

Golfdom

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The Running Man

Applying a marathon runner's determination to turf care, Jonathan Jennings, CGCS, has Shinnecock Hills GC ready.

2018  U.S. OPEN
PREVIEW

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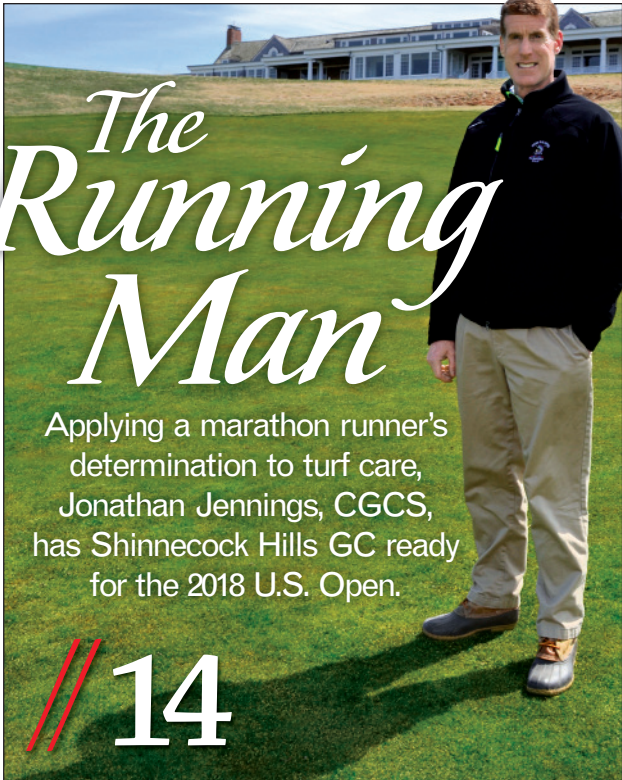
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The Running Man

Applying a marathon runner's determination to turf care, Jonathan Jennings, CGCS, has Shinnecock Hills GC ready for the 2018 U.S. Open.

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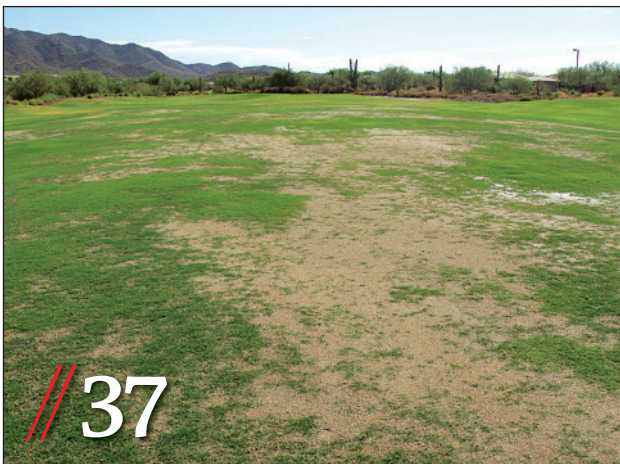
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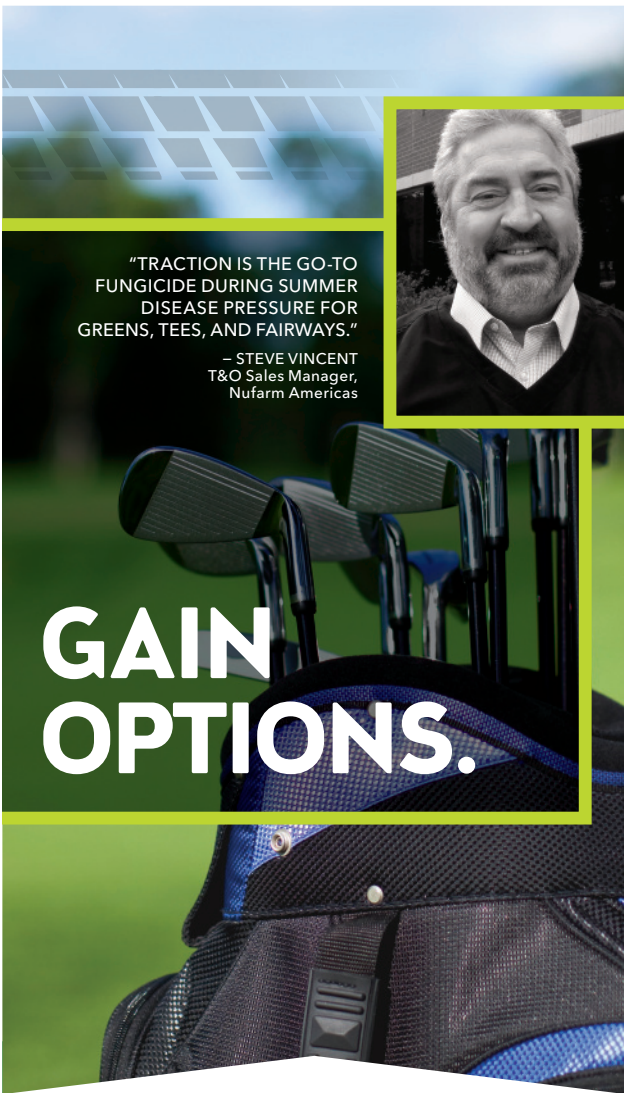
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“Whether it goes back to grade school or it’s just passing by each other once in a while in the same niche industry, the connections run deep.”

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

A small turf world

There’s an area behind the grandstands on Amen Corner to stand and grab lunch. No chairs, just high-top tables, beautiful weather and Masters patrons in all directions peacefully walking about. It’s one of my favorite spots in the world to grab lunch because it means I’m at the Masters and at the beginning of another golf season filled with potential.

Golfdom Publisher Craig MacGregor and I had just bought lunch (a “Lite” beer, Masters-logoed BBQ potato chips and an egg salad sandwich for me) and were looking for a spot to eat. Craig spotted a half-open table and politely asked the two standing there, “Mind if we join you guys?”

“Not at all... especially for a guy wearing a *Golfdom* shirt!” was the response.

It was at this point that I met Michael Hughes, superintendent at Whitinsville Golf Club, Northbridge, Mass., and Michael Poch, superintendent at Foxborough CC in Foxboro, Mass. — two guys who recognized me from reading this magazine. (Check out page 12, photo No. 2, for a photo of Craig, Mike and Michael

together, and page 44 for my “19th Hole” interview with Poch.) We had a laugh about the coincidence, finished lunch and then walked a few holes together. Within minutes we ran into another friend of the magazine, Paul Blodorn of Quali-Pro.

By day’s end, after running into a dozen more Friends of *Golfdom* (members of the F.O.G., as I like to call them) I thought to myself, “only at Augusta National.” But as I sit here, I realize that’s not really the case. It happens at every event we attend, from the local chapter meeting to golf’s majors or the Golf Industry Show.

It’s a small turf world. Unless you’ve hidden underneath a rock your entire

career you know what I’m talking about. In some way we are all connected. Whether it goes back to grade school (see this month’s cover story for that connection) or it’s just passing by each other once in a while in the same niche industry, the connections run deep.

A group of assistant superintendents recently came to Lawrence, Kan., as part of Nufarm and GCSAA’s three-year Excel program. I’ve struck up a friendship over the years with Nufarm’s Cam Copley while hanging out at the annual *Golfdom* Summit, so I reached out and offered to buy him a cold one while he was in town. While we caught up at the Oread Hotel bar, Nufarm’s Steve Vincent

dropped by and joined us.

I’ve briefly chatted with Vincent before. I didn’t know that he lived nearby, and he didn’t know that I live local to Lawrence. Even more of a surprise was that Vincent knew about my little hometown of Eudora, Kan., a town of 6,000 — he played pick-up basketball at the high school there years ago, which led us to recalling our days of playing pick-up basketball at Robinson Gymnasium on the campus of Kansas University.

I came to work the next morning a little foggy (a danger of hanging out with F.O.G. members) and booted up the computer. My designer, Pete Seltzer, sent me page 4 of this issue to approve for the printer. I opened the page and took a look...

Staring back at me was none other than Vincent himself. Flip a page back and take a look for yourself.

Again, small turf world.

Maybe I’m easily amused, but coincidences like these crack me up. I write this as I’m on an airplane heading to National Golf Day in Washington, D.C. This will be my first National Golf Day, and expectations are high. But more than meetings with high-powered politicians, I’m excited to see familiar faces and make some new connections.

If you see me at the next major or golf industry event and we haven’t met yet, I hope you’ll say hi.

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NEWS, NOTES AND QUOTES



// LIKE A GEORGE ROMERO MOVIE



Mother Nature delayed deep tining at Cooperstown, N.Y.'s Leatherstocking GC this season.

// IT'S GETTING HOT IN HERE

SYNGENTA OFFERS SOIL TEMPERATURE ALERTS

To help superintendents stay ahead of weeds and diseases, Syngenta has introduced Soil Temperature Alerts via their website at GreenCastOnline.com. The service allows subscribers to track soil temperatures anywhere in the U.S., receive personalized alerts on potential pest activity and access 10 years of soil temperature archives.

"Soil temperature is a key indicator of conditions favorable for the development of certain pests," says Lane Tredway, Ph.D., technical services manager at Syngenta. "To build these alerts, we've identified eight key diseases and weeds and the temperatures at which they emerge. This information can help turf managers ensure more timely and effective treatments when the conditions are favorable for these pests."

Subscribers can sign up for the alerts to be sent via email or text message.

// THEY SHOWED A LOT OF HEART

PBI-GORDON IS TEKKEN NAMES

Attendees at the 2018 Golf Industry Show were invited to a Tekken fungicide launch party, with the bonus that the GCSAA chapters with the most attendees would win scholarship and research grant money.

