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WAS 2016?**

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TRUMP'S VICTORY
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Louis S. Quick, CGCS
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“We have had Klingstone in our bunkers now for 18 seasons and the only place we have had problems is where we tried to skimp on the product. Where we applied the product properly, the Klingstone has held up very well to the rains as well as the freeze/thaw cycles of the winter. Our original goal of reducing or eliminating the contamination of our bunker sand has been a success with Klingstone.”

Tim Johnson
SUPERINTENDENT
SPRING HILL GOLF CLUB, WAYZATA, MN

“In the fall of 2015 our course was flooded 3 times — 10” of rain in October, 14” in November, and another 12” in December. Our Klingstone bunkers performed GREAT throughout these floods!”

Jorge M. Croda, CGCS
(2015 FINALIST, TURFNET SUPT OF THE YEAR)
SOUTHERN OAKS GOLF CLUB, BURLESON, TX

“My members AND crew loved our bunkers this year. Given it was the wettest year ever, that’s saying something.”

Bob McCurdy
GOLF COURSE SUPERINTENDENT
COUNTRY CLUB OF DETROIT, GROSSE POINTE FARMS, MI

“When I took over the maintenance operation at Country Club of Detroit, I’ll admit I was skeptical of the Klingstone which had been installed a few years prior — but it really performs, I’m a believer!”

Ross Miller
GOLF COURSE SUPERINTENDENT
COUNTRY CLUB OF DETROIT, GROSSE POINTE FARMS, MI

“The final stage of our bunker renovation just started last week and I will help endorse your product to any superintendent who is going to be undertaking a bunker renovation. I have built and re-built many bunkers in my career and this product is superior to anything else on the market.”

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“We researched all the hardcoat liner systems prior to our full renovation. We chose Klingstone, with zero regrets — it does its job with no surprises, is simple and faster to install, and it’s less expensive!”

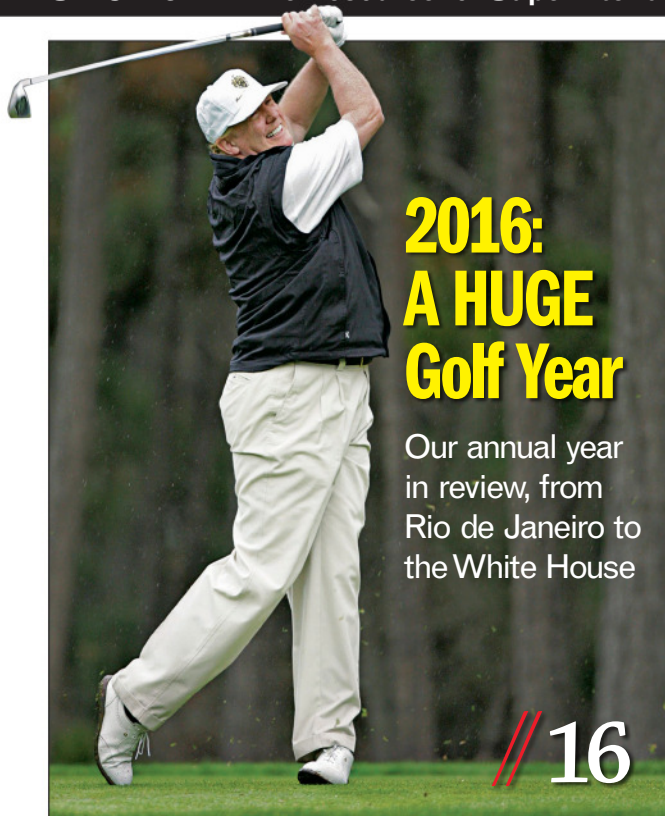
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“Why isn’t everybody using this stuff?”

Armen Suny
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CASTLE PINES, CO

www.klingstone.com

US Patent # 6,467,991



2016: A HUGE Golf Year

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John Blanch, General Manager, Thai Country Club, Bangkok, Thailand

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Ken Lochridge, Glen Head Country Club, Long Island, NY

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“No matter how polarizing he may be, we can’t shy away from the news of the day. Trump is a multi-course owner, he’s invested in the game and he’s the next president of the United States.”

SETH JONES, *Editor-in-Chief*

Waking up in the land of Trump

About a month before the election, an email went out to all the editors-in-chief at North Coast Media. The email, from our editorial director, asked: “What is your plan for covering the outcome of the presidential election?”

Of the six magazines, most had already done some type of story on where the two candidates stood on the respective industries they cover. My guess is that most of us EICs assumed it would be Hillary Clinton being sworn into office on Jan. 20, 2017. The email chain created a little discussion, then faded.

Out of curiosity I went back through my deleted emails and looked at my response to the query. In short, I wrote:

“If Trump were to win, *Golfdom* would have to cover that as a major news story because he’s a multi-golf course owner. If he loses, I think we go on about our day...”

Well, here we are. Trump

won. It’s a major story not just to our industry, but around the world. Some (the nearly 50 percent who voted for him) are excited for the change in Washington. Others (the nearly 50 percent who voted against him), are riddled with worry, for various reasons.

In my above scenario, I thought I’d be “going on about my day” the morning after the election. Instead, Associate Editor Grant B. Gannon and I were calling every Trump maintenance facility in America attempting to get comments, thoughts, predictions from our readers who now are employed by the president-elect. (We came up mostly empty — “confidentiality agreement” were the

words of the day.) We moved on to industry pundits, and that story (see page 24) did make it in this issue.

Not only are we, like most of the world, talking about Trump’s rise to the White House, we also immediately made the decision to put him on our cover. There was a lot of debate on this decision. Was it too soon? Will people see it as an endorsement of Trump? And so on.

No matter how polarizing he may be, we can’t shy away from the news of the day. Trump is a multi-course owner, he’s invested in the game and he’s the next president of the United States. Regardless of anyone’s political beliefs, it’s a fact that he is the

new Commander-in-Chief. He is clearly cover-worthy.

This story will continue to evolve and we’ll continue to cover it. We asked our readers in a survey (out now) what they thought about the election results and what they think it means for the industry. I guarantee that you will see that story in the next issue of *Golfdom*.

We can set aside politics to cover the industry. And we’re confident our readers can set aside their politics and follow along.

● For a few years in a row I used this space to rave about what a great year I just had, recapping my top moments in list form. I said you would stop believing me if I kept raving about how good every year is, but I just couldn’t help it.

Well, this year, I can help it... because 2016 was a difficult year. I’ll just mention quickly that I lost my mom, June, in May of 2016. She was a lovely woman who worked hard to help me get where I am today.

It’s natural for us to lose our parents as we grow older. I’m just stunned to have lost both my parents before age 40.

(And how many of you did I just stun by revealing I’m not yet 40? Yeah, I first started going gray in high school.)

But, good news: 2017 is comeback time. That column where I rave about how great the year was — it’ll be back in December 2017. Count on it.

Email Jones at:
sjones@northcoastmedia.net.

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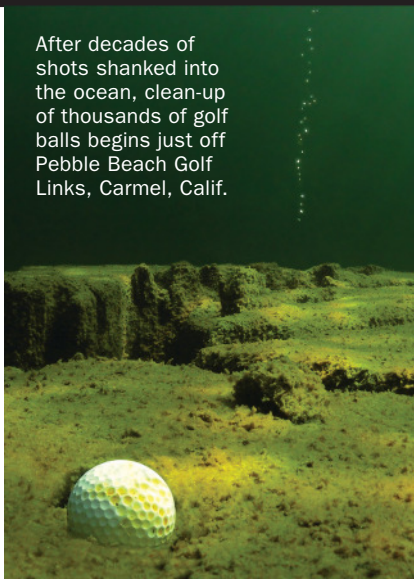
PEBBLE BEACH GOLF MAINTENANCE EXTENDS UNDER THE SEA



Golfers pay a pretty penny to shank shots off the gorgeous cliff-side views at Pebble Beach Golf Links, Carmel, Calif. The Pebble Beach Co. recently found out where many of those errant shots end up and are taking the initiative to clean it up.

Recently, two local high school students were free diving in a cove next to Pebble Beach and found the ocean floor covered with golf balls. The teens started to collect the balls — about 5,000 over six months — before deciding the situation needed more attention. With the help of their parents they reached out to the Pebble Beach Co. and the Monterey Bay National Marine Sanctuary (MBNMS).

After decades of shots shanked into the ocean, clean-up of thousands of golf balls begins just off Pebble Beach Golf Links, Carmel, Calif.



The Pebble Beach Co. was surprised to hear how many golf balls were hiding beneath the waves. Pebble Beach Co.'s Director of Environmental & Governmental Affairs Dawn Mathes told KSBW News that they have hired researchers, scientists and professional divers to help gather any remaining balls.

"You know we've had decades of scientific researchers, recreational divers out off the coast and no one has brought this to our attention, it's really these two students who have discovered something, and we are really quite proud of them," added Mathes.

Pebble Beach and MBNMS is working together to coordinate this initial clean-up and a plan for annual or semi-annual cleansing of golf balls from the Pacific Ocean.

//PAUSE ON PAYROLL

NEW OVERTIME RULE BLOCKED BY U.S. DISTRICT JUDGE

A federal judge has blocked the Department of Labor's Overtime Rule just eight days before it would have gone into effect.

U.S. District Judge Amos Mazzant in the Eastern District of Texas halted the nationwide rule that would have extended overtime pay to an estimated 4.2 million workers on Dec. 1 by issuing a temporary injunction.

"Due to the approaching effective date of the Final Rule, the Court's ability to render a meaningful decision on the merits is in jeopardy," Mazzant wrote in his 20-page order. "A preliminary injunction preserves the status quo while the Court determines the department's authority to make the Final Rule as well as the Final Rule's validity."

Michael Lotito, a labor attorney and co-chair of Littler Mendelson's Workplace Policy Institute, told TheHill.com the injunction allows Congress the time to consider a legislative solution, but went on to say that he suspects "this is not going to be settled before Jan. 20."

//GREEN THUMB

ZERO WASTE REAPS BIG REWARDS

The GCSAA recently named Josh Heptig, San Luis Obispo (Calif.) County Parks' director of golf course operations, its 2017 President's Award for Environmental Stewardship winner.



Josh Heptig

The award recognizes "an exceptional environmental contribution to the game of golf; a contribution that further exemplifies the golf course superintendent's image as a steward of the land."

