow and have dew on them in the morning. I thought to myself, “Well, that’s not right.”

I sent turf samples to two local labs. One said that it was severe disease and the other said it was a different disease. I also sent a soil sample to my soils lab, trying to rule out things. I sprayed the required chemicals, and three days later the greens looked worse than ever. My heart sank — I was out of bullets.

A few days, later a local salesman told me that some other courses were having similar issues with Fungicide X. When I heard this, the pieces started to come together. I was absolutely relieved that there was another explanation. I slept better that night than I had for the entire month. There was lots of work ahead, but it was freeing to finally have some direction and to know it wasn’t just something I missed along the way.

No judgment, just help

I initially relied on my experience and education but quickly realized that this was not a battle meant to be fought alone. I always had admired the camaraderie of gentlemen in this business, so



Green No. 3 fertilized after seeding.



Green No. 7 13 days after seeding.

I shelved the phrase “I’ve got this” and invited local superintendents, consultants, trusted salesmen and others to my course.

I suppose my reaching out could have been interpreted as welcoming judgment, but I knew that pride could have no part in solving this problem. If I wanted to be completely solution oriented, I needed the help of more experienced people, and not just for turf questions, but also to remain emotionally stable enough

to get this resolved.

I was more pleased than I ever could have imagined when people rallied with me, not to point out faults, but to help for the sake of helping. And the help didn’t just come from outside. My assistant, Chad Krebs, was influential in consulting with me and always remaining positive, even when I wasn’t. Many assistants

Continued on page 48

PHOTOS BY: JESSE HARTMAN




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A JOURNEY OF EMOTIONS



Practice green grown-in 35 days after seeding.

Continued from page 47

know turf, but to find one who truly assists in all facets — including emotional support — is a blessing that Chad brings to Royal Manchester.

I knew I had to communicate with people through this process, even though everything in my body told me to stay away as much as possible. A bright spot during this trial was the continued sup-



Practice green profile with new turf and roots.

port of my general manager, Kieron Mooney. Keeping him current on everything allowed us to work together to solve this issue. Open lines of communication and absolute honesty permitted Kieron to not only make wise decisions, but to shoulder some of the burden as we went through this together. Communication at home is just as important as at work when it comes to helping us be better superintendents and people.

PHOTOS BY: JESSE HARTMAN

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My wife, Jen, doesn't know a great deal about turf, but she was instrumental in helping during the quiet times when I wasn't looking at roots under a microscope or trying to remain a strong leader of my crew. At one point she sweetly said to me, "What is the worst thing that can happen here?" I thought for a moment and said that the greens would completely die and I would lose my job. Then she said with a small smile, "Then what would happen?"

With a small sigh of relief, I said I would find another job and continue to support our family. She is so wise. She was not belittling my job or our profession, just kindly helping me manage fear. Fear is not an option for a successful leader.

This line of thinking led me to write a simple list. On one side of the list were things I could control, and the other listed things I could not. This simplified the situation because I found many things that were in my thoughts that I had no business thinking about. I could not control them.

Against the odds

When I found out about the contaminated chemical I may have slept a little better, but I was far from completing the year's emotional journey. We had in the neighborhood of 90-percent turf loss on greens. It was in planning the recovery that opinions started to relentlessly roll in. Earlier ideas had helped identify the problem, but I now had to guard against too many opinions and make the best decision for Royal Manchester.

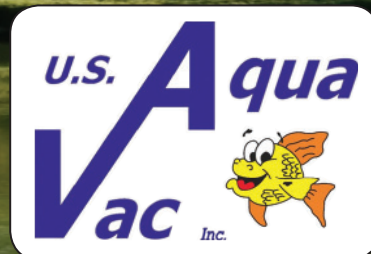
My confidence was trashed by this time, but my wife's sweet words rang true again in my spirit, so I recommended against all odds that we reseed our greens into our current organic mat in June, as opposed to rebuilding our greens completely or sodding them. This decision was backed by a consulting group with which we do regular business.

I now had a grow-in situation on my hands — something which I had never done — on a non-ideal seedbed and during the toughest months of the year. There were even some people boldly telling me that it wouldn't work. However, I knew the property, and I knew it was the right call for our situation. The research, planning, thought processes and consulting were finished. It was now time to move on.

This process involved growing greens in the toughest part of the summer in arguably the toughest grass-growing region in the country, the mid-Atlantic Transition Zone. June was extremely wet, but we fortunately didn't have severe thunderstorms right after seeding, so there were no seed washouts. The wet June helped the seed germinate. We had a couple of heat waves with temperatures in the mid to upper 90s as summer pressed on, but these subsided more quickly than in years past, so the weather helped rather than hurt. We are accustomed to high humidity in the summer, with temperatures at times reaching the low 100s.

It's funny to think that the turf really did recover well, and by all standards somewhat quickly. It just didn't seem to happen quick enough for me. It seemed as though we were never going to get back

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A JOURNEY OF EMOTIONS

Continued from page 49

to the great surfaces we once had. But we pressed on, making one decision at a time about when to start mowing, topdressing, fertilizing, etc.

One great thing about the situation: I had an opportunity to use different products and observe the turf's response. With grow-in fertility being so high, I believed we weren't really getting the bang for our buck, so I added a granular humate product to the rotation. We weren't spraying at this point yet, and contrast was stunning. We got a much better response from our fertility after we added in the granular humate.