PBI-Gordon announced the winning chapters, and the winning chapter also was the local chapter to PBI-Gordon. The Heart of America GCSA chapter, representing the greater Kansas City area, took first place and won \$5,000 (PBI-Gordon's offices are currently in downtown Kansas City; the company will soon relocate to new offices in Shawnee, Kan.). The Minnesota GCSA took second and \$2,500, while the Rocky Mountain GCSA took third and \$1,000.

Heart of America President Scott Johnson, CGCS at Shadow Glen GC in Olathe, Kan., says the bulk of the \$5,000 will go to scholarships at turfgrass programs at Kansas State University and the University of Missouri.

THE WINTER THAT JUST... WON'T... DIE

BY SETH JONES // Editor-in-Chief

➔ Opening Day at Wrigley Field in Chicago was postponed for snow. The University of Michigan cancelled their spring game because of inclement weather. Even the kiddos were suffering — all youth soccer games were cancelled in Des Moines because of snowy conditions in mid-April.

But at Leatherstocking Golf Course in Cooperstown, N.Y., superintendent Mike O'Neill, CGCS, says the show must go on.

"I put off deep tining as long as I could," he says after sending the crew out in snowy conditions. "The ground isn't frozen so it's OK, and I'm scheduled to have DryJect out here next week. So we're trying to get things done even though Mother Nature has other ideas."

Though the calendar read April, the Midwest and Northeast were still feeling winter temperatures. *The USGA Green Section Record* reports an unusually long winter for areas in the South and Southeast as well, with some areas experiencing snow and freezing temperatures for the first time in 20 years. Winter injury at courses with ultradwarf bermudagrass is widespread, according to the report.

"It's been miserable here, we still have snow piles," O'Neill says. "We're a resort course, we're typically open by mid-April. It affects things. The crew is itching to get back out there but I've been having to hold them back. This is definitely the most unusual spring in my 13 years as a superintendent."

Just another reminder that golf is always at the mercy of Mother Nature.

// A CLICK AWAY

Only at Golfdom.com

➔ It's been a busy month over at **Golfdom.com**. Stop by and take a look — from your PC or your phone (we're mobile friendly!) to see these features not available anywhere else:

● Jon Jennings interview

While in Southampton, N.Y., we asked Jennings a few questions for *Golfdom TV*. Jennings talks about the atypical weather Long Island is experiencing this year, and what aspects of the course restoration at Shinnecock Hills superintendents will most appreciate when they tune into the 2018 U.S. Open.

● DryJect demo

We caught up with Chad Gamble, owner of DryJect Tennessee, for a demonstration of the DryJect aerification method. He shows us how the machine works and tells us a few reasons why superintendents love getting the DryJect treatment at their courses.

● Counting clippings

We recently sent columnist Joe Gulotti, superintendent at Newark (Del.) CC, on assignment to a turfgrass conference in Canada to learn from some of the big thinkers in the industry. Joe came back with a 3,000-word epic story we couldn't fit into one issue. Part 1 of the story starts on page 33. Click over to **Golfdom.com** to read part 2, where he talks to Hazeltine National's Chris Tritabaugh about limiting inputs and to Micah Woods about the value of counting clipping volume to measure growth rate.

// WE LIKE THE 19TH HOLE, TOO

SURVEY SAYS...

During the Masters we asked our Twitter followers what their favorite section of the magazine is. The 19th Hole was so popular that the rest of the magazine got jealous and is no longer talking to it.

19th Hole – 70%
Research section – 12%
Columns – 12%
The Golfdom Files – 3%
My Second Office – 3%

// HOW'S YOUR FRENCH?

CAPILLARY CONCRETE NAMES RYDER CUP WINNERS

Bunker company Capillary Concrete has their bunkers all over the world, including at the Albatros Course at Le Golf National near Paris, where the 2018 Ryder Cup is to be played. And the company is taking 10 GCSAA members to France to see those bunkers in person.

The 10 members who will fly to Paris and join the maintenance crew are:

- **Brian Acosta**, assistant superintendent at Spanish Oaks GC in Bee Cave, Texas
- **Kyle Anderson**, superintendent at Edgerton Towne (Wis.) CC
- **Natalia Arlint**, superintendent at Polson Bay (Mont.) GC
- **David Eichhorn Jr.**, assistant superintendent at Elmcrest CC in Cedar Rapids, Iowa
- **Jason Ellis**, superintendent at Villages at Country Creek in Estero, Fla.
- **Brian Gietka**, CGCS at Fountain Head CC in Hagerstown, Md.
- **Jeff Hacios**, superintendent at Fort McMurray (Alberta, Canada) GC
- **Steven Murphy**, superintendent at Ole Miss GC in Oxford, Miss.
- **Herminio Plata**, assistant superintendent at Monarch Dunes GC in Arroyo Grande, Calif.
- **Ryan Walsh**, superintendent at Woods Hole (Mass.) GC

Congrats to all the winners, and someone bring us back a hat! (But please, not a beret... unless it says "Rusty" on it).

ABOUT THE COVER

Golfdom Editor-in-Chief Seth Jones snapped this photo of Shinnecock Hills Superintendent Jonathan S. Jennings, CGCS, last month. Jennings is on No. 18 at Shinnecock, outside the oldest clubhouse in the nation.



Now on **Golfdom.com**: A closer look at DryJect's aerification method from DryJect Tennessee owner Chad Gamble.



“We did divots, picked up broken tees and mowed. The best part about the tee crew was everything I helped with after the tees were mown.”

STEVEN WRIGHT, CGCS, Pine Tree GC, Boynton Beach, Fla.

My Open

Well, it wasn't really my Open, it was Tiger's Open. This year it'll be 10 years ago, but it seems like yesterday.

I've attended several U.S. Opens through the years. Oakland Hills, Pinehurst and Atlanta Athletic Club come to mind because I returned to play the course. Outside the ropes at a U.S. Open is special, but working and having access inside the ropes is priceless.

I've only worked one Open (so far), and some say it was the best in years. My good friend Mark Woodward, along with Jon Maddern, were the management team at Torrey Pines then. Mark said he'd have a spot for me, so for that week in June '08, I was in charge of the tee crew. I worked with a great group of municipal employees. I relied on them for obvious reasons — it was their baby. We all had mowers and specific routes. Our jobs were done without glitches twice a day for eight days.

Honestly, it was just the tees. The greens, fairways and bunkers had more staff on them. We did divots, picked up broken tees and mowed. The best part about the tee crew was everything I helped with after the tees were mown.

We've all heard about the scouting and monitoring done for two years before a course hosts an Open. The statistics are mind numbing, including green speeds, firmness, H2O and clipping yields. USGA interns and site coordinators record putting greens and other areas daily, but not the tees.

Wherever I could help, I would. It was a machine for sure. If I wasn't needed on one green, I went to the next. I kept notes on what I observed, and it was fascinating to watch greens getting hand watered, with each having

its predetermined amount of water. Some greens were double cut or double rolled, but they were all the same green speed when the flagstick was put in the hole.

I was there for just a week, but exposure to the process was worth every minute. A lot happened that week, but two memories remain: Watching Mike Davis putt to and hit pin flags from 20-25 feet when determining hole locations. He could have dropped putts into a thimble that week. Another was never seeing a sunset on the Pacific that week. Strange thing, that coastal fog.

Fast forward past the last few Opens, where the same principles were completed with the same disciplines, only used on modern designs of the 21st century. With the exceptions of Oakmont and Merion, the U.S. Open has

veered away from the classic courses on which I grew up watching the greats play. Taking nothing away from the courses or champions of the past 10 years, I remain a fan of returning the U.S. Open to these great courses and their celebrated greens, bunkering and classical layouts. I can't wait to see today's great players taking their games to these classics. Tight driving areas with thick rough... someone will still win.

I plan on working another Open. I still have the desire, and I know what I'll be getting into. I'm sure I'll see familiar faces, like the fairway crew that seems to have routes down before they ever get there. Can't wait to be a part of another “Flag Day.” I look forward to meeting staff that's worked on these classics, and can't wait to hear their stories, as well as meeting interns and students — at least the ones who make it to work on time.

But most of all, it's that feeling you get of accomplishing something as big as prepping the U.S. Open. The science, resources, skill and teamwork have set the standard that most, if not all, Tour events use today. It doesn't matter who did it first, we all love the effort.

#justsaying

Steven Wright, CGCS, is golf course superintendent at Pine Tree GC in Boynton Beach, Fla. He can be reached at steven_wrightcgcs@pinetreegolfclub.net or followed at [@wrightsteve19](https://www.instagram.com/wrightsteve19).

CONDITION. PERFORM. RECOVER.

California superintendent removes a trio of diseases — once and for all.



Todd Kochanowski

For nearly seven years, Todd Kochanowski, the superintendent at Temecula, Calif.'s Temecula Creek Inn, has tried to remove summer patch, anthracnose and rapid blight from the inn's 27-hole championship golf course with little to no success.

He attempted virtually every method he could think of, but the long southern California summers were too difficult to combat. But then he discovered a new fungicide program last spring — one that would not only combat the diseases his 5.25 acres of *Poa* greens encountered every summer, but remove them entirely.

To ensure the best conditions possible, Kochanowski followed the recommended calendar dates and rotations of Syngenta's Green *Poa Annu* West 14-day California rotation. He began applying the program in April 2017, hoping to prevent summer patch, which usually occurs after core aeration. He first applied Banner Maxx, followed by a combined application of Daconil Action and Velista, and then a 14-day rotation of Heritage Action.

The combination helped Kochanowski avoid summer patch outbreaks for the first time in his seven-year tenure. He noticed the same results with anthracnose, which also poses a significant threat to

the course's *Poa* greens, as temperatures tend to rise to triple digits for long stretches throughout the summer.

