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in 2013, and who busted.

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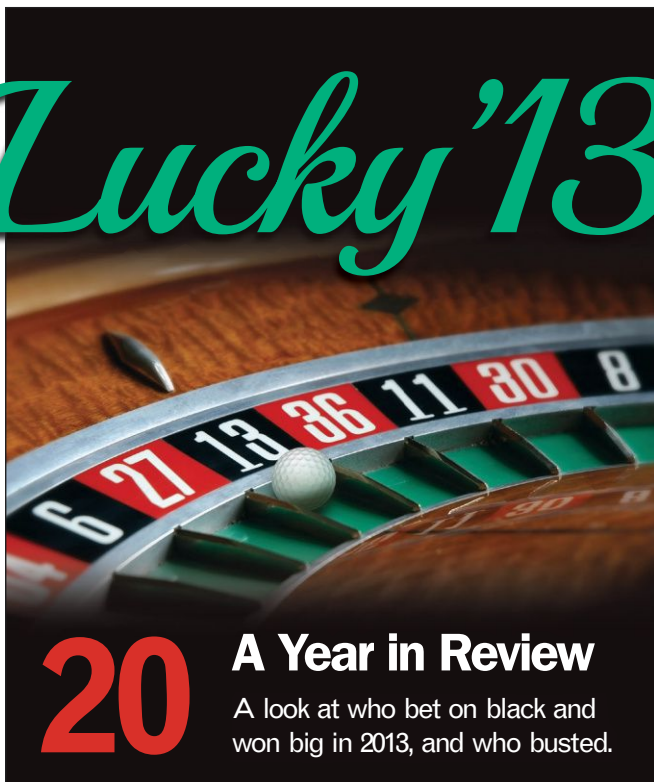


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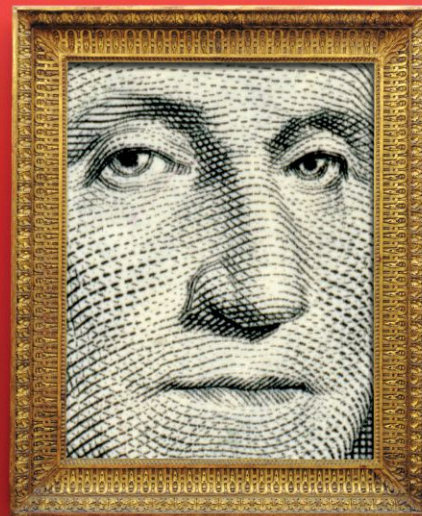


Lucky '13



20 A Year in Review

A look at who bet on black and won big in 2013, and who busted.



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Oh, and if you think you might know the name of that restaurant? You can call us with a guess on that as well. We even have a photo from inside the place, if that helps...



Golfdom

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EDITORIAL STAFF

EDITOR-IN-CHIEF Seth Jones
785-690-7047 / sjones@northcoastmedia.net

ASSOCIATE EDITOR Molly Gase
216-363-7928 / mgase@northcoastmedia.net

ART DIRECTOR Pete Seltzer
216-706-3737 / pseltzer@northcoastmedia.net

CONTRIBUTING EDITORS

Karl Danneberger (*Science*), Joel Jackson,
Clark Throssell (*Research*), John Walsh,
Anthony Williams, Mark Woodward

BUSINESS STAFF

CLEVELAND HEADQUARTERS

1360 EAST 9TH ST, SUITE 1070, CLEVELAND, OH 44114

PUBLISHER Patrick Roberts
216-706-3736 / proberts@northcoastmedia.net

ASSOCIATE PUBLISHER Bill Roddy
216-706-3758 / broddy@northcoastmedia.net

SALES ASSISTANT Petra Turko
216-706-3768 / pturko@northcoastmedia.net

MARKETING MANAGER Ryan Bockmuller
216-706-3772 / rbockmuller@northcoastmedia.net

MANAGER, PRODUCTION SERVICES Chris Anderson
216-978-5341 / canderson@northcoastmedia.net

SR. AUDIENCE DEVELOPMENT MANAGER Antoinette Sanchez-Perkins
216-706-3750 / asanchez-perkins@northcoastmedia.net

MARKETING/MAGAZINE SERVICES

REPRINTS & PERMISSIONS Nick Iademarco
877-652-5295 / niademarco@wrightsmedia.com

SUBSCRIBER, CUSTOMER SERVICE / 847-763-4942

CORPORATE

PRESIDENT & CEO Kevin Stoltman
216-706-3740 / kstoltman@northcoastmedia.net

VP OF FINANCE & OPERATIONS Steve Galperin
216-706-3705 / sgalperin@northcoastmedia.net

VP OF GRAPHIC DESIGN & PRODUCTION Pete Seltzer
216-706-3737 / pseltzer@northcoastmedia.net

EDITORIAL DIRECTOR Marty Whitford
216-706-3766 / mwhitford@northcoastmedia.net

OFFICIAL PUBLICATION OF

American Society of Irrigation Consultants
P.O. Box 426, Rochester, MA 02770; 508-763-8140; www.ASIC.org

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"When Rory McIlroy took the stage to accept his 2012 Male Player of the Year award, Mark turned to me with a shocked look on his face and said, 'I didn't know Rory was actually going to be here!'"

SETH JONES, *Editor-in-Chief*

My worst, best of 2013

I am on a roll. Just when I think I literally lived the best year of my life, the next year gets even better. ¶ I'm on a three-year streak right now. Professionally and personally, things are going great. Job is awesome, my family is doing great. It's often that I look to the stars and think to myself, "thank you." ¶ So here's my three worst and five best moments of 2013. Keep in mind the worst weren't that bad, but the best? They were awesome.

3. Go it alone — Poor me! For a couple months *Golfdom* was operating with a skeleton crew, accelerating the graying of my hair. Thankfully, I'm through the woods on that experience (see story on page 9.)

2. Missed international flight — My flight landed in Philadelphia, but they didn't have a gate for us to pull into. So we sat on the runway for over an hour. My connection to Manchester, England, took off without me. Panicked, I jumped on the day's last flight to London Heathrow, setting off an international game of "Where am I and where is my luggage?"

1. An awkward Palmer meeting — In my mind's eye, my first in-person meeting with Mr. Arnold Palmer was going to be all sorts of awesome. We'd tell stories, laugh,

take a couple photos, maybe get an autograph, maybe have one of those iced tea/lemonade drinks. Instead, I was shown into his office at an inopportune moment — unintentionally interrupting an interview with the Associated Press. Adding to the confusion, Mr. Palmer had just taken out his hearing aid, so I found myself essentially yelling at one of golf's true legends.

And now, the best...

5. Deep-sea fishing — One of the corporate meetings I attended this year (the company shall remain nameless) took a big group of us deep-sea fishing. I was a rookie, but I caught quite a few red grouper, more than most of the

guys fishing on my corner of the boat (truth!)

