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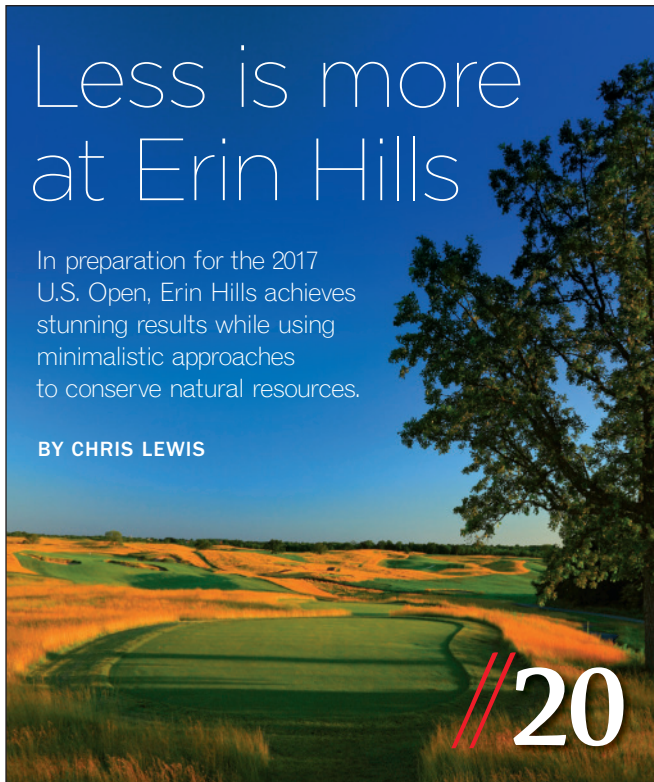
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Less is more at Erin Hills

In preparation for the 2017 U.S. Open, Erin Hills achieves stunning results while using minimalistic approaches to conserve natural resources.

BY CHRIS LEWIS



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“...I look at all the kids and the parents on the sidelines and I marvel at how successful this league is — especially for a town of 6,000. Kids are lined up waiting for each game to end so they can take the field.”

SETH JONES, *Editor-in-Chief*

The chasm between golf and soccer

Spring is here, meaning that on Saturday mornings you can find me on one of three soccer fields at Laws Field in Eudora, Kan.

I coach youth soccer. My daughter Evey plays on a 1st/2nd grade team, while my son Boyd is enjoying his first taste of “organized” sports as a 3 year old. He plays for a kindergarten/pre-kindergarten team. So this season I’m enduring my first experience at back-to-back practices and games.

I started playing soccer in kindergarten, but my earliest memories of the sport are from 2nd grade, when my dad threatened my coach. Yeah, I know. I was a lousy athlete until maybe 10th grade (when, in my mind, I became an all-star), and my 2nd grade coach was fine with me sitting on the sideline most of the game.

I don’t remember if this upset me, but it clearly upset my dad, Boyd.

As we all walked to the parking lot after a game, snacks in hand, my dad unexpectedly confronted the coach about my lack of playing time. The coach snapped at him. My dad, a military man and an imposing figure, didn’t take kindly to it.

The exchange, as I remember it, went, “*If you don’t like the way I’m coaching, you come out here and do it yourself,*” with my dad responding, “*I will... and we’re going to kick your ass!*”

Not a highlight of my childhood, but a moment I look back and laugh at now. Dad did honor part of the exchange and coached my soccer and basketball teams from that point until junior high.

How much ass did we kick? Debatable, but it improves over time.

My earliest golf memories take place at a much later age. As a college kid, my roommate and I came out to Eudora to play a now-deceased little public course called Eudora Riverview. It flooded all the time, the clubhouse was the owner’s home, the concessions were on the honor system, and shirts, apparently, were optional.

My old friend John Wake and I took Clark Throssell out there. We drove my ’64 Impala to the course and crushed a few beers in the parking lot after our round. That’s a fond memory...

But still, I was an adult, coming late to the game. There’s a wide chasm between my early soccer memories and my early golf memories.

When I’m out on a Saturday morning coaching soccer

I look at all the kids and the parents on the sidelines and I marvel at how successful this league is — especially for a town of 6,000. The parking lot is packed. Kids are lined up waiting for each game to end so they can take the field.

The National Golf Foundation recently announced its numbers for 2014 — a net loss of 128 18-hole facilities from 2013 to 2014. I’m an optimist, a glass-half-full kind of guy, but I can’t help but wonder how many soccer practice fields we lost in the same span... especially as I look around town trying to figure out a new location to hold a practice because the league schedule is booked solid.

We have great programs to get more people — including kids — into golf. But the best program, to this day, is a parent taking their child to the golf course.

I coach soccer because I have fond memories of my dad coaching me. I have no memories of playing golf with my dad, because we never golfed together.

Evey won’t remember it, but I have photos of her in a jogging stroller at a 9-hole course when she was a newborn. I take her to the local driving range. I want her to have fond memories of the game. I think that is a key to her wanting to keep the game in her life.

Because when you have great memories, you want to make more of them.

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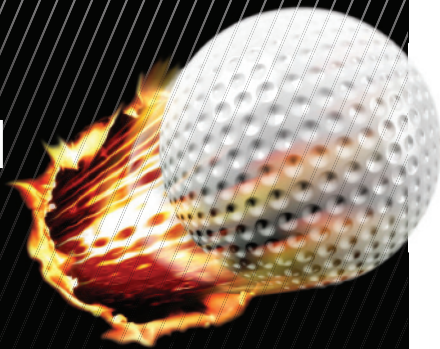
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NEWS, NOTES AND QUOTES



// IT'S A MAJOR AWARD!



Atkinson (N.H.) Resort & Country Club features an 18-hole course, a 9-hole par-3 course and a 10,000-square-foot practice facility.

'BLUE-COLLAR CREW' EARNS COURSE OF THE YEAR

➔ Superintendent Eric Whitmore says his team at Atkinson (N.H.) Resort & Country Club enjoys hard work, and that hard work has paid off.

The National Golf Course Owners Association named Atkinson R&CC, a public resort with an 18-hole course and a 9-hole par-3 course, its 2015 Course of the Year. The annual award, presented since 2003, recognizes a course that exemplifies four qualities the NGCOA looks for: exceptional quality of the course; exceptional quality of ownership and management; outstanding contribution to its community; and significant contribution to the game.

"We had a lot of very strong entries again for course of the year," said Mike Hughes, NGCOA's CEO. "But when you

step back and consider all factors, none were stronger than Atkinson R&CC."

Atkinson, which originally opened as a 9-hole course in 1996, won for its involvement in the local community, its expansion of services, its practice facilities and its conditions.

"We were just shocked and humbled when we were announced," said Whitmore, course superintendent since January 2014. "Actually seeing the courses we were up against and the past winners, I didn't think it was going to happen."

Past winners include Pebble Beach and Reynolds Plantation.

"We are a blue-collar crew, from the CEO to the grounds crew," said Whitmore. "You would never know what kind of facility we have when you meet us, and we like it that way."

// COME TOGETHER

GCSAA AND IGCEMA BOARDS AGREE TO MERGE

The Golf Course Superintendents Association of America (GCSAA) could see a sudden influx of new members this spring.

A merger of the GCSAA and the International Golf Course Equipment Managers Association (IGCEMA) was approved and awaits the approval of the Class A members of the IGCEMA. If approved, the IGCEMA will be dissolved and the members will become a part of the GCSAA.

The vote takes place on April 27 at the GCSAA headquarters in Lawrence, Kan.

"One of GCSAA's primary missions is to serve its members, and we cannot think of a better way of doing that than by strengthening our ties to golf course equipment managers," said Rhett Evans, CEO of GCSAA.

// BACK TO THE BUNKERS

REES JONES LEADS RENOVATION ON KENTUCKY COURSE

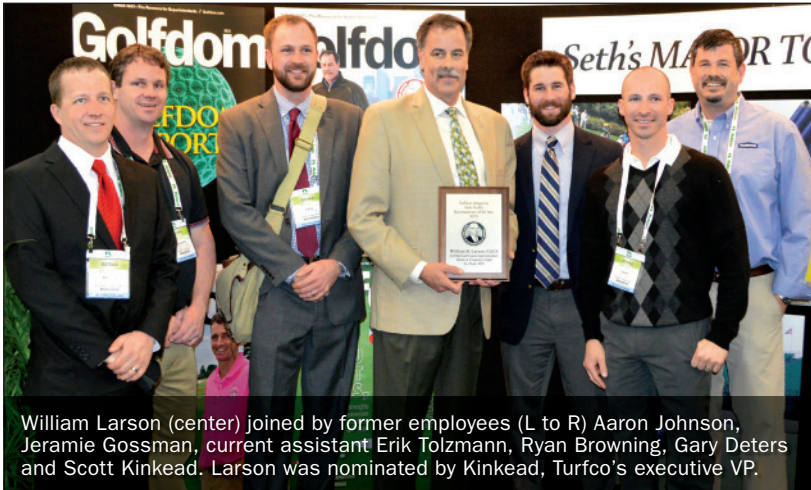
Griffin Gate Golf Club, located at the Griffin Gate Marriott Resort & Spa in Lexington, Ky., has hired Rees Jones to direct its \$1 million bunker renovation project along with a complete greens complex refinement.

Jones, the original designer of Griffin Gate GC, will use the Better Billy Bunker Method throughout the course. The bunker system has been installed at Valhalla GC, Bethpage Black and multiple Marriott Golf facilities.

"I am happy to be returning to work on Griffin Gate, one of my first designs. It's like seeing an old friend after 34 years," Jones said. "1981 was quite a while back, so a bunker renovation to bring the course 'back to the future' will serve the course well."

The project is to be completed in mid-May. To allow play to continue, the operation will be completed in two 9-hole phases.





William Larson (center) joined by former employees (L to R) Aaron Johnson, Jeremie Gossman, current assistant Erik Tolzmann, Ryan Browning, Gary Deters and Scott Kinkead. Larson was nominated by Kinkead, Turfco's executive VP.

'Honored' Larson thanks former employees

➔ William Larson, CGCS at Town & Country Club in St. Paul, Minn., says that other than a couple of bingo games back in junior high, he's never won a thing.

So it was a special day, he said, when he learned he won *Golfdom's* 2015 Herb Graffis Businessperson of the Year Award. Larson accepted the award at the GIS surrounded by his friends, colleagues, former assistants, his club president and vice president and even his wife and two sons.

Golf course architect Rees Jones spoke about Herb Graffis and pre-

sented the honor to Larson.