"The combined application of Daconil Action and Velista, as well as Heritage Action and Velista in the final stretch of the summer, was a true test for our greens," Kochanowski says. "But, even with typical end of summer root decline, we didn't experience any anthracnose in 2017."

Of the three primary diseases Temecula Creek Inn encounters annually, rapid blight may be the most impactful, as 18 of the inn's 27 holes are native, push up greens. Salts must be monitored and controlled carefully to ensure they don't reach toxic levels and lead to rapid blight susceptibility.

Unlike past summers, in which toxicity rose substantially and leaching wasn't an option due to scheduled events, a timely application of the Syngenta rotation

provided Kochanowski the insurance he needed to control rapid blight until venting and leaching could be properly executed.

"For the first summer that I can remember, we were rapid blight free," he adds.

In addition to preventing summer patch and anthracnose, and eliminating rapid blight, the Syngenta rotation — particularly Heritage Action — completely averted drought stress on each of the greens, an issue Kochanowski typically encounters in the late summer and early fall. During that time of year, temperatures and winds are generally very high, resulting in spotty overhead irrigation coverage.

When all was said and done, Kochanowski not only avoided the three most common diseases that harm his *Poa* greens, but he also spent \$12,000 less on fungicides last year, when compared to 2016, and acquired a much more consistent and predictable performance in return.

"The programs I've used in the past were overly complicated, leaving me to wonder if I had chosen the right rotation to fight the battle," he explains. "But the Syngenta rotation has taken most of the guess work out so that I can spend more time focusing on other issues instead."

Tweet @SyngentaTurf and tell us how you #ConditionPerformRecover

Golfdom Gallery



1 Blowing off Tea Olive No. 1 fairway at Augusta National gets the blow-by following the final practice round of the 2018 Masters.

2 Lucky No. 13 It was pure luck that *Golfdom* Publisher Craig MacGregor (left) grabbed a table with Mike Poch, Foxborough CC, Foxboro, Mass., (center) and Michael Hughes, Whitinsville GC, Northbridge, Mass. We now have a magazine photo and interview (Poch is this month's 19th Hole interview, page 44) with which to remember the moment.



3 DJ drives The 2016 U.S. Open champion had to settle for a tie for 10th at the 2018 Masters, but Dustin Johnson still has the look of a player who will one day wear the green jacket.

4 Jonesy and Mr. Capillary Concrete We hadn't yet gotten through the gates of Augusta National when we ran into Mr. Capillary Concrete himself, Martin Sternberg, CGCS (right), with *Golfdom* Editor-in-Chief Seth Jones.



5 Tiger and the firefighter On Wednesday of the 2018 Masters, four-time Masters champion Tiger Woods (in blue) played golf with Matt Parziale (shaking hands with Woods), a Brockton, Mass., firefighter, drawing a huge gallery.



6 Foggy conditions at Augusta The first ever F.O.G. (Friends of *Golfdom*) meeting at No. 6 green was a huge success. We had about 25 people stop by to say hi. Left to right are Jim Rattigan, Plant Food Co.; Tyler Otero, North Jersey CC, Wayne, N.J.; Russ Harris, Galloping Hills GC, Kenilworth, N.J.; Rob Johnson, Fisher and Son Co.; Nate Watkin, Seagate CC, Delray Beach, Fla.; 2014 GCSAA National Championship winner Deron Zendt, Jupiter, Fla.; Steve Yager, Lost City GC, Atlantis, Fla.; Ryan Swilley, Gulf Stream GC, Delray Beach, Fla.; and Brian Birney, the Club at Admirals Cove, Jupiter, Fla.





7 Connecticut connection From left to right, Kevin Collins, Tradition Golf Club at Oak Lane, Woodbridge, Conn.; current CAGCS President Marc Weston, CGCS, Indian Hill CC, Wethersfield, Conn.; Scott Ramsay, CGCS, The Course at Yale, New Haven, Conn.; Rich Duggan, Lake Waramaug CC, New Milford, Conn., take time for a photo at the 2018 Masters.

8 Family fun Lane Ferguson of Mirror Lake Golf Club, Villa Rica, Ga., (second from left) got to spend some time with the family during an otherwise busy week at Augusta National. Left to right, Sawyer Ferguson, Lane Ferguson, Erin Ferguson, Jen Dobosz and Ron Dobosz, park superintendent of Wilbraham, Mass.

9 Ball mark detail No. 9 green gets some expert help, with a crew applying colored sand to ball marks on the green.

10 Tough break The lowlight of the 2018 Masters (aside from Sergio's 13 on No. 15) was Tony Finau dislocating his ankle during the Par Three Tournament. Painful to watch!

11 Put down the beverages, Jones Seth Jones (center) had the foresight to put down his stack of Masters cups in order to take this photo with Greg Nathan of the National Golf Foundation (left), and Paul Blodorn, Quali-Pro.

12 Blowing bunkers We started with a blowing photo, so we'll close with one. We'll see you all on Wednesday of the 2019 Masters, No. 6 green at 11 a.m. — start making plans now to be there!

PHOTOS BY: SETH JONES (1-3, 5-10, 12); CRAIG MACGREGOR (11)

2018 U.S. OPEN PREVIEW

*Applying a marathon runner's determination to turf care,
Jonathan Jennings, CGCS, has Shinnecock Hills GC
ready for the 2018 U.S. Open.*

BY SETH JONES

The 9th hole of Shinnecock Hills Golf Club
in Southampton, N.Y.

The Run



ving Man

Continued on page 16

Jon Jennings is on a streak.

The two-time Boston Marathon qualifier (2005, 2006) has run every day since Jan. 1, 2015. That's a streak of 1,566 straight days and counting. He runs at least a mile a day, sometimes 6 miles, sometimes as many as 10 miles.

It's not like he lives in an ideal climate for such a streak. With four Nor'easters just this winter and spring, Long Island, N.Y., has experienced its fair share of rough weather. Cold running conditions don't bother him. Hot conditions don't either. The only thing that might bother him is the thought of not running — of not sticking to the regimen.



Jon Jennings

"I'm not a free-flow person," Jennings says. "I do like structure." A commitment to structure, coupled with an uncanny eye for detail, earned Jennings the position at Shinnecock Hills in 2012. His lifelong friend Pat Sisk, CGCS at Milwaukee CC, wasn't at all surprised by Jennings' success.

"Agronomic skills are one thing, many of us possess agronomic skills," Sisk says. "It's his organizational skills, the ability to plan

and communicate among 10,000 different avenues... that's what separates guys who can handle these majors from the also-rans."

The day Jennings accepted the job at Shinnecock he achieved a golf historian's dream: He left a job at one of the five founding member clubs of the United States Golf Association (Chicago Golf Club, founded 1893, the oldest 18-hole golf club in America) for another one of the five founding clubs (Shinnecock Hills' original 12 holes date back to 1892; its clubhouse, the oldest in America, was built the same year).

"It still gives me chills when I'm out there on the golf course thinking that I'm actually at Shinnecock," Jennings says. "I knew it would be an amazing place to work... I never thought that I'd actually be here."

Restoring a classic

The U.S. Open returns to Southampton, N.Y., and Shinnecock Hills next month (June 11-17). This will be the fifth time in three different centuries the course plays host to the tournament (1896, 1986, 1995 and 2004), and it will host again in 2026.

Shinnecock, the No. 4 best course in the U.S., according to *Golf Digest*, made some changes to the layout since the 2004 U.S. Open. Using photos from the era, the course is now restored to what

Continued on page 18

No. 3 at Shinnecock Hills.



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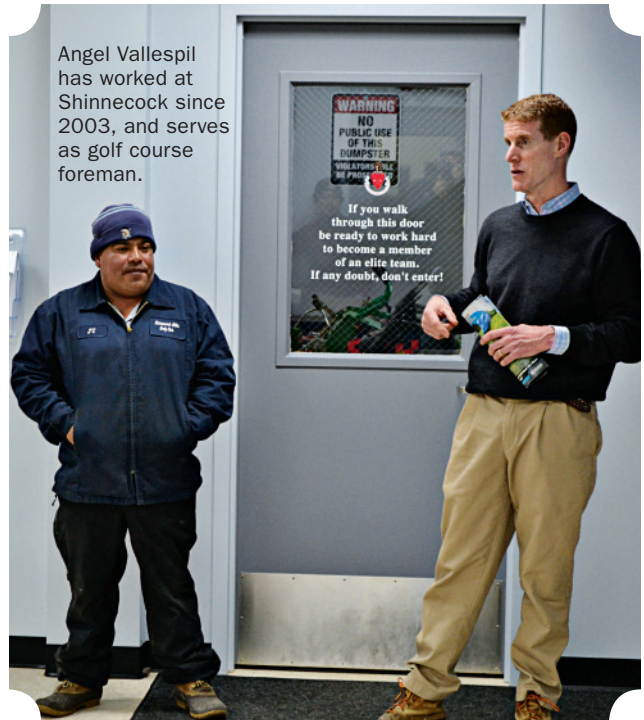
William Flynn designed for the links course in 1931. The original shape of the greens has been reclaimed, as well as tees, along with the removal of trees that had popped up over the decades.

“This project goes back decades,” Jennings says, acknowledging his predecessors at the course. “Pete Smith started it with the greens committee by taking out trees and clearing out those vistas. Mark Michaud continued it with some green expansions and continuing the tree removal. With the Open coming in 2018, it really provided the catalyst for the project.”