Heptig is an industry leader for zero-waste management and has been working toward that goal at Dairy Creek GC. The initiative started by composting organic materials to the facility's food waste, and it eliminated 65,000 pounds of food waste from the landfill in its first three years.

//EXTRA SET OF EYES

Stoller USA offers aid to Hurricane Matthew victims

➔ It has been more than two months since Hurricane Matthew passed the Southeast Coast of the United States, and Stoller USA is lending a hand to green industry professionals who see turf damage from the storm in the coming months and years.

Jerry Stoller, Stoller USA's president and CEO, became concerned after seeing the damage and flooding caused by the hurricane in Florida, South Carolina and North Carolina. He decided to put together a task force designed to help green industry professionals like superintendents and farmers diagnose any disease or issue with which they may be struggling to overcome.

"There are going to be things that (superintendents) are not used to seeing," says John Fisher, research and

development associate at Stoller USA. "There will be stress situations that are going to be hard to identify, and we're experts in plant stress management. There's no job too big or small."

A Stoller USA representative will come out to a golf course to collect plant tissue, soil or water samples, and the company's expert will evaluate them to make an immediate, medium-term or long-term recommendation. Fisher says there will be no deadline to this offer, because damage can occur multiple years after flooding events similar to those caused by Matthew.

Fisher suggests that superintendents who need assistance contact a dealer or consultant through the company's website or reach out to Regional Zone Manager Chris Wilson at 346-221-1391.



THEY SAID IT

MATT SEITZ

GENERAL MANAGER, CRAZY HORSE SPORT CLUB AND GOLF COURSE, HUTCHINSON, KAN.

To *The Hutchinson (Kan.) News*, on the appetite of the goats recently brought in to clear out weeds.



"They love the weeds. Especially the poison ivy. I saw them running along and they just stopped and started gobbling it up. It's like candy to them."

GO FIGURE

160 MILLION

Amount of charitable dollars exceeded by the PGA Tour in 2015.

Source: PGATOUR.com

//JOINING FORCES

TORO ACQUIRES GERMAN-BASED IRRIGATION COMPANY

The Toro Co. has entered into an agreement to acquire Regnerbau Calw GmbH, a privately held manufacturer of professional irrigation equipment. The transaction is expected to close during Toro's fiscal 2017 first quarter.

Headquartered in Althengstett, Germany, and founded in 1925, Regnerbau Calw GmbH manufactures a variety of irrigation products under the Perrot brand, including retractable sprinklers for sports fields, impact sprinklers and coupling systems for agricultural fields and rain guns for industrial applications.

"This acquisition is consistent with our strategy to grow in the professional, water and global markets, and provides an expanded offering of professional irrigation solutions to better serve our customers," says Rick Olson, Toro's president and chief executive officer.

ABOUT THE COVER

Sports Illustrated contributor Robert Beck took this month's cover shot of President-elect Donald Trump taking a *huuuuge* swing at Pebble Beach. And guess what? No divot.





"For \$1,000 per person, a foursome would play one hole with the VP. My assistant John Kopack (code name Squirrel) and I (code name Fox) were to escort foursomes to and from the VP."

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

Politics and golf, or how I helped elect a Clinton

It was 1992. "Drug-Free Workplace" was the catch phrase. Space shuttles still flew. The Dow was at 3,200 and gold was \$345/oz. Bill Clinton and Al Gore were running against President George "41" Bush and Dan Quayle. Look it up, Millennials.

Gore and Quayle had some great TV debates. Gore was talking "change" and Quayle was calling Gore and Clinton "liars." Sound familiar?

I was working at Alaquá Country Club in Longwood, Fla., which hosted high-end outside events. In '92 it was a Republican fundraiser featuring Quayle. For \$1,000 per person, a foursome would play one hole with the VP. He would play the course in proper sequence. My assistant John Kopack (code name Squirrel) and I (code name Fox) were to escort foursomes to and from the VP. Yep, think of something that rhymes with "rusty truck."

Director of Golf Gary Ellis, MPGA, was nervous, and should have been. He

exchanged a logoed shirt the GM had picked out for the VP for a different shirt. So instead of the club getting some press, "BOHICA" discreetly was on the left sleeve. When Quayle showed the owners he told them it stood for "Bend over, here it comes again." (Old Army term, I'm told). Owners hated it, VP loved it, and off we went.

The scramble took six-plus hours with 72 golfers. Getting foursomes to the right place at the right time barely worked (rusty truck). So much security everywhere.

At the end, handshakes were exchanged, photos taken and there was a big sigh of relief. As the Secret Service is briefing the VP, he tells the lead agent he wants to go to

the Orlando Magic game that evening, and that he is going to play more golf with Gary, me and his good friend Randy. The agents listed several reasons why these were not good ideas. They lost. Rusty truck.

So Gary and I were now playing golf with the vice president! The game was a modified alternate shot; the wager was a buck a hole. I have to share Gary's clubs and play barefoot. We start well when I roll a birdie on No. 1. On No. 2, a 160-yard par 3, we end up using my shot on the approach short of the green. Gary steps up and blades it... into the hole! Two up. The VP was not happy, kind of like when he was debating Gore.

Secret Service was everywhere, in golf carts, Subur-

bans, vans and Crown Vics. The agents in carts were over the top. We couldn't get within 40 feet of the VP's cart, but I could stand right next to him on the tee. With a club in my hand!

On every hole the lead agent reminded the VP, "They are ready for you in the clubhouse, sir." And on every hole the VP said, "One more hole." That went on for about an hour.

By then we had lost a couple and halved two holes; all square on the 6th tee. This would be our last hole, for \$1 and bragging rights. No drama, just another chip-in. This time it's me! They pay up, and it's off to the clubhouse to find an extremely angry crowd. They collectively paid more than \$80K to play with the VP. Gary made sure the crowd knew exactly what happened when he showed them the dollar bill the VP had signed. I love that guy. The VP spoke for a few minutes, and then he was off to interrupt rush hour traffic on I-4 for about 15 miles. Rusty truck.

The rest is history. Clinton and Gore win the election that year. I'm not convinced the events that day changed the Orlando area from red to blue; things have happened since then. We had a great day, got a great story to tell... even if I helped elect Bill Clinton. #justsaying.

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

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Golfdom Gallery

1 Little Lucy While visiting Wayzata (Minn.) CC, Superintendent Jesse Trcka's lap was invaded by his furry friend, Lucy.

2 What are you drinking? (L to R) Liz and Russ Mitchell, director of Specialty at Albaugh Inc., George Furrer, director of Specialty Business with Sipcam Advan, and Toni and Jerry Corbett, Turf Tech account manager, Albaugh Inc., enjoy the music at sister publication *Landscape Management's* 4th Street Live party.

3 Who's the chief chief? Editor-in-chiefs Seth Jones, *Golfdom*, and Marisa Palmieri, *Landscape Management*, take a photo at LM's party.

4 Frosty visit There was frost on Wayzata CC the morning *Golfdom* came to visit. It was just Trcka with Frost Inc. Spray Technologies CEO Ken Rost.

5 Graduation day Assistant Superintendent Connor Galea proudly shows off his 2016 Green Start Academy certificate he brought home to the San Francisco Club.

6 Cameron crazies Billy Weeks (third from right), superintendent, Duke University GC, leads his team of assistants (L to R) Sadler Stowe, Duke University GC, Noah Ervin, Louisville CC, Ian Gallagher, Barrington GC, William Sinclair, The Adena G&CC, and Kristopher Negley, The Clubs of Cordillera Ranch, in the annual Green Start Academy golf challenge.

7 Take me out to the ballgame The Royals were in Cleveland so naturally *Golfdom* team members Kelly Limpert, digital editor, Grant B. Gannon, associate editor, Jones, and Craig MacGregor, associate publisher, caught the 4-3 Indians victory.

8 Major League evening Speaking of the Indians, they may have lost Game 7 of the World Series, but Publisher Pat Roberts made sure that Charlie "Rick 'the Wild Thing' Vaughn" Sheen was there to support the Tribe.



PHOTOS BY: PAT ROBERTS (1, 2, 4); GRANT B. GANNON (5, 6); PETE SELTZER (7)



"While (Stone's) career may be ending, many more career paths have been paved. My career is one of them."

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

Mr. Stone, thank you

This month marks the end of an extraordinary career for David Stone. He will be stepping aside as the golf course superintendent of 34 years at The Honors Course in Tennessee. While his career may be ending, many more career paths have been paved. My career is one of them. I am fortunate to have the unique platform and opportunity to publicly say "Thank you" to a man I highly respect and to whom I owe much.

I could list Stone's accomplishments but there is no need. Being the only superintendent to be inducted into the Tennessee Golf Hall of Fame and a recipient of the USGA's Green Section Award speaks for itself.

As a turf student at Purdue University, my professor and I were trying to figure out plans for my next internship. I had finished my first internship and was unsure if something could top that experience. He thought I should go to The Honors Course and work for David Stone.

That decision would forever change the course of my career. David allowed me to do an educational internship with him in 2004. I learned

much during my brief time with him and his wisdom helped shape who I am today.

David taught me the importance of playing golf as part of managing the grounds. He would say, "You have to play the course to know what the golfer is experiencing." Playability was more important to David than just the aesthetics.

When I arrived at The Honors Course to begin my internship, David was there to greet me and show me where I would be staying. The first question he asked me after my 8-hour drive was, "What is your handicap?" He proceeded to inform me that they needed to put the index in for the next day's game.

Game? I was ready for my 14-hour work day! Needless to say, I was shocked to learn that every Monday after lunch the entire staff played in a golf game organized by Stone. While the game was fun, it put into perspective to the staff the playability of the course.

He taught me to try new things, test new products and research new practices. I once came up with a plan to use different fertilizers that I thought would create a better color response to his zoysia fairways. He had only been managing them for 20 years.

I could tell he knew what my results would be, but he let me put out the test plots and give it a go. Four weeks later I

had to go into the office and admit my shortcomings. The results of my plan were exactly what he knew was going to happen. But he let me learn and had encouraged it.

David may be known for his love of the game, love of the environment and for being an ambassador for golf, but he will also be known for his mentoring. He mentored me that summer, but mentored Nelson Caron, one of his assistants, for many years. Because of Stone, Nelson became the superintendent at The Ford Plantation. I went on to work for Nelson, where I continued to be mentored and groomed for my current position. David and Nelson taught me the importance of reaching out to others in the industry for education and mentoring opportunities of my own so I could experience the ultimate level of growth in my career.