"(Bill) does so much to make his course a better place. He does it on his own — he does all his projects and he saves a lot of money," Jones said. "That's the future of our game... and I think Bill provides that, much as Herb Graffis had to do back in the Depression when he founded *Golfdom*."

Larson thanked his current and former crew, many of whom were in attendance. "This award is for you guys," he said.

For a complete video of the presentation, visit Golfdom.com.

//NUMBERS GAME

BIOBLITZ BRINGS EARTH DAY TO GOLF COURSES

Audubon International, the environmental nonprofit, announced its inaugural Golf Course BioBlitz, a free program designed for golf courses and set to run the week of Earth Day, April 19-25, 2015.

BioBlitz is a species-counting competition intended to create awareness of the habitats that are supported by golf courses. Any course worldwide is eligible to participate in the program, sponsored by the United States Golf Association.

A golf course can invite any number of participants to their facilities, and awards will be given in the categories of Most Species, Most Participants and Best Photo. To register for BioBlitz 2015, email Tara Pepperman at tara@auduboninternational.org.

//MOVIN' ON UP

INTEGRITY GOLF NAMES SNYDER VP OF MAINTENANCE

Longtime Celebration Golf Club superintendent Larry Snyder, CGCS, was named Integrity Golf Co.'s Executive Vice President of Golf Course Maintenance.

"Larry has been one of our most valued partners since the inception of the company at Celebration Golf Club," said Gene Garrote, Integrity Golf Co. chief executive officer.

In his nearly 40-year career, Snyder has overseen golf course maintenance operations at numerous courses in Arizona, California and Florida. He belongs to the Cactus and Pine GCSA and has served as president.

THEY SAID IT

MICKIE ZADA

CLUB MANAGER, MYAKKA PINES GOLF CLUB, ENGLEWOOD, FLA.

To WINK News in Fort Meyers, Fla., on the reputation of the golf course after a photo of an alligator was posted on social media and went viral.

"We're known for a couple things here; the great condition of our golf course and our alligators."



Golfdom Gallery



1 Team Tacoma It was fun to catch up with some of the crew at Tacoma (Wash.) C&GC, which was featured in last month's cover story on solid-tine aerification. (L to R) Bo Jentree, Richard Young, superintendent Joel Kachmarek and Tim Deshazer take time for a pic on a very firm No. 16 fairway.



2 Let's do lunch We were able to sneak in on the conversation between (L to R) Zac Reicher, Ph.D., Bayer Environmental Science, Tom Voigt, Ph.D., University of Illinois and Clark Throssell, Ph.D., *Golfdom's* research editor. What did we learn? The location of the best cheese enchiladas on the Riverwalk.



3 A GIS tradition Business as usual at the Smithco booth. In blue, Mark Casey, MTE Turf Equipment Solutions, accepts another sales champion award from (L to R) Smithco's Bill Kenney, Don Smith and Emil Miller. Casey also won the award in 2007, 2008, 2012 and 2013.

4 Fry/Straka meet Pat/Seth The *Golfdom* team (publisher Pat Roberts, far left, and editor-in-chief Seth Jones, far right) discussed national and international golf architecture with the Fry/Straka Global Golf Course Design team of Dana Fry (L) and Jason Straka (R). A story profiling their work at Erin Hills graces this month's cover.



5 Old Tom makes a new Buddy There was no need to call security (this time) at GCSAA headquarters in Lawrence, Kan. New *Golfdom* associate editor Grant "Buddy" Gannon was only there to take this quick photo with Old Tom Morris... and then Seth yelled "run!"



PHOTOS BY: SETH JONES (1, 5) / RYAN BOCKMULLER (2, 4) / JOELLE HARRIS (3)

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Count on it.



"I was a sponge when it came to learning new things and techniques from others. This was accelerated by attending chapter events."

STEVEN WRIGHT, CGCS, director of golf course/landscape operations, Boca West CC, Boca Raton, Fla.

You get what you give

par•tic•i•pate | *verb.* a) to take part b) to have a part or share in something ¶ I pulled this from an old Webster's dictionary, circa 1990. What does participation mean to today's turf managers?

I've always been involved. It started way back as an assistant at Sugar Mill Country Club in New Smyrna Beach, Fla. I worked with Mike Beard, and he always encouraged participation in chapter events. If he didn't go, he made sure he sent me. When we both had the opportunity to attend, I knew it was going to be a good day. It meant a lot to a young assistant.

Can I remember the topics or speakers? Not at all. I do remember all the lifelong friends I've met, including the superintendents at the best clubs and several trade secrets they shared.

I didn't have the benefit of a 4-year degree, or even a turfgrass major (no turf bowls for me). I had my AA degree, a job and lots of determination to succeed (thanks, Mom). I viewed participation as a way to learn the business from the viewpoint of others. I had a great boss who shared

his knowledge and secrets of growing grass with me. I was a sponge when it came to learning new things and techniques from others. This was accelerated by attending chapter events.

Today, all across the country, many local chapter participation levels are lethargic. I know this doesn't apply everywhere, but I see it locally and know other chapters are experiencing lower numbers. I often wonder why. Education is better now, clubs are receptive, courses are great and you're among friends, peers and brothers in turf.

I have heard a plethora of reasons and all are valid. Perhaps you've heard them too, including the following:

1 Family time. If this isn't the most important reason to miss a meeting, I don't know what is. Face it, many of us married way over our heads. We're blessed for that. But our spouses know by now how im-

portant it is to gain and share knowledge in our business. Staying fresh and motivated in our careers also impacts our home life. You don't have to go to every meeting, but every meeting should be a part of your calendar.

2 Can't get away or too busy. I get it. Job first, priorities intact. But you can't get away *every time* a meeting rolls around? Really? Then send your assistant. Certainly one of you should plan on attending.

3 \$\$\$\$. If your club/course doesn't reimburse you, the cost of going to meetings can add up. Can you put a value on your attendance? Sure. Maybe an affiliate member could assist in your attendance. I know at our chapter — Palm Beach GCSA — the general meeting and education portion are free. That's right, free. If you want lunch and want to play golf there's a fee, of course. I wish I could

report that this free meeting idea was overwhelmingly successful. It should be.

4 Salesmen. You don't want to talk to them or get paired with them. Why not? Infectious diseases? You might find you have more in common with them than you think. Regardless, what's wrong with meeting new people? Besides, you just say no to a pitch... they're used to it.

5 Too far to drive. This doesn't apply to you if you have a drive that's less than one hour in any direction. Just ask superintendents in Montana, Idaho, Nebraska, etc.

6 I am a hermit (or I don't need to go). No you are not! You are a superintendent. We have one of the most difficult, challenging, rewarding, exceptional, coolest, envied jobs in sports. We are a unique fraternity in a unique business. Sharing each other's successes and failures is one of the greatest parts of the profession.

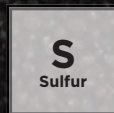
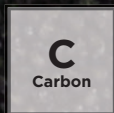
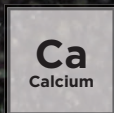
One could say I'm just venting again, but I'm concerned about this fraternity of superintendents. I see less and less participation in a great profession. We must continue to learn, grow, share and participate at some level in our profession, and not just on Twitter. Make it a point to renew your membership, attend chapter events and share your experiences. There just might be someone in attendance who needs it.

Steven Wright, CGCS, is director of golf course/landscape operations at Boca West CC in Boca Raton, Fla. He can be reached at swright@bocawestcc.org or followed at [@wrightsteve19](https://twitter.com/wrightsteve19).

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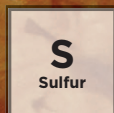
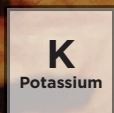


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“How does some random assistant superintendent end up with a column in a major trade magazine that boasts a columnist roster of industry heavyweights like Mark Woodward, Clark Throssell, Ph.D., and Karl Danneberger, Ph.D.?”

MATT NEFF, *assistant superintendent, Wedgewood G&CC, Powell, Ohio*

How I became a columnist

As a result of writing this column over the last two-plus years I've been extremely fortunate to have had the opportunity to meet and talk with many people in this business with whom I otherwise likely would've never crossed paths. It's also given me the chance to talk with friends and colleagues I don't see on a regular basis.

The most common question I'm asked in many of these conversations or email exchanges is how I got this job. It's an understandable question. How does some random assistant superintendent end up with a column in a major trade magazine that boasts a columnist roster of industry heavyweights like Mark Woodward, Clark Throssell, Ph.D., and Karl Danneberger, Ph.D.?

I choose to believe that they are asking out of genuine curiosity (“That's really interesting, Matt. So tell me how you ended up with such a cool side gig.”) instead of disbelief (“You're an idiot. How did you end up writing a column in an otherwise respected trade

magazine?”) Admittedly, the disbelief angle isn't entirely without merit.

The short version of the story is that I got lucky. Basically, I talked to the right person at the right time and ended up with a column.

The longer version has to do with the outrageous cost of child care in this country.

Having two kids enrolled in pre-school/daycare is basically like having a second mortgage payment every month. In an attempt to offset some of the cost I decided to find an additional source of income. As you're all aware, the work schedule in this business isn't really conducive to having a second job with a set schedule, especially when

you have a family. I knew I needed to do something that would offer flexibility while also providing a reliable source of additional income.

I had a few ideas, but freelance writing seemed like an interesting option because it would best satisfy the main requirements of flexibility and dependable income. However, I had no clue how to go about becoming a freelancer. Since I know more about turf and golf course maintenance than pretty much anything else it made sense to explore opportunities in this industry. I contacted the editors of a few industry trade magazines asking for their advice on what was involved with getting into freelancing and

if it was even reasonable to think that an assistant golf course superintendent with no professional writing experience would be able to do so.

Although he likely now regrets it on a monthly basis, *Golfdom* Editor-in-Chief Seth Jones responded to my inquiry. He answered my questions regarding freelancing but, as luck would have it, he also mentioned that he had been considering a column dedicated to assistant superintendents and told me to submit a sample column to him. If he liked it, I could have the job. Fortunately he did and I became a columnist.

With the way the job market in this business has been over the last several years, it's not unusual for assistants to be older than in the past and likely have a house and a family. For those who haven't gone down this road yet, believe me when I say that houses and kids cost a *ton* of money.

So if you're looking for a way to pick up a little extra income while being able to work around the demanding schedule that is the norm in golf course maintenance, it's worth it to think a little outside of your comfort zone. If it's something that you don't know a lot about, contacting people who do might just give you the break you need to get started.

Luckily it worked for me because I think I would've been the worst Avon lady ever.

Matt Neff (mneff4@yahoo.com) is assistant superintendent at Wedgewood G&CC in Powell, Ohio.