Jennings and his crew took meticulous steps to narrow some fairways with the beautiful wispy fescue grasses for which Shinnecock is famous. Another delicate project coincided with the long-term tree removal project — a tree addition project to the north side of the property, using trees from the course to create a natural fence between the course and houses. Lastly, perimeter areas of the course that were scattered with woods, new growth over the last few decades, were removed to recapture as much of the golfing grounds as possible.

And the course will play 443 yards longer (now 7,439 yards), with 10 newly built back tees. The result is a course with epic

Continued on page 20



Angel Vallespil has worked at Shinnecock since 2003, and serves as golf course foreman.

PHOTO BY: SETH JONES

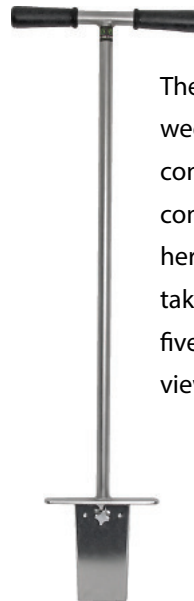


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 2018 U.S. OPEN
PREVIEW

Continued from page 18

views that can be deceptive at times in how far the eye can see.

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“It’s getting back to how the course looked if you would have come out here in the late 1800s when people first started playing golf here, that open look, where you have scruffy native areas and sand. Back then, steam locomotives were going up and down the island and embers would come off them and regularly burn everything down,” Jennings says. “The vision of the course is to be able to look across and have vast expanses of these open vistas that you can just see from anywhere. You have the hospitality tents on 16, now you have something that provides scale, and these tents are huge (and) the golf course still looks big. You can look across and almost see a mile in distance across it. That’s what we wanted to recreate.”

Flynn’s fescue

Tightening fairways at some courses means simply changing mowing lines. But Shinnecock Hills is not just some course.

It takes about three seasons to get fescue rough to establish, Jennings says. Longer if the course has an expectation of perfection. That means lots of hand-watering to make sure there are no voids and that the grass has the proper consistency.

“The fairway project was a lot of man hours, eight people, probably 36 hours a day, hand-watering,” says Assistant Superintendent Lindsay Brownson. “Some of our fairways are still being taken care of in New Jersey.”

The turf removed from fairways will have to enjoy the Garden State for a bit longer. This fescue rough looks too good — like it has been here for 50 years. In truth, it probably has.

It occurred to Jennings to identify areas where grandstands would be built for the Open, hiding the turf underneath, and strip rough from those areas to be transplanted where fairways were to be tightened. This work was done over the past few seasons, but to those who don’t see the course every day, it looks as if it has been like this since William Flynn’s time at the club.

Like the fescue rough, the trees removed from the interior of the course also were reused. They were planted on the north fence line with a 90-inch spade. But those trees — eastern red cedars and black pines — won’t last forever, nor will they look natural unless saplings are brought in.

Nature always fills a void, and trees are popping up in the areas that were cut down to expand the course. If the crew spots a sapling cedar in the rough, they dig it up with a shovel, so it can be planted among the big trees.

“I wouldn’t call it a challenge,” Jennings says of the restoration and the many moving parts it entailed, “but it’s something that



Lindsay Brownson

Continued on page 22



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definitely requires a lot of patience and oversight.”

By the rules

Oversight is something Jennings could have mastered in at the University of Massachusetts-Amherst (he has an associate degree in golf course management and a bachelor’s in resource economics).

But patience?

Senior Assistant Superintendent Michael Ford first worked for Jennings



Michael Ford

during his days at the Chicago Golf Club. “He’s pretty disciplined, an intense guy to work for,” he says. “He’s a very driven individual — it takes a little getting used to, his personality. We have a good working relationship, obviously, because I’ve stuck around.”

There’s a sign on the door that enters into the shop at Shinnecock, and it reads,



“If you walk through this door be ready to work hard to become a member of an elite team. If any doubt, don’t enter!”

“I come from a background of a wide variety of golf courses, but nothing this extreme,” says Assistant Superintendent Brownson. “There were 14-hour workdays, and this seemed like another level. Jon challenges you on a professional level, on a technique level. It’s challenging but it’s rewarding as well.”

“It’s an intense attitude here,” echoes Assistant Superintendent Bobby Bolin, a small-town Nebraska farm kid who fell in love with golf, graduated from the University of Nebraska and moved to Long Island three seasons ago specifically for the 2018 U.S. Open. “It’s hard, but I grew up with long hours — in the summers I’d work 80 hours in construction, then go home and farm after that.”

Office Manager Ana Alvarez likes the working environment because it reminds her of her old job as a water technician... in the Marines. “It’s good, it’s challenging — (Jennings) likes everything

Continued on page 24

PHOTOS BY: SETH JONES

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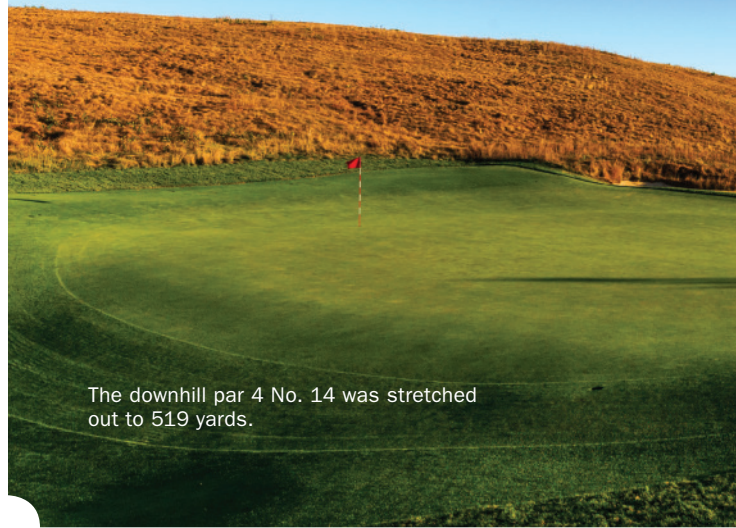
to be perfect,” Alvarez says. “I was in the military, so I’m used to everything being done by the rules.”

Michael Ford has seen some great golf in his young career. He took his passion for golf and for the outdoors and married the two, returning to turf school at the age of 24. He’s spent time maintaining turf at the Country Club of Rochester, TPC Boston, Oak Hill, Chicago Golf Club and now Shinnecock. Ford has a unique understanding of Jennings based on his experience.

“He has such a broad eye for detail,” Ford says. “Something you wouldn’t think is important? It is important to him. He doesn’t leave a stone unturned. There is a learning curve, but I’ve gotten to the point that I can work ahead of him and understand what he’s looking for out on the golf course. His eye for detail, across the board, is amazing.”

Jennings relates a story about coming home from work on a Saturday afternoon when he was in Chicago. His wife, Susan, had been planting and arranging flowers on the back patio, including a centerpiece that had vines cascading down to the ground.

She asked Jennings if he noticed anything different about the back patio. He replied, “Yeah, your geraniums are a little dry.” She shook her head in disbelief and said, “I feel sorry for you.”



The downhill par 4 No. 14 was stretched out to 519 yards.

A pretty good pace

“It’s almost a curse, but it’s helped me be successful in what I do,” Jennings says about his fierce attention to detail. “I’m looking for something that’s wrong, all the time, everywhere I go. And by doing that, I’m going through the golf course and looking for something that’s out of place, or not right, and I’m bringing people in to correct it.”

Pat Sisk has known Jennings since middle school. They eventually both ended up at UMass. Jennings got Sisk into turf, Sisk

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It's a matter of coming to terms with yourself and who you want to be, he says.

And Jennings clearly wants to be right here, counting down the days to the 2018 U.S. Open.

"Being in metropolitan New York, the pace and the tension and, I'll call it the stress of the area, really suits my personality," Jennings says. "I like that kind of wound-up, anxious feeling all the time. These things fit together — my personality, the area and the level that we're requested to keep the golf course."

But what can stop the Running Man? Is there ever a finish line? Maybe buy a boat and retire one day? His son, currently attending the University of Minnesota, is an accomplished sailor.

Jennings shrugs. It might be the only question for which he doesn't have an answer.

"I have no idea. I'm going to be that guy that just keeps... I don't know. Who knows? I'll probably have to do something," he says. "My wife says I should never retire. I'm not a good relaxed person. Even on vacation I like to keep things going at a pretty good pace. But if you define fun by something that suits your personality and something you enjoy doing, then yeah... I'm having fun."

There are 2,920 running days until the 2026 U.S. Open at Shinnecock. Maybe it's time to start a new streak. **G**

got Jennings into distance running.

"He's about the most organized guy I know, and he's always been motivated," Sisk says. "He's the type of guy, when he gets his mind put to something, he goes at it with blinders on. His success in the industry is proof that if you really dedicate yourself, good things happen."

Jennings says he is proud of his career path but admits there have been some sacrifices. He missed some of the kids' games. He came home after everyone was in bed more than a few times.