Mr. Stone, as you retire, remember all of those on which you have had an impact. Remember the many people who have played your golf course and walked away with a smile and a memorable day. Remember those who have had their lives changed because of you. Remember us, because we will remember you.

Thank you, Mr. Stone. I would not be where and who I am today without you.

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

The Golfdom



FROM THE ARCHIVE

In the October 1958 edition of *Golfdom*, superintendents were asked to dream the impossible dream. What would they do, they were asked, with an unlimited budget? An unidentified greens chairman had recently attended a superintendent meeting and posed the same question to attendees. The *Golfdom* staff compiled the answers for the "Planning & Reference" issue.

The following turf professionals from almost 60 years ago had answers similar to those of their modern-day colleagues: They would replace old equipment or add a new irrigation system. We doubt anyone would request a mahogany-paneled office today. To read the full article, visit golfdom.com/exclusive.



Unlimited budget! Well, a superintendent can dream, can't he?

WOULD DISCARD OLD EQUIPMENT

The remarks of Tom Leonard, superintendent of the Muskogee (Okla.) CC, are typical of those who say that if they were given a free ticket, the first thing they would do is replace worn-out equipment. "Our tractor is 20 years old. Parts for it are hard to find and so we have to spend many winter hours beating it into some kind of shape so that it will last another season; the same thing is true of our spraying machine," says Leonard. "If I had an unlimited budget, equipment is the first thing I would buy because in the long run I think I would save the club money by doing so."

"That isn't all," Leonard continues. "I seriously doubt if many superintendents ever get as much money to spend for fertilizer and chemicals for various controls as they'd like. I could spend at least 50 percent more than I do for these materials."

HE'D HELP HIMSELF

A Virginia superintendent who prefers to remain nameless says that several jobs that his staff undertakes around the club

could be done more professionally by specialists brought in from the outside. If he were given sufficient funds to do so he would immediately hire a mechanic to handle maintenance of equipment, because in his estimation this is the most pressing need at practically all medium-sized or large courses. And probably because he is wearing the cloak of anonymity, the Virginia superintendent adds that he would increase his annual salary to about \$12,000 and provide himself with a house, utilities and automobile.

WANTS SPRINKLERS INSTALLED

L. R. (Bob) Shields, an acknowledged master at living within the allotment dollars and who is custodian of 36 holes at Woodmont CC, Rockville, Md., would, if given a free hand, build huge storage ponds on the club property to catch winter rains. Then he'd install what he calls "one of those California automatic sprinkling systems." After that, he'd landscape every tee on the course and hire a gardener just to look after the tees.

If Bob had his way, his labor force would be doubled and there'd be more specialization among members of his

staff. For himself, Shields says he'd like to transplant the mahogany-paneled office Mai McLaren has at the Oakwood Club in Cleveland, Ohio.

IDEAL MAINTENANCE STAFF

The ideal maintenance staff for James A. Morrison at the 36-hole Philmont CC, Huntington, Pa., should be made up of a foreman, mechanic, three drivers, six greensmen, two utility men and two night-watering men. As for capital improvements and the purchase of heavy equipment, Morrison feels that clubs should have a program whereby the need for these things are reviewed at least every five years.

However, a Michigan superintendent at a 36-hole club, who prefers to remain anonymous thinks that a course of this size should have a staff of at least 20 men. This is particularly true at clubs where members demand that tees be maintained as well as the greens. This superintendent would use part of a staff of this size in maintaining a large nursery, because the need for replacement turf is becoming a very important one considering what is being required at first-class clubs these days. A large part of an unlimited supply of funds, the Michigan man maintains, would go to increasing wages, providing uniforms for employees and giving them more benefits than they are now getting.



“I would argue that the driving force in golf right now is tournament golf, but in all honesty, how many golfers play to that level?”

SEAN TULLY, superintendent, Meadow Club, Fairfax, Calif.

Because we can doesn't mean we should

Golf architecture and technology are areas that demand something of each other. In our drive to play better and hit the ball farther we see golfers with the latest and greatest equipment and swing theories to make that happen. While the ball is going ever farther and courses are getting longer and harder to protect par, we're also seeing technology on our side of the ball having an impact on the game that isn't being fully recognized.

The tools we have available today can have an impact on the game, and in some cases they can neutralize attempts to lengthen a course and/or protect par. In the last five to 10 years we have seen maintenance practices shift back to favoring playing conditions over the actual appearance of the golf course, which most often is described as how green and lush a course looks. We have been told that the golf ball and equipment advances have leveled off, but we still see the ball going farther. Are we part of the problem?

Mower height of cut (HOC) has gone lower, not only on the greens but on the

fairways, as well. In combination with reduced water use, tighter management of fertilizer and plant growth regulation, the conditioning found on most courses has continued to improve. Fairways have been narrowed to challenge golfers but at the same time have been firmed up and in some cases cut lower, which together works to nullify any additional length added to the course to counter the ball going farther.

How tight to mow fairways is dependent on any number of issues, including grass types, management practices and potential stress. We should consider how HOC impacts the game, our inputs,

the stress the turf can handle and how much more potential stress it puts on us as managers. Just because we can mow fairways at lower heights doesn't mean we should.

As fairway widths have been reduced the total area of rough has increased. In conjunction with the lower fairway height of cut has occurred an increase in the number of step cuts to allow for the lower fairway height of cut and the transition to the longer rough. A recent U.S. Senior Open featured seven different heights of cut to allow for rough to act as a deterrent to shots offline, but it still required some fairness in not having the height of

cut go from fairway to rough directly.

I would argue that the driving force in golf right now is tournament golf, but in all honesty, how many golfers play to that level? Tournament golf is not something that should be played every day, although there are some who want to see that become the norm.

At the highest level of the game the pros play tournament golf week in and week out, but what happens to that course after the PGA Tour leaves? The rough gets mowed down, greens slow back down and all the volunteers go back to their own courses. Tournament golf is where events are specially prepared for a given week and then scaled back for regular play after the event is gone. When did the idea of country club for a day morph into tournament conditions every day?

With all the advancements in technology in golf and golf course management, and with the idea of defending par by making the course play longer and harder while providing perfect conditions, we have lost sight of what made golf so special — simply having fun. How can we grow the game when all we are doing is making golf harder and more expensive for the golfer to play the game, and while our costs to maintain a course only continue to increase?

Sean Tully is superintendent at the Meadow Club in Fairfax, Calif. He can be reached at stully@meadowclub.com or followed at [@tullfescue](https://twitter.com/tullfescue).



On election day 2016, golf history was made when a multi-golf course owner was elected president. Donald Trump's course in Bedminster, N.J. will host the 2017 U.S. Women's Open.

HOW BIG WAS 2016?

HUUUUUUUGE!!!

STORY BY KEN MOUM

With additional commentary by Seth Jones and Matt Neff

Strange weather, strange rulings and a strange election... 2016 had it all. ¶ From the highest of highs (the United States wins the Ryder Cup, finally) to the lowest lows (when Mr. Arnold Palmer died just a few days before the Ryder Cup began), 2016 was an absolute roller coaster. We had our favorite moments, like the fan in the crowd at Hazeltine who showed Rory how to knock down a tough putt. And we had moments that drove us crazy, like the new overtime labor rule that (we think) goes into effect this month. ¶ What's that? A federal judge in Texas granted a preliminary injunction against the FLSA overtime rule? Yes, this is a roller coaster crazy year...

JANUARY

Combining the expertise of ASGCA member architects and USGA agronomists, scientists and researchers, a new program provides pro bono consulting services to facilities that need assistance to make their layouts more enjoyable and reduce their maintenance costs. Canal Shores GC, a community-owned and operated facility in Evanston, Ill., is the first golf course to receive the service.

Judy Bell, the first female to serve as president of the USGA, is named recipient of the 2016 Bob Jones Award.

After only one year of his Fox TV deal, Greg Norman is replaced by Paul Azinger on USGA broadcasts.

The Shark is sunk yet Johnny Miller still swims? No justice.

FEBRUARY

The PGA Tour promises to contribute \$250,000 over five years to GCSAA to help implement Best Management Practices models for golf courses, with a focus on localities and states in which PGA Tour events are held.

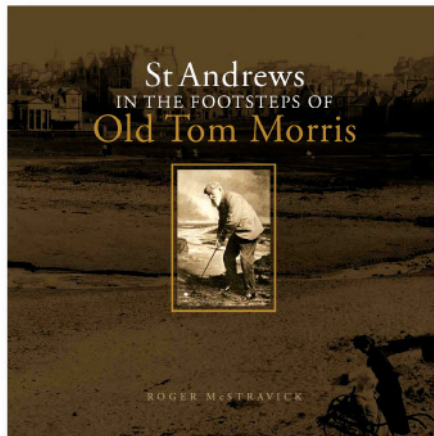
We hope some of that money has been earmarked to cover mental health assessments for local superintendents who spend the week listening to members compare their course to the local Tour course.

DONALD TRUMP
MAY HAVE
MADE THE MOST
HEADLINES, BUT
HE WAS JUST
ONE PART OF A
STRANGE YET
FASCINATING
GOLF YEAR.

Continued on page 18

**FLOODING
IN TEXAS,
LOUISIANA,
WEST VIRGINIA
AND OTHER
STATES AGAIN
BROUGHT THE
INDUSTRY
TOGETHER.**

Golf fans didn't know much about Danny Willett before the Masters. By the Ryder Cup, everyone knew he has an annoying brother.



Continued from page 17

Roger McStravick's book, "St. Andrews: In the Footsteps of Old Tom Morris," is honored by the USGA as the winner of the 2015 Herbert Warren Wind Book Award.

It's ironic that golfers find the words of a superintendent from 150 years ago so interesting, yet the words of today's superintendents — like "carts on path only" — so easily ignored.

After several second-place finishes, Shawn Westacott, superintendent at Maridoe GC in Carrollton, Texas, has a GCSAA National Championship. Playing Aviara GC and the South Course at Torrey Pines, Westacott cards a two-day total of 5-over-par 149, four shots better than fellow Texan and defending champ Matt Cowan.

The bunker, divot, and ball mark crews literally had nothing to do the next morning.

Mark Condos, superintendent at Las Positas GC in Livermore, Calif., is named Overall and National Public recipient of the 2015 Environmental Leaders in Golf Awards, presented by GCSAA and *Golf Digest* in a partnership with Syngenta and the Rain Bird Golf Division.