4. Palm Beach GCSA meeting — The best presentation I made all year combined with grilled steaks for lunch, 18 holes of golf, the fastest beer cart I've ever witnessed and a trip to the 19th hole bar that I can barely recall. (Which makes me even more excited to be asked back to MC their January meeting, when they're having Medinah's Curtis Tyrrell as their keynote speaker.)

3. London calling — My amazing trip to England in July (yeah, I finally got my luggage) included tours of Sunningdale GC, the R.J. National, St. George's Park and

Twickenham Stadium and my first ever cricket match. Best souvenir? An autographed jersey of rugby team Leeds Rhinos.

2. Taking my bro-in-law to the Masters — By taking my brother-in-law Mark along on my trip to the Masters this year, I had a constant reminder of how cool my job is. Mark was walking on air the entire time he was at Augusta National. My favorite moment, though, was at the annual Golf Writers Dinner. When Rory McIlroy took the stage to accept his male player of the year award, Mark turned to me with a shocked look and said, "I didn't know Rory was actually going to be here!" I just gave him a knowing smile. He did another double-take, then said to me, "You're *the man*."

1. Meeting Mr. Palmer — How could this be both my best and worst moment of 2013? Because in hindsight, my awkward meeting made for a memorable story, and was also immortalized in an Associated Press story (remember the guys I interrupted?) that ran in papers across the world. An excerpt from the story: *A staff member came into the room and mentioned two men who were outside the office and wanted to say hello. One was Seth Jones, the editor of Golfdom magazine who recently interviewed Palmer. "Well, bring him in," Palmer said, rising from behind his desk with a broadening smile. Doesn't sound awkward at all when it reads like that, huh?*

Email Jones at:
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NEWS, NOTES AND QUOTES



// GIFT TIME



The First Tee course in Louisville opened with donated maintenance equipment that will help with the upkeep of the newly finished course.

FIRST TEE LOUISVILLE OPENS GIFT AND COURSE

➔ Add the First Tee of Louisville, Ky., among the big winners of 2013. The organization opened a new 9-hole course last month. In honor of the occasion, the course was also gifted a shiny new greens mower.

To commemorate the opening of the course, a GP400 riding greens mower was donated by Jacobsen. The local Jacobsen dealer for the area, Wolf Creek Company, helped make the donation possible. The gift retails for over \$40,000.

“The equipment donation from Jacobsen and Wolf Creek was a critical part of getting this done and we appreciate their partnership,” said Ed Perry, President of the First Tee of Louisville. “The maintenance equipment will help us keep the course in top-notch shape for many years to come.”

Louisville’s Mayor Greg Fischer was at the opening of the course along

with other local officials. Within the Louisville Metro Parks system, there are three other golf courses run by the First Tee.

The nine-hole course, which is expected to serve hundreds of Louisville area youths, will not only host young golfers, but will also serve as a testing ground for turfgrass varieties.

“The First Tee of Louisville and Louisville Metro Parks are doing some great things to grow the game and improve the lives of young people,” said David Withers, President of Jacobsen. “We’re very proud of their initiatives and look forward to helping them succeed.”

The First Tee golf program is designed to get youths ages five through 18 onto golf courses. Through their time on the course, youngsters can cultivate life skills such as respect, honesty and responsibility. For additional information visit thefirsttee.org.

// NEW IN, OLD OUT

GCSAA THROWS A CHANGE-UP

GCSAA announced some big staffing changes in a member email on November 22. The changes stem from earlier this year when the GCSAA Board of Directors and staff began to look forward to where they wish to be in 2020. The goal: to become global leaders in the golf course management industry.

To accomplish that goal they have done a little in with the new and out with the old. New additions include Matt Shatto, chief operating officer, and J.D. Dockstader, chief business development officer. Shatto has experience in both public management and small business. Dockstader has 17 years of experience in business development and will be focusing on increasing GCSAA’s brand and revenue in his new role.

However, Jeff Bollig and Greg Lyman will be leaving GCSAA behind. Bollig, who had been with the association for 17 years, was most recently senior director of communications. Lyman was director of environmental programs. “We thank them both for their many years of service and their contributions,” GCSAA President Pat Finlen, CGCS, stated.

Both Shatto and Dockstader will begin with GCSAA January 1st.

// HALL OF FAME

MANGUM AND ESODA IN GA. HOF

Ken Mangum, CGCS Atlanta Athletic Club, and Mark Esoda, CGCS Atlanta Country Club, were inducted into the Georgia GCSA Hall of Fame in November. The annual award ceremony was held at the Atlanta Athletic Club.

Mangum has prepared for two PGA Championships, the U.S. Women’s Open Championship and the U.S. Junior Championship during his 25 years at the course. He has also served as president of the Georgia GCSA and a director of the GCSAA.

Esoda has spent 24 years at the Atlanta Country Club. During his career he has won many awards and is one of only two superintendents to be inducted into the Georgia Golf Hall of Fame.

The Georgia GCSA Hall of Fame, in its second year, now has eight members.

Welcoming *Golfdom's* new staff members

➔ In November, *Golfdom* welcomed two new employees: Molly Gase, Associate Editor and Joelle Harms, Digital Media Content Producer. Gase will be working on the print magazine as well as the social media outlets for *Golfdom*. Harms will work on the digital side, creating content for *Golfdom* and other brands across North Coast Media.

A little background —



Molly Gase

Molly Gase is an Ohio native. Originally from Wauseon, she completed her undergraduate degree in English at The University of Akron. While in Akron, she quickly moved up the ladder at the independent college paper, *The Buchtelite*. After graduating in 2012, she moved on to

graduate school in Syracuse, N.Y. Gase completed her master's degree in Magazine, Newspaper and Online Journalism at the S.I. Newhouse School of Public Communications at Syracuse University in July of this year.

Joelle Harms is from the small town of Oxford, Mich., a suburb north of De-



Joelle Harms

troit. She completed her undergraduate degree in Athens, Ohio, earning a Bachelor of Science in Journalism from the E.W. Scripps School of Journalism at Ohio University. Harms spent four years working at Ohio University's golf course and was a summer intern for WJBK Fox 2 Detroit.

Welcome to the team, Molly and Joelle!

THEY SAID IT

TOM RUSSELL

SUPERINTENDENT, TAHQUITZ CREEK GOLF RESORT, PALM SPRINGS, CALIF.

To *The Desert Sun*, describing the late-summer storm damage that the course recently reopened from:

“When it came down it was a charcoal wall of (sludge) three or five feet high... This is the first time I’ve seen this where it was mixed with a soil and caused this much damage.”



EMAILS @ TEXTS # TWEETS

What do I find most ironic about GCSAA's announcement (see “Change-Up,” page 8)? For one, the fact that **@Golfdom** tweeted it 11 minutes before **@GCSAA**.