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Taylor Davis

SECOND ASSISTANT

The Atlanta Athletic Club Highlands course

The Atlanta Athletic Club Highlands course has seen PGA history that spans from the mid-70s to 2014. The original Robert Trent Jones, Sr., partial design hosted the 1976 U.S. Open and the 1981 and 2001 PGA Championships. Rees Jones handled the 2006 redesign in preparation for the 2011 PGA Championship, and the course most recently hosted the 2014 U.S. Amateur.

Davis, second assistant at the facility, grew up in and attended turf school in Florida and worked as an assistant in Colorado, but has returned to the South and he doesn't want to leave southern hospitality, or the grass, anytime soon.

WHERE DID YOU STUDY TURFGRASS SCIENCE?

I went to school at Florida Southern College in Lakeland, Fla., it's a private DII (division II) school. There are small classrooms, which I liked and enjoyed, so you get really close contact with the professors.

WHO ARE YOUR MENTORS IN THE INDUSTRY?

Ken Mangum, whom I actually work for (at the Atlanta Athletic Club). Also, Michael Sartori, the superintendent out at The Broadmoor (East Course, Colorado Springs, Colo.) is another one of my mentors.

WHY DID YOU CHOOSE THIS PROFESSION?

I started working in the cart barn when I was 16 and I've always enjoyed working outside. I met the superintendent at my old course where I had worked in Tampa, Fla., and I kind of fell in love

with it. I didn't want to be behind a desk all day, I couldn't do that. I'm really hands-on. I picked it up and I really enjoy it now.

DID ANYTHING SURPRISE YOU ABOUT THE INDUSTRY?

The long days that you have to put in. Especially during the summer, but even in the winters down here. We'll put in a 12-hour day and have to cover and uncover. It's a lot of work, nonstop, all year long.

WHAT IS THE GREATEST ASSET YOU BRING TO A COURSE?

Spraying. That's pretty much all I do right now. I'm kind of like the spray tech, but I also get to manage the crew every day. I really enjoy that.

WHAT CHALLENGES DO YOU FACE MANAGING THE CREW?

Some days it's hard, like on the weekends. Especially when giving

jobs out. If all of the guys don't come in and you already have planning in your mind what you wanted to do, and then at the last second you have to start all over and put the guys in the right places for that day. I learned now you don't make the schedule. Wait until everybody's there in the morning, figure out who's coming in and then make the schedule. We're pretty flexible with our guys. If they don't want to come in on a Saturday because they've worked all week, we aren't going to write them up.

WHERE DO YOU SEE YOURSELF IN 10 YEARS?

A superintendent somewhere on the coast of Florida. I would love to go back out to Colorado, but being from the South and working in the Transition Zone and being from Florida, I would enjoy it. The grass is better down here.

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The Golfdom



FROM THE ARCHIVE

Professionals and enthusiasts alike wonder where it is that golf will next take hold, and bring more players into the sport. Many look to Asia and the billions of potential players in India and China. Maybe it's Brazil, the host country of the upcoming 2016 Olympics, featuring golf's return to the games. ¶ If you go back more than 40 years, Japan was the booming golf country. In the February 1977 *Golf Business* (*Golfdom's* name during an identity crisis), Mac Hunter took a closer look at the golf industry on the island nation. ¶ The sport is not as popular in Japan today, but it still has some hold on the country. Four Japanese golfers are currently in the World Golf Rankings top 100. Only one of them was alive at the time this article was published, and the top ranked, No. 16 Hideki Matsuyama, was born in 1992. ¶ Who knows, maybe someday we will look at Anirban Lahiri of India, currently the world's No. 35 ranked golfer, as we now look at Japan's Torakichi (Pete) Nakamura, who started his country's own golf boom.



Golf business in Japan: taking lessons from U.S.?

BY MAC HUNTER

Golf is a brisk business in Japan — at least until it comes down to the business of playing it.

Indeed, one jet-age connotation applicable to The Land of The Rising Sun is that for an enthusiast to play some of Japan's 1,000 courses, he's going to have to greet the sun as it peeks over Mt. Fuji. Japanese golfers are, to put it succinctly, backed up to the teahouse. It may be the only place in the world where a man would need to call to get a starting time on the practice tee.

But the Japanese aren't complaining. They happily and homogenously accept conditions as they exist because since the beginning of the "Gorufu" boom they haven't known conditions any different. So what if many of Japan's 16 million golfers rarely swing a club at any place other than her 5,000 driving ranges? So what if many of those driving ranges are three-decked enclosed edifices where a man simply hits a ball into a net at fairly

close range? That's okay, too.

They are keen students of the game. They will drive for miles just to see an American give an exhibition, which, apart from osmosis and voracious reading, is one of the few methods available to them for learning the techniques of the swing.

HOW DID IT BEGIN?

Golf came to trade-conscious Japan through the store window, as opposed to America and England, where the game is rooted in heredity. Mindful of the glut of merchandising that sprang up in this country during the affluent sixties, the perceptive and innovative Japanese businessman saw the potential for it in his country.

Oh, the game existed in Japan before. But only on a very limited rich man's scale. It had roughly the same patronage in Japan as polo in the U.S. There were possibly 100 courses in Japan in 1957

when Torakichi (Pete) Nakamura scored what was then considered a major upset in the Canada Cup matches by defeating Sam Snead, Gary Player and Dave Thomas of Wales by seven strokes while finishing the tournament 14 under par.

Not long after Nakamura's victory, the Japanese began to realize that golf, with its mind-over-matter and will-power demands, was ideally suited to their Zen Buddhist philosophy. "... In playing golf a person must learn to control many emotions and make the best expression of himself," suggested Tokuchika Miki, son of a Zen Buddhist priest.

In the years since, golf has rivaled baseball in Japan for thorough infiltration. Originally a game for millionaires, it reached into the lower echelons of business executives as they saw their bosses play and then got invited to play themselves. Finally, it has filtered into the working class with the construction of driving ranges.

It is a sport that seems to be rising just like the sun.

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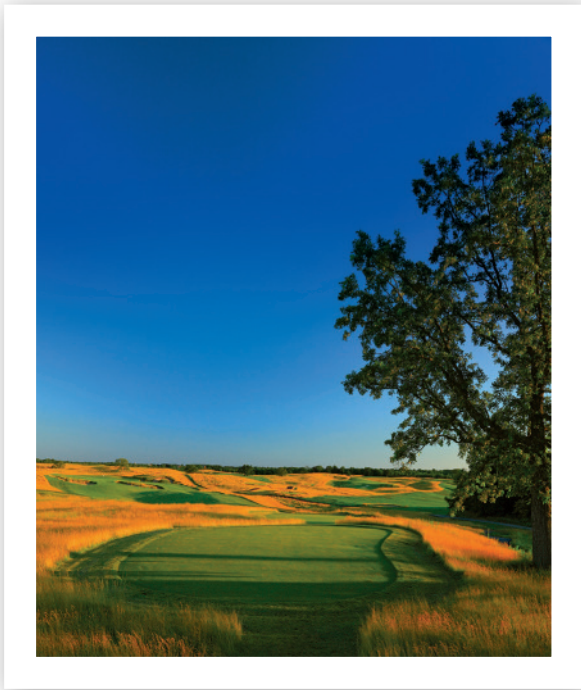


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Less is more at Erin Hills

BY CHRIS LEWIS

PHOTO BY: PAUL HUNDLEY

In preparation for the 2017 U.S. Open, Erin Hills achieves stunning results while using minimalistic approaches to conserve natural resources.

Take a site made up of unusual earth formations left behind by glaciers thousands of years ago, add in a forward-thinking, minimalistic architecture team and a cutting edge superintendent, and the result is a links-style gem of a golf course in America's heartland.

Located 35 miles northwest of Milwaukee, Erin Hills Golf Course, Erin, Wis., provided the architects an assortment of natural settings for golf holes. More, in fact, than any other property they had ever visited.

"I had an unexplainable feeling from the get-go that the property was a game-changer," says Dana Fry, architect. "From its natural topography and unique landforms to its overall vastness and ideal soil conditions, it offered endless possibilities."

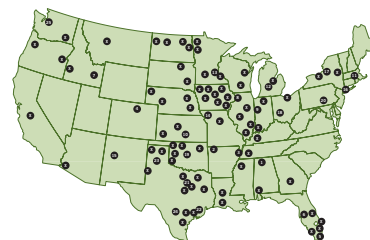
Fry and his former business partner, Michael Hurdzan, Ph.D., the global authority on environmental course architecture, partnered with Ron Whitten, the world's foremost golf course critic, to create the most natural golf course possible, taking a minimalistic approach to design and construction. The result of that collaboration is in the capable hands of superintendent Zach Reineking, who looks at water conservation and reducing inputs as an art form.

The USGA clearly likes the results, as the course has already hosted two of its championships — the 2008 U.S. Women's Amateur Public Links Championship and the 2011 U.S. Amateur — at a course that only opened in 2006. And next up, the course will host the first U.S. Open to ever be played in Wisconsin in 2017.

Continued on page 22

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Minimalism at its finest

Construction began on the course in 2004, with one primary focus in mind: to take full advantage of the natural terrain to limit earthmoving, aside from developing bunkers and tee complexes.

“Since the property’s terrain was so good for golf, we wanted to find a series of world-class holes that could be built with little to no earthmoving,” says Jason Straka, Hurdzan’s and Fry’s long-time associate, as well as Fry’s current business partner. “The glacial features of the property were very similar to the sand dunes of the world’s finest links courses, so we wanted the course’s appearance and playability to reflect upon the characteristics of links golf, even though it was located in the middle of Wisconsin rather than overlooking the ocean.”

By eliminating earthwork, grading and

“Since fescue can manage droughts by transitioning into a summer-dormancy state and turning brown while the crown and roots are alive, the fairways had an incredible patina of green and brown all summer,” Reineking says. “We want to maintain that ‘brown is beautiful’ philosophy during the Open by using the least amount of chemicals and water we possibly can.”

shaping on more than half of the course’s 18 holes, the architects’ crews spent nearly \$3 million on construction costs in a year and a half, a relatively low aggregate, especially considering the size of the property. A ma-

majority of the property’s native soil structure remained undisturbed, resulting in further short- and long-term cost savings, as the soils required significantly fewer drainage basins and pipes than usual.