Our goal was to re-open the course by October for the York Open, which is our largest event of the season. We ended up having a full recovery going into the fall, with plans to open to the public in the spring of 2016.

Looking forward

The young greens came through this winter



The Hartmans: Jesse, Jen and Simon Joseph.

extremely well. Roots are healthy again and the shoots are transitioning into their summer green. It feels great to get back to what I know best. But surviving last year has put much more in my troubleshooting arsenal for the next turf mystery.

The major keys I've learned through the year's emotional journey:

- Start with a strong faith in God.
- Solid communication.
- A strong work ethic in knowing I am and will continue to do the best work I can for Royal Manchester.
- Consider things that I can control and leave the rest where it belongs, out of my mind.
- Lean on wise counsel.

In the fall of 2015, the greens had fully recovered and Jen and I welcomed the birth of our first child, Simon Joseph. Whatever difficult situations we encounter in our jobs and as people, just know that there will always be better times in the future. It would do us all well to think consistently on the good things in life. **G**

Jesse Hartman, a graduate of The Ohio State University's Turfgrass Science program, is the superintendent of Royal Manchester Golf Links in York, Pa. This year is his 17th in the industry.

PHOTO COURTESY JESSE HARTMAN

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Actual spring photo by a Superintendent — not retouched!

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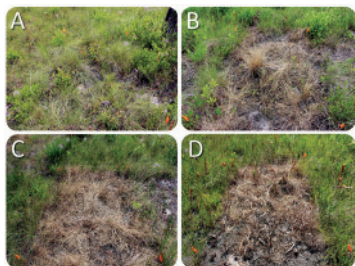
// NATIVES NOT MAINTENANCE FREE

INDAZIFLAM ON WARM-SEASON NATIVE GRASSES IN ROUGH

By Michael Richard, James McCurdy, Ph.D., and Brian Baldwin,

Native warm-season grasses are popular choices for low-maintenance rough on golf courses. They require minimal inputs to maintain but still require some maintenance. Annual grasses and invasive plants can be problematic within these systems, so herbicides often are needed for control.

Research at Mississippi State University seeks to evaluate the safety of pre-emergence herbicides in native warm-season grass stands. This study evaluated the safety of indaziflam (Specticle, Bayer) and a non-selective herbicide glyphosate (Roundup Pro, Monsanto) on wiregrass (*Aristida virgata*) and Indiangrass (*Sorghastrum nutans*).



Wiregrass injury on June 20, 2015, six weeks after summer application.

- A. Specticle FLO (9 fl. oz. /acre)
- B. Specticle FLO (9 fl. oz. /acre) + Roundup PRO (4 qt. /acre)
- C. Specticle G (200 lbs. /acre) + Roundup PRO (4 qt. /acre)
- D. Specticle Total (44 pt. /acre)

Indaziflam is an alkylazine herbicide that provides pre-emergence control of annual grasses and broadleaf weeds. Its mode of action may benefit users in controlling resistant weeds.

A multi-site field study was established at The Preserve Golf Club, Vancleave, Miss., and at the R.R. Foil Plant Science Research Center. Foliar applications were applied using a CO₂ backpack sprayer at 32 gal. water/acre. Granular material was applied by hand over the entire plot. Treatments included Specticle FLO (9 fl. oz./acre) + Roundup PRO (4 qt./acre), Specticle G (200 lbs./acre) + Roundup PRO (4 qt./acre), Specticle FLO (9 fl. oz./acre), Specticle Total (44 pt./acre)

and a non-treated. Three treatment application timings were used: dormancy, spring transition and during peak summer growth. Individual plots were treated at each application timing.

Application timing affected grass safety only when treatments included Roundup Pro. In general, dormant applications of Specticle alone and in combination with Roundup Pro were safe on wiregrass and Indiangrass. However, during active spring and summer growth, Specticle + Roundup Pro combinations reduced wiregrass and Indiangrass dry-weight yield almost 40 percent, and up to 100 percent compared to the non-treated. Results indicate that Specticle as a stand-alone product is safe on wiregrass and Indiangrass.

Michael Richard is a Ph.D. candidate and James McCurdy, Ph.D., and Brian Baldwin, Ph.D., are turfgrass scientists at Mississippi State University. Michael can be reached at mpr160@msstate.edu for more information.

NEWS UPDATES

BAYER'S NEW NEMATICIDE RECEIVES EPA REGISTRATION

Environmental Science, a division of Bayer CropScience LP, has secured EPA registration of Indemnify, a new product that delivers preventative and curative nematode control. Indemnify can be used on both warm- and cool-season turf on all areas of the golf course.

Its active ingredient, fluopyram, offers curative and preventative nematode control. Indemnify features a highly concentrated formulation that is easily measured and handled, specially formulated with proprietary soil surfactants that are designed to penetrate the soil profile, and a readily identifiable blue hue that sprays on clear.

Effective on sting, root knot, spiral, *anguina pacifica* and many other species of nematodes, Indemnify is designed for flexible application anytime nematodes are active and allows superintendents the opportunity to achieve premier nematode management, the company says.