—**John Kaminski, Ph.D.**
(**@iTweetTurf**)

Matt, I thoroughly enjoyed your article (“I’m a flip-phone user,” November 2013.) I am a smartphone user and I have to say that I admire your bucking the system that most of us in society have been sucked into. Keep bucking the system... you’ll look back one day and have one less regret than me.

—**Noy Sparks, superintendent**
Fossil Trace GC, Golden, Colo.

// **SNEAK PEAK**

BEHIND THE... JOURNALISM

Gabriel Thompson, author of November's *Golf Digest* article “The Care Takers”, went undercover with immigrant workers in the golf industry. We talked with him about the article.

Golfdom: Where did the idea for “The Care Takers” come from?

Thompson: (The editors from *Golf Digest*) realized that the topic — of golf's Latino immigrant workforce — hadn't really been covered in the media, and that this key but overlooked workforce was a story worth exploring.”

Golfdom: What was the experience like working undercover on the grounds crew?

Thompson: Exhausting. I think of myself as an early riser, but I'm not used to getting up at 3:30 in the morning for a shift. So just making sure I got into work on time was a challenge, as was trying to learn how to use much of the equipment. (I should also mention that the superintendent got to work even earlier and stayed later.) And I got a sense of just how much can go wrong at any given minute — from leaves blowing into bunkers to water levels being off. ”

For the extended version of the Q&A, check out Golfdom.com

Golfdom Gallery

WE CAME.
WE SAW.
WE TOOK PICTURES.

1 Now on Golfdom TV We just wrapped up a *Golfdom* TV interview with Quali-Pro's Jerry Corbett when Marissa McDowell, of Pickseed, walked by. And now that we have your attention, we'd like you to know that you can see Jerry's interview right now on Golfdom.com. Thank you, Marissa!

2 Show business It was a great sight, seeing so much action at the Carolinas GCSCA Conference & Show. The event set a record for the Carolinas, raking in \$650,000 in gross revenue.

3 Familiar faces We were happy to run into some old friends at GIE+Expo. Stone Mountain GC director of grounds Anthony Williams (third from right) was in attendance with his lovely wife Phyllis. Pat and Seth took advantage of the photo op and put sister publication *Landscape Management's* sign in the background.

4 A good walk It was fun to get outside and demo some equipment at the GIE+Expo show in Louisville, Ky. Human Resources was just happy that none of our editors harmed themselves.

5 Mud in your eye For some reason *Golfdom* EIC Seth Jones continues to wear white on the golf course, even in November. A fashion faux pas for sure, especially when most of his tee shots end up looking like this muddy ball.

6 The Wolfpack N.C. State's Ben Pease, turf field lab superintendent, and Dustin Corbett, assistant superintendent (and son of Jerry in photo 1) took in the sights and sounds at the Carolinas show. Don't worry Dustin, we've read that baldness comes from the mother's side of the family.



PHOTOS BY: SETH JONES (1, 2, 4, 6)
MARISA FALMER (3) / ERIC NEUTEBOOM (5)

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About our host

TOM EGELHOFF is the Director of Agronomy at the Club at Las Campanas in Santa Fe, N.M. The avid greenthumb transferred his talents from Ohio to Las Campanas, where the weather is almost too good, with 320 days of sunshine a year.

Egelhoff began his education at The Ohio State University, studying turf. However he was interrupted when his Ohio Air National Guard Unit was called in for Desert Storm. After completing his service, Egelhoff completed the two-year professional turfgrass management

program at Rutgers University. He worked at Muirfield Village Golf Club in Dublin, Ohio for 10 years before making the move to New Mexico as Superintendent and then Director of Agronomy at Las Campanas.



“Working 10 years at Muirfield under Mike McBride set me up for my career. We learned a lot there.”

1 WHO STOPPED THE RAIN?

I spent 10 years at Muirfield and it rained every year. Thought it was cursed. In New Mexico, it never rains, so this is meant to bring rain.

2 HE'S NO. 1

This (fantasy football league) started in 1993 with people who worked at Muirfield. There's a group of 10 of us who have done fantasy football for 20

years. Whoever wins it, gets the trophy for a year. I've had it for three years.

3 PREFERRED READING

I would say (I've been reading *Golfdom*) since the early 2000s when I was still in Ohio. I like them, you can pick up tips from around the country. I'm sensitive to water conservation being in the Southwest, so I'm always looking for those articles.

4 COACH HAYES

I was a student at Ohio State University when (Hall of Fame Ohio State football coach) Woody Hayes died. That's the student paper from the morning after he died.

5 GOLDEN BEAR

Jack Nicklaus signed that when I left Muirfield. That was my going-away gift, along with a set of Gore-Tex rain gear that I have used only three times in 10 years.

6 IT'S ABOUT THE BIKE

Everybody in this industry is exposed to stress. I use that to get out and relieve stress. I've put 2,500 miles on that bike since April.

BY MOLLY GASE // PHOTO BY CHAD HINDERLITER
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"There are more signs each day that point to the fact that cities may want to consider getting out of the golf course management/operation business."

MARK WOODWARD, *Contributing Editor*

May be time for a change

I was at a golf conference a few weeks ago and I heard something that I never really had put a lot of thought into. But once I heard it, it made perfect sense. One of the speakers reminded the audience that the largest group of golf course owners in the United States is municipalities. I think he mentioned that there are over 2,000 municipally or government-owned golf courses in our country. This number is significantly larger than any other one specific ownership group.

If you really think about this it's true. There are cities all across the United States who own and manage at least one golf course and also a number of larger cities that own and manage up to as many as eight golf courses and possibly more.

Although the topic of this speaker's session was not specifically about municipal golf, this one statement rang a bell with me because I've spent the majority of my career in this sector of the golf industry.

The phenomenon of municipalities owning golf courses is not surprising. Cities feel an obligation to provide their residents with lifestyle amenities that enhance the livability of a particular city. Golf and recreational opportunities in general can and do play a significant role in this concept.

One of the problems is that a large segment of the population may take part in a wide array of recreational and cultural activities within their communities, but in most locations only about 10 percent (+/-) of the people play golf. This statistic alone puts golf in a precarious situation when it comes to community support and most importantly, funding. This problem drastically affects all the other types of golf courses as well (private, daily fee, resort, etc.) but that's for another column.

In many cases it may make good sense for municipalities to own golf courses because they do play a significant role in a community's assets and amenities. But there are more signs each day that point to the fact that cities may want to consider getting out of the

golf course management/operation business.

There are many reasons for this, but first and foremost, in today's economy it is more and more difficult for cities to find the necessary funding to continue to do things the way they did in golf's heyday (in the '80s and '90s). Also, in most cases it is more costly for cities to maintain/manage golf courses simply because of their wage scales and benefits packages.