MARCH

Lydia Ko, the 19-year-old phenomenon from New Zealand, begins the year with a major win at the ANA Inspiration, becoming the youngest woman to win two majors. Later in the year, she would win the Olympic silver medal in Rio.

#IRememberWhenIWas19

Flooding happens early and often around the country, and golf courses in a variety of locations are severely hit. It starts in Louisiana with a multi-day heavy rain event that dumps just shy of 27 inches south-southeast of Monroe. The flooding also sweeps through Arkansas, Mississippi, Tennessee, Texas and other states.

APRIL

Just when it looks like Jordan Spieth is on his way to back-to-back Masters wins, he starts his Sunday second nine bogey, bogey, quadruple bogey to fall a shot behind Englishman Danny Willett. Willett birdies 13, 14 and 16 to cruise to a three-shot victory over Spieth and countryman Lee Westwood.

#SonofaNutcracker!

Speaking of the Masters, there were a record nine holes-in-one in the Masters Par 3 Tournament, including back-to-back aces on the same hole by Justin Thomas and Rickie Fowler.

Golf snobs decry the ANGC par 3 course's feeble defense of par.

Continued on page 20



PHOTOS BY: SETH JONES

13

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**INDEMNIFY,
NIMITZ,
MATCHPOINT
AND DIVANEM
— SORRY
NEMATODES,
2016 JUST
WASN'T
YOUR YEAR.**

Continued from page 18

South Texas again sees flooding when 10 to 20 inches of rain falls over the north and west sides of the Houston metro. Houston has back-to-back spring rainfall totals of 26.61 inches in spring 2015, followed by 24.84 inches in spring 2016.

MAY

National Golf Day is celebrated May 18.

Baby Boomers celebrated by playing. Gen Xers celebrated by working but wishing they were playing. Millennials celebrated by gazing at their phones all day.



Larry Powell

Larry Powell, the 64-year-old superintendent who spent his life tending to the dream of his father, Bill Powell, at Clearview GC in Ohio, is one of four inductees into the National Black Golf Hall of Fame.

JUNE

A couple whose work has had an impact many superintendents over the last 32 years, Jim Moore, USGA director of Green Section Education, and his wife, Kay, an administrative assistant for the Mid-Continent Region, officially retire. Jim was instrumental in the 2004 revi-

Flooding at the Greenbrier Resort in White Sulphur Springs, W.Va.



sion of "USGA Recommendations For a Method of Putting Green Construction."

Dustin Johnson wins the U.S Open at Oakmont in one of the most bizarre and controversial occurrences in golf. His ball moved on the putting green, he told a walking official, who asked him if he caused it to move. Johnson said no, and the official said there was no penalty and told him to replace the ball before continuing. But after looking at video evidence, the USGA believed Johnson's action caused the ball to move. They told him about it several holes later, and despite the uncertainty of his score, Johnson goes on to win.

Say what you will about the USGA's handling of this situation, but all we know is that DJ's approach to 5 feet on 18 was absolutely gangster.



Indemnify, Nimitz, and soon, MatchPoint and Divanem — the arsenal against nematodes is reloaded.

Millions of nematodes immediately join the "If this happens, I'm moving to Canada," bandwagon.

Flooding in West Virginia kills 26 and ravages the Greenbrier Resort. The extensive damage to the Old White course forces the cancellation of the PGA Tour's Greenbrier Classic.

JULY

In the final round of The Open Championship at Royal Troon, Phil Mickelson and Henrik Stenson play inspired golf, with Stenson making 10 birdies on the way to a closing 63 and a three-stroke win. Mickelson finishes 11 strokes clear of third. Amazingly, Mickelson's 17-under total would have won all but four of

the preceding 144 Open Championships.
What are the odds? Let's ask Phil.

A joint statement issued by the USGA, PGA Tour, LPGA and PGA of America says that golf does not share presidential candidate Donald Trump's views on Mexican immigrants and that the game has an "inclusive and welcoming environment."

This will all blow over once Trump loses in November... right?

Only a month after the rules "situation" at Oakmont, yet another controversy arises at the U.S. Women's Open. Anna Nordqvist and Brittany Lang tie through 72 holes at CordeValle GC in San Martin, Calif. They head out for a three-hole playoff, but after playing the third hole of the playoff the USGA determines that Nordqvist touched the sand in a fairway bunker. Nordqvist is penalized, and Lang wins her first LPGA major by three shots in the playoff.

Jimmy Walker survives Jason Day's closing eagle at Baltusrol to win the PGA Championship, his first major.

Wait, no controversy? Can we get a ruling on this?

AUGUST

For the first time since 1904, golf is an Olympic sport. Superintendent Neil Cleverly and staff overcome mountains of red tape to grow-in and prep the Gil Hanse-designed Olympic Golf Course for the best players in the world. Great Britain's Justin Rose and South Korea's Inbee Park both win gold.



Nike announces it is leaving the golf club/ball market.
Tiger Woods now in talks with Spalding.

Longtime superintendent Paul R. Latshaw is named the recipient of GCSAA's 2017 Old Tom Morris Award. He is the fourth superintendent to win the award and the first living superintendent to win since 2002 (Walter Woods).

And the Palmer Maples supporters suddenly have hope again.

Toro launches the "Every Day. Everywhere. Every Drop Counts." grant program to further awareness of water-use efficiency and to support nonprofits' efforts in water conservation.

SEPTEMBER

Stanford University senior Maverick McNealy, a member of the 2015 USA Walker Cup Team, wins the 2016 Mark H. McCormack Medal for being the leading amateur in the World Amateur Golf Ranking.

Continued on page 22



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Continued from page 21

Because having a cool name, serious game and a degree from Stanford just isn't enough.



Rich Sweeney of the Plant Food Co. (right) talks to John Daly about career opportunities on the turf side of the business.

The preview for the 30 for 30 ESPN film "Hit it Hard," about the life of John Daly includes video of Daly mowing fairways. *Big John would fit right in on a couple crews we know.*

In Gee Chun wins the Evian Championship, the fifth and final LPGA major of the year at the Evian Resort Golf Club. *She will never need to pay for bottled water again.*

GCSAA, which was formed Sept. 13, 1926 by Englishman John Morley to further greenkeeping ideas among middle America golf courses, celebrates 90 years as one of the most important organizations in the game.

September 25, a sad day for golf: Arnold Palmer passes away at age 87. It seems everyone in the golf business has a personal story or memory of this great man.

All hail the King!



OCTOBER

Textron Specialized Vehicles and Jacobsen, both Textron companies, confirm they will combine their operations at facilities in Augusta, Ga., by the end of 2017, closing Jacobsen's operations in Charlotte, N.C.

Hurricane Matthew hits the southeastern U.S. hard, wreaking havoc in Florida, Georgia, South Carolina and North Carolina. Winds gusts upward of 90 mph are reported in Florida and 15-inches-plus rainfall totals are reported in North Carolina.

The Turfgrass Information Center of the Michigan State University Libraries receives a major donation of turfgrass industry materials from the family of the late James R. Watson, Ph.D.

Turfnerds can now honestly say they "have plans" on Saturday night.

In the lead-up to the Ryder Cup, Pete Willett, brother of Masters Champion and European team member Danny Willett, writes a scathing blog post that pokes fun at American golf fans.

If "baying mob of imbeciles" means "crazed supporters of the winning team," then guilty as charged, old chap.

Hazeltine superintendent Chris Tritabaugh and his crew receive acclaim for exceptional course conditions at the Ryder Cup. Tritabaugh also gains attention (and followers) for his comprehensive Twitter feed.

NOVEMBER

Multi-golf course owner Donald Trump wins the presidential election over Hillary Clinton, who was considered the favorite by many pundits.

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Actual spring photo by a Superintendent — not retouched!



PHOTO BY: SETH JONES

Speculation of what a Trump presidency could mean for golf runs rampant. How many courses will add waterfalls?

Rick Olson officially becomes the CEO of Toro. He was promoted from president/chief operating officer and succeeds Michael Hoffman, who will remain as chairman of the board.

In honor of the University of Georgia-Tifton campus celebrating its 100-year anniversary in 2018, an ongoing effort begins to find all golf courses that are using or have used Tifton-released grasses. (Contact Duncan McClusky, mcclusky@uga.edu.) Some of the varieties developed at Tifton include Tiflawn, Tiffine, Tifgreen, Tifway, Tifdwarf, Tifton 10 and TifEagle.

The FLSA overtime rule that would increase the exemption threshold of salaried workers to \$47,476 is put on a preliminary injunction by a federal judge in Texas.

What's that noise? Oh, it's the sound of money being sucked out of the payroll budget and back in the chemical budget.

DECEMBER

Josh Heptig, director of golf course operations with San Luis Obispo County Parks in central California, is named winner of the 2017 President's Award for Environmental Stewardship. A proponent of zero-waste management, Heptig's efforts kept 65,000 pounds of food waste out of local landfills over a three-year period.

The 2016 *Golfdom* Summit goes off without a snag until *Golfdom* Associate Publisher Craig MacGregor is handed a set of virtual reality glasses, then goes missing for three days before eventually being found wandering around a Florida swamp.

This is actually a prediction — we went to press before the Summit. But there's a good chance it could happen. **G**

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WHOSE HOUSE?

Surprising all the pundits, Donald Trump has won the presidency. What does having a multi-course owner in the White House mean for the industry?

BY SETH JONES



Election Day 2016, Hillary Clinton versus Donald Trump. The polls all showed the White House would be Clinton's.

But as the saying goes, 'That's why they play the game.'

"I liken it to a sporting event where, going into the game, you think it's going to be a blowout," says Rhett Evans, GCSAA's CEO, of the way he viewed this election. "Throughout the night things started shifting, you saw the momentum go over to the

underdog, it's like one team was making baskets and the other had gone cold. All of a sudden Trump has Ohio and Wisconsin.

"I wake up early the next morning and (Trump) pulled it off," Evans continues. "I guess I should have stayed up for overtime."

Even though the underdog pulled off the upset, the associations that represent golf are not unprepared. Also, they're hopeful that a Trump administration could be a much friendlier regime for the game of golf.

TRUMP'S HOUSE.



A different look

Washington D.C.-based Responsible Industry for a Sound Environment (RISE) is an association that represents the specialty pesticide and fertilizer industries. Aaron Hobbs, the association's president, says that while the water cooler talk the day after the election was mostly about the surprising Trump victory, the association itself was prepared for either candidate.