"Nematodes can be devastating to root formation and overall plant health in greens," says Laurence Mudge, green solutions team manager for the Bayer professional turf and ornamentals business. "We developed Indemnify because turf managers have been demanding a better way to control nematodes than what is currently available. Indemnify delivers amazing results in a simple, easy-to-apply solution that's convenient for turf managers."

MOWING HEIGHT WAS CORRELATED TO GOLF BALL LIE... THE MOST INTERESTING ASPECT OF THIS CORRELATION IS HOW MUCH BALL LIE VARIED AS THE MOWING HEIGHT INCREASED."

Dan Strunk, Ph.D.

(see story on page 52)

//WHAT'S IN A LIE?

Golf ball lie, mowing height and shot execution

By Dan Strunk, Ph.D., Doug Karcher, Ph.D., Joey Young, Ph.D., Mike Richardson, Ph.D., and Aaron Patton, Ph.D.

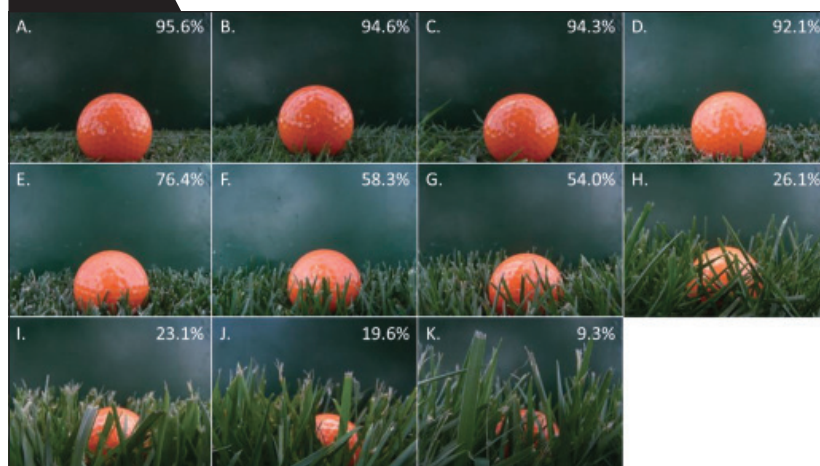
Anyone who has played golf knows that shots from the preferred lies of the fairway are more likely to be successful compared with a similar shot in the rough. Players finding themselves in the rough can use a variety of tips to help them advance the ball, including taking an extra club, choking up on the grip, using a shorter backswing, and even predicting how much grass will be trapped between the club face and ball.

These tips usually are equated to an ambiguous description of the rough, like “average” or “medium.” Even though these tips are based on experience, few studies have attempted to quantify the effects of rough on golf shot performance, or more specifically, correlate golf shot performance to ball lie or mowing height.

More important for golf course superintendents is this question: Could mowing height predict effects on the playability of the golf course? The objective of this study was to quantify the effect of golf ball lie on golf shot performance characteristics.

A study was conducted at the University of Arkansas Research and Extension Center in which two golfers of differing skill levels struck balls with 7-irons from creeping bentgrass at mowing heights of 0.5, 0.6 and 0.7 inch, Kentucky bluegrass at 1.0, 1.5, 2.0, 2.5, and 3.0 inches, and tall fescue at 3.0, 3.5, and 4.0 inches. The first golfer, denoted as low-handicap player (LH), had a USGA handicap index of scratch (0) and was a former Division I collegiate golfer. The second golfer had a USGA handicap index of 8 and participated in golf at the junior college level

FIGURE 1



Images collected prior to golf shot execution to analyze for ball lie (percent of ball exposed) showing (A) creeping bentgrass at 0.5 inch, (B) creeping bentgrass not mowed for two days, (C) creeping bentgrass not mowed for five days, (D) Kentucky bluegrass at 1.0 inch, (E) Kentucky bluegrass at 1.5 inches, (F) Kentucky bluegrass at 2.0 inches, (G) Kentucky bluegrass at 2.5 inches, (H) Kentucky bluegrass at 3.0 inches, (I) tall fescue at 3.0 inches, (J) tall fescue at 3.5 inches, and (K) tall fescue at 4.0 inches. Golf ball lie determined by digital image analysis is listed with each sub-image.

and was called a high-handicap player (HH). The two male golfers hit five shots per mowing height in random order. To ensure that ball lies were random, golf balls were dropped by each golfer from shoulder height and arm's length to simulate taking a drop in accordance to USGA rule 20-2a. Golf shot performance characteristics such as carry distance, backspin, ball velocity, accuracy and others were measured by a launch monitor, and ball lie was quantified prior to golf shot execution using digital image analysis. Ball lie was determined as the percent of golf ball exposed in and above a turfgrass canopy (Figure 1).

Mowing height was correlated to golf ball lie (percent of golf ball exposed) as would be expected (Figure 2). The most

interesting aspect of this correlation is how much ball lie varied as the mowing height increased. For example, ball lie of Kentucky bluegrass at 3.0 inches ranged from 66 percent to 9 percent of the ball exposed, while ball lie of creeping bentgrass at 0.5 inch ranged from 99 percent to 92 percent of ball exposed.

The variability of ball lie at the higher heights of cut may explain why prediction of the amount of grass that will be trapped between the club face and ball often is recommended. It also explains how carry distances can be reduced or increased (such as the case in flyer lies). In one instance during the study, the better of the two golfers had carry distances of 189 and 161 yards from Kentucky bluegrass at a height of cut of 3.0 inches, while the average carry

distance from fairway lies at a height of cut of 0.5 inch was 164.8 yards.