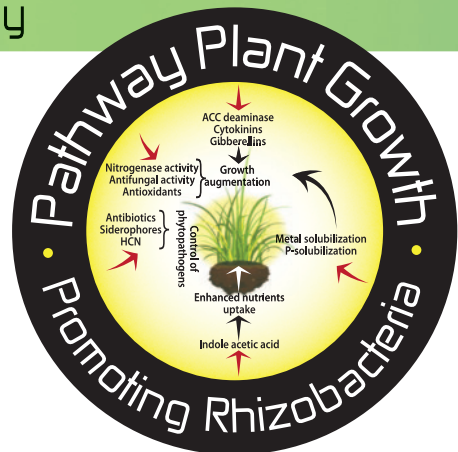
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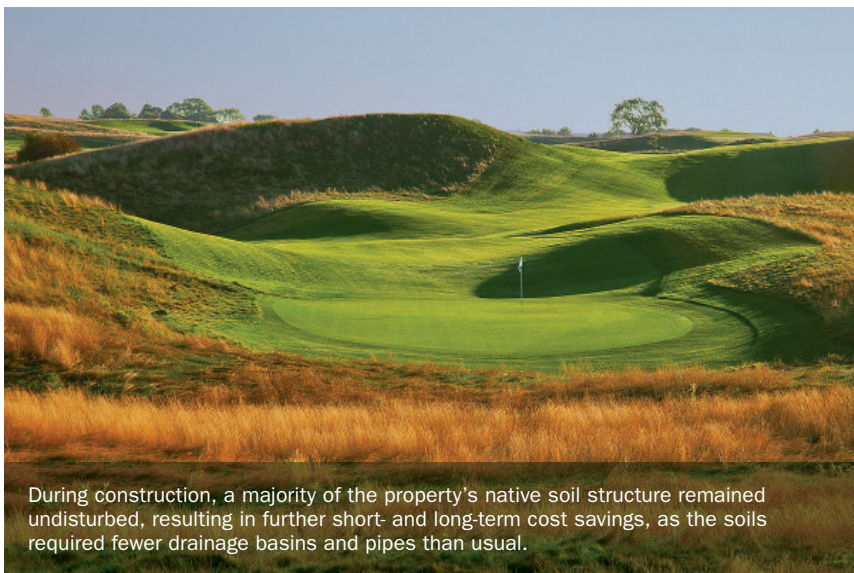
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During construction, a majority of the property's native soil structure remained undisturbed, resulting in further short- and long-term cost savings, as the soils required fewer drainage basins and pipes than usual.

"On sites that require substantial earthmoving, topsoil is normally stripped off, stored and then replaced once the golf hole is shaped," Straka says. "This shuffling of soil and disturbance by large earthmoving equipment compacts soil and often-times destroys its natural tilth. The ideal topography of Erin Hills, combined with our minimalistic approach, meant that the natural soil structure could be left in its existing, well-draining state. The undisturbed soils are a long-term benefit to the health of the turf."

With the soil's porosity in mind, the architectural team suggested that fine fescue be planted throughout the course's fairways.

"If the property's soil had been heavy and compacted, as is often the case when considerable earthmoving occurs, the fescue wouldn't have thrived," Straka says. "But since the native soils were so permeable and left undisturbed, the fescue has grown quite well. And it has used less water, fertilizer and fossil fuels than most other grasses would have, resulting in a more environmentally sustainable course."

To further preserve the property's natural environment, its wide array of prairie vegetation and wetlands were protected from the onset of construction. As the architects developed their initial layouts

for Erin Hills, they ensured the wetlands would remain completely intact and surrounded by vegetative water filtration buffers. The property's Ashippun River corridor, which bisects the site, is protected as well, as the course never crosses the river.

Even the natural contours of the course's fairways were preserved, while bunkers were developed with unkempt edges to maintain a more naturalistic look and provide guests the ultimate links-style golfing experience.

Make history, prepare for the future

The USGA announced in 2010 that Erin Hills would host the 117th U.S. Open. The exciting news was presented to Erin Hills' staff members shortly after the course had been purchased by a new owner, Andrew Ziegler, a Wisconsin businessman who oversees a Milwaukee-based investment management firm.

Within weeks of his purchase, Ziegler began to meet with the course's superintendent, Zach Reineking, to hone in on turfgrass vitality in order to improve upon the course's playing conditions in anticipation of the U.S. Open.

To improve upon the overall experiences of members and guests, as well as prepare for the U.S. Open, Reineking's

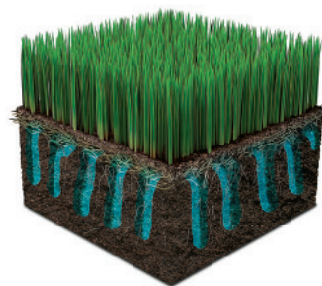
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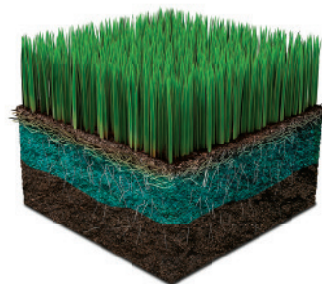
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Continued from page 23

principal focus was shifted toward plant health. Methods to reduce stress to the fairways' fescue as well as the greens' A-4 bentgrass and the tee boxes' Penncross bentgrass became priority.

"By improving turf conditions, (we have) restricted the amount of chemical inputs necessary to achieve its desired standards," Reineking says. "Each of these improvements was suggested by the USGA and implemented in-house by my team."

Protecting fescue from Mother Nature

Although fine fescue's positive traits, such as drought tolerance and low fertility demand, certainly outweigh its negative characteristics, high temperatures and high humidity can directly influence its growth patterns. To combat this and prepare the fescue for the stress of summertime heat and humidity, Reineking's



Fry/Straka Global Golf Course Design was *Boardroom* magazine's design firm of the year in 2013. Dana Fry (left) and Jason Straka (right) have worked together for nearly 20 years.

team topdresses the course's fairways from April to June.

Each year, Reineking applies eight topdressing applications to each fairway, totaling half an inch of accumulated sand. That amounts to more than 1,500 tons of sand annually. As a result, Erin Hills' playing conditions are immediately improved

shifted to reduce traffic stress through mowing patterns and schedules that also protect the fescue until late summer."

Fescue generally isn't tolerant of high volumes of golf car traffic, so Reineking at one point found himself watering and fertilizing fairways more frequently. The additional chemical inputs and water en-

because the fescue's crown is fully protected from Mother Nature's elements.

"For further protection, before the course is opened in the spring, the fairways are also aerated through deep-tine aerification so the fescue can produce deeper roots," Reineking says. "Once this occurs, our focus is

PHOTO BY: RYAN BOCKMULLER

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Before the course opens each spring, the fairways are deep-tine aerified so the fescue can produce deep roots.

couraged the growth of invasive species like *Poa annua*.

Bearing in mind the longstanding traditions of the game, as well as the principles of agronomics, new owner Ziegler converted Erin Hills to a “walking-only” facility shortly after purchasing it. Eliminating golf cars means the fescue is now maintained as originally intended, using much less fertilizer and water, resulting in dry, firm and fast conditions.

Brown is beautiful

During the summer of 2012, southeast Wisconsin endured a severe drought, with no rain reported for 62 consecutive days. In response, Reineking actually took advantage of the conditions, pushing the course to its limits by only irrigating fescue minimally so it would stay alive without actively growing. Greens and tee boxes, however, were irrigated.

By the end of the summer, the course used only 18.2 million gallons of water, just 500,000 more gallons than typical summers.

“Since fescue can manage droughts by transitioning into a summer-dormancy state and turning brown while the crown and roots are alive, the fairways had an incredible patina of green and brown all

summer,” Reineking says. “We want to maintain that ‘brown is beautiful’ philosophy during the Open by using the least amount of chemicals and water we possibly can.”

Erin Hills has a two-row irrigation system, preventing excessive water application on the outer perimeters of fairways and rough. Of the course’s 550 irrigation heads, 200 to 300 see frequent use. Consequently, the course now uses less than 125,000 gallons of water each day.

To better measure Erin Hills’ irrigation needs, the Turfgrass Department also uses time-domain reflectometers, a form of moisture sensing technology, to determine how much water the rough, fairways and greens require day to day. Staff members have an established daily reading to strive for via hand-watering. Each reading is based on weather conditions. Using the reflectometers and hand watering the turfgrass limits the number of overhead irrigation applications necessary to maintain healthy turfgrass. It also limits the amount of disease, which usually occurs as a result of overwatering.

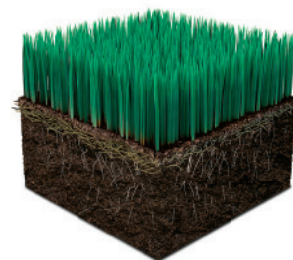
As another example of minimal maintenance input, Reineking’s staff uses iPads that are paired to their irrigation computers, allowing staff members to walk fairways and determine which irrigation heads should run. This micromanagement of irrigation is especially valuable on Erin Hills’ undulated natural terrain, which creates microclimates at individual holes and requires more water on some greens and fairways than others.

“People often assume minimalism is an end product,” Fry says, “but, as evidenced by Erin Hills, it is clearly a process. To preserve our ecosystem, golf courses’ minimalistic processes must start prior to the beginning of planning, design, or even construction, and then continue long-term through the initiatives of superintendents.” ©

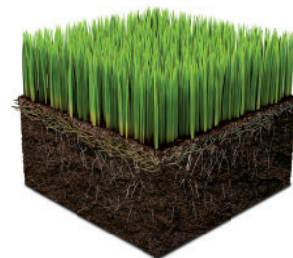
Michigan-based writer Chris Lewis specializes in reporting on golf in the U.S. He wrote about White Pine National Golf Resort for *Golfdom* in 2013, and part two of the magazine’s annual Plant Health Series in 2014.

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THE STARS OF TEXAS

The 2015 GIS in San Antonio wasn't limited to one Lone Star product. Here are several stars of the show.

BY THE GOLFDOM STAFF

There are so many products to see at a show like the GIS, it almost drives us mad. Thankfully, there are almost as many chapter parties to ease our stress levels. (And thanks to the many chapters that hosted us during our time in Texas!) ¶ Here we present some of the information we

gathered during those two quick days of the trade show. True, we're stashing some news for future issues. And there's some information we just couldn't cram into this issue (but you can find it online right now at Golfdom.com.) But this is a good beginning guide to some of the stars we saw deep in the heart of Texas.

TORO ADDS GPS, MORE TO ITS ARSENAL

It'll come as no surprise to anyone that Toro — one of the mainstays of the golf maintenance industry — was busy during the GIS. Massive booth space housed new equipment, but there was more going on than just equipment.