"We participated in both conventions and interacted with agriculture teams on both sides," Hobbs says. "Re-

gardless of what happened we were ready to work with the transition teams to make our industry known to them."

Hobbs says it is too early to tell exactly what Trump's win means for his members, but he says he's hopeful because Trump's administration is more business aware and realizes the impacts of regulations on the chemical industry.

"We feel pretty comfortable that the things we care about will get a different look under the Trump administration than we thought they would get under the potential Clinton

Continued on page 26

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administration," Hobbs says. "The president-elect is a businessman. We think the tone of his administration will be a respect for



Aaron Hobbs

business. An administration with a more intimate and personal knowledge of what regulation means to industry business will give us at least a more receptive audience to the challenges that we face and our customers face to do their jobs."

Evans, calling this a "change election," agrees that a Trump White House will be friendlier to the business of golf.

"I think that Clinton's agenda vs. Trump's agenda, when it comes to issues that we're currently combating and working to a common solution on such as WOTUS, I think we'll see a night and day difference," Evans says. "If you started going down the list of those items that we are currently watching and looking after like nutrient bans, pollinator issues, pesticide regulations and water, etc., I think President Trump and his administration will be much more open to looking at the science and the facts. Some members of the current administration thought that golf was a waste of resources. I think that will change."

"I THINK PRESIDENT TRUMP AND HIS ADMINISTRATION WILL BE MUCH MORE OPEN TO LOOKING AT THE SCIENCE AND THE FACTS."

WOTUS, overtime and immigration

Trump's campaign made many promises, from building a wall on the U.S./Mexico border to "locking up" Hillary. Only time will tell what policies he pursues early on, but a few issues that directly affect golf could be reversed early on, namely Waters of the U.S. (WOTUS) as well as the new overtime rule that went into effect on Dec. 1. Meanwhile the future of immigration and the deportation of illegal immigrants remains a question mark.

"Due to our leadership being heavily engaged with the Republican Congress on WOTUS, it has been an issue that has gotten attention from the Speaker (of the House, Paul Ryan) as well as from the (Trump) campaign," Hobbs says. "We feel pretty confident that we will get a really good look at what that means as an



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impact of the regulation not only on our business but the other industries that are impacted by a rule that we never supported. I can't think of anyone who thought (WOTUS) was done well."

Evans and the GCSAA are prepared for the Fair Labor Standards Act (FLSA), which ups the threshold of overtime pay to \$47,476 for salaried workers, to go into effect on Dec. 1. He says that while he agrees that people should be paid what they're worth, the FLSA was too much too soon.

"The challenge with this new rule was how quickly it was placed into effect and the jump in terms of the salary amount and the fact that it wasn't looked at from a regional perspective,"



Rhett Evans

Evans says. "My gut tells me once Trump gets in (office) that this is something that he and his administration will look at and see the ramifications that it has had or may have on many businesses and come up with a better way to administer this. I think he'll listen to small businesses and my gut tells me that it could be overturned."

Lastly, Trump's strong stance on undocumented workers could have a lasting effect on the workforce. In his immigration policy speech given on Aug. 31, Trump said he would create a taskforce to deport undocumented people living in America and would triple the number of Immigration and Customs Enforcement deportation officers.


According to a 2015 Pew Research Center study of undocumented workers in the U.S., 24 percent of all workers in the landscape industry were undocumented in 2012. With lack of labor being a constant concern of golf courses around the U.S., the work pool could shrink even more. This is a topic *Golfdom* will cover more in-depth next month.

Golfer-in-Chief

It's interesting that the White House goes from an avid golfer (Barack Obama) to a multi-course owner in Trump. But as we've learned, just because they're players, doesn't mean they'll show love to the game.

"Our current president is an avid golfer and we've had some pretty challenging times under his EPA," Hobbs says. "There's no guarantee (Trump will be golf-friendly.) If history is our guide, I don't think that we can make the assumption."

Both RISE and GCSAA will continue with their priority issues agenda as planned, focusing on the needs of the industry.

"While he is an owner and operator and golfer, we have to make certain that he understands what we represent and who we represent in this golf industry," Evans says. "If you look at golf across America, we have almost 76 percent of those facilities open to the public and the average greens fee is \$26. We have to make certain early on that his administration understands all the facets of what we're trying to do as an association, from higher end clubs, all the way down to those being run by a single small operator." 

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What's new at GIE+Expo

From products that help save the earth to products that help save money — it was all at the 2016 GIE+Expo show.

BY SETH JONES

After a one-year break (or maybe ban, who's to say?), I made my return to the Green Industry & Equipment Expo in Louisville, Ky. I mostly attend in a support role for our sister publication, *Landscape Management* magazine, but there are plenty of familiar faces from the golf industry there as well.

This year the show offered golf maintenance professionals a golf-specific educational track. Sadly, not much of a turnout, with a little less than 100 people in the room despite almost 200 pre-registered as golf industry pros. The selection of speakers was great (including Oakmont's John Zimmers and Oak Hill's Jeff Corcoran), so I'll blame the low turnout on the solid party scene on 4th Street Live and the choice of moderators (events should choose their Joneses carefully.)

Still, it was a good show to see some equipment, like a first look at Air2G2's new handheld aerator, which debuted at the show. Here's a recap of some of the more interesting items

I saw that you should keep an eye out for...

Anuvia

My first meeting was perhaps my most interesting, with Hugh MacGillivray, executive VP of marketing and business development for Anuvia.

Anuvia is a new fertilizer company (their first product rolled off the line in May of this year) and they're already growing (see page 33). Anuvia produces a plant nutrition product for golf courses that's



PHOTO COURTESY OF GIE+EXPO (TOP)/BY SETH JONES (BOTTOM)



also helping the environment by reducing waste. Anuvia's GreenTRX 16-1-2-17S-3FE is food waste put through a reaction process that gets it down to an amino acid and delivered as a granular fertilizer.

"This is an exciting product because we represent a sustainable approach while helping the superintendent," MacGillivray told me. "We're taking this food waste out of the landfill and giving it a practical use." He told me the product delivers efficient nutrient delivery without the use of coatings or polymers, is safe and produces deep greening.

Interesting to think that food waste — which you'll never see on my plate when we go out to dinner — can be converted to a useful product for golf course fertilization. Hugh and I exchanged cards and agreed to stay in touch on future developments, like university research. In the meantime, you can learn more about them at anuviaplantnutrients.com.

American Landmaster

This was another one (like Anuvia) that was new to me. Unlike Anuvia, on this one, I could kick the tires.

American Landmaster manufactures utility vehicles, and they want to catch the eye of superintendents. Right now their focus seems to be on small farms and hunters, but they want to expand beyond that. They've never exhibited at the Golf Industry Show but see the potential there (there's a hot lead for you, GCSAA).



So what are their selling points? Pretty simple. 1) These vehicles are 100-percent American made and 2) these vehicles are, well... inexpensive.

Eric Hall, marketing director for the company, gave me a guided tour of the LandStar LS350 with turf tires. The vehicle retails at \$4,700. (The Cadillac of the line, the LS750, fully loaded, is \$9,200.) The LS350 can tow up to 1,000 pounds and has a top speed of 25 miles per hour. Each vehicle comes with a 3-year engine

warranty and a 1-year limited vehicle warranty. The engine is a Landmaxx 4-stroke 277cc single-cylinder Kohler Command Pro.

From walking the aisles at GIE+Expo it's easy to see that there are a lot of utility vehicle manufacturers out there. The ones who make it in the golf industry are the ones who make a commitment to the golf industry. Time will tell if American Landmaster will be one of them. Interestingly, the same day Hall and I exchanged emails post-show, he received an inquiry on carrying their line from a golf distributor in the south.

To learn more, visit americanlandmaster.com.

Air2HP

I've always had an interest in the Air2G2 since the demo I saw a couple years ago at the University of Georgia Golf Club. The machine fires probes into the ground that then ejects air, fracturing the soil

Continued on page 30

Continued from page 29
at 6-inch and 12-inch depths. The machine can make a green surface flap up and down like a toupee in the wind.



Now GT Airinject, manufacturer of the Air2G2, has introduced the Air2HP aerification tool, a smaller handheld version of the Air2G2. Todd Jones, general manager, showed me the product and said it's ideal for smaller, hard-to-reach areas, like bunkers and around tree roots.

The Air2HP can go much deeper than the Air2G2 — up to 40 inches beneath the soil surface. The tool requires an external air compressor or can run off the Air2G2.

As big (and expensive) as the Air2G2 is, this smaller, affordable (\$495) version of the same technology is interesting. I can see these getting a lot of use, especially in bun-

kers where there's been years of sand build-up. This product will be at both this month's *Golfdom* Summit and the 2017 Golf Industry Show, so I'll see about getting a video put together on it and up at **Golfdom.com**. (In the meantime there's a demo of the Air2G2 on **Golfdom.com** now, and of course you can learn more about the Air2HP at **air2g2.com**.)

Turfco

At the Turfco booth it was mostly equipment for landscapers, but there was a crossover or two. One of them was the Edge-R-Rite II. (Random aside: the power was out in the Kentucky Exposition Center in the block where Turfco was



located. So that booth, and all the booths around them, were showcasing their products in relative darkness.)

The Edge-R-Rite II is the kind of product I wish I had in my garage. It'd be perfect for edging my sidewalk and driveway. But for *Golfdom* readers, this product is ideal for edging around bunkers. Why? This

Continued on page 32

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Continued from page 30

edger cuts without throwing debris, making cleanup a whole lot easier. Also, the edger offers various blades for different jobs, like right angle for edging, 30-degrees for around trees and a 3-inch sod cutter, among others.

A video of it in action can be seen on Turfco.com.

Greenworks Commercial

The slogan from Greenworks Commercial is “commercial grade power... from a battery.” The company sells a whole line of blowers, string trimmers, hedge trimmers, chainsaws and even mowers.

I sat down with Gray Abercrombie, director of global

marketing, at their booth while passer-bys were giving the battery-powered chainsaws a try. Abercrombie put me in a backpack blower to feel the power. I about knocked someone down as they were walking by — the power is there.

“This is an interesting time to be in the cordless power industry,” Abercrombie said. “Six years ago, there were only two or three companies like us at (GIE+Expo.) Now, the battery industry is eroding into the gas industry. It’s the future of outdoor power.”