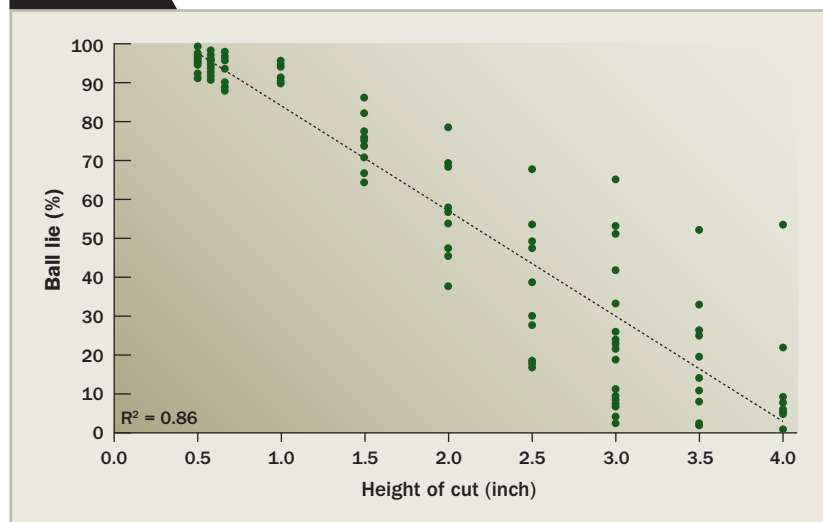
CARRY DISTANCE AND BALL LIE

Although variability in ball lie exists for taller cuts of turf and may produce flyer lies, there was a correlation between carry distance and ball lie. The relationship between the two was not simply linear. Instead, carry distance was much more greatly affected as less golf ball was exposed (Figure 3). For example, if the amount of ball exposed was 80 percent, carry distance would be reduced, on average, by 1.8 yards, and at 60 percent of the ball exposed, carry distance was reduced by 4.1 yards compared to a perfect lie of 100 percent ball exposure. In a linear relationship, it would be expected that a ball lie of 60 percent would reduce carry distance by 3.6 yards. Without having a digital camera and image analysis software on hand, a golfer may be interested to know what to expect based on something known, such as mowing height. Based on mowing height and compared to 100-percent ball exposure, it would be expected that at 1.0 inch, carry distance would be reduced by an average of 0.6 yards, or 1 foot 9.5 inches (Table 1). At a mowing height of 1.5 inches, carry distance would be reduced by an average of 2.3 yards. The difficulty of the golf course could be changed simply by increasing or decreasing the height of cut of the rough. By raising the mowing height from 1.5 to 2.0 inches, carry distance would be decreased by an additional 2.2 yards to 4.5 yards.

Ball speed followed a trend similar to carry distance in its relation to ball lie, but had a much stronger correlation. It would be expected that as mowing height increases and less golf ball is exposed, more turf leaves would prevent the transfer of energy between the club face and ball, and as ball speed is a component of carry distance, the ball should travel less. This is not always the case, as shot trajectory and

Continued on page 54

FIGURE 2



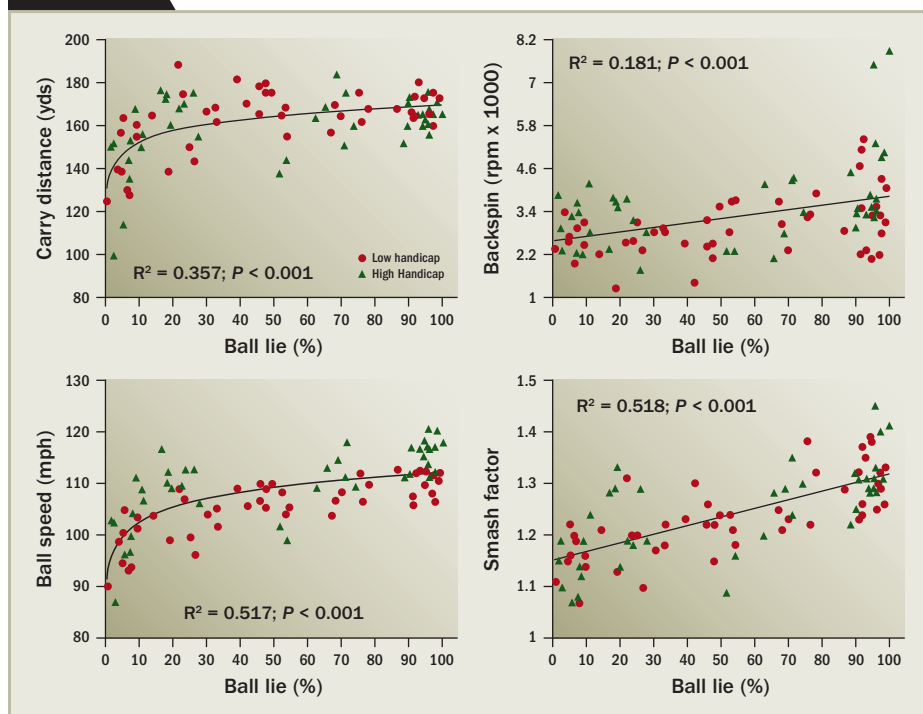
Linear regression analysis comparing canopy height of turfgrass and ball lie collected from creeping bentgrass, Kentucky bluegrass and tall fescue plots at heights ranging from 0.5 to 4.0 inches.