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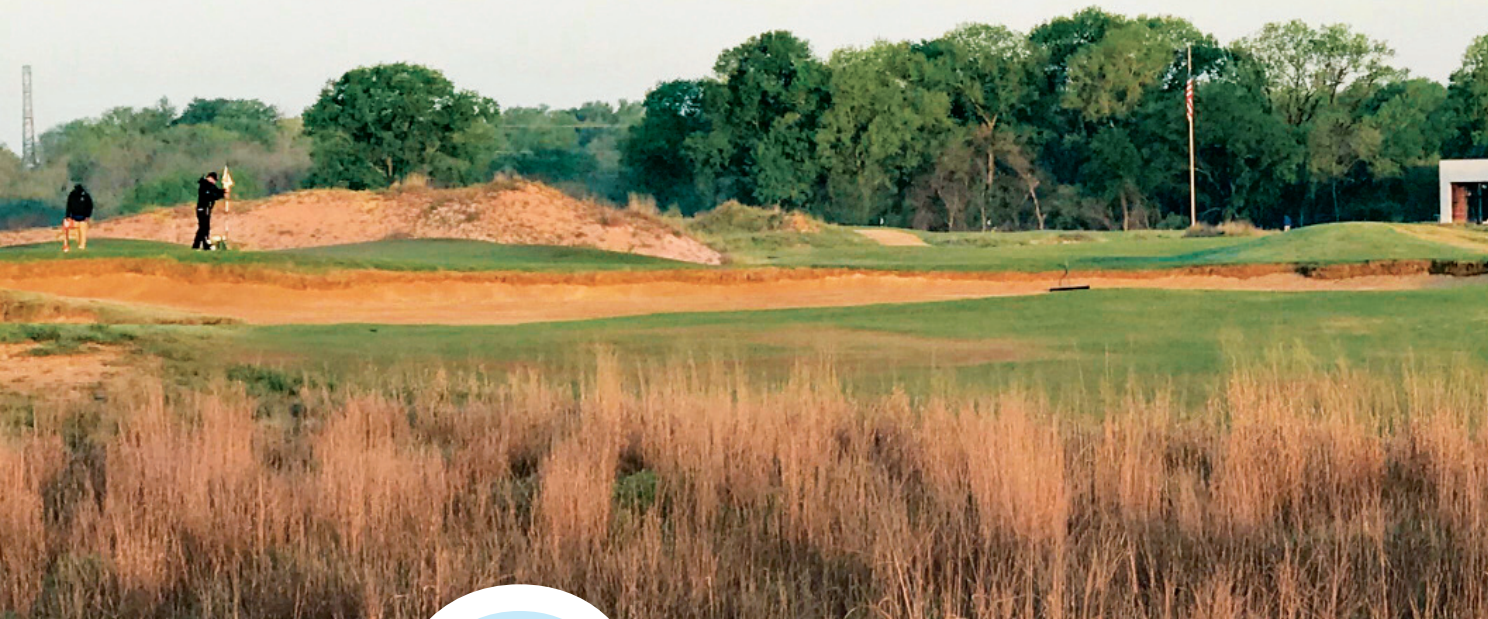


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Living off the



Before Trinity Forest Golf Club hosts the AT&T Byron Nelson Classic, the development team looks back at the course's origins.

BY PHILIP HALL

Golf courses developed atop former landfills, once a novelty, today are fairly commonplace, though the construction and subsequent maintenance of these courses is as varied as the trash heaps on which they sit.

Public exposure to this genre may never be higher than later this month, when Trinity Forest Golf Club in Dallas plays host to the PGA Tour's 50th Anniversary AT&T Byron Nelson Classic May 14-20. But it's unlikely that television commentators (or the golf writers who cover Tour events) will see fit to detail just how anomalous this project remains.

For starters, Trinity Forest GC is a private club, whereas most landfill courses are owned and managed by municipalities still responsible for the decommissioned landfills themselves. Because of this, the development consortium here brimmed with stakeholders: the city of Dallas, club investors, course designers Coore & Crenshaw, construction firm Landscapes Unlimited, owner's rep firm Oncore, the Audubon Society of Dallas (the site essentially

is surrounded by environmentally protected land), and Kasey Kauff, the course superintendent retained well before the first of 750,000 cubic yards of fill was ever delivered to the site, some 8 miles south of downtown Dallas.

"We were brought in early, before everything was finalized, so we could help out with budgeting, projections, logistics and the navigation of regulations — to help them get to the starting line," says Ty Arndt, the project manager for Landscapes Unlimited at Trinity Forest. "This is fairly typical, but it still stands out for us because every feature out there today was built out of fill. There were no cuts here, zero cuts. We had to stay away from the landfill cap at all costs. If the architect wanted a low spot in the fairway, we had to build up the surrounds to achieve that.

"Bill [Coore] and Ben [Crenshaw] loved this site because the landfill had been improperly constructed. It suffered a whole bunch of settling over the years that just happened to produce lots of very pockmarked, linksy surfaces. They loved that look. But when the city came

land(fill)



Trinity Forest Golf Club's Hole No. 2, with the clubhouse in the background.

back in to remediate one last time before we got busy, a lot of that got changed and plated over with flat clay. So, part of our challenge was to use all that fill to replicate the look of those settled areas that *hadn't* been plated over.”

Good news and bad news

All the fill was harvested from a borrow pit located just off site on city-owned land, but it was anything but uniform. According to Jack Morgan, program manager for Landscapes Unlimited at Trinity Forest, there were three main types of soil: a sandy loam, a clay-based amalgam and a heavy gravel mixture. Instead of blending the loam and clay to create a single medium (and discarding the gravel), Landscapes and Kauff elected to surgically excavate and scrutinize every truckload, identify it, then spread it accordingly: sandy loam on greens, fairways and tees; clay in the immediate outlying, contoured areas; and

the gravel in the native areas called for in Coore & Crenshaw's design.

“Every ounce of fill was imported from that borrow pit, and whenever the excavators ran across a particular sort of material, we'd direct them to a different part of the golf course,” Morgan says. “It disrupted our sequencing on this job, but eventually we got into a groove and things went smoothly.”

That's the bad news: 750,000 cubic yards is a lot of fill. Assessing each truckload was time consuming. The good news? A course superintendent seldom has a good idea of what growing medium he's dealing with where. At Trinity Forest, Kauff knows exactly — and he appreciates how often a superintendent is extended this luxury.

“Probably never! But here's the reality,” Kauff reasons. “Let's say I had a piece of land and I vigorously soil sampled that piece of land prior to construction. When you start shaping, cutting and filling, you



change the profile. You're taking some good soil on top and pushing it over there; you're cutting, filling and changing it. You're never going to have a beautiful mat of consistent soil across the whole property. Our situation was a real luxury.”

Even so, once the irrigation was laid in, Kauff and his crew did themselves one better. They went to every sprinkler head, mapped and labeled them via GPS, then took a soil sample and sent it for testing.

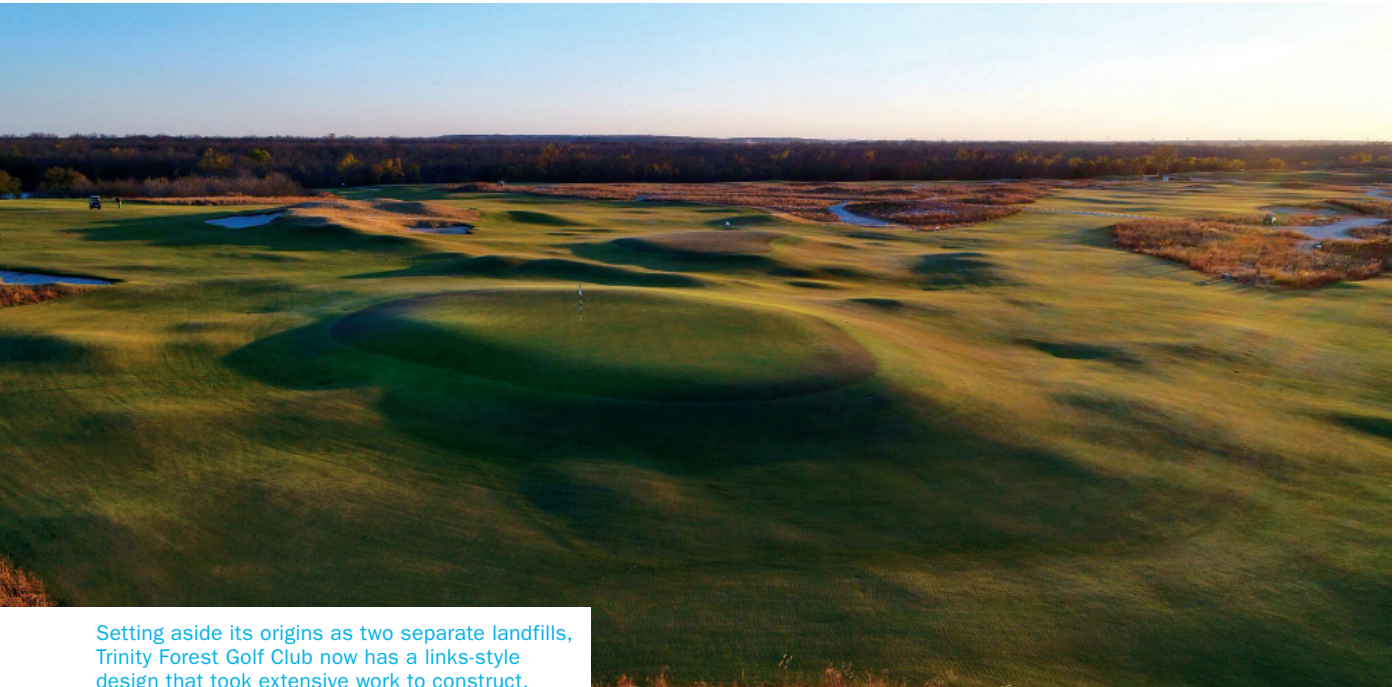
“I can look at this map and see exactly what is where (as far as) nutrients and soil characteristics. Even with all the work we did up front (directing specific soil types to specific places), we have very different soils across the property, across a single hole. I remember the first load of fill they brought for greens. I said, ‘That's not going to work.’ We pushed it to the side and now it's a mound next to the 5th green. It was a real interesting process — one I'll never experience again.”

“Part of (No.) 11 has some spots with very rocky soil. It was put there — it shouldn't have been, but it was. Knowing that, I can correlate it to our programs, what its different needs are. Even now when we fertilize, we may go across an area like that twice. Everyone knows where those spots are. Because we mapped it, the staff here will always know.”