Their backpack blower is 50 percent quieter than a gas

blower, important in places where noise restrictions limit (or outright ban) loud equipment. The blowers have a brushless motor that delivers more torque and longer life. The blower can run for 1.5 hours on high speed, but Abercrombie stressed that that’s at full-throttle. The battery can last up to three hours when the user is more judicious with the throttle.

The batteries charge in 30 minutes, and you’ll love this part — it costs 4 cents to charge one of the batteries. All the Greenworks Commercial batteries are compatible across

the different products.

This is another company that was happy to be at GIE+Expo, but was equally interested in superintendents and what they might be able to do for their business. They name-dropped some courses that they’re already at (names we’d all recognize) and they’re bullish that this is just the beginning. I think we will be seeing more from them soon. In the meantime, you can learn more at greenworkscommercial.com.

So that’s my report from 2016 GIE+Expo. I Hope I didn’t have too much fun at the *Landscape Management* party at 4th Street Live, and that I’ll be invited back to learn more in 2017. ©



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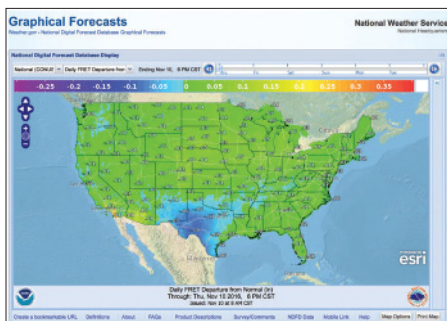
// AT YOUR FINGERTIPS

ET PHONE HOME TO HELP WITH IRRIGATION

By Clark Throssell, Ph.D.

Wouldn't it be nice to know the forecast ET (evapotranspiration) when making decisions about irrigation? And wouldn't it be even better if that information were available for free and at your fingertips?

The forecast reference ET (FRET) is available nationwide free of charge on your computer at digital.weather.gov from the National Weather Service (NWS). At the web address you will reach the NWS Graphical Forecasts page. Above



The National Weather Service now offers evapotranspiration (ET) measurements.

and to the left of the displayed U.S. map are two drop-down boxes. One is to select the geographic location of interest, and the second drop-down box is for the weather data of your choice. To find the FRET data, scroll down to Water Resources and select Daily FRET (in). After you make the selection the map will populate with predicted daily FRET.

So, when making irrigation decisions, superintendents now have data that forecasts the ET for the

following day and for up to the next seven days. With this data at a superintendent's fingertips it will be easier to provide the amount of water needed to meet the needs of the turf without overwatering.

Forecast of Reference Crop Evapotranspiration (FRET) is the expected depth of water that would evaporate and transpire from a reference crop under the forecast weather conditions on a daily and weekly basis over the next seven days. The FRET is for short crops with an approximate height of 4.7 inches, similar to full-cover grasses. Research has shown that mowed cool-season turfgrasses on an annual basis use approximately 80 percent (0.8), and mowed warm-season grasses use approximately 60 percent to 70 percent (0.6 to 0.7) of reference ET, so the forecast reference ET value presented will need to be adjusted based on the grass species on the golf course.

It's hoped that checking daily forecast reference ET on the computer and adjusting irrigation run times accordingly will become part of the routine used when making irrigation decisions.

Clark Throssell, Ph.D., is a turfgrass scientist working for Turfgrass R&D, Inc. You can reach Clark at clarkthrossell@bresnan.net for more information.

NEWS UPDATES

ANUVIA PLANT NUTRIENTS RAISES \$23 MILLION IN EQUITY

Anuvia Plant Nutrients, the Florida-based plant nutrient company, secured an additional \$23 million in equity capital from current investors. This new funding will allow Anuvia to further accelerate its growth opportunities, including utilization of food waste, the development of a liquid product and expansion into international markets. The funding also will support project development for construction of a second plant, which will further enable growth in the agricultural, professional turf and consumer lawn care markets.

Anuvia's products are based on an innovative technology in which organic waste materials are consumed and processed into a homogenous multi-nutrient enhanced efficiency fertilizer. Their sustainable products contribute to a healthier environment, improved soil health and plant growth, according to the company.

Anuvia Plant Nutrients recently opened its first state-of-the-art specialty fertilizer production facility in Zellwood, Fla. The plant is expected to produce 80,000 tons of product annually.



GROWTH SUPPRESSION WITH PGRS OF GRASSES PRIOR TO SEEDHEAD DEVELOPMENT DELAYS INFLORESCENCE MORE EFFECTIVELY THAN APPLICATIONS AFTER EMERGENCE."

Patrick McCullough, Ph.D.

(see story on page 34)

// WARM-SEASON GRASS SEEDHEAD MANAGEMENT

Predicting emergence patterns for timing control programs

By Patrick McCullough, Ph.D.

Seedheads reduce the aesthetics and quality of golf course turfgrass. TifGrand bermudagrass (*Cynodon dactylon* (L.) Pers. x *C. transvaalensis* Burt Davy) and Sea Isle 1 seashore paspalum (*Paspalum vaginatum* Sw.) are popular selections for golf course fairways, tees and roughs. These cultivars produce seedheads throughout the growing season under various mowing heights and maintenance regimens. Diamond zoysiagrass (*Zoysia matrella* (L.) Merr.) is a fine-textured cultivar that may be used for greens, tees and fairways. This cultivar produces seedheads during the spring and fall but has limited-to-no seedhead production during summer months. Suppressing seedhead emergence of these grasses enhances aesthetics, functionality and ball-roll distances for long-term successful culture.



Controlling seedheads with plant growth regulators (PGRs) helps superintendents maintain turfgrass uniformity. The use of PGRs also may enhance tillering and root growth, which often is compromised during seedhead production. Growth suppression with PGRs of grasses prior to seedhead development delays inflorescence more effectively than applications after emergence. Most PGRs don't provide acceptable control of seedheads after emergence at rates with

limited injury potential to golf course turfgrass.

Field experiments were conducted at the University of Georgia Griffin campus from July 2012 to December 2015 to determine the influence of photoperiod and temperatures on seedhead production of TifGrand bermudagrass, Sea Isle 1 seashore paspalum and Diamond zoysiagrass. Photoperiod is defined as the number of hours of daylight per day. The experiments were initiated to help determine the environmental factors that trigger initial seedhead emergence of these grasses and the association with seasonal seedhead production. In addition, the grasses were mowed at various regimens to further evaluate the influence of mowing operations on seedhead production.

The bermudagrass and seashore paspalum fields included mowing at 0.25 inch two days per week, 0.5 inch two days per week, 1.5 inches weekly, and no mowing (Figure 1). Zoysiagrass was mowed at 0.25 inch two days per week, 0.5 inch two days per week and no mowing. Mowing treatments were made during active turfgrass growth to 5-foot by 10-foot plots arranged in a randomized complete block with four replications.

FIGURE 1



Plots of Sea Isle 1 seashore paspalum used for seedhead production experiments that were mowed at various heights from 2012 to 2015.

TIFGRAND BERMUDAGRASS

Seedhead emergence. Photoperiod triggered the initial seedhead emergence at all mowing heights more than temperature (growing degree-day) estimates (Figure 2). In 2013, the photoperiods measured 13.7 hours on the day initial seedhead emergence was observed for bermudagrass in mowed plots and

ALL PHOTOS BY: PATRICK MCCULLOUGH

at 13.3 hours for non-mowed plots. Seedheads emerged later in spring of 2014 and 2015 compared with 2013, which may have resulted from bermudagrass maturity after establishment. The initial seedhead emergence was consistent across mowing regimens in subsequent years. In 2014 and 2015, the non-mowed bermudagrass had initial seedhead emergence at 14.0 hours and 13.8 hours, respectively. All plots that received mowing programs had seedheads emerge at 14.2- to 14.3-hour photoperiods. These timings were approximately three to four weeks later than the plots that were not mowed.

Seedhead production. Although photoperiod was more influential on the initial emergence of bermudagrass seedheads, calendar date (week number) and temperature (growing degree-day) had greater associations with seedhead production from January until August. Bermudagrass maintained at the lowest height evaluated (0.25 inch two days per week) averaged about 50 percent less seedhead coverage than the other mowing programs at peak emergence in August. Results suggest that TifGrand bermudagrass seedhead production can partially be suppressed by regular mowing at 0.25 inch compared to higher mowing heights.

Bermudagrass seedheads declined by late August from peak levels noted at all mowing heights. This decline in seedhead cover was consistent with the decline in turf quality, reductions in photoperiod and cooler temperatures in fall. Bermudagrass shoot growth is highly dependent on photoperiod, light intensity and temperatures. Researchers have noted that bermudagrass exhibits reductions in biomass, shoot height and tiller density as temperature and photoperiod are decreased. These physiological responses to changes in temperature and photoperiod in fall likely are associated with the decline of seedhead production of TifGrand bermudagrass.

FIGURE 2



TifGrand bermudagrass seedhead coverage in plots maintained at the various mowing regimens evaluated.

SEA ISLE 1 SEASHORE PASPALUM

Seedhead emergence. Seashore paspalum quality and seedhead emergence had similar seasonal trends at all mowing heights. Seedheads emerged in spring, reached peak cover in late summer of all years, and declined in fall.

Photoperiod was more influential on the initial seedhead emergence of seashore paspalum at all mowing heights than temperature (growing degree-day) estimates. In 2013, the photoperiods measured 13.5 hours at all mowing heights on the day seedheads were initially observed. Seedheads emerged later in spring of 2014 and 2015 compared with 2013. In 2014, the initial seedhead emergence of non-mowed plots was observed at a 13.8-hour photoperiod, while mowed plots had initial emergence at 14.2 hours. The initial observation of seedhead emergence for seashore paspalum was at a 13.8-hour photoperiod in 2015 at all mowing regimens. The growing degree-day estimates over years were erratic

when initial seedhead emergence was noted on seashore paspalum. These results suggest photoperiod has a greater value for predicting seashore paspalum seedhead emergence than temperatures.

Seedhead production. Calendar date (week number) and temperature (growing degree-day) were more influential than photoperiod on seedhead production from January until August for seashore paspalum maintained at 0.5 inch two days per week, 1.5 inches once per week, or not mowed during the experiment. Seashore paspalum maintained at the lowest mowing height averaged about 30 percent to 40 percent less seedhead coverage from other mowing programs at peak emergence. Turf that was mowed at 0.5 inch two days per week and 1.5 inches once per week had comparable seedhead cover to the non-mowed plots in 2013 and 2014. Peak seedhead coverage ranged about 20 percent to 30 percent less in 2015 for these mowing regimens than previous years. Seashore

Continued on page 36

FIGURE 3



Diamond zoysiagrass seedhead emergence in spring.