TABLE 1

Species	Mowing height (in)	Ball lie (percent)	Distance reduction (yds)	Spin reduction (percent)	Ball speed reduction (percent)	Additional loss of accuracy (yds)
Creeping bentgrass	0.5	95.7	0.3	1.3	0.2	0.3
Creeping bentgrass	0.6	94.9	0.4	1.7	0.2	0.3
Creeping bentgrass	0.7	94.0	0.5	2.0	0.2	0.4
Kentucky bluegrass	1.0	93.4	0.6	2.3	0.3	0.5
Kentucky bluegrass	1.5	74.8	2.3	8.3	1.1	1.7
Kentucky bluegrass	2.0	56.5	4.5	14.2	2.1	2.9
Kentucky bluegrass	2.5	37.1	7.9	20.9	3.8	4.2
Kentucky bluegrass and tall fescue	3.0	23.4	11.7	25.5	5.6	5.2
Tall fescue	3.5	19.4	13.2	26.8	6.3	5.4
Tall fescue	4.0	17.8	13.6	27.2	6.5	5.5

The average effects on golf shot performance characteristics based on mowing height. Distance reduction is the amount of yards less than predicted distance off a perfect lie (100-percent ball exposed). Spin reduction calculated as percent of backspin decreased from predicted backspin from perfect lie. Ball speed reduction is the percent decrease in ball speed compared to predicted ball speed from perfect lie. Additional loss of accuracy is the increase in lateral distance from the target lie to the average lateral distance from a perfect lie. All effects are based on average ball lie for each mowing height and could vary, especially in higher heights of cut.

FIGURE 3



Linear and nonlinear regression analysis comparing golf shot parameters of carry distance, backspin, ball speed and smash factor for two golfers measured by a launch monitor to golf ball lie demonstrated a significant effect on golf shots from ball lie.

Continued from page 53

backspin also play a significant role in carry distance.

THE BACKSPIN STORY

In addition to affecting carry distance, golf ball lie has an effect on backspin generation in a linear relationship. As the amount of golf ball exposed decreases, average backspin also decreases, but the relationship between the two is weak and likely dependent on golfer ability and swing. There are many aspects of a golf swing that determine the amount of generated backspin. In this study, the golf balls used were of two-piece construction and designed to reduce spin and increase distance. Had premium balls been used, the amount of spin and relationship of spin to ball

lie may have been different.

However, even with the type of ball used, the results from this study was similar to studies conducted by the USGA and R&A. For this study, in tall fescue or Kentucky bluegrass at 3.0 inches, a golfer could expect a decrease in backspin by an average of 25 percent. This reduction of spin could increase the difficulty of the golf course, especially for golf courses with firm and fast putting greens.

EFFECTS ON ACCURACY

Other common concerns in hitting from higher heights of cut are the effects on accuracy, the lateral distance from the target line. The results from this study indicated that only better players will notice a difference in the accuracy

between fairway and rough. Correlation between ball lie and accuracy only occurred for LH. The better player averaged 4.5 yards away from the target when hitting from the fairway. His accuracy decreased by 5.2 yards from rough cut at 3.0 inches, which meant he averaged 9.7 yards from the pin. There was no relationship for the higher handicap player between ball lie and accuracy. This was likely due to a lack of consistency in hitting accurate shots, even from preferred ball lies.

CONVENTIONAL THINKING CONFIRMED

The results of this study confirms conventional thinking on playing from the rough and demonstrated quantifiable effects of ball lie on golf shot performance

characteristics. It shows that changing the height of cut of the rough can have a significant effect on the ability of a golfer to hit quality golf shots.

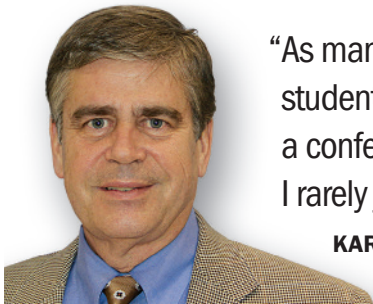
The results of this study may not be completely accurate for golf course superintendents managing warm-season grasses. Testing for this study was conducted on creeping bentgrass, Kentucky bluegrass and tall fescue, and may not be the same for bermudagrass, zoysiagrass or other warm-season species.

The ball lies measured in this study compared to previous work conducted by others indicate there may be differences. Average ball lie in this study for bermudagrass at 1.0-inch height of cut was slightly lower than ball lie measured for Kentucky bluegrass at the same height of cut (83 percent versus 93 percent). Another note of caution from this study is that the only club tested was a 7-iron, and while using other clubs may produce similar trends, the effects of ball lie may be different.

Dan Strunk, Ph.D., a former graduate student at the University of Arkansas, currently is a research associate at the University of Tennessee-Knoxville. Doug Karcher, Ph.D., and Mike Richardson, Ph.D., are turfgrass scientists at the University of Arkansas. Aaron Patton, Ph.D., is a turfgrass scientist at Purdue University. Joey Young, Ph.D., is a turfgrass scientist at Texas Tech University. You may reach Dan Strunk at wstrunk@utk.edu for more information.