During a press conference in the Toro skybox at the booth, a large contingent of Big Red's bigwigs let the assembled maintenance industry scribes in on the new metal, as well as some of the softer but no less important news. Here's a look at the highlights:

GeoLink — A GPS-equipped sprayer that's expected to be available this summer, GeoLink is initially for the Toro Multi Pro 5800, but with plans to expand it to other Toro sprayers. The system will be available in both Wide-Area Augmentation System or Real-Time Kinematic correction system configurations. Using the RTK system, Toro says the sprayer is accurate and repeatable to within 1 centimeter of set parameters. The company says fleet managers using the system could see substantial savings in chemical costs.

Reelmaster 5010-H hybrid — Toro calls this the first fairway mower with a true hybrid drive system. It says the mower delivers more than 40 horsepower on demand for climbing steep hills, verticutting, scalping or to support other peak-load situations. The mower couples a 24.8-horsepower Tier 4-compliant Kubota diesel engine with an inline motor generator and a self-charging 48-volt battery pack. Toro says the mower's benefits include more precise control of both reel speed and clip rates, which translate into a more consistent cut quality and improved playability, and reduced maintenance downtime due to the elimination of the hydraulic components commonly associated with traditional cutting units.

Universal Groomer — Among the things keeping Toro folks busy at GIS was the introduction of its new universal, bi-directional groomer product line, which offers three drive modes: forward rotation, counter rotation and neutral. The groomer will be available this fall.

— Ed Hiscock, Editor-at-Large



PHOTO COURTESY: THE TORO CO.

QUALI-PRO SHOWCASES LATEST TURF CARE SOLUTIONS

Quali-Pro, a division of Pasadena, Texas-based Control Solutions Inc. (CSI), held its "3rd Annual Distributor Breakfast Breakdown" at the GIS. Rick Grant, CSI business director, T&O, and Jerry Corbett, Quali-Pro technical services manager, covered, in rapid-fire fashion, the company's latest turf care solutions.

■ **Enclave** — Featuring "Quad-Control Technology" — a combination of four active ingredients (chlorothalonil; iprodione; thiophanate methyl; and tebuconazole) — this patent-pending fungicide is showing better efficacy than tank mixing in university studies. Enclave treats dollar spot, brown patch, anthracnose, snow mold (pink and gray) and ornamental diseases.

■ **Strobe 50WG and Strobe 2L** — These two new azoxystrobin-based fungicides prevent and cure more than 27 turf and 30 ornamental diseases. Strobe 2L is approved by the U.S. EPA and is currently undergoing state registrations.

■ **2DQ** — This new herbicide combines three AIs (2,4-D; dicamba; and quinclorac) to provide control of annual and perennial broadleaf weeds in warm- and cool-season turfgrasses.



■ **MSM 250D** — This new metsulfuron methyl-based, low-odor, liquid, post-emergent herbicide offers control of bahiagrass and broadleaf weeds such as clovers, dandelion, henbit, dollarweed and plantains, in warm-season turfgrass.

■ **Negate 37WG** — This dual-powered, low-odor, post-emergent herbicide combines rimsulfuron and metsulfuron-methyl, and controls *Poa*, perennial ryegrass and broadleaf weeds in established warm-season turfgrass.

Later this year, Quali-Pro expects to launch Strobe-T, a fungicide that will combine azoxystrobin and tebuconazole. In 2016, Quali-Pro plans to launch a turf nematicide. Corbett said

the product will provide nematode control as well as enhanced root development and overall plant health.

— **Marty Whitford, Editorial Director**

Rick Grant, CSI business director, T&O (top), and Jerry Corbett, Quali-Pro technical services manager (above), know how to keep a breakfast lively at the GIS: talk about upcoming technologies.



SUPER SHARES SPREADSHEET WITH CIVITAS

The ability to save superintendents time, money and resources is the silver bullet, and Civitas believes they have found the solution with its IPM costing model.

Civitas, a subsidiary of Suncor, launched six years ago and is in beta testing of the IPM costing model, a costing tool that allows superintendents to forecast and compare resources their courses consume.

What started as a concept from the mind of Erik Spong, a former superintendent and now representative of Civitas, turned into an Excel spreadsheet that allowed him to see what his course spent on various resources.

The only problem: Spong was the only one who could read and understand the Excel spreadsheets.

With the help of Civitas, the IPM costing model is now on the Web and is mobile-responsive. Superintendents can customize, compare and forecast the amount and the cost of fungicides, insecticide, herbicides, PGRs, wetting agents, phosphates, fertilizers and water.

"Civitas' IPM costing tool basically empowers you to do one-day forecasting (in) what used to take a month," says Spong.

On top of the IPM Costing Model, Civitas has a new herbicide, WEEDfree. It has been approved by the U.S. Environmental Protection Agency, but is currently still going through U.S. state registration.

— **Grant B. Gannon, Associate Editor**

ONGOLF CRUNCHES DATA, SAVES TIME

More superintendents looking to assist their fellow superintendents: OnGolf comes with some influential people behind it, namely co-founder Matt Shaffer, director of grounds at Merion GC, and Shawn Emerson, director of grounds at Desert Mountain and chairman of OnGolf's advisory board. Walt Norley, the former CEO of UgMo technologies, is the CEO.

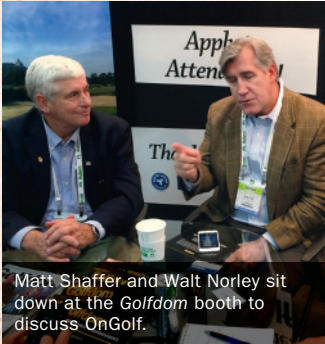
OnGolf is a cloud-based data collection system that is meant to help superintendents store all their information in one place for easy access and easier decision making. The platform originated in the agriculture industry in the form of OnFarm. Norley was introduced to OnFarm and shared the system with his old friends Shaffer and Emerson to get their take.

"When Walt brought this software to Shawn and me, we said, 'Hey, this was made for us,'" Shaffer says.

Continued on page 28

Continued from page 27

Norley and Shaffer cut an agreement with OnFarm last July to own the system for the golf, sports turf and commercial/residential markets. OnGolf is currently being tested in five different golf markets, and will become commercially available this month. An early-adopter discount rate will be offered, the company says.



Matt Shaffer and Walt Norley sit down at the Golfdom booth to discuss OnGolf.

OnGolf has five modules to help superintendents track information. They are:

- Turf health indicators
- Water and energy monitoring
- Playing conditions (speed and firmness)
- Labor management
- Fertilizer budget management

And it's all available on your phone.

Emerson says his hope is that the system will help turf pros cut their hours worked by 10 percent.

"Time may be our No. 1 focus. Superintendents and assistants are leaving the industry because they don't have enough time, they don't have a balance of life," Emerson says. "I've told my superintendents and assistants, if you normally work 55 hours, with the information you're getting, see if you can cut it down to 50 hours."

— Seth Jones, Editor-in-Chief



SYNGENTA HELPS WITH THE CHANGING SEASONS

For cleaning up diseases during the transitions from spring to summer and fall to winter, Syngenta offers Vellista fungicide, which the company launched during the GIS. Vellista controls key turf diseases, including brown patch, dollar spot and anthracnose, among others.

Vellista is among the industry's first succinate dehydrogenase inhibitor (SDHI) class fungicides.

"With Vellista, there is now a broad-spectrum SDHI on the market that superintendents can use to clean-up spring and fall dollar spot," Howard Jaekle, fungicide brand manager, said in a statement. "Superintendents have a new tool to manage summer disease on greens because of the turf safety Vellista offers in addition to its excellent control of anthracnose."

JACOBSEN'S TRUCKSTER WANTS TO GO FAST

Two more things learned about Jacobsen's new Truckster XD while at the GIS: it's fast, and it's tough.

The center of attention at the Jacobsen booth, the Truckster proudly held up a flatscreen TV demonstrating a three-car race recently held at Charlotte Motor Speedway. The race was only one lap, and it was between rival utility vehicles.

Behind the wheel of the Truckster was NASCAR driver Jamie McMurray, winner of the 2010 Daytona 500, the 2010 Brickyard 400 and now, the 2015 Charlotte Speedway 1. Perhaps the professional driver gave the orange vehicle an advantage, but McMurray seemed impressed.

"The first thing I noticed was that it was a 5-speed, and how well the transmission shifted, how fast it accelerated," McMurray said in the video, available online at youtube.com.



But lead engineer Jarrett Jones and product manager Chris Fox echoed each other that the Truckster XD isn't just a speed machine. It also has, they say, the toughest box of any utility vehicle on the market, using the heaviest gauge steel.

"If you look at any of the products out there, the beds are usually beat up quite a bit — that's the working end of it," Jones says. "(The Truckster's box) has quite a few design changes — it assembles much easier, it goes together better, it has more support built into it."

"These beds get abused," Fox says. "People treat them like pick-up trucks, so we wanted to make sure ours lasts."

— S.J.

JOHN DEERE SHOWS OFF THE TIRE'S UNUSUAL BUT USEFUL COUSIN, THE TWEEL

In a partnership with John Deere, Michelin has re-worked the wheel with the airless, radial Michelin X Tweel Turf. It has all of the qualities of a pneumatic tire but does not require air, thus eliminating downtime to work on flats, patch kits or spare tires.

The outer portion of the Tweel is a strong and flexible shear beam. This shear beam is connected to its inner hub by malleable but strong spokes. When the Tweel comes in contact with turf or another surface



those spokes deform and take the force of the surface. This energy transfer reduces bounce for a smoother ride.

Don't expect the Tweel to come standard on your next automobile. It is exclusively being made for the John Deere ZTrak 900 Series.



Unparalleled weed control.
Now you have two loyal companions.



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The **BackedbyBayer** app is available for download at the iTunes store.

Specticle[®] herbicide can't offer unconditional love (or, can't jump in the cart for a ride) but it can offer unsurpassed weed control in warm season turf, so you can maintain top course conditions that impress golfers and owners alike. So, if you're looking for things to depend on, look to Specticle. Your other loyal companion.

For more information, visit BackedbyBayer.com

A PATRON SAINT FOR

IN THESE TRYING TIMES OF GREENKEEPING
CONSIDER THESE SAINTS TO HELP
GUIDE THE WAY



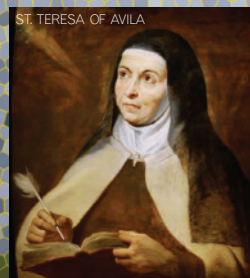
ST. JUDE



ST. ANDREW



ST. FRANCIS OF ASSISI



ST. TERESA OF AVILA

BY MIKE FIDANZA, PH.D.