In the past when golf rounds were up and costs were lower, cities could generally keep up and sustain a golf system that would at least break even and hopefully make a nominal profit. But since most municipalities have struggled drastically the past several years because of the economy, many have come to the conclusion that they need to oper-

ate differently.

Now, just like everything, there are exceptions to this rule. There are cities that have highly successful golf operations. But the fact is, many municipalities across our country are struggling with their golf operations.

Politically and for public safety reasons it is more important for cities to use their appropriated funds for things like police, fire, sanitation and other items that we as Americans have come to expect our cities to provide. These items are for the good of the entire community and not just a select group.

I'm not saying every municipality should get out of the golf management business. I'm just suggesting that in light of our economic times and the important issues that cities face with funding, there may be situations where it makes perfect sense to look at the their golf operations differently.

The reason I say this, and this is coming from someone who has been in municipal golf for most of his life, is because I understand the important role that affordable and accessible golf plays in growing our game and creating new golfers. I would hate to see this segment of our industry go away because then rounds and revenues would decline even further than they already have.

Mark Woodward is a senior vice president for OB Sports, principal of DaMarCo Golf, president of Mark Woodward and Associates and a contributing editor for *Golfdom*.



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“While many are adopting the state model, the activists have nothing better to do than to court the media and give distorted, one-sided versions of the water quality issue.”

JOEL JACKSON, *Contributing Editor*

Putting greens and politics

Thanks to some of the recent legislation and regulation filtering down from Washington to city councils, Big Brother is endorsing and/or passing laws that will affect what products can be used on golf courses, and when and where others can be applied.

Politicians tend to placate the vocal minority who call for bans on the use of fertilizers during the summer “rainy season” months, especially in the Sun Belt sections of the country. Decades of independent research has shown that during the peak growing season, turf and landscape plants utilize all but a very small fraction of the applied nutrients.

Conversely, when nutrients are applied during the slower growth periods like the spring and fall, as mandated by many of the proposed bans, the health and vitality of the turfgrass declines and the amount of nutrients lost rises significantly as the turf thins out. This fact has been most recently documented by an 8-year nutrient management

study done by the University of Florida using funding from the Florida Department of Environmental Protection.

In 2005, the state of Florida passed the Urban Fertilizer Rule which limited the amount of nitrogen and phosphorous in fertilizer blends sold to homeowners. It also limited the amount of N and P that could be applied per application, per year on golf courses and sports fields. In 2007, Florida then passed the Model Fertilizer Ordinance. This reinforced those stewardship practices and required any county or city to consult with the State Department of Agriculture and the University of Florida scientists if they wanted to draft a more restrictive fertilizer ordinance.

Activists began calling for an all-out war on water quality in 2008 on Florida’s west coast in the Sarasota area citing nutrients as a leading cause of “red tide.” Red tide is the common name for large blooms of brown algae. These occur periodically along the west coast, and have been recorded since the 1800s. Politicians jumped on the bandwagon to “do something” about water quality, as long as it didn’t involve spending lots of money.

Usually, without involving the state or the university, as required in the state ordinance, local governments enacted fertilizer ordinances with seasonal bans on usage. In many of the early ordinances golf courses were given an “exemption.”

The exemption required that superintendents would follow the Golf BMPs, which were published in 2007 as part of a joint effort of the Florida GCSA, the Florida DEP and the University of Florida researchers.

I think this exemption was due in part to the overall efforts of the GCSAA and local chapters in raising awareness of the professionalism of the modern-day superintendent. In several cases local superintendents visited their local commissioners to make them aware of the Golf BMPs.

Advocacy can work, but it is not a guarantee. The west coast wave of ordinances has spread to Florida’s east coast. Like the west coast, counties preempt the state and then cities preempt the county. While many are adopting the state model, the activists have nothing better to do than to court the media and give distorted, one-sided versions of the water quality issue. While our industry has been spared in most of these laws, the activists publicly declared recently, “Golf is next!”

The green industries in Florida have united and are attending commission meetings and writing letters attempting to bring science to the table. Recently, a newspaper down in Ft. Myers published an article declaring that perhaps the bans were indeed more harmful than helpful. Perhaps there is hope for our side.

Joel Jackson, CGCS-Ret., is a contributing editor for *Golfdom*.

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“Even though it feels like I’m locked in an eternally futile superintendent job search, I would much rather be doing this job than anything else.”

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

The year-end

As 2013 comes to a close, I’ve recently found myself reflecting on the year on both a personal and professional level. How about that for a completely stereotypical opening to a December column? They probably teach that on the first day of Year-End Column Writing 101, which I’m pretty sure is a required course in every college Journalism program.

Then again, maybe not. This is probably going to come as a huge shock to my readers (which I estimate to be at least seven people — not to brag), but I’ve never even taken a Journalism class, so I could be wrong about that.

Anyway, I seriously have been looking back over things that have happened this year, both in my personal life and at work. I’ll spare you the personal revelations — not that I actually had any, but I’ll pretend that I did so I don’t seem shallow. However, the job related stuff is definitely fair game and there are three things that I find myself thinking about the most.

I was again reminded that this has to be one of the greatest professions on earth both because of the job itself and the people who do it.

It’s the confluence of sev-

eral things I, and probably most of you, love: golf, science, problem solving, working and being outside. As cliché as it is, it really is hard to beat seeing the sun rise over the amazing landscape that we have the opportunity to maintain and improve every day and being able to look back at the end of the day and see the tangible results of our efforts.

Even though it feels like I’m locked in an eternally futile superintendent job search, I would much rather be doing this job than literally anything else (OK, with the possible exception of playing for the Cleveland Indians. The allure of 60+ hour weeks for way less money proved too strong to pass up.)

I’ve also given a lot of thought to writing this column this year and what has come from it. It has given

me the chance to correspond with people I likely never would’ve crossed paths with otherwise and I have learned quite a bit both from those interactions and from the research I did for a few columns. There are some really great people in this business who, despite being in the midst of a hectic golf season and, in one case, two weeks out from hosting a major, still took the time to shoot me an e-mail about a column they enjoyed. It honestly blew me away.

Probably the most striking thing I realized this year is the effect this job can sometimes have on your family. The hours and the unpredictability of this business can make the tough job of raising kids even tougher.

Before my wife and I had kids, I never really gave a second thought to how much I

worked and she was probably more than happy to have me and my idea of “funny” out of her hair for extended periods of time. Added bonus: built-in excuse to dodge in-law visits and going to weddings.

But now, with two little ones running around, it’s a completely different ballgame. Many of us have seen bosses or co-workers deal with this issue when we were younger, but until you experience it for yourself, you really can’t understand what it’s all about.