Continued from page 35

paspalum seedheads declined in September from peak levels consistent with trends in turf quality.

DIAMOND ZOYSIAGRASS

Seedhead emergence. Zoysiagrass had two flushes of seedhead emergence in spring and fall, while turf quality increased from spring to summer and declined in fall (Figure 3). Peak emergence was noted in May and October for the spring and fall seedhead flushes, respectively, and declined from May to August and October to December, respectively. Diamond zoysiagrass generally did not go completely dormant in the winter at any mowing height.

The initial seedhead emergence was consistent over years from calendar dates, growing degree-day and photoperiod across all mowing regimens. The initial seedhead emergence occurred within approximately eight calendar days for the spring and fall timings over years. These dates had photoperiods ranging from 12.7 to 12.9 hour in both fall and spring. The growing degree-day on dates of initial seedhead emergence in spring and fall ranged 167 to 196 and 1949 to 2230, respectively, in all years across mowing regimens.

Seedhead production. Seedhead cover from January to peak emergence in spring had a stronger association with temperature compared with photoperiod. Reduction in photoperiod from July to October had a greater influence than calendar date and temperature (growing degree-day) for zoysiagrass seedhead cover during this period.

PGR APPLICATION TIMING

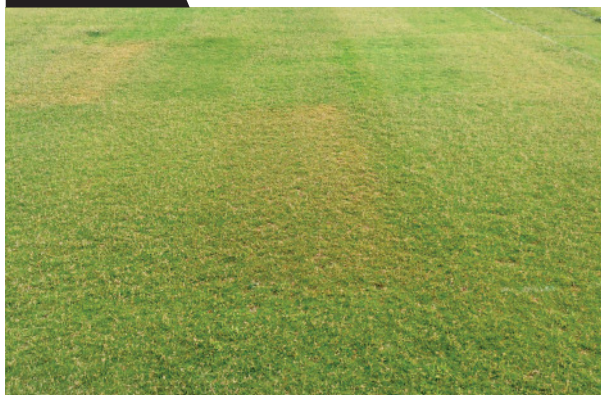
Research was conducted over three years to evaluate the efficacy of PGRs applied at various timings based on cumulative temperature measurements (growing degree-days). Two PGR treatments, including ethephon + trinexapac-ethyl (TE) or mefluidide, were applied at five growing degree-day timings: 139, 278, 556, 833, or 1111 C (250, 500, 1000, 1500, 2000 F) with a base temperature of 10

FIGURE 4



Seashore paspalum plots used for PGR application timing research for seedhead control in 2014.

FIGURE 5



Seashore paspalum injury from ethephon plus trinexapac-ethyl treatments.

degrees C (50 F) beginning Jan. 1.

The application rates and products used for treatments included ethephon (Proxy 2L, Bayer Environmental Science) plus trinexapac-ethyl (Primo Maxx 1ME, Syngenta Crop Protection,) at 5 oz./1,000 sq. ft. + 5.5 oz./acre, respectively, or mefluidide (Embark 2S, PBI Gordon) at 0.5 lb. a.i./acre. Seedhead cover was rated weekly for four weeks after treatments on a percent scale. Turfgrass injury was visually rated weekly on a percent scale (Figure 4).

The ethephon + trinexapac-ethyl (TE) treatment provided approximately three times greater seedhead control of bermudagrass than mefluidide at all application timings. However, seedhead control never exceeded 69 percent on bermudagrass from one to four weeks after treatment. The ethephon + TE treatments also were more effective than mefluidide for controlling seashore paspalum seedheads on every date. Control ranged from 75 percent to 82 percent from two to four weeks after treatment with ethephon + TE. However, this treatment caused excessive injury (30 percent) on several dates and is not recommended for superintendents (Figure 5).

Mefluidide provided poor control on every date (greater than 70 percent) but caused acceptable injury. The application timing in late spring (approximately 550 to 1100 growing degree-day) generally was more effective for controlling seedheads with the PGRs at rates tested compared to later timings in summer. The application timing also was more important on bermudagrass than seashore paspalum, which may have resulted from differential tolerance levels of these grasses to the PGR treatments.

Injury was excessive (greater than 20 percent) from ethephon + trinexapac-ethyl treatments on bermudagrass and seashore paspalum, and would be unacceptable for golf course turf. Further research is needed to refine PGR rates and regimens for TifGrand bermudagrass seedhead suppression. It's also recommended that further research focus on application timings based on photoperiod rather than temperatures for bermudagrass and seashore paspalum.

Diamond zoysiagrass was relatively less responsive to PGR applications than the other species. Single applications of ethephon + trinexapac-ethyl or mefluidide provided less than 40 percent control of zoysiagrass seedheads. These results suggest that multiple applications of these PGRs and modifications of application timings in late winter are necessary for successful seedhead suppression. Screening PGRs and herbicides when photoperiods reach approximately 12.5 to 12.6 hours or growing degree-day ranges of approximately 150 to 160 (base 10 C at Jan. 1) will enhance the potential for treatments to be effective.

MANAGING WARM-SEASON GRASS SEEDHEAD SUPPRESSION

The initial flush of seedheads on TifGrand bermudagrass and Sea Isle 1 seashore paspalum is triggered by photoperiod in late spring. However, seedhead production is associated with

temperatures until peak emergence rather than with photoperiod. The genetic variability among cultivars could contribute to differences in seedhead production under various photoperiods. Further research is needed to compare the influence of photoperiod on the initial seedhead emergence of bermudagrass and seashore paspalum cultivars under various maintenance regimens.

Turf managers can use photoperiod or growing degree-day models for predicting seedhead emergence of Diamond zoysiagrass in spring. However, photoperiod was more indicative of initial seedhead emergence in fall compared with growing degree-day. The initial emergence of Diamond zoysiagrass seedheads occurred at approximately the same photoperiod (12.7 to 12.9 hour) in fall and spring. Numerous zoysiagrass cultivars used for golf course turf may exhibit differing seedhead production patterns, and further research is needed to determine the influence of photoperiod and growing degree-day on the seasonal seedhead production of other zoysiagrass cultivars.

A significant limitation to warm-season turfgrass management is the selection of PGRs available for seedhead suppression. Trinexapac-ethyl (TE) is the most popular PGR used for enhancing turfgrass color, quality and stress tolerances. However, trinexapac-ethyl doesn't provide acceptable seedhead suppression of bermudagrass, seashore paspalum and other warm-season grasses. Tifway bermudagrass seedheads have been reported suppressed 67 percent to 70 percent by sequential trinexapac-ethyl applications at 0.18 followed by 0.09 lbs. a.i. per acre. It also is noted that lower rates of TE are less effective for controlling seedheads. Mefluidide suppresses warm-season turfgrass seedheads with minimal injury potential. However, mefluidide is no longer being manufactured, and

its supply for the turf industry will be limited in the future.

Mowing is an important cultural practice for seedhead suppression. All three grasses mowed at 0.25 inch two days per week had about half the amount of seedhead coverage of plots mowed at higher heights and the non-mowed turf. Mowing frequency also has been shown to influence turfgrass seedhead production during active growth, and this warrants further research with these cultivars. Further research will be needed to refine recommendations for PGR use and cultural management of warm-season turfgrass seedheads.

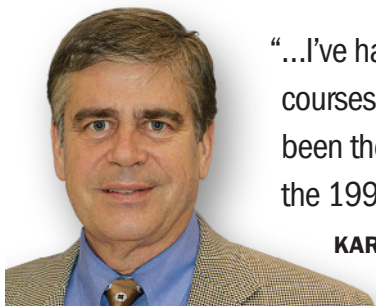
Patrick McCullough, Ph.D., is a turfgrass scientist at the University of Georgia-Griffin Campus. You may reach him at pmccull@uga.edu for more information.

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"...I've had a few families who own golf courses here in Ohio tell me that this has been the best year they have had since the 1990s."

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

Looking back on 2016

I thought I would share some things that have stuck in my mind from this past year. My thoughts are a potpourri of anecdotal and observational thoughts not backed by facts, which should provide fodder for a winter of conversation.

QUILTED LOOK OF THE INTERMEDIATE ROUGH

This issue came to a head this past spring on cool-season tournament courses appearing on television. The intermediate rough, also known as the first cut of rough or 84-inch cut, is mowed at a height within the adaptive range of several turfgrasses. For example, a mowing height of 1.25 to 1.5 inches can result in Kentucky bluegrass, perennial ryegrass, annual bluegrass, rough bluegrass and creeping bentgrass coexisting to some degree. These grasses will not integrate among each other in a uniform distribution pattern, but occur as patches. In spring, cool-season turfgrasses show a diversity of colors like the fall colors of trees. These patches of grasses appear as a hodgepodge of colors and textures.

On televised golf tournaments, the variety of colors and textures of the grasses mentioned above and the quilted appearance of the intermediate rough stands in stark contrast to the uniform appearance of the fairways

and primary rough. This is not an issue for 99 percent of courses, but those few golf courses under the spotlight increasingly are trying to figure out what to do. My limited observation of this process has lead me to believe there are few options, with none of them being cheap.

Return of the "American" golf course. This year's U.S. Open at Oakmont Country Club, the PGA Championship at Baltusrol Golf Club and the U.S. Senior Open at Scioto Country Club brought focus to what American golf is. These courses in all their magnificent grandeur, highly manicured turf and in-your-face type of tough golf challenge reminded us of the American golf identity. Outside of the United States, when golfers think of American golf, they think of these types of golf courses.

Fate of family owned public golf courses. One part of the golf course industry hardest hit has been family owned public golf courses. Recovery of this market since 2008-2009 has been

discouraging and stagnant. This fall, however, I've had a few families who own golf courses here in Ohio tell me that this has been the best year they have had since the 1990s. One course owner said they are looking to buy new equipment for the first time in a long time. The reasons: (1) With gas prices down, golfers are willing to drive to play golf; (2) Due to golf course closures (competitors), remaining courses are picking up golfers; (3) Although it's been a tough year to maintain turf, there's been great weather to play golf.