ST. ANTHONY OF PADUA

There is no officially recognized patron saint of superintendents. Depending on the time of year and geographical location, many superintendents may find themselves praying for more rain, or less rain, or for the snow to melt, or for the humidity to subside, or for the rootzone to drain, etc.

We need a saint the superintendent can call on for help, support and counsel in challenging times and for gratitude as well in good times.

Who should be the patron saint of superintendents? Here are a few suggestions:

St. Francis of Assisi is a popular choice since he is the patron saint of ecology (i.e.,

defined as a branch of science concerned with the relationships of organisms and their environment), and he is also associated with nature and the environment. Superintendents spend their whole careers dealing with the interaction of turf with the air, soil, water, and of course, golfers. Indeed, turfgrass science is a sub-discipline of botany and ecology, and superintendents are practitioners of environmental stewardship.

St. Isidore the Farmer is the patron saint of farmers, and superintendents have been respectfully called "low-mowed pasture farmers." **St. Fiacre**, **St. Adelard** and **St. Rose of Lima** are all patron saints of gardeners. **Michael the Archangel** banished evil from the garden, and superintendents do their best to banish weeds, diseases and insect pests from the golf course... and probably would like to do the

same to over-demanding golfers.

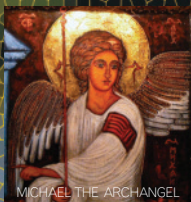
How about these? **St. Rita of Cascia** and **St. Frances Xavier Cabrini** are both patron saints of impossible causes. **St. Jude** is the patron saint of desperate causes. Superintendents know the desperate and impossible task of trying to keep greens alive in adverse weather conditions, or when turf is under attack by disease scourges or insect plagues, or when all this is happening the same week as the member-guest event with a demand for unreasonable green speed.

St. Andrew is the patron saint of Scotland, home of the Old Course at St. Andrews Links and the famous greenkeeper Old Tom Morris. Perhaps **St. Thomas Aquinas**, patron saint of universi-



ST. THOMAS AQUINAS

SUPERINTENDENTS



complaining about green speed.

St. Anthony of Padua, patron saint of lost articles, may be able to help if a green is “lost.” If that happens, **St. Antony the Abbot**, patron saint of gravediggers, is the one to call.

St. Luke may be a consideration since he is the patron saint of artists. How many times has a superintendent looked out onto a fairway or green at sunrise, in solitude, and admired the land and the “artwork?”

I know many superintendents and others in the industry who would be considered “living saints.” So many superintendents are very generous with their time and give back to their profession and their community. There is **St. Stanislaus**, in honor of our late friend Stanley Zontek, USGA Green Section agronomist. A favorite saint of the Polish community, **St. Stanislas Kostka** may have intervened when Stan Kostka of Aquatrols Corp. drew the idea for the molecule for Revolution soil surfactant on a restaurant napkin. What about Edwin Budding, inventor of the lawn mower in 1830? He is not a saint, but perhaps **St. Homobonus** (or **Omobono**) was at work, since he is the patron saint of tailors and cloth-workers and Mr. Budding had extensive textile training.

As you can see, there are many saints who superintendents can call upon when divine intervention is needed. What do you think? Send me a tweet (@MikeFidanza) and use #turfpatron saint. **G**

Mike Fidanza, Ph.D., is a professor of plant and soil sciences at Penn State University, Berks Campus. He can be contacted at maf100@psu.edu or @MikeFidanza.



ties, colleges and schools, would be a good choice in honor of Mr. Morris. Along those lines, **St. Joseph**, patron saint of workers, would be a good choice in honor of the ‘Dean of Golf Course Superintendents,’ Joe Valentine of the famous Merion Golf Club.

St. Agricola of Avignon is the saint to pray to for good weather, fine harvests and rain during times of drought. Weather monitoring and taking soil temperature and moisture measurements are practically a documented job requirement of today’s superintendent. Of course, there is **St. Swithin** (or **Swithun**) and his feast day of July 15th. Tradition states that whatever the weather is like on St. Swithin’s

Day, it will continue for the next 40 days. How many superintendents often make turf management decisions predicated on the weather, and doesn’t the countdown to Labor Day start the day after Memorial Day?

St. Raymond Nonnatus is the patron saint of the falsely accused, **St. Bernadine of Siena** is the patron saint of public relations, **St. Teresa of Avila** is the patron saint of headache sufferers, and pray to **St. Timothy** for stomach disorders. Superintendents could use intervention from all four of these saints when meeting with the greens committee, or dealing with employees, or consoling angry members

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—BRIAN PALMER, SHOREACRES, LAKE BLUFF, IL

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—TOM KAPLUN, NORTH HEMPSTEAD COUNTRY CLUB, PORT WASHINGTON, NY



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// TOLERATING TRAFFIC

INFLUENCE OF WINTER FERTILITY ON *MICRODOCHIUM NIVALE*

By Clint Mattox

M*icrodochium nivale* is a disease of major concern in cool, humid regions where turfgrass is grown. Presently, the only methods to ensure control of this disease are through the use of synthetic fungicides. Pesticide bans and restrictions have caused concern among turfgrass managers in regard to how they will manage this disease in the future. The objective of this fertility trial is to evaluate the effects of different



An overview of the experiment showing the various fertility treatments and the presence of *Microdochium nivale*.

winter fertility combinations in association with simulated golf course traffic in order to assess their potential as alternative management options for *Microdochium nivale* on *Poa annua* putting greens.

A field trial at Oregon State University, Corvallis, Ore., was initiated in September 2013 on a green that was built by placing 6 inches

of a sand that met USGA guidelines on a soil subgrade with no drainage. All possible combinations of three rates of nitrogen in the form of urea 0, 0.1 and 0.2 lb. per 1,000 ft² and five rates of iron sulfate heptahydrate 0, 0.25, 0.5, 1.0 and 2.0 lbs. per 1,000 ft² are applied every two weeks for eight months from the third week of September to the second week of June for two years.

Treatments are applied in two gallons of spray solution per 1,000 ft² at 40 psi. Golf course traffic is simulated to replicate 73 rounds of golf a day by walking over the plots with golf shoes five days a week throughout the trial period. This corresponds to the average rounds of golf played at Trysting Tree Golf Club in Corvallis, Ore, during the same period.

Preliminary results show that greatest disease suppression and traffic tolerance is observed on treatments with 2.0 lbs. iron sulfate/1000ft² in combination with 0.1 lb. of nitrogen per 1000 ft² applied every two weeks.

Clint Mattox, Alec Kowalewski, Ph.D., and Brian McDonald are at Oregon State University. Clint Mattox can be reached at mattoxgolf@hotmail.com for more information.

NEWS UPDATES

INTRODUCING CASEY REYNOLDS, EXTENSION TURFGRASS SPECIALIST AT TEXAS A&M UNIVERSITY

As an Extension turfgrass specialist at Texas A&M University, my job is to serve superintendents in Texas by conducting applied turfgrass research and Extension activities. My background is in plant



physiology, impacts of shade on turf health, turf colorants/pigments and variety development. I received my Ph.D. in crop science with a concentration in turfgrass management from North

Carolina State University in 2013 and was hired in July 2013 as an assistant professor and Extension turfgrass specialist at Texas A&M University in College Station, Texas.

Current projects we have at various golf courses throughout Texas include annual bluegrass timing trials as well as Smutgrass and Dovesweed control trials. We have also written a grant proposal as part of the GCSAA's Environmental Institute for Golf (EIFG) where we plan to document and monitor herbicide resistance in annual bluegrass throughout Texas with support from Texas GCSAA chapters.

In addition to these research efforts, our Extension efforts include re-developing our website, producing a turfgrass pest control recommendations guide, producing various turfgrass extension publications and providing CEUs for pesticide applicator recertification.

“OUR RESEARCH HAS CLASSIFIED THE PRODUCTS AND SHOWN THAT COLORANTS CAN BE AN ATTRACTIVE AND COST-EFFECTIVE ALTERNATIVE TO OVERSEEDING.”

Grady Miller, Ph.D.
(see story on page 34)

// **COLOR ME INTERESTED**

Turf colorants for aesthetics and/or as an alternative to overseeding

By Grady Miller, Ph.D. and Drew Pinnix, MS.

Turf managers in the southern United States have traditionally overseeded warm-season turfgrasses during the fall in order to maintain aesthetically pleasing playing surfaces as well as playability throughout the period of dormancy. The most significant negative attributes to overseeding are the agronomic and aesthetic challenges of transitioning the playing surface from a cool-season grass back to a warm-season grass while experiencing temperatures that are prone to wide fluctuations.

Overseeding is not the only way of having green turf during the winter months of the year. In recent years, turf colorants have served as the standard for an alternative to overseeding warm-season grasses and as a result, a number of new products have been introduced to the market. The increase in popularity, particularly on golf courses, can partly be attributed to the spring transition from overseeded grasses to bermudagrass, which has become more problematic due to heat- and drought-

Applied to semi-dormant turfgrass, the color will look better... For optimum results, don't wait until the turfgrass is straw brown.

resistant cool-season grass varieties. Conversely, prolonged cool springs (similar to what we have experienced here in the Southeast the previous two years) have also allowed overseeded grasses to persist through May and June causing delays in bermudagrass green-up. The use of turf colorants



Research provided and funded by USGA.

allows for a much more predictable spring green-up and contributes to a healthier stand of bermudagrass going into the summer. In order to better understand how a number of these new products visually perform and persist over time, a product evaluation study was initiated at the North Carolina State University Turfgrass research facility in Raleigh, N.C. in November of 2011 and 2012.

RESULTS OVER THE YEARS

We have conducted numerous studies at North Carolina State University to evaluate various colorant products. Our first detailed studies were applied to putting greens in fall 2008. Subsequent trials have included evalua-

tions on bermudagrass and zoysiagrass at an assortment of mowing heights. In total, we have evaluated more than 30 products. These include products from manufacturers/distributors such as BASF, Burnett Athletics, D. Ervasti Sales, Enviroseal, Geoponics, Harrell's, J.C. Whitlam Manufacturing, John

Deere Landscapes, Milliken, Missouri Turf Colorant, Pioneer Athletics, Poulenger USA, Precision Laboratories, Solarfast, US Specialty Coatings and World Class Athletic Surfaces.