In addition to working full-time, I know how much extra work at home my wife has to take on during the season because of my work schedule. I am unbelievably grateful that she is willing to do so because she understands how much I love my job and the commitment it takes to do it. The spouses of people in this business, especially those with kids, work just as much, if not more, than we do. I don’t think it’s a stretch to say they are the unsung heroes of golf course maintenance.

I guess the overarching theme to all this is that I’m very fortunate to have an awesome family and a great job in the best business on earth. Keeping this in mind certainly helps to put the bad days and the occasional setbacks in perspective.

And I was only kidding about dodging both in-law visits and weddings. It’s just rude to bail on someone’s wedding.

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



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Lucky

BY KEN MOUM AND SETH JONES



Like Dad always said, “I’d rather be lucky than good.” ¶ The number 13 may be considered unlucky by some, but as we look back, 2013 was definitely a lucky year for *Golfdom*. In the same year that we launched a major redesign of the magazine, we also met Arnold Palmer (see page 6) and Billy Casper (page 22), enlisted Annika Sorenstam as a speaker for our *Golfdom* Summit (page 25), stayed mostly dry at the U.S. Open (page 23) and maybe above all else... avoided falling into any sinkholes (page 22). ¶ So allow us a few pages to reminisce on the good times and bad times of 2013. As always, we hope you’ll accept our attempts at humor for what they are: attempts.

Time again
for our annual
year in review.
A look at who
bet on black
and won big
in 2013, and
who busted.

In January, NOAA scientists said the global average temperature for 2012 was the 10th warmest since record keeping began in 1880. It was also the 36th consecutive year with a global temperature above the 20th century average. The last below-average annual temperature was 1976.

The contiguous United States had its warmest year since national records began in 1895, surpassing the previous record set in 1936 by 1.0°F (0.6°C).

Only the 10th warmest year since 1880? 2012, what a wimpy year.



A GCSAA dues increase was approved by the GCSAA membership at the association’s annual meeting. A dues increase of \$25 for Class A and Superintendent (SM) members and \$15 for Class C members passed by a 7,022 to 844 count, or an 88 percent margin.

We’re affiliate members, so we came out of this

unscathed. Well, except for that one awkward moment when we were asked to leave the GCSAA building...



According to the National Golf Foundation, only 13.5 new golf courses (defined as 18-hole equivalents) opened in 2012 vs. 154.5 course closures. This marked the seventh straight year that more golf courses closed than opened in the U.S. Of those 154.5 golf courses that closed this past year, a disproportionate number of them were public facilities (68 percent of total closures).

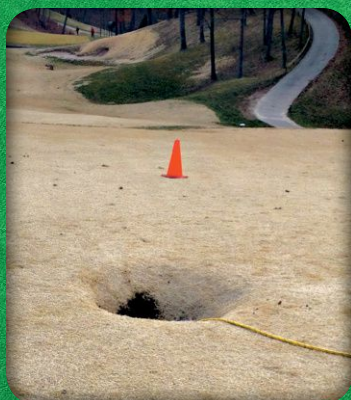
	OPENINGS	CLOSURES	NET CHANGE
TOTAL 2012	13.5	154.5	-141.0
Daily Fee	8.5	130.5	-122.0
Municipal	1.5	8.5	-7.0
Private	3.5	15.5	-12.0

Continued on page 22

'13



*In its first full year on a national scale,
Rounds 4 Research collects nearly
\$150,000 for turfgrass research.*



At Annbriar GC in Waterloo, Ill., a golfer is swallowed whole by a 10-foot-wide sinkhole on the No. 14 fairway. Fortunately, the golfer is pulled from the hole with only minor injuries. Superintendent John Soetaert, CGCS, tells *Golfdom*, "I've been working on a golf course since 1986, and I've never seen anything like this."

Moments before the golfer disappeared, he announced to his playing partner that he wished to "sink this in the hole." Which leaves the question: what were his other two wishes?

Continued from page 21

The Toro Company extended its support of The Environmental Institute for Golf through its partnership with the "Rounds 4 Research" program. Toro presented a \$50,000 ceremonial check to the EIFG at the 2013 Golf Industry Show.

Frank Lamphier; Ken Mangum, CGCS; Dennis Lyon, CGCS; and Roch Gaussoin, Ph.D., were given the 2013 GCSAA Col. John Morley Distinguished Service Award at the opening session of the 2013 GCSAA Education Conference.

Billy Casper, who grew up putting for nickels and dimes and hitting balls off

ant hills before becoming one of golf's leading money winners and most respected champions, was the recipient of NGCOA's 2013 Award of Merit.

He also gets an honorary award from Golfdom for giving us a putting tip in 2013 that stuck with us all season long, earning us a few nickels and dimes.



American Society of Golf Course Architects past president Rees Jones was given the 2013 Donald Ross Award in April during the 67th ASGCA Annual Meeting. The award is named for ASGCA's honorary first president, and is presented to an individual who has made a positive contribution to golf and golf course architecture.

Nufarm Americas acquires Cleary Chemical Corporation, a marketer of fungicides, insecticides and plant growth regulators to the turf and ornamental horticulture industries. "We are excited about the synergy and opportunity this move will bring," says Darryl Matthews, general manager for Nufarm in North America. Nufarm will offer the entire line of Cleary products under the Cleary brand name.

Environmental Science, a division of Bayer CropScience LP, launches Healthy Turf, Healthy Tomorrow, a multi-faceted program aimed at advancing plant health research and education for superintendents to help ensure the health of their courses — and the industry — for the future. The program includes in-person training for selected superintendent applicants, as well as plant health-focused demonstration courses, webinars and scholarships.

...and with this blurb, we've met our quota of "plant health" references for the issue. Sweet!

We Are Golf coalition members (CMAA, NGCOA, PGA of America and GCSAA) along with other industry participants, visited Washington, D.C., April 15th to 17th, to meet with a variety of individuals in making the case for golf. The message was loud and clear — golf is annually a \$68.5 billion industry that employs more than 2 million people and generates \$3.9 billion dollars each year for charitable purposes. Golf facilities provide communities economic, environmental, recreational and social benefits.

Next year, maybe the group can help out with Obamacare?

Eagles Pride GC on Washington state's Joint Base Lewis-McChord is Audubon International's 1,000th golf course to receive designation as a Certified Audubon Cooperative Sanctuary. The program provides technical assistance to help golf courses protect the environment, preserve golf's natural heritage and gain recognition for those efforts. John Ford, CGCS, is the superintendent at Eagles Pride.

The 2016 Rio de Janeiro Olympic golf course commenced construction after numerous delays. Reportedly a dispute arose over whether the land would be used for a golf course or for housing. Once the dispute was settled, the necessary permits were issued and architect Gil Hanse began shaping course features for a course that will soon play host to the first Olympic golf competition since 1904. Because of the delays, Hanse estimates that construction will be done in the first half of 2014, and tournament-ready by 2015.