Complicated construction

Trinity Forest sits on two separate former landfills. The clubhouse and course rest comfortably on some 200 acres just south of Highway 12. On the north side sits the high-end practice facility (home to the Southern Methodist University golf team), a short course and a First Tee facility. Taken together, it's a beautiful high-

Continued on page 28



Setting aside its origins as two separate landfills, Trinity Forest Golf Club now has a links-style design that took extensive work to construct.

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land tableau rising from the preserves flanking the Trinity River floodplain.

That said, what golf fans will see on television later this month belies the mess Arndt and his crews discovered during construction.

“There was no toxic stuff out there, but it was a lot of trash,” Arndt says. “You don’t get that on a modern landfill that was better constructed, newer and properly engineered. This one was so old and poorly constructed, we never knew what we’d run into. In those cases, we had to separate trash, contain it, store it in a separate container and bring it to another landfill.

“This site sits high, but it was pretty flat. With the restrictions on cuts, you can imagine a low area in the middle of the parcel — it’s got to drain somewhere. So, we did get some variances to install water-tight pipe in the trash layer to get that

done. There are special regulations related to that, of course, and we couldn’t alter the cap in any way.”

According to Morgan, Landscapes instituted another process, called cap control, in which crews had to certify each day that they were not cutting, changing or in any way lowering the elevation of the landfill cap.

“We had one or two full-time folks roving around with GPS receivers on their carts checking grades every day, all day long. These were very tight tolerances — to the inch,” Morgan says. “We had to really get into a whole different realm on this job. We normally have a very formal and rigid program, but methane monitors

for the gas release? We had to check against methane all the time. We had an evacuation protocol. We had to take on the safety program that a landfill operator would. I’m very proud we had zero incidents.”

Overlaying the entirety of Trinity Forest is Trinity zoysia — formerly known as L1F zoysia

Continued on page 30



The native areas at Trinity Forest consist of blackland prairie grasses planted to reinstitute the endangered vegetation.

PHOTOS BY: KASEY KAUFF (ABOVE), SETH JONES (BELOW)



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The Trinity Forest Golf Club team, (left to right) Sarah Jackson, assistant; Cory Colgrove, equipment manager; James Morgan, lead assistant; Chad Kuzawa, golf course superintendent; Kasey Kauff, director of grounds; Adam Deiwert, north side superintendent; Ben Zawacki, assistant; and Grant Sherwood, assistant.

Continued from page 28
siagrass. It's the first course to have been sprigged wall to wall with it. Supplied by Bladerunner and All Seasons farms, the zoysia required nine months, or two growing seasons, to fully mature. That's the only downside Kauff could relate.

"We had the luxury of that long grow-in period, but if you plant what is right for your area, it's amazing what you can do with it and how few inputs you actually need to be successful," he says. "It's pretty amazing but it makes sense. If you plant bentgrass here in Texas, then you're going to need more inputs to be successful."

Endangered ecosystem

This was the same strategy Kauff and Landscapes deployed in tending to the massive outlying areas at Trinity Forest GC. The club isn't just bounded (on three sides) by the Trinity River Audubon Center, McCommas Bluff and Joppa Preserve. Prior to the 20th century development of North Texas (urban and agricultural), this entire area was part of an unbroken ecosystem known as blackland prairie, which stretched south into Mexico.

"This is one of the most endangered ecosystems we have," Arndt says, "so the developers and Kasey worked with the

local Audubon to reinstitute blackland prairie vegetation — and it's thrived. I don't think I've ever worked on a project with such productive collaboration between so many parties, on so many fronts. Kasey gets a lot of credit for that."

These natural areas received the least desirable soils from the borrow pit, but it hardly mattered.

"We identified 30 to 40 native species, irrigated them to germinate, then turned the water off and let nature do it," Kauff says. "We all came from more parkland-style golf courses (Kauff arrived in Dallas from The CC of Orlando),

so we had to have everyone buy into the strategy here: no chemicals, just rainwater. If we get noxious weeds — like Johnson grass — we shovel it out. Otherwise, it is what it is. In low areas with more water, you get different species than the high areas. If it rains, it turns green. But these plants are used to no rain for three to four months. They just turn brown. It's a pretty awesome thing, to see it respond to the elements. Of course, I wouldn't do this in Alabama..."

How will these blackland prairie areas cope with daily galleries of 25,000 people

Continued on page 32

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come tournament week?

“I don’t know. In the course of history these areas were beaten down by herds of bison. Can it handle 100,000 people? That is an unknown. We’re prepared for it to be successful and we’re prepared to go back in and seed. We’ll be mowing some corridors but honestly, I don’t know how that will work,” Kauff says. “People come, they leave, we clean it up.”

If only every former landfill could be so lucky. **G**

Maine-based writer Philip Hall is a frequent contributor to *Golfdom*. He most recently wrote about the renovation of the Gold Course at Golden Horseshoe Golf Club in Williamsburg, Va., by Rees Jones.



Trinity Forest GC's No. 3 and No. 11 double green is 35,000 square feet.

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Choosing the **red** pill in the Great White North

Our freewheeling columnist heads to Canada and reports on what he learned from three of the industry's cutting-edge thinkers.

BY JOE GULOTTI

The last time I visited Canada was in 1992 to see the Grateful Dead at the Copps Coliseum in Hamilton, Ontario. I haven't had a legit reason to go see our great neighbors to the north until I heard about the Atlantic Turfgrass Conference & Trade Show going down in Moncton, New Brunswick.

And why would some greenkeeper from Delaware show an interest in visiting the Maritimes during the throes of winter? Because three of the most revolutionary thinkers in our industry today — Micah Woods, Jason Haines and Chris Tritabaugh — were all slated to present.

Short of Jerry Garcia's ghost booking a show on the Canadian side of Niagara Falls, this conference seemed like a helluva reason to head north. So, I packed up the

Titleist duffel bag I scored at the member/guest last year and boarded an Embraer 175. Destination: Moncton.

THE CONVENTIONAL GUIDELINES ARE BROKEN

"The conventional soil guidelines did not consider the cost of fertilizer very important because golf courses have plenty of money, apparently."

—Micah Woods

Micah Woods, Ph.D., literally was born into golf. The first year of his life was spent in an RV cruising across Canada with his family as his father chased the Canadian golf tour. Although his father didn't make it as a touring professional, he passed his love of the game to his son.

Today Woods is chief scientist at the

Asian Turfgrass Center in Bangkok, Thailand. The turf industry would be pretty dull without Woods' logical and thoughtful input, and who knows where soil nutrition would be if his dad had hooked him up with a Louisville Slugger instead of a set of blades.

The conventional nutritional guidelines for turfgrass were developed in the 1960s and '70s, based on forage crops like corn. People figured if the recommended nutrient levels were good for growing corn, they must be cool for growing turf. While for-



Micah Woods

Continued on page 34



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age crops are for the most part profitable, they really couldn't figure out how to place a value on turfgrass. So, the developers of these arbitrary guidelines deliberately placed high targets on the nutritional values for growing turf without regard to costs.

In 2006, Woods began the process of improving the guidelines with the help of Larry Stowell, Ph.D., co-owner and co-founder of Pace Turf. They determined the conventional guidelines were way too high, but the numbers they came up with, although much lower, seemed arbitrary as well.

It then dawned on them (more so Stowell than Woods, according to Woods) they had this data set of soil conditions producing adequate surfaces. They immediately began studying this data to determine the minimal amount of nutrients needed to produce

good turf. After six years of collecting data, they agreed on some palpable numbers, and the Minimal Levels of Sustainable Nutrition (MLSN) were born.

"I thought we'd get laughed out of the room by scientists because they would say, 'You can't do soil interpretation that way,'" Woods says about when MLSN was first published. "But the traditional target levels are just wrong and too high, so MLSN was designed to fix these problems and to provide a modern fertilizer recommendation for turfgrass anywhere in the world based on modern soils, modern turf varieties and the modern turf management practices we use today."

THE MATRIX

"This is your last chance. After this, there is no turning back. You take the blue pill — the story ends, you wake up in your bed and believe whatever you want to believe. You take the red pill — you stay in Wonderland and I show you how deep the rabbit-hole goes."

—Morpheus, *The Matrix*

Jason Haines took the red pill, and probably was the first greenkeeper to implement MLSN guidelines into a modern fertility program.

Haines is a superintendent who grows (kills) grass at Pender Harbour Golf Club, located on the Sunshine Coast of British Columbia. This Canuck has been bombarding our industry with revolutionary ideas "about" managing grass since 2012.



Jason Haines

When superintendents in his area faced a pesticide ban, the majority tried to fight it. Haines had a different take.

"Everyone was putting all their efforts into stopping the ban," he explained, "but no one was thinking about what we were going to do if the ban actually happened. So, from that point forward, every decision I made took into account my end goal of reducing pesticide use."

This is why I was so pumped to meet this guy, because who the hell thinks this way? If the hippies in my state ever decide to organize and demand that golf courses ban pesticides, I'm not sure I have the courage to go Haines style. In all likelihood, I join the jerks battling the ban.

Although the Great Recession hit the states in '08, the folks at Pender Harbour really didn't feel the sting until 2010. Realizing the times, they were a-changing, Haines cruised the web searching for ideas to spend less dough and stumbled upon Woods and Larry Stowell's newly developed guidelines, which claimed to be a "more sustainable approach to managing soil nutrient levels that can help you decrease fertilizer inputs and costs, while still maintaining desired turf quality and playability."

"I was all in," Haines gushes. "MLSN seemed simple, and if it didn't work, I would go back to the old way."

The cost savings were immediate, but something else happened that was unexpected.