In the earlier studies we applied colorant treatments to completely dormant turfgrass in late October to early November using a boom sprayer and flat-fan nozzles at rates ranging from 40 to 160 gallons per acre (gpa). Applied to bermudagrass, colorant increased turf color from 38 percent to 67 percent relative to the control at the time of painting. Of course there was some variation in how the color was judged over time. But remember the saying "beauty is in the eye of the beholder." Most of these products will have a date in which they will need to be re-applied to get season-long green color. Over the six years we have tested these products, some years the color lasted the full winter and some years it did not. On average, the best products will have good color for about 75 days.

Products were found to be rate responsive. Applying the colorants (and water carrier) at 160 gpa provided turf color increases up to 44 percent greater than the 80 gpa treatments. Applying colorants at rates above 80 gpa also resulted in increased color longevity over the winter season. As a general rule, as turfgrass height of cut increases, rate of colorant application will also need to increase. Our studies have also shown that when products were applied to semi-dormant turfgrass, the products performed much better due to the greater background color at the time of application. This is a very important point. Some background color goes a

long way. Applied to semi-dormant turfgrass, the color will look better and may last longer. For optimum results, do not wait until the turfgrass is straw brown.

In the 2011-2012 and 2012-2013 seasons, 25 products were evaluated (Fig. 1) following a single application. Initial colors were judged to be different among treatments. Four products provided minimal to no color at the time of application. Generally products faded over time, with some products shifting to more of a gray or bluish color. The resulting color rating may be directly related to the initial color or due to the greater deterioration of color over time (Table 1).

A common question is, “what is the best colorant?” In fairness, no one turf colorant was clearly superior in terms of natural green color at the time of application and at the end of the winter season. In our 2011-2012 and 2012-2013 trials, distance matrices grouped colorants based on similarity of attributes such as colorant coverage, colorant quality and hue over a season and years. Distance matrices are a set of statistical procedures that illustrates relationships by grouping items using proximity on a graph using multiple measurements simultaneously. Traditional statistics only show relationships in two variables (e.g., response in y given a change in x.)

Results indicated that the colorants with the best natural green color did not generally last as long as some of the others. This group included Green Lawnnger, Lesco Green, Ultradwarf Super, Southwest Green and Endurant. To have a natural green color for the duration of the dormant period, our data suggest reapplication will generally be necessary. A longer-lasting color, although it may have a bluish or lime-green hue, can be achieved with minimum to no reapplication. This group included Kameelyan-Bermudagrass, Kameelyan-Blue, Green Dye Turf Colorant, Go Green, Regreen

FIGURE 1



Digital images of colorant-treated plots on a Miniverde putting green.

and Wintergreen. The products not mentioned as part of these two groups generally were statistically lower in the combination of measured attributes.

PRICE CONSIDERATIONS

Of course, in order for any new practice to be adopted by a superintendent it must make sense financially. Depending on the brand, a gallon of turf colorant will cost from \$30 to \$75, with most distributors giving volume discounts. This is particularly important if a superintendent wants to apply a product to fairways. Almost all the products are sold as a concentrate that must be further diluted before application. A typical dilution rate is one part colorant to seven parts water, although the suggested dilutions may vary based on product, use, existing turf color and desired result. Some of the more concentrated colorants may be diluted up to one part colorant to 15 parts water. So, carefully read the label to get an idea of how much area one can cover with the product of choice. The cost of colorant needed per acre using the higher recommended application rates would range

from \$200 to \$500 an application, depending on colorant brand.

With seed prices currently a bit higher the last few years, using one of these products could save superintendents a considerable amount of money when compared to overseeding. Considering that overseeding will require ground preparation, seeding, watering, fertilizing, mowing, pest control, spring transitioning, etc.; colorants may be a significant labor saving alternative as well. Although potential monetary savings are a major advantage, the ability to better manage the warm-season grass is what keeps turf managers interested in this practice.

HOW TO APPLY/CONSIDERATIONS

The painting process can be boiled down to picking and purchasing a colorant, adding water plus colorant to your sprayer and beginning spraying. Any type of sprayer will work, although a boom-sprayer would be much more efficient. Flat-fan nozzles are commonly used. Air-induction nozzles and dual-fan nozzles are gaining in

Continued on page 36

Continued from page 35
popularity because they can improve coverage. If the color is not applied evenly or dark enough, additional passes (ideally perpendicular) can be made to accommodate aesthetic desires. There is

some clean-up, but no season-long care like with overseeding. Remember to be very careful to not get this product on anything you do not want green. Fences, tee markers, yardage markers, benches, etc. will absorb the colorant and may be

permanently stained. These products are not labeled as a pesticide, but you should still use good judgment and wear personal protection equipment when using pressured sprayers.

There are a few other potential

TABLE 1

Visual colorant quality ratings following the application of turf colorant on bermudagrass in fall 2012.

Colorant Name	Colorant Quality Rating			Initial Color
	Week 1	Week 5	Week 10	
Bermudagrass (Pioneer Athletics)	3.4	1.0	1.0	Not Categorized
Endurant (Geoponics)	7.9	7.0	1.8	Dark Green
Go Green (Enviroseal)	7.0	7.0	6.8	Yellow Green
Evergreen (Milliken Chemical)	8.0	6.8	3.9	Green
Green Dye Turf Colorant (World Class Athletic Surfaces)	7.0	7.0	7.0	Yellow Green
Green Lawngr (BASF)	8.8	8.3	7.0	Green
Green Lawngr-Graphics (BASF)	7.0	6.0	2.4	Blue-Gray Green
Green Lawngr-Lineman (BASF)	7.8	6.6	4.1	Green
Kameelyan-Bermuda (D. Ervasti Sales)	7.0	7.0	6.1	Green Blue
Kameelyan-Blue (D. Ervasti Sales)	7.0	7.0	7.0	Blue
Lesco Green (John Deere Landscaping)	8.4	8.0	5.4	Green
Mtp Turfgreen (Missouri Turf Paint)	7.0	4.3	1.3	Blue-Gray Green
Original (US Specialty Coatings)	7.3	6.9	5.3	Green
Regreen (Precision Laboratories)	7.3	7.0	6.5	Dark Green
Solarogen (Solarfast)	7.8	7.4	4.8	Blue-Gray Green
Southwest Green (Pioneer Athletics)	7.8	7.6	1.8	Black Green
Southwestern (US Specialty Coatings)	3.0	1.1	1.0	Dark Green
SprayMax (Harrell's)	8.1	6.0	3.9	Dark Green
Sugar Hill (US Specialty Coatings)	8.0	6.0	1.8	Black Green
Super Cover (J.C. Whitlam)	4.3	1.6	1.0	Blue-Gray Green
Green Turf (Burnett Athletics)	7.9	7.0	5.8	Green
Turf Cote (Poulenger USA)	1.8	1.0	1.0	Not Categorized
Ultradwarf Plus (Pioneer Athletics)	8.0	6.0	1.6	Green
Ultradwarf Super (Pioneer Athletics)	8.1	7.5	2.8	Dark Green
Wintergreen (Precision Laboratories)	7.0	7.0	7.0	Green Blue

Quality ratings are based on the color of the colorant on a scale of 1-9 with 1=staw brown to 9=dark green. Products categorized as Blue, Green-Blue, and Yellow Green had a maximum rating of 7.

FIGURE 2



Over time some colorants will shift in color from their appearance at application (inside boxes).

drawbacks to using a colorant. It does not provide a wearable surface like an overseeded grass. Once the dormant tissue is worn or torn away, there is no regeneration until spring. So, the “wear factor” must be considered if you get a lot of winter traffic. Also, divot sand in fairways or on tees may stand out more; although most of these products can also be used to color sand.

A common complaint heard is that some of the colorant-treated turf exhibited a bluish tint over time (some quicker than others) (Fig. 2). While this may sound like a negative attribute, in one survey many people did not mind the bluish color. Why blue? Well, often green color is produced by mixing blue and yellow pigments. The yellow pigments are generally not as stable as the blue pigments, so as the products age the blue tends to be the more dominant color. We also found that most of the darker, more bluish products held their color longer than the products that started out a more natural green color. The more natural green products tend to fade to a grayish color as they age. Reapplication can provide improvements for off-colored colorants, but once a product shifts in color, reapplication

may not result in a natural green color due to the base color. This is especially true for products that shift to a bluish color. In our research we have not been able to predict color longevity from year to year. The climatic influences on product performance have been a significant factor in this unpredictability.

There are a number of good products on the market, with more being introduced each year. Evaluating colorants has proven to be as challenging as evaluating grass cultivars. Our research has classified the products and shown that they can be an attractive and cost-effective alternative to overseeding. There are still opportunities for improvements to be made in terms of colorant color and longevity.

Acknowledgment

The authors greatly appreciate the financial support of the Turfgrass Center of NC State University and United States Golf Association (USGA) for trials in 2011-2013.

Grady Miller, Ph.D., is a turfgrass scientist and Drew Pinnix, M.S., is a graduate research assistant at North Carolina State University. Grady Miller can be reached at grady_miller@ncsu.edu for more information.

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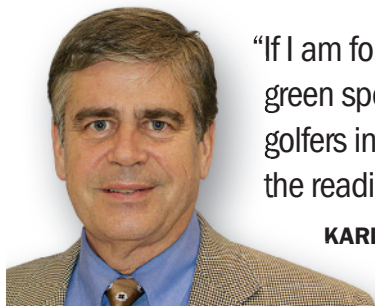
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"If I am forced to give an opinion, and putting green speed is of the greatest interest to golfers in general, I want to communicate the reading in some fashion."

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

Words and numbers

In a 1937 issue of *Golfdom*, Edward (Eddie) Stimpson wrote an article introducing the "Stimpmeter." An editorial note appeared just prior to the article that was somewhat dismissive of the use of the instrument, but said, "... there may be something to the device as an instrument for green keepers who might want to answer arguments about the speed and uniformity of their greens."

Edward Stimpson, an accomplished amateur golfer from Massachusetts, would over the following decades use his Stimpmeter to measure the speeds of putting greens, primarily in the New England area. His instrument never really caught on with the golfing public, which was left to its own imagination and words to describe putting green speed. They used words like blistering, slick, ice, red-hot and super-sonic to describe putting green speeds of the day. If they needed slow terms in the same sentence as speed, they would include "bristle brush," "mattress," "mallet," "lame," and my favorite, "shocking" (which can reflect both fast and slow.)

That all changed in 1976 with the release of the USGA Stimpmeter. Now golfers consider knowing putting green speed (the Stimpmeter reading) the most important thing to know about

a course. Golfers are no different than other sports fans or players; we like to quantify an effect with a number. However, a number that stands by itself does not resonate; it allows little to the imagination.