Just you wait: the villain of this story, the housing developer? He'll still find a way to get invited to a luxury chalet to watch the tournament.

Toro unveils plans to expand its headquarters in Bloomington, Minn., with a

75,000-square-foot, three-story addition. The company reported profits of \$78.4 million in the quarter, up from \$68.8 million a year ago.

The expansion is scheduled for completion in the summer of next year. Toro moved to its Bloomington, Minn., location in 1952, opening a research and development facility, and later its headquarters in 1962.

Bob Blalock, superintendent at Lake Windcrest GC, Magnolia, Texas, and his wife diversified from the turf business by bottling and selling "Uncle Bob's" brand of barbecue sauce, rubs and seasonings.

We would be happy to give a complete review on this barbecue sauce, but until we get a free sample in the mail...

Smithco Founder Ted Smith died at age 98. In 1967, he launched Smithco with one product, the Red Rider utility truck. More than 45 years later, Red Riders continue to be used on golf courses and athletic fields.

The R&A and the USGA, golf's governing bodies, proposed changes to the Rules of Golf that would prohibit anchoring the club in making a stroke, beginning January, 1 2016. The proposed Rule 14-1b, which follows an extensive review by The R&A and the USGA, would prohibit strokes made with the club or a hand gripping the club held directly against the player's body, or with a forearm held against the body to establish an anchor point that indirectly anchors the club.

Don't feel bad for Adam Scott. He's still got that green jacket. And the cool Australian accent. And \$33 million in career earnings. And his good looks. And... you know what? Screw Adam Scott!

John Deere Golf and The First Tee launched a "Careers on Course" program. Teenage

Continued on page 24



Rain, rain and then more rain fell at the U.S. Open, contested at historic Merion GC in Ardmore, Pa. The first U.S. Open course to play at under 7,000 yards since 2004 (Shinnecock Hills,) many in the media feared golfers would go low. But Justin Rose won with a score of 1-over 281, with only five players in the 60s on Sunday.

With so much rain, the maintenance team, led by Matt Shaffer, found themselves thrust into the spotlight. "I feel bad for (the maintenance crew) because I know the worse the weather is, the more problems it causes for them," Jim Furyk told *Golfdom*. "I'm sure they're running 24/7 this week, trying to get this golf course in shape."

It looked like Woodstock '94 out there for a couple days. The other big winner, aside from Rose? Stores that had galoshes in stock.



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Continued from page 23

participants at three First Tee chapters got the chance to explore several aspects of a career in golf course management and the science of agronomy through a new program sponsored by John Deere, who in February announced a \$1 million commitment to The First Tee over a five-year period.

Golf Digest, the USGA and the PGA of America launch Time for Nine initiative to support more nine-hole rounds. "Five-hour-plus rounds of golf are incompatible with the compressed time that many of us have available for recreational activities," said USGA President Glen D. Nager. "Time

for Nine is a fun and creative start to promoting the nine-hole round of golf as a complete and enjoyable experience that is consistent with the traditions of playing the game."

After 33 years of service to the state of California and golf course superintendents, sports turfgrass managers, landscape professionals and homeowners throughout the U.S and in many other countries, Ali Harivandi, Ph.D., retires from the University of California Cooperative Extension.

Spectrum Technologies Inc. and the USGA launched the TruFirm turf firmness meter that measures the firmness of turf and bunker sands. The patented system utilizes an impact hammer that mimics the shape of a golf ball to better simulate golf ball impacts. The mass is dropped from a consistent height and the maximum turf penetration value is recorded and correlated to the surface firmness.

Finally, a product that helps with firmness that doesn't make us blush and blurt out, "I don't know anything about that..."

In September the turfgrass industry mourned the loss of two iconic figures.

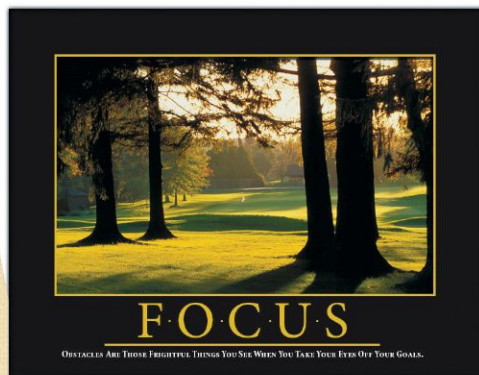
Dr. James Watson, who spent 46 years at The Toro Company and spearheaded significant turf and water management research, was 92. Charles G. Wilson, who pioneered the USGA Green Section, was 93.

Watson received GCSAA's Distinguished Service Award in 1983 and the Old Tom Morris Award in 1995. Wilson established the first regional Green Section office in Davis, Calif., in 1952. He was the first full-time turfgrass consultant.

California Golf Course Owners Association bestowed Canyon Lake resident Ted Horton with the inaugural "CGCOA Ted Horton Distinguished Service Award." The

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GCSAA CEO Rhett Evans reached the snow-covered summit of Mt. Kilimanjaro. For those who are counting, that is 19,341 feet above sea level. As promised, Evans brought a GCSAA Golf Championship flag to leave behind at the summit. He also hit some golf balls (with a GCSAA logo, of course) from, as he said "the roof of Africa."

Evans joins the company of the Dalai Lama by hauling off and whacking one into a 10,000-foot crevasse. "Big hitter, Evans, long..."


versity's turfgrass program passed away October 30. In 2011, the university named its turfgrass research center in his honor.

Talk about a good year: World Golf Hall of Famer Annika Sorenstam was named winner of GCSAA's Old Tom Morris Award and also named "First Lady of Golf" by the PGA of America.

That's cool and all, but we're thinking her highlight might still be speaking at this month's Golfdom Summit. OK, maybe that'll just be our highlight of the year.



Bill Engvall, one of the world's top and busiest comedians, was named headliner of the 2014 GIS Closing Celebration in Orlando.

We say bravo, GCSAA, for nabbing a speaker who will get people to stick around. Also, can you ask Mr. Engvall to help us with the jokes for this feature next year? 