References

- Richardson, M., D. Karcher, A. Patton, and J. McCalla. (2010). Measurement of golf ball lie in various turfgrasses using digital image analysis. *Crop Sci.* 50(2): 730-736.
- Strunk, W.D., D.E. Karcher, J.R. Young, A.J. Patton, and M.D. Richardson. (2015). Golf shot performance characteristics influenced by ball lie. *Crop, Forage & Turfgrass Management* 1. doi:10.2134/cfm2015.0136



“As many of you know from being a student of mine, hearing me speak at a conference or reading this column, I rarely just answer the question.”

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

Another dimension: The Golf Zone

I appeared live this May on the TV show “Golf Zone” on Fox Sports Ohio. My segment was on golf course coring or aerification, and it consisted of a short video followed by 10 minutes of give and take between host Jimmy Hanlin and me.

The spot was made possible by the GCSAA chapter outreach grant program, which accepted proposals from local chapters designed to generate awareness of the superintendent profession. All five Ohio GCSAA chapters participated and matched the grant from GCSAA.

Brian Laurent, executive director of the Ohio Turfgrass Foundation, coordinates appearances on the spot, which appears weekly. The first spot was done by Mark Jordan, natural resources leader at Westfield Group Country Club, who discussed the then-upcoming “Turfgrass Week in Ohio” a week before my appearance. The Golf Zone is available to several million subscribers in Ohio and surrounding states and is the most popular golf show in the region.

I asked Brian why the chapters decided to go through the summer with

a weekly live segment on the show instead of some form of professionally developed commercial. “Commercials are a crapshoot,” he said, “with people getting up to get a beverage during breaks, and with DVR, some would record and fast forward.” My experience with live TV is that it’s best that viewers record then fast-forward through my segments.

After the introductory video, the first question asked of me was, “Why do golf course superintendents always core or aerify when the greens look their best?” As many of you know from being a student of mine, hearing me speak at a conference or reading this column, I rarely just answer the question. I often reply with a story or an analogy.

My reply went like this: “Have you ever bought a 1960s or early 1970s muscle car?”

On the outside, most classic cars

have a nice paint job with new tires and rims and from 25 yards away look fantastic. But upon closer examination — usually after you’ve bought it — you find the undercarriage, floorboards and rear frame rails are rusted, and maybe the quarter panels are full of bondo. That doesn’t include engine and transmission issues. From people I know who have ended up in this situation, restoration costs can range from \$50,000 to \$100,000 or more. And maybe you will get your car back in a year or two.

Coring allows us to keep the underside of the turf clean and in working order. Controlling and topdressing allows you to manage organic matter build-up (something like preventing rusting) and provides improved air porosity for better root growth (kind of like tuning the engine). Done on a regular basis, this may result in a few days of closing the course, but that’s better than turf declining so much that the greens are out of commission for months.

My segment ended after a few more questions, and I started the trip back to Columbus. Traveling back gave me a chance to reflect on what transpired. First of all — no surprise to golf course superintendents — the majority of golfers don’t have a clue about what goes into managing and manicuring a golf course.

Some say golfers don’t care. I don’t think that’s true. My teaching experience tells me that students both male and female outside of our major are curious about what goes on a golf course and what it takes to make them look the way they do. These students, however, don’t want to be burdened with a lot of technical stuff, which can be said for golfers.

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

Fire ant control on golf courses

David Held, Ph.D., is a turfgrass entomologist at Auburn University. He has more than 20 years of practical and research experience controlling insect pests of turfgrass. David can be reached at dwh0004@auburn.edu for more information.

QBriefly outline the life cycle of fire ants.

Fire ants (*Solenopsis* spp.) of several species exist in one of three stages; brood, adult workers or queens, and all life stages are present at the same time. There is continuous reproduction of new broods. A fire ant colony develops underground, and a colony can have a single queen or multiple queens. Colonies with multiple queens exist only in certain locations in the U.S. New colonies develop when winged adults fly from an existing colony, mate and start a new colony, or when an existing colony expands into new territory. If you have ever noticed a winged, stinging ant in a swimming pool, it's probably a winged fire ant on a mating flight. Mating flights occur from May to October and often after a heavy rain.

Fire ant mounds are visual confirmation of a fire ant below ground. A fire ant mound is a solar collector that allows fire ants to produce new broods during cooler times of the year. Mounds are most common in spring and fall, and mostly not present in June, July and August, when soil temperatures are hot enough for brood production

without the aid of a mound.

Fire ants mostly are not active during the winter because of cold temperatures, but they will be active if there is a period of warm days.

A BROADCAST APPLICATION CAN COVER A LARGE AREA, AND FIRE ANTS WITHIN THE APPLICATION AREA WILL TAKE THE BAIT BACK TO THE UNDERGROUND COLONY WHERE IT WILL CONTROL LARGE NUMBERS OF FIRE ANTS, INCLUDING THE QUEEN OR QUEENS.

QWhat are fire ants doing right now (July)?

Fire ants are very active in July, but they are not building mounds. Some people are deceived by the lack of mounds and think that the fire ants have been controlled. Not true. Fire ants are still present and increasing the size of the colony.

QHow are fire ants controlled?