Baseball, a sport driven by numbers and statistics, uses a radar gun to quantify the velocity at which pitchers throw. Bob Gibson was a pitcher for the St. Louis Cardinals in the 1960s and was the most feared pitcher of his time. When columnists and baseball fans described Gibson's pitching, they used words like "jaw-breaking," "knee-buckling," "smoke," "mean," etc. It was left up to the imagination of the baseball fan to determine how fast and mean Gibson was. Now it's common to describe pitchers as those who can throw or not throw a 95-mph fastball.

I don't know how fast Gibson could pitch, but hearing one of his pitches de-

scribed as a "nasty slider" sounds much cooler than "84 mph."

In some golfing circles, discussion exists about whether Stimpmeter readings should or should not be made available to golfers. Given the number of talks and articles written on both the pros and cons, I can see both sides. However, if I am forced to give an opinion, and putting green speed is of the greatest interest to golfers in general, I want to communicate the reading in some fashion.

It's clear in Stimpson's *Golfdom* article that the editor did not believe that measuring green speed would catch on, and it would be too complicated for the golfer. But if you turn to the second page of the article and see the excitement for the golfers in the photograph watching Edward Stimpson demonstrate his Stimpmeter, I think you can see how golfers would come to embrace it. The reading enhances the anticipation a golfer has toward the upcoming round.

However, based on the premise of my Bob Gibson story, I want to see more than just a number posted. Why not add a few descriptive words? For example, "Today's green speed is a blistering 10 feet," or "Today's green speed is a little lame because of the rain and wet conditions — 8 foot 6 inches." Or create a category for a range of Stimpmeter readings, such as 9 feet 6 inches to 10 feet 6 inches is "slick," and greater than 10 feet 6 inches is "shocking."

We should present a Stimpmeter reading in a context that gives golfers more of a sense of anticipation, and include some creative wording that provides what a plain cold number does not. Maybe too, it might relieve some of the pressure on superintendents to deliver a number that is not sustainable for a golf course.

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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The California drought continues and continues

Mike Huck is a self-employed turfgrass consultant. While well versed in all aspects of turfgrass management, Mike focuses on turfgrass water quality and water management. Mike can be reached at mhuck@cox.net for more information.

Q Describe the drought California is currently experiencing.

Officially, California is entering their fourth consecutive drought year. Unofficially, the drought in the Southwest started in the late 1990s and has continued with only a year or two of modest precipitation. California started to feel the water crunch in 2000 when the Federal Bureau of Reclamation mandated California reduce the amount of water taken from the Colorado River by 2016 to meet the terms of a 1922 water sharing agreement governing the Colorado River.

Only a small amount of snow has fallen in the Sierra Nevada Mountains the last three winters, including 2015. Currently, reservoirs are about the same level as the spring of 2014. Snow pack in the Sierra Nevada Mountains provides much of the water used by the state.

The golf industry got involved in local water policy in 2009-2010 by proposing in Los Angeles to meet a targeted water use amount for each golf course by implementing water budgets.

Within the water budget approach, an individual golf course can use water for the course as they determine appropriate, provided water use does not exceed their annually budgeted amount. Budgets are adjusted based on drought conditions and local water supplies. Similar programs have now been initiated across the state.

“We all need to learn to tolerate a little brown and a little less total grass.”

Water use in California is controlled locally. There are approximately 430 water districts in the state. Each water district has different water sources and because of that, water quality, quantity and even drought restrictions vary by district. So far the water districts that include Santa Cruz in the north and Santa Barbara in the south have limited water use to the

greatest extent. There are golf courses in these areas experiencing a 50-percent reduction in their supplies and are the sentinels for the golf industry.

Q What steps have golf courses implemented to reduce water use?

Golf courses started by reducing irrigation of driving ranges and rough. That concept has continued by reducing the irrigated acreage of fairways in extreme cases. Some superintendents are hand watering tee tops only and not the tee surrounds.

Many golf courses in coastal California are converting from cool-season to warm-season grasses. Others have removed irrigated turfgrass and replaced it with low-water-use plants, creating a more desert-style golf course.

Q What has been the golfer reaction to these changes?

It varies depending on the location of the golf course. Golf courses in the Los Angeles area are embracing the necessary changes and are proud to be doing their part to conserve water. Golfers in the Palm Springs area are less enthused about the changes to save water at their golf courses.

Q What's coming in 2015?

Everyone believes more cut-backs are coming. They will most likely be announced by May after final snowpack data are released.

On the turf side, I think bermudagrass will be used more widely in southern California, winter overseeding will be reduced, more nonessential turf will be removed and drip-irrigated native plantings installed in its place. We all need to learn to tolerate a little brown and a little less total grass.

Q Anything else you would like to add?

For the first time, drought is putting pressure on recycled water supplies. In the past, golf courses could use an unlimited amount of recycled water. Now, those recycled water sources are being looked at as a way to recharge groundwater, or with advanced treatment blended back into drinking water supplies.



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

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NEW PRODUCT HIGHLIGHTS // COURSE ACCESSORIES AND IRRIGATION

IT'S TIME TO ACCESSORIZE AND GET WET

BY GRANT B. GANNON // Associate Editor

1. SpraySmart Marking Paint System

An extension to its existing marking paint wand, **RUST-OLEUM** has released the SpraySmart Marking Paint System. The reusable device self-monitors while maintaining spray pressure and operates on compression technology to spray marking paint using SpraySmart disposable paint pouches. The lithium ion battery sprays up to 48 pouches when fully charged. Each pouch is used until they are fully empty and can spray paint, available in 13 different colors, on any substance or any weather condition. The 10.5 oz. pouches are purchased by the case with 12 pouches in each box.

Standardgolf.com

2. Rolling Ball Picker

A new product for any practice area from **PAR AIDE** is the Rolling Ball Picker. This accessory allows the user to quickly collect up to 80 golf balls at one time and is a lightweight alternative to PVC collectors and shag bags that can damage turf. The 50-inch handle is attached to a rolling head that features 60 metal spokes that separate with little effort when picking up balls. When you have finished cleaning up, the balls are removed by manually separating the spokes.

Paraide.com

3. Hole Groomer

To add that crisp and clean look to the edges of your cup holes, **EAGLE ONE GOLF**

offers their Hole Groomer. This tool works by fitting the round blade inside the hole, with or without the cup installed. Then the user applies several quick squeezes to the handle, rotates through 90 degrees and repeats. Whether you change cup positions daily or you are looking for more professional looking greens, this accessory can help, the company says.

Eagleonegolf.com

4. FLEX800 Series golf sprinkler

TORO has added the FLEX800 Series golf sprinkler, which combines all of the qualities and benefits of the 800S and DT Series. Features of the new series include full-circle operation, with Dual Trajectory nozzle adjustment that provides consistent nozzle performance. The FLEX800 offers adjustable part- and full-circle operation with two key labor saving features — Ratcheting Riser allows riser alignment without disassembly and Nozzle Base Clutching provides “Turn-Hold-Shoot” of the nozzle base for hot spot watering. The series

provides nozzle flexibility, allowing 24 position trajectory adjustments to provide nozzle performance while fighting the wind, avoiding obstacles or reducing the radius. More personalized specifications are available with three satellite field control system choices as well as two 2-wire field control choices.

Toro.com

5. PACE Integrated Pump Controller

In the battle against decreased water availability, escalating energy costs and the need to increase productivity, the PACE Integrated Pump Controller is here to help. This control system from **FLOWTRONEX**, a Xylem brand, offers superintendents the ability to remotely monitor and control their pump station to reduce operating costs. It also allows you to generate reports and run diagnostics of the pump stations from key data. Users can access all parts of the control system from their smartphone through the PACE Integrated Pump Controller App.

xylemapplicwater.com

TIPS FROM OPRAH.COM

We're not the most fashion-minded guys here, so we went to Oprah.com for three tips on how to accessorize, and then added our own thoughts:

- **Wear something memorable.** We're big fans of the course logo on hats and golf shirts, because it reminds you of where you're currently employed.
- **Add something bold.** But please, not the Rickie Fowler hat. We're all too old for that look.
- **Don't let the finishing touch be overkill.** Somewhere between CEO and Carl Spackler.



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The 19th Hole with...

Josh Lewis

SUPERINTENDENT // Chambers Bay Golf Course, University Place, Wash.



After 18 holes, what's your drink of choice? An iced tea.

What was the last road trip you took? Victoria, B.C., was my last road trip/ferry trip.

What was the occasion? Speaking at the Western Canada Turfgrass Association's annual conference. Those guys are phenomenal. The guys in Canada have been so warm and welcoming and excited about the U.S. Open and Chambers Bay, it's like going and visiting family almost. And

Victoria is right up there with my favorite cities in the world that I've seen so far.

What's it like? It's surrounded by mountains — the Olympics, and you can kind of see the Cascades. It's coastal, so water everywhere. The city itself has a lot of history, British and French influence. I got to stay at the Empress Hotel — very old, very traditional. I'm a history guy, so very neat for me.

Who are your sports teams?

Oregon Ducks for college football, baseball and basketball. NFL, Chiefs; NBA, Trailblazers.



"DEPENDING ON HOW MR. DAVIS SETS THE COURSE UP, I THINK 16 WILL BE A GREAT HOLE — GREAT VIEW AND AN INTERESTING GREEN. NO. 17 IS A TERRIFIC AMPHITHEATER. THOSE CLOSING HOLES ARE GOING TO BE SPECIAL."



How did you become a Chiefs fan?

I just grew up that way, had some cousins who lived there and latched on to them.



It helped that I was a Joe Montana fan.

Well, Chiefs nation appreciates you sticking with us, especially with the Seahawks right there! It's been rough, let me tell you, but I'm a loyal guy.

Tell me about your family. My family is everything to me. My son learned a tough lesson recently when he took a

spill and broke his collarbone at the park. But he's on the mend. I'm blessed.

My family has been willing to move around and support me through my career aspirations. Especially my wife, Andrea, she's my best friend and my most valuable teammate.

What are your kids' names and ages?

Jones is my son, he's 8. Kate is my daughter, she's 5.

Did you say Jones? Yes, like your last name. That's my wife, she thought it up and we liked it. So we call him "Jonesy."

I like this kid! What movie is popular to watch with them right now? "Big Hero 6." They're hooked on it. It's got a good science backbone.

Sound travels pretty far at Chambers Bay... what's the funniest thing you've overheard?

Usually things I can't repeat, but from the walking trail. It's always interesting when you're on the other side of the golf course and you hear someone get a hole-in-one on No. 9. The sound that reverberates through the property is pretty incredible. I think it's going to make for some really good theater in June.

As interviewed by Seth Jones, March 26, 2015.

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Smithco.com