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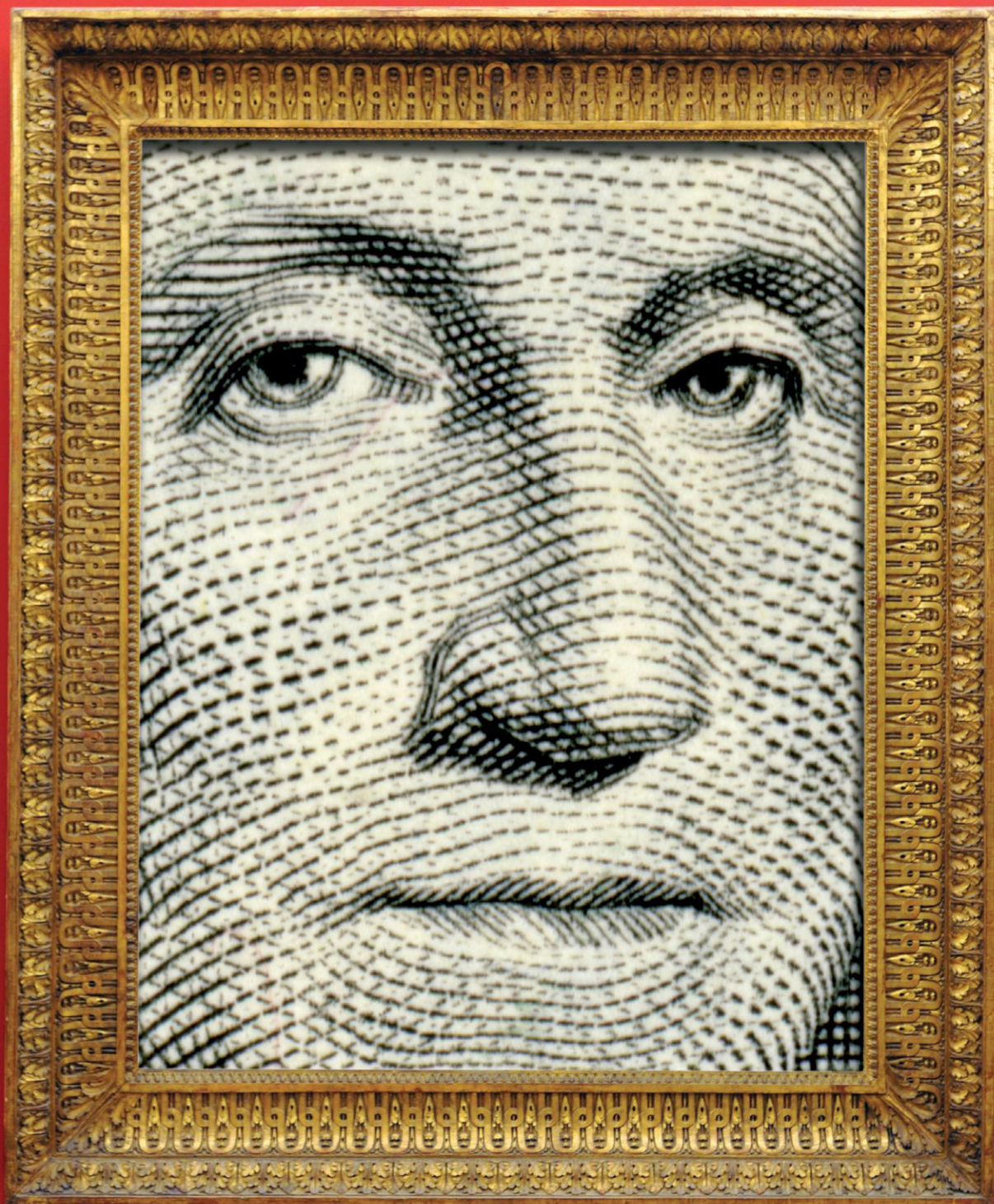
award is the first honor in the history of the CGCOA that pays tribute in its title to a specific individual.

Our editorial director, Marty Whitford, has an award named in his honor. It's given to the person who can eat the most funnel cakes in 10 minutes at the Uinita (Wyo.) County Fair.

Renowned turfgrass icon Joseph M. Duich, Ph.D., passed away Oct. 11 in State College, Pa.

Duich, recipient of GCSAA's Old Tom Morris Award in 2006 and Distinguished Service Award in 1976, was professor emeritus of turfgrass science at Penn State.

A.J. Powell, Ph.D., a pioneering turfgrass researcher from the University of Kentucky and the driving force behind the uni-



The Art of doing it cheap

BY CHRIS SORRELL

Without a doubt the golf course superintendent profession is demanding. In the best of situations a superintendent is forced to deal with things that are not within his control. Most notably there is Mother Nature... and the economy.

Most every golf course superintendent has felt the uncomfortable sensation of a tightening fiscal belt over the past few years. As the golf market stagnated and revenues decreased, what was available for course maintenance diminished. Superintendents had to closely reevaluate what practices they were committed to and what could be removed from their regime.

Without a doubt this was a difficulty for many superintendents . . . but not all. There are some who have struggled and fussed with a restrictive budget on a regular basis; each year looking at meager budgets, trying to determine how best to create something from next to nothing. The weak golf market has not impacted them as much as others because it is the same as before: doing the most with the little they have.

These superintendents manage courses with good conditions on budgets that are only a fraction of what is commonly considered the "low end." I speak from experience in this regard. My first superintendent posting, in 2007, was on a small course in north central Pennsylvania. During my 5-year tenure, I never had an annual budget greater than \$117,000.

This may seem extreme to many in the industry, but it is what there was to work

with and every effort was made to produce something outstanding. Though my greens may not have been the fastest, the rough might have gotten a little taller at times and the course might have suffered a bit more with the extremes of summer, the course still maintained a favorable comparison to others with substantially greater resources.

Taking our time

Of primary importance in trying to be frugal (aka, just plain cheap) is to understand the relationship between time and money.

The fact is that these sorts of courses have a lot more time than money, so maximizing the advantage time allows is only wise. As an example, when I took over my first course, there was a significant thatch layer present on the greens. As any formally trained superintendent would, my first impulse was to aerate the heck out of them. Unfortunately this approach was not permissible with our budget, so it was necessary to settle for a single aeration per year. In addition, frequent light verticutting during the season, light topdressing and an aggressive annual verticutting were employed.

Although the aggressive core aeration approach would have produced more immediate results, the availability of time was capitalized on and resulted in improved greens condition over time. Important to this approach is an understanding of what is expected by the clientele. Upon arriving at the course, I won great favor merely by mowing the greens on a daily basis. The member-

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There are low-budget golf courses and there are no-budget golf courses. A superintendent veteran of both types tells how he still got it all done.

Continued from page 27

ship did not have high expectations for the course after seeing it disregarded for so many years. Realizing this, it was easy to recognize that slow and steady improvement would be appreciated. Although personally, this pace didn't always sit well, it taught me that meeting the patron's expectations was more important than meeting mine. The consequent monetary savings made the limited budget easier to manage.

Labor on a budget

Naturally, the single largest portion of a budget is labor expenses. To keep these expenses under control, the course would only employ a very small annual labor force. The crew was composed of three senior crew members (primarily adult laborers) and three high school crew members.

This design allowed the course to maintain a minimal exposure to labor overhead such as unemployment expenditures. Further, the crew was "phased" in and out during the season. The first employee would begin around the first of April, followed by the second employee around the first of May and the third employee in the middle of May. The three high school workers started after school ended around the first of June. This system resulted in a slow increase in labor costs during a time when revenues are only starting to trickle in.