In general, there are two ways to control fire ants. The first is with bait, either broadcast applied or targeted to a specific mound or mounds. The second is a broadcast application of a granular insecticide like pyrethroids or Topchoice

(Fipronil, Bayer). The difference between them is that the bait is formulated on food.

Broadcast bait applications are the most effective strategy. A broadcast application can cover a large area, and fire ants within the application area will take the bait back to the underground colony where it will

be present but before it is too cool and fire ant activity decreases. Insecticide treatments work in the late spring as well, once temperatures are consistently warm enough for the fire ants to be active.

QAnything else you would like to add?

There is not much that a superintendent can do to prevent fire ants from establishing on a golf course. A mated queen easily can fly to a previously uninfested area and start a new colony.

We are seeing tawny crazy ants (*Nylanderia fulva*) and Argentine ants (*Linepithema humile*) on golf courses in the southeastern and southwestern U.S. Both species have been introduced into the United States and do not sting. Both species cause problems with the sheer numbers of ants and are a problem around buildings. Good sanitation outside of buildings to remove materials ants use for shelter may be helpful.

control large numbers of fire ants, including the queen or queens. Application of bait to a single mound or several mounds will control only those mounds. New mounds can still form in the vicinity of the old mounds because fire ant colonies nearby were not affected by the treatment.

A broadcast application of granular insecticides controls foraging adult fire ants that come in contact with the insecticide. The granular insecticides are not carried back to the colony like baits, and the queen and brood often are not controlled.

Fall is the best time to control fire ants with baits. Apply insecticide treatments when the mounds



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

Golfdom

In late 2015, *Golfdom* invited readers like you to participate in an in-depth online study. Here are just a few of the survey's results.



THEY SAID IT

TELL US HOW USEFUL GOLFDOM IS TO YOU AND HOW YOU USE IT IN YOUR JOB:

“The best trade magazine in the market! Topics are relevant and the content is not too wordy and to the point.”

“THE HUMOR IS ENJOYABLE AS WELL, HELPS US CHILL OUT ABOUT OUR JOBS A LITTLE MORE. AND THE ADS ARE FULL OF INFORMATION FROM THE SUMMIT ATTENDEES, SO IF I EVER FORGET SOMETHING OR NEED MORE INFORMATION FROM SOMEONE I SPOKE WITH AT THE SUMMIT I LOOK TO THE MAGAZINE BEFORE I LOOK ONLINE.”

“Read it cover to cover and make sure my assistants do too. Can never have too much education.”

“I’m always searching for new and innovative ideas to incorporate here on the course and *Golfdom* has great educational articles to help fill the void.”

“*Golfdom* is a great magazine with a good mix of research, educational and personal touch stories along with industry news.”

“I consider the magazine the forefront of the industry.”

Professional Grade

NEW PRODUCT
HIGHLIGHTS

LONG-TERM WEATHER,
SOLAR POWER AND MORE

A LOOK INTO THE FUTURE

BY SETH JONES

1. S.A.M.

MEAN GREEN MOWERS

introduces S.A.M., an acronym for Solar Assisted Mower. S.A.M. is an optional solar electric canopy that can be added to the commercial electric Mean Green CXR-52-inch/60-inch ZTR ride-on mowers. Along with the new S.A.M. option, the CXR boasts a much more substantial use of hybrid construction materials such as military-grade aluminum alloys and high-strength steel. The patent-pending CXR has a newly designed, green lithium battery system capable of 20 percent longer run time than last year's model. The S.A.M. is a quiet, powerful, zero

emission, all battery-electric commercial mower weighing less than most commercial gas mowers that is capable of harvesting free energy from the sun.

meangreenproducts.com

2. Sunflare

Apart from an extra fee courses can collect from golfers, golf carts currently offer few benefits and many costs. But according to **SUNFLARE**, a new revenue stream can be created with a new solar technology that can be affixed to carts of all shapes and sizes with just a few pieces of special double-sided tape. Sunflare is a flexible, ultra lightweight solar technology that can be

bent and cut to custom fit the roof of any cart. Sunflare says this technology can enable carts to run on their own sun-generated power, and when they are not in use, golf courses can use them to harvest energy to power lights in the club house.

sunflare-solar.com

3. Fairway markers

UNDERHILL INTERNATIONAL

offers fairway markers, available as standard disks in a range of colors or custom disks with course name and logo. Each marker has a bold 3.5-inch yardage number and is offered with an optional 8-inch in-ground mounting pipe. Fairway markers are typically positioned in specific configurations for greater visibility, such as: three markers placed down the center of the fairway at 50 yard intervals; five markers placed down the center of the fairway for greater coverage; or a diamond layout with markers placed on sides and the center.

underhill.us

4. Concrete Donuts

Concrete Donuts uses a proprietary blend of engineered mixtures to create a "super strong donut head protector" for sprinkler heads, all the while remaining attractive and blending into a

green, lush lawn. Concrete Donuts will protect sprinkler heads and the piping below from damage caused by mowers, edgers, string trimmers, cars, trucks, tractors and golf carts. To increase the strength of their donut, they have a proprietary blend of concrete that is infused with fiber and dyed green throughout.