"It seemed like the less fertilizer I applied, the better the turf responded. It's one of those things that seem too good to be true, and I didn't believe it until I saw it."

It was a revelation, and he opined that perhaps there was more to applying less fertilizer than simply saving money. Maybe, Haines hypothesized, the past problems he'd seen — disease and weeds — were caused by applying too much fertilizer.

Describing himself as "super curious and too obsessed" to wait for someone else to figure out all this, Haines went to work.

The first thing he noticed was a huge reduction in weeds. Prior to implementing MLSN, postemergent herbicides were a big part of his program. But when he stopped applying potassium on his tees and fairways — because the K levels in his soils were way above the MLSN guidelines — weeds like clover and dandelion vanished.

"We still get the odd dandelion popping up," he says, "but instead of spraying herbicides to get rid of them, I just tee up a Titleist on top of one and blast it with a wedge."

In his quest to battle the pesticide ban

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In Micah Woods' travels throughout the world, he's seen interesting fertilizer applications, such as the one shown here on a golf course in Vietnam.

PHOTO BY: MICAH WOODS

"his way," Haines basically stopped applying pesticides to see what would happen. He observed that growth rate might influence disease pressure. For example, when growth was high, he recognized more disease. But when the growth rate slowed, there was less disease.

"If I had applied a fungicide," Haines explained, "I would've learned nothing." Haines currently uses MLSN to determine his fertilizer use but describes it as "boring." "It's easy to get your nutrients right in the soil," he says.

He's also been labeled a minimalist but prefers to describe what he's doing as "precision turf management."

"I'm not using less to use less," Haines states, "I'm using less because in the past I used too much. I try to figure out the right amount and apply that amount."

Haines also thinks it's cool to be poor.

Continued on page 36

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// LEARNING MLSN IN MONCTON



Continued from page 35

He sees his low budget as an opportunity to see what's possible. His focus today is trying to eliminate all the guessing we do as turf managers.

"If we can figure out where we are guessing and guess less," he says, "we might be able to seriously reduce that margin of error."

NUTRIENT DEFICIENCIES: AVOIDABLE DISASTERS

"I tend to think of things in extremes. I sometimes find it useful to take a thought and go all the way to the extreme in one direction, and all the way to the extreme in the other direction, recognizing in reality what we're trying to do is somewhere in between. But if we can understand the implications of taking that thought all the way to the extreme, it helps us clarify what is the reasonable thing to do."

—Micah Woods

Our goals with fertilizers are very simple. They are to supply the grass with what it can use while preventing nutrient deficiencies in an effort to grow good grass.

Applying no fertilizer while expecting the soil to supply all the nutrients required to grow healthy turf would be considered an

In Japan, clippings are collected in this fairway mower outfitted with a vacuum.

extreme. Another extreme would be to totally disregard what is in the soil and apply 100 percent of what the soil can use. For years our industry has leaned toward this second extreme by ignoring what is in the soil and over-fertilizing. We never asked ourselves two logical questions, posed by Micah Woods:

1. Is this element required as fertilizer?
2. If it is required, how much should I apply?

The answers to these two questions lies in the middle of the two extremes, thus clarifying our goals with fertilizers.

Woods explains that "it's too risky to assume the soil can supply everything, while it's silly and a waste of time and money to assume the soil can supply nothing. MLSN lets us find the perfect spot in between those two extremes to produce excellent turf, supplied with just the right amount of nutrients, with no risk of nutrient deficiencies."

'M' STANDS FOR MINIMUM

One of the biggest errors greenkeepers make with MLSN guidelines is assuming the numbers are targets. Unlike traditional soil testing — where values are classified as low, optimum or high — MLSN represents the minimal amount valued in parts per million. For example, when you receive results from a soil test and the calcium level is 828 ppm, this is well above the minimum of 331 ppm of the MLSN guidelines. Is this element required as fertilizer? No.

But if those calcium levels are 280 ppm, you would be at a deficit, so this element would be required as fertilizer. Even if a soil test comes back right on the number of 331 ppm, you better fire up the Vicon, because that reserve will need to be replenished. The plant is going to use what's there (it is available!), because the last thing you want is a nutrient deficiency. Those are avoidable disasters.

MLSN really is this simple. It eliminates the guesswork along with the burden of trying to *balance* everything going on beneath our feet. MLSN can be implemented on any grass type or soil type and will work just as well on *Poa annua* greens in California as it does on zoysia fairways in Japan. What MLSN has done is repair the old and broken conventional guidelines and give turf managers around the globe a more logical approach to interpreting soil data. ☺

Joe Gulotti is superintendent at Newark (Del.) CC and the author of *The Walking Greenkeeper* column, which regularly appears in *Golfdom*. To read his blog, visit thewalkinggreenkeeper.com.

THERE'S STILL MORE FROM MONCTON!

To read the final part of this story, which focuses on clipping volumes and includes a conversation with Chris Tritabaugh of Hazeltine National Golf Club, visit Golfdom.com.

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// BETWEEN LSAR AND ESAR

A NEW INDEX FOR SODICITY RISK ASSESSMENT OF IRRIGATION WATER

By Qiyu Zhou, Doug Soldat, Ph.D., and William Bleam, Ph.D.

Golf courses with poor quality irrigation water must worry about sodium accumulation in soil. Sodium adsorption ratio (SAR) is the primary criterion of estimating sodium hazard of irrigation waters. However, SAR has been shown to underestimate the risk of sodium hazard because it doesn't account for calcite precipitation. There are a few adjusted SAR equations that attempt to correct for this, but they are either too complicated (and therefore not used by water testing labs) or overpredict sodium hazard of irrigation water. The purpose of the study was to propose a new sodicity index to provide a simpler and more accurate sodicity risk assessment of irrigation water on golf courses.

We analyzed eight irrigation waters and their drainage water from a lysimeter study in the greenhouse with a coarse-loamy soil. We periodically collected and analyzed rain water. Based on just sodium (Na), magnesium

(Mg), calcium (Ca) and electrical conductivity (EC) of irrigation water, we are able to project two boundaries for each water — where all the calcium in the water precipitates (which increases the sodium hazard), and where none of the calcium in the water precipitates in soil. The upper boundary (worst-case scenario) is built using the following equation:

$$LSAR_{dw} = \sqrt{\frac{EC_{dw}}{EC_{iw}} \cdot \frac{Na_w}{\sqrt{Mg_w}}}$$

and the lower boundary (best-case scenario) is determined by:

$$ESAR_{dw} = \sqrt{\frac{EC_{dw}}{EC_{iw}} \cdot \frac{Na_w}{\sqrt{Mg_w + Ca_w}}}$$

(units in mmol/l, dS/m).

The results demonstrate that as the irrigation water concentrates in soil (caused by evapotranspiration) the drainage water was most often found between the two boundaries (LSAR and ESAR), and the drainage water tended to migrate to the upper limit as time went on. These results suggest that soil water composition is controlled by evapotranspiration and calcite precipitation after irrigation water is applied to soil. This method can provide a simple, accurate sodicity assessment of irrigation water, and it can help turf managers better understand when sodium management practices are required.

Qiyu Zhou, Doug Soldat, Ph.D. and William Bleam, Ph.D., University of Wisconsin-Madison. You may reach Doug Soldat at djsoldat@wisc.edu for more information.

NEWS UPDATES

COLUMBIA SEEDS AND BARENBRUG USA FORM PARTNERSHIP

Barenbrug USA and Columbia Seeds are strategically aligning in a turfgrass marketing and production partnership.

Columbia Seeds' Value Direct Link production and distribution model facilitates the flow of seed directly from the producer to the marketplace, and the company brings that model, plus relationships with top growers and a multichannel distribution system, to the new partnership. Barenbrug offers turfgrass technologies such as Yellow Jacket Enhanced Seed Coating, RPR and RTF for its customer blends and mixes.

This new partnership will allow Barenbrug USA and Columbia Seeds to provide a portfolio of options to both new and existing distribution channels in North America. Both companies will have the opportunity to exchange improved turf-type varieties and have access to new genetics. As part of this sharing, Barenbrug will increase its investments in turfgrass research, product development and brand development focused on sustainable traits that provide solutions to turfgrass challenges. Distributors will be able to consolidate orders between both seed companies.

"Today's competitive environment demands that seed companies think differently so both value and innovation can be accessible to customers," said James Schneider, president of Barenbrug USA. "We are delighted to partner with a quality company and quality people who complement what we do best — providing innovation and solutions."

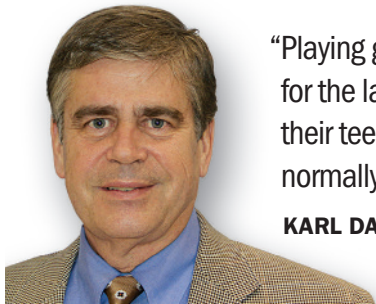
USGA CALLS FOR PROPOSALS FOR TURFGRASS AND ENVIRONMENTAL RESEARCH PROGRAM

The USGA is requesting proposals for the turfgrass and environmental research program, specifically in the areas of water conservation; integrated turfgrass management; physiology, genetics and breeding; and product testing. The deadline for submissions is July 6. For more information and submission guidelines, email Cole Thompson, assistant director, Green Section Research, at cthompson@usga.org.



Salinity and sodicity can cause major problems on golf courses. A better way to predict potential problems will lead to improved salt management.

PHOTO BY: BRIAN WHITLARK



“Playing golf with my sons this spring — and for the last several spring breaks — I watch their tee shots airmail mine and suffer insults normally associated with ‘diminishing skills.’”

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

King of spring

For me, spring break is a time for personal rejuvenation after a long winter. I’ve been kidded that I may be close to holding the record for going on the most spring breaks. Starting in college and continuing to this day, spring break is our family’s one big vacation for the year.