It's hoped that as the industry begins to recover, those remaining courses will come out of this in better financial health.

Bacterial decline on creeping bentgrass. The weather in Ohio during 2011 was extremely hot, with thunderstorms occurring intermittently, resulting in heavy downpours. Several golf courses faced significant turf loss, with much of that attributed to bacterial decline caused by the bacteria *Acidovorax*. The year 2012 was basically a repeat of 2011. Since 2012 we have done considerable work on this disease. After another frustrating field season, I've reached the conclusion that bacterial decline on creeping bentgrass is not a big deal.

I could put in a bunch of qualifiers and say that in other places the story may be different than what we've found. But golf course management programs over the last four or five years have changed to address extreme weather fluctuations and have indirectly influenced the occurrence of this disease. I guess I will put in a qualifier and say we need a brutal summer to know for sure if it can kill a lot of turf.

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

What do turfgrass scientists talk about?

Imagine what happens when you get 200 or 300 turfgrass scientists together in one location at the same time. It's non-stop turf discussion on every topic imaginable, and it takes place every year at the Crop Science Society of America (CSSA) annual meeting. My specific interest, and that of about 200 or 300 turf aficionados, is in the C-5 division — or Turfgrass Science division — of the CSSA, where results of the latest turfgrass research are presented.

The primary purpose of attending the meeting is to learn about results of current research projects. In 2016, 185 presentations took place in the C-5 division. Presentations take the form of either a 5-minute or 15-minute oral presentation, or a poster session in which the person conducting the research talks to people one on one or in small groups about results presented on the poster.

Networking also is a big part of the conference. Meetings, meals and hallway conversations all provide opportunities for people to learn about a specific research project, a new product, emerging problems and how to solve an existing problem.

The following three broad topics caught my attention this year.

Brown ring patch management.

Frank Wong, Ph.D., Bayer, shared with me that preventive control of brown ring patch is preferable to curative control. Past research shows that several fungicides give good curative control, but recovery is variable and repeat applications may be needed. A potential preventive strategy is to apply early, something that is done for fairy ring management. Make the first fungicide application when soil temperature at a 1- to 2-inch depth reaches 55 degrees F for three or four consecutive days, and use a DMI fungicide such as tebuco-

nazole, triticonazole or metconazole. Make the second fungicide application when the soil temperature at a 1- to 2-inch depth reaches 65 degrees F using the same DMI fungicide, or alternatively, azoxystrobin, pyraclostrobin, flutolanil or polyoxin-D if PGR effects are a concern for certain turf types. Lightly watering fungicides into the thatch and mat after application helps with fungicide effectiveness.

“The good news is that after many years of limited product choices for controlling nematodes, four new products have reached the market or will reach the market in 2017.”

Nematode management. The good news is that after many years of limited product choices for controlling nematodes, four new products have reached the market or will reach the market in 2017. The products and their respective manufacturers are Nimitz (Quali-Pro);

Indemnify (Bayer CropScience); Match-Point (Dow AgroSciences); and Divanem (Syngenta Crop Protection).

Turfgrass undergraduate enrollment. A symposium featuring speakers from six universities with turf programs was held to discuss the decline in undergraduate enrollment in turf programs. The highlights:

- Undergraduate enrollment in turf programs is down across the country.
- The cost of tuition at universities is high and going up. Parents and prospective turf majors question if the investment in a turf management degree is worth the economic return.
- Universities are increasing their entrance requirements. These rigorous requirements are difficult for some potential turf majors to meet.
- Low numbers of turf majors result in low enrollment in turf classes, which causes university administrators to question the need for turf faculty.
- There is strong competition among universities and within a university to recruit students for a specific major.
- Brandon Horvath, Ph.D., University of Tennessee-Knoxville, spoke about their efforts to increase undergraduate enrollment. The turf program hired a professional marketing firm to develop a campaign to recruit undergraduate turf students. The program also is making a sustained effort to ensure that turfgrass faculty and the turf program is visible at events on and off campus. The result of these efforts is a current enrollment of 55 turfgrass undergraduate majors and an upward trend.

It's nice to know there are a few bright spots in undergraduate turf enrollment numbers, but the national picture is alarming when we think about where the next generation of superintendents is coming from.



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

The 19th Hole

Mike Bremmer

SUPERINTENDENT // Wisconsin Club, Milwaukee



Mike, what can I get you?

Either a local IPA or a Brandy Old Fashioned Sweet. Wait, have you ever had one? OK, you've got to try one — I'm buying.

Hey, that's good... So tell me about your family?

I have a 5-year-old-son, James, a 2-year-old daughter, Sarah, and the third is on the way in March.

Wow, congrats! How did you and (wife) Emily meet?

We met in line at a coffee shop seven years ago. It was 90-some-odd degrees out, it was right after work and I ordered a lemonade. From behind me I heard, "Who orders a lemonade at a coffee shop?" We started talking and the rest is history.

You rave about your Wiedenmann

Terra Spike XF 6? Why? It's a German tank painted orange! It's fast, efficient, reliable and we put it through its paces.



If your office caught on fire and you could grab only one thing, what would it be? Depending on the day, it'd either be my computer or an unopened



"WHEN I WAS 8 MY DAD TAUGHT ME HOW TO MOW THE LAWN, HOW TO OPERATE THE TRACTOR. THEN MY MOM TAUGHT ME HOW TO DO IT RIGHT."

bottle of Balvenie 12-year DoubleWood a couple members gave me.

What's your favorite car you've ever

owned? My first car was a '94 Ford Escort hatchback. For sentimental value, that's it.



What's the best book you've read or movie you've seen lately? It's been a while since either. I mainly read turfgrass-related books... probably "Practical Greenkeeping" by Jim Arthur.

Do you have a favorite golf

memory? Yes, the time I got a call from a buddy to fill in as a fourth to play Cypress Point. And that trip also included Spy-glass and Monterey Peninsula CC.

Fill in the blank: I knew I was going to be a superintendent the day I _____? First drove out on

to the golf course to mow tees, because there's nothing better than hopping on a mower or a tractor and doing work on the golf course.

How did you get your start

in the business? My dad threw horseshoes with the mechanic at Blackhawk CC in Madison (Wis.) He said, 'Hey, I got this boy that likes to mow grass; you guys got anything?'

So, they asked me to come in and fill out an application. Monroe Miller was the superintendent there at the time.

I know a lot of guys who like to mow, but you seem to love to mow...

When my mom was pregnant with me, they didn't have a riding lawn-mower for their acre-and-a-quarter lot. So my mom push-mowed the lot every week, pregnant with me. Part of me thinks that the sound of the mower got in my head and it's now ingrained in me.

As interviewed by Seth Jones, Nov. 17, 2016.



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Crystal Green® is the first continuous release fertilizer with Root-Activated™ phosphorus that lasts all season long.

Each granule of Crystal Green delivers phosphorus, plus nitrogen and magnesium for up to 30% more root length and density — the ultimate defense against seasonal stress and daily wear and tear.

Crystal Green is Root-Activated™; as the roots release organic acids, such as citrates, Crystal Green responds with a healthy release of phosphorus to feed the plants. As plant demand decreases, nutrient release from Crystal Green is reduced; minimizing excess phosphorus in the soil and lowering the risk of tie-up, leaching, and runoff. This is good for your turf, your budget, and the environment.



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Tests over a Two-Year Period Indicate Increased Rolling of Fairways can Reduce Fungicide Applications an Average of 50%.

–University of Massachusetts, Stockbridge School of Agriculture

For years, rolling was just for greens. Today you could be in for a big surprise.



Geunhwa Jung and Jay Popko
Stockbridge School of Agriculture

TEST SUMMARY

- Plots were unrolled.
- Rolled 3 times/week.
- Rolled 4 times/week (Double roll 2 days).
- Rolled 6 times/week (Double roll 3 days).

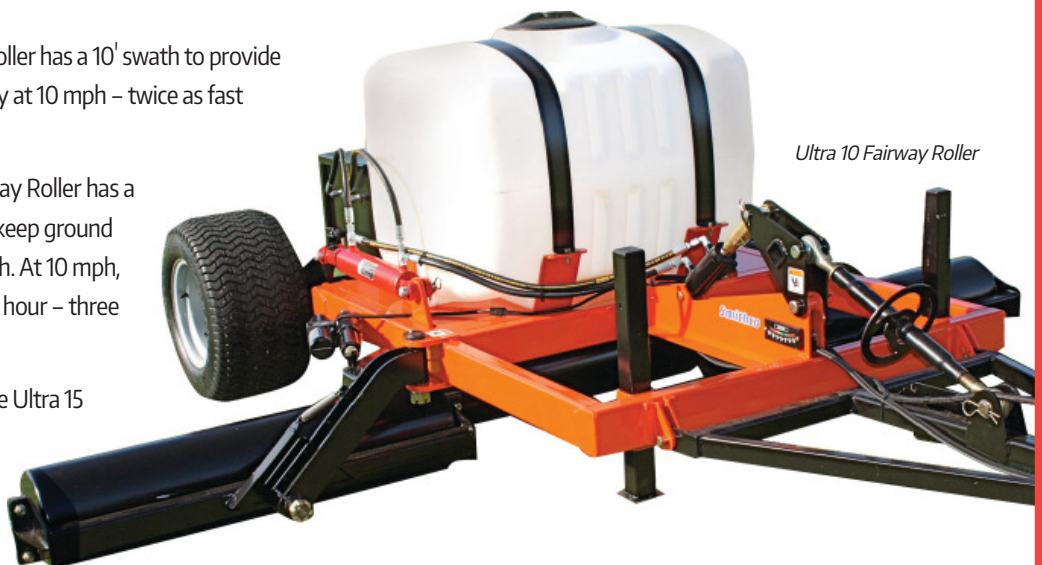
Different fungicide spray schedules were tested (Threshold vs Calendar at 21-day interval) and initial results indicate rolling can reduce fungicide applications if threshold-based spray programs are used by 40 to 50%. This should be a major cost reduction if further test plots confirm this. Testing will continue next year on fungicide application as well as the effectiveness of rolling at reducing dollar spot, thatch and clipping yields.

NEW SMITHCO ULTRA 10 AND ULTRA 15 FAIRWAY ROLLERS WITH MONEY-SAVING TOW-BEHIND DESIGN

Our 3 gang Ultra 10 Fairway Roller has a 10' swath to provide 12 acres an hour of productivity at 10 mph – twice as fast as mowing!

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