concretedonuts.com

5. CS2210 and CS2510

KIOTI TRACTOR, a division of Daedong-USA, Inc., advances its CS Series with the launch of the CS2210 and CS2510, the latest additions to the hard-working sub-compact tractor line. With improved comfort, convenience and operation, Kioti's popular CS Series has the power and versatility for mowing, hauling, digging, snow blowing, tilling and plowing through projects big and small. The new CS2210 and CS2510 sub-compact tractors offer a 21.1-HP and 24.5-HP diesel engine, respectively. These optimized engines combine large power output with low fuel consumption for cost-conscious operation. Power steering, a new ergonomic operator station with improved seat, and twin HST pedals are standard on all models.

kioti.com

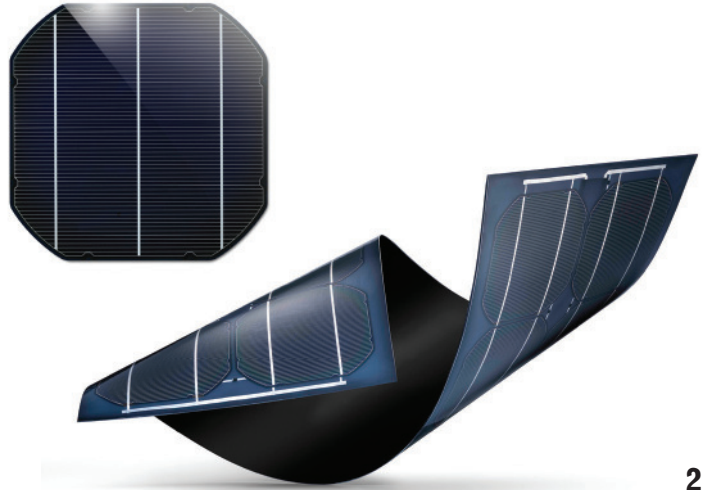


"NOT A BAD DAY FOR GOLF"

Instead of looking into the future, Atlas Travelcast looks into the past to predict the weather. Using such resources as the NOAA, they say to expect "fair" golf conditions – temperatures in the 70s, with a 5-mph wind.

As for rain? A 37-percent chance, as it has only rained on these dates in 14 of the last 38 years.

Let's hope history repeats itself.



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The 19th Hole



Mark Kuhns

CGCS // Baltusrol Golf Club, Springfield, N.J.



Mark, what can I get you? Well, with my dietary restrictions, alcohol is out of the question... how about a tall unsweetened tea?



So you and Janet will celebrate your 40th anniversary after the PGA Championship. Yes, 40 wonderful years. We have three beautiful children and one grandchild, Abigail. She's the love of our life. She was the

inspiration for me losing weight.

What have you learned through your weight loss? I think at times we forget the most important things in life. Our jobs are important, but family is No. 1. A lot of guys forget about themselves. That yearly physical is important. I was fortunate, I didn't have anything except a weight problem. When my daughter told me she was pregnant, that was my rude awakening — I thought to myself, "I'll never see that little girl grow up unless I change my ways." That little girl changed my life, and she'll always know that.

In 2005 in *Golfdom* you correctly predicted the winning score. So let's take it to the next level. What's the winning score, and who are you picking to win the 2016 PGA Championship? I'm predicting

seven-under. And I'll take Jason Day.

I already know who your team is...

You got it — any team at Penn State is my favorite team. We have football season tickets, and now we have hockey season tickets. If I could get them, we'd have wrestling season tickets too.

What one movie will always stop you in your tracks when you're channel surfing? *Gettysburg*.

It tells the story of the turning point in the U.S. I'm a bit of a historian. But then again, *Groundhog Day* sort of sums up my life... except I don't need an alarm clock to wake up.

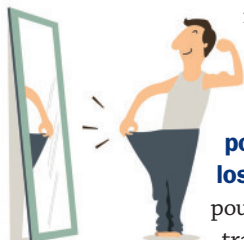


Any turf tips or shortcuts you can tell me about?

So many guys think they can take shortcuts, say they avoid topdressing or aerification. I believe if you get away from that too much you get in trouble. I would say doing aerification efficiently is important, and something I'll never give up. There are a lot of great tools out there to keep that soil profile from becoming hydrophobic.

Fill in the blank: If someone really wanted to impress me, they'd get me front row tickets to _____. See Neil Diamond. I already had good seats to see Elton John, now I want to see Neil Diamond up close before he leaves this earth. Or before I do!

As interviewed by Seth Jones, June 27, 2016.



How many pounds have you lost? I'm down 100 pounds right now. My trainer wants me to

lose about 15 more before the PGA gets here.

"DON'T BE AFRAID TO MAKE CHANGES OR ASK FOR THINGS. IF THEY WANT THE BUDGET FOR NEXT YEAR, GIVE THEM THE BUDGET FOR THE NEXT FIVE YEARS. YOU NEVER WANT (THE MEMBERSHIP) TO SAY TO YOU THAT YOU DIDN'T TELL THEM ABOUT SOMETHING."



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AND I'VE TRIED THEM ALL!"

Rene Rangel

RENE RANGEL - STERLING GOLF MANAGEMENT



THE GOLF CLUB AT
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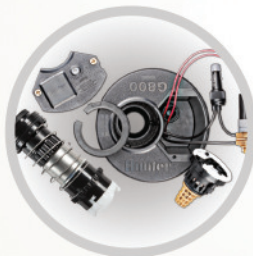
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