This year, we went to Destin, Fla. Destin is in the Florida Panhandle on the Gulf of Mexico and is known for its beaches and fantastic golf courses. My sons have tried to play a couple of times while on spring break. When they were in school, I would allow them to “beat me” in sports like basketball to give them a feeling of accomplishment and build self-confidence. There was one sport where this didn’t happen: golf.

Playing golf with my sons through their middle school and high school years was one of the best times for me. They were good players, having played on school golf teams and participated in junior golf tournaments. My favorite moment when playing with them occurred on the first tee, when I would throw down the challenge: “Do you want a shot at the title?” I just loved saying that.

Unfortunately, like most things in life, the tables often turn. Playing golf with my sons this spring — and for the last several spring breaks — I watch

their tee shots airmail mine and suffer insults normally associated with “diminishing skills.” To overcome the beating I’m incurring, I spend most of my round looking at the golf course.

This year, I throw shoutouts to Golf Course Superintendents Greg Hafley, Wil Wilbourne and Kevin Churchill, whose courses I played or saw this year. They have done excellent jobs.

The first thing that strikes me regarding spring break golf is that you are playing on warm-season grasses. The contrast becomes even more defined when you think of golf course management programs. There are certain similarities between warm- and cool-season management programs, most focused around green speed and firmness and greens management strategies.

Pest control programs vary but often differ in management intensity. For example, weeds for the most part are either annual or perennial. But southern weed control is much more diverse than what I am used to. It

seems I can’t identify half the weeds I see on a southern golf course. In contrast, disease pressure is more severe in the North. There are some common insect pests, but I’m quite pleased I don’t have to look at or make control recommendations for mole crickets.

The most striking difference is the concern for water quality in areas of the South and western United States. Around the Great Lakes, water quality is not something people in general — let alone most golf course superintendents — think about on a regular basis. In Columbus, Ohio, salt is something you put on your steak. However, in areas where water quality is an issue and that use effluent as the primary irrigation source, it’s a continual concern.

The concentrations of the various salt cations and anions and how they interact is continually being monitored in irrigation sources. Measuring electrical conductivity (EC) and sodium absorption ratio (SAR) is a given, and what the implication of those measurements mean for management programs, including irrigation practices, the addition of amendments and mechanical practices (e.g. type and number of corings) is considered continually. Around the Great Lakes, we often do not even consider testing EC and SAR.

Returning from spring break, I remind myself I need to make golf course visits and play more golf at monthly superintendent meetings. By getting out — and out of your daily routine — you begin to see the diversity among golf courses, even within close proximity. Getting out is like a mini spring break. It provides a chance for professional rejuvenation.

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



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What spectral reflectance data tells us

Josh Friell, Ph.D., is a senior principal research scientist at Toro's Center for Advanced Turf Technology. Josh devotes his time to advancing the acquisition of soil and plant data and determining how to use that data to make decisions that benefit the golf course. You may reach Josh at josh.friell@toro.com for more information.

Q Describe the process of collecting spectral reflectance data on a golf course.

There are three approaches to collecting spectral reflectance data from golf course turf. The first is a handheld or vehicle-mounted sensor that intercepts reflected light from a small area of turf. The data are averaged over the area to yield a single data point. The second is a camera mounted on an unmanned aerial vehicle (UAV) that collects reflectance data at prescribed intervals over a large area. The data are then uploaded to a computer for analysis. The third approach is a subscription to a satellite imagery service that collects low-resolution reflectance data from large areas on an infrequent basis. The data are then analyzed.

Q Provide background on the theory behind using spectral reflectance data to monitor turf health.

The material properties of all objects, including turf, determine how light will be absorbed, transmitted and/or reflected. Spectral reflectance is light being reflected from an object, and in our

case, reflected from turf. Chlorophyll absorbs red and blue light and reflects green light. The more chlorophyll turf contains, the healthier it presumably is, and the more red light it will absorb. Healthy green plants reflect near-infrared light. The more near-infrared light reflected from a green turf canopy may indicate more biomass present and presumably indicates a healthy stand of turf.

IF SPECTRAL REFLECTANCE DATA SHOW TURF STRESS SIMULTANEOUSLY WITH SOIL MOISTURE DATA SHOWING A DECLINE, THIS MOST LIKELY INDICATES THE TURF LACKS SUFFICIENT WATER. IF THIS OCCURS, WE CAN USE THE COMBINED DATA TO GUIDE IRRIGATION DECISIONS.

By comparing the ratio of different wavelengths of light reflected from a plant canopy, scientists have developed various indices to gauge plant health. One of the most widely used indices is NDVI, or Normalized Difference Vegetation Index. NDVI is calculated using the red (visible) light and near-infrared light reflected by turf.

Q What does spectral reflectance data indicate to a superintendent?

Spectral reflectance data, which are used to calculate NDVI, indicate turf in one area is different from turf in an adjoining area. The difference in NDVI between the two areas indicates there is a difference in chlorophyll content and/or turf biomass between the two areas, and presumably turf health. The superintendent should investigate the difference in turf quality between the two areas. NDVI does not give an indication as to what the specific problem may be.

Q What does spectral reflectance data not indicate to a superintendent?

Spectral reflectance data, as expressed by NDVI, does not provide information as to what the problem is or isn't. The hope is that we can use spectral reflectance in specific wavelengths of light to diagnose a specific problem, such as dollar spot. Much research remains to be com-

pleted before we have any idea if we can use reflectance indices alone to diagnose a specific problem.

Q What's next in spectral reflectance research in the coming two or three years?

One focus is on combining two different types of data to help make decisions. An example is combining spectral reflectance data with soil moisture data collected using in-ground soil moisture sensors. If spectral reflectance data show turf stress simultaneously with soil moisture data showing a decline, this most likely indicates the turf lacks sufficient water. If this condition occurs, we can use the combined data to guide irrigation decisions.

Q Is there anything else you would like to add?

There is a great deal of excitement about UAVs (drones). However, it is important to keep in mind a UAV is simply a delivery mechanism for the spectral reflectance sensor. Our focus needs to be on the data collected by the sensor and how to interpret the spectral reflectance data.



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



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2

2 | F1002 blower

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3

3 | Torrent 2 debris blower

The **TURFCO** Torrent 2 debris blower features both a wireless handheld controller and optional onboard controls, both of which include an instant idle/resume button and air speed controls. The Torrent 2 features the fastest 360-degree nozzle rotation and the exclusive patent-pending MagnaPoint Technology with adjustable magnetic stops that allow operators to pinpoint the optimal blower angles for common debris at every pass. It also features a heavy-duty frame, rugged tongue and adjustable hitch, so it will work easily with most vehicles. Turfco.com



4



5



6

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5 | UMAX utility vehicle

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6 | Tempo Connect golf car

The Tempo Connect golf car from **CLUB CAR** features a sleek new front cowl, rust-proof aluminum frame, new alloy wheels, premium comfort seats and a spacious dashboard. Tempo Connect includes a standard built-in high-definition touchscreen display and built-in speakers with Bluetooth connectivity that includes an electronic scorecard, 3D flyovers, hole overviews and a range-finder, as well as GPS Zone messaging system and much more. The new golf car also includes Visage, a connectivity platform, and Shark Experience, an in-car course entertainment system exclusive to Club Car. Clubcar.com

The 19th Hole



Mike Poch

SUPERINTENDENT // Foxborough CC, Foxboro, Mass.



What are you drinking?

I'm not sure what this is. It's the "import." I think it's a Blue Moon. They gave me an orange.



Working class golf club, and they love their golf. It's refreshing because they care about the golf course and they really give back to it.

Equipment has gotten so much better since I started in the industry. A mini-excavator is probably my favorite. But you can have any tool in the world — unless you have a good crew, any tool in the world is useless. I'm nothing without my crew.

What's your favorite tool in the shop?

Equipment has gotten so much better since I started in the industry. A mini-excavator is probably my favorite. But you can have any tool in the world — unless you have a good crew, any tool in the world is useless. I'm nothing without my crew.

Where's the best place to eat in your area?

Wendell's in Norton. They're known throughout New England for their buffalo wings.

right around the corner, so, if someone has an extra ticket, I seem to be the one they call. Get there early, it's so crowded on game days and everyone has their rituals. The whole Patriot Place is cool, it's not only the stadium, it's everything around it... the bars, restaurants, shops, a Bass Pro Shop, even a hospital.

What advice did you get that you still remember?

"Never get married!" Something my father said to me a long time ago. As far as the industry, my old boss Bill Spence would say, "Don't overlook the little things." Everyone is after fast greens, but it's the little things.

If you could go back in time, what would you tell the 20-year-old Mike Poch?

Don't get in the business! No, the biggest thing I've learned over the years is the golf course will still be there. Take time for yourself. When I was younger, I worked a lot and I missed a lot of family events. I regret that. Now, I travel with a few friends and I love it. The golf course is always there when I get back.



Have you been through the Masters Golf Shop yet?

Yeah, I dropped about \$500. That was mostly gifts, too. I got a Masters belt for me... with plenty of space to move in it, as I get fatter, it'll last a long time.

As interviewed by Seth Jones, April 4, 2018.

So, I caught you on your first trip to Augusta. What stands out about the Masters?

No cell phones and how people just talk to each other. Like how we just met. You forget about that nowadays, everyone is always looking down.

What teams do you root for?

I'm a soccer guy, I like Chelsea. I'm also a Formula One fan. I've been to a few F1 races, one in Monte Carlo, one in Barcelona.



Tell me about Foxborough CC. It's a 1955 Geoffrey Cornish, semi-private.

How often do you go to Patriots games? Any game day advice? I live



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