The high school labor would end when school began, while the rest of the labor was released by the end of October.

Shopping around

When it came to chemicals and fertilizers, it was absolutely essential that the course got the most bang for each buck spent. To achieve this I took the unusual approach of "shopping" all the products needed each upcoming year.

This required taking stock during the late fall to determine what amount of individual products remained, and, by using past fertilizer/pesticide records, determining how much of each product would be needed the coming year. This developed into a "vendors need sheet" which was sent out to anyone who wanted to sell



me a product. The result was the ability to mix and match between dealers to get the best deal on price, terms and quantity discounts.

Although somewhat time consuming, the tactic maximized my control over the annual chemical and fertilizer dollar. Being blessed with a few vendors who would tolerate this unorthodox approach, it provided me with a very successful management tool.

Additionally, the use of chemicals and fertilizers were minimized by employing the advantages the course offered while maximizing cultural controls and a scouting program. The course was located on top of a mountain and as a result, the wind regularly blew. The resultant decrease in the duration of turf wetness suppressed disease.

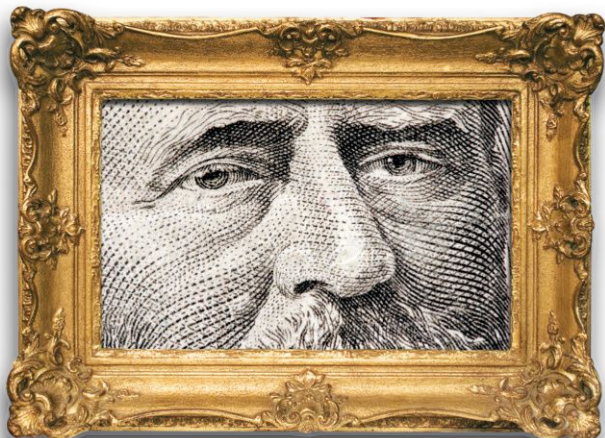
I maintained a fertilization regiment that was highly organic. All greens, tees, collars and approaches received only natural organic granular fertilizers (unless they required extra fertilization due to a particular issue). This was supplemented using foliar feeding products, but only to a small extent. The use of natural organic fertilizers aided in disease suppression and the reduction of chemical applications. This was all monitored by a scouting program that informed the curative use of pesticides.

Planning ahead

The final tool I used to make ends meet on this minimally budgeted course, was an expenditure calendar. Each year before the annual budget meeting I created an expenditure calendar which projected all the course's maintenance expenditures on a monthly basis. This tool was of significant importance for the owners so they could know how much money would be required each month to continue normal maintenance operations. This was particularly important when maintenance began in the spring during the time revenues were still low. Using this calendar allowed all the tools, parts and various other necessities to be spread out over a number of months and purchased at the latest date before they would be needed.

This is how I did it in the leanest of situations. Sometimes it is not pretty, other times it is not exactly what we want. Without a doubt it can be tedious and difficult, but it will work. With artful approach and diligent effort, cheap can be achieved! ©

Chris Sorrell is the superintendent at Silverhorn GC in Edmond, Okla. This is his second story for *Golfdom*. We're happy to report that his maintenance budget has increased since the last time he wrote for us.





Super Science

// TURF'S SHADY SIDE

BERMUDAGRASS: LIGHT INTEGRALS FOR GREEN ESTABLISHMENT

Benton Hedges, Ph.D.

In the transition zone, many superintendents are considering a putting green cultivar conversion. Whether the conversion is from creeping bentgrass to bermudagrass, upgrading from an older bermudagrass cultivar, or early adopters of the ultradwarf bermudagrasses, they are looking to renovate. A major constraint will be the successful establishment under reduced light environments due to the poor shade tolerance of bermudagrass. Currently, no research studies exist determining the light requirement for bermudagrass putting green establishment. Therefore, the objective of this research is to quantify a daily light integral requirement for successful bermudagrass putting green establishment.

A daily light integral is the amount of photosynthetic light a plant receives each day, measured in moles of light per day (mol/d). A field trial was initiated



Shade tents on the research green at the Foil Plant Science Research Center in Starkville, Miss.

In June 2013 in Starkville, Miss. Four bermudagrass cultivars (Champion, TifEagle, MiniVerde and MS-285) were established under full-sunlight, 30 percent, 55 percent and 80 percent shade using a neutral density, polyfiber black shade cloth. Using data loggers and quantum light meters, daily light integrals were calculated for each shade level. Full-sunlight plots received 40.7 mol/d, while 30 percent, 55 percent and 80 percent shade received 31.3, 19.7 and 10.2 mol/d, respectively.

At the conclusion of the study, using statistical regression analysis, the amount of daily light required to reach 70 percent cover was determined. MiniVerde required the least amount of light with 26.9 mol/d, followed by Champion with 29.9 mol/d. Meanwhile, TifEagle and MS-285 required 30.1 and 31.3 mol/d, respectively. When comparing full-sunlight and 30 percent shade to 55 percent shade, a 25 percent reduction in chlorophyll, a 45 percent reduction in clipping yield, a 28 percent reduction in color, and a 90 percent reduction in percent cover was noted.

The results noted above only represent 2013. This research will be repeated in summer 2014.

Benton Hodges, Christian Baldwin, Ph.D., Barry Stewart, Ph.D., Maria Tomaso-Peterson, Ph.D., and Gene Blythe, Ph.D., Mississippi State University. Benton Hodges can be contacted at bphodges@gmail.com for more information.

NEWS UPDATES

KREUSER TO JOIN UNIVERSITY OF NEBRASKA FACULTY

Bill Kreuser is set to join the faculty as an assistant professor at the University of Nebraska-Lincoln this January. He will follow in the footsteps of Dr. Roch Gaussoin and serve as the Turfgrass Extension Specialist with a focus on soil and water management and plant physiology.



Kreuser graduated with a B.S. in 2009 and M.S. in 2010 from the University of Wisconsin-Madison where he studied Soil Science. During his M.S., Kreuser developed a GDD model for plant growth regulators and evaluated

fertility requirements of creeping bentgrass putting greens.

He is set to earn his Ph.D. from Cornell University in December where he evaluated the effect Civitas and plant colorants have on turfgrass growth and physiology. Kreuser plans to use his research background in soil management and plant physiology to understand how nutrient cycling, water use and cultural practices affect turfgrass growth and stress tolerance. Additionally, Kreuser and his graduate student, Glen Obeare, look to understand why iron oxide layers can form in sand putting greens and investigate methods to manage iron layer formation.

“TO OUR SURPRISE, TOPDRESSING EVERY WEEK DURING THE SUMMER REDUCED DISEASE SEVERITY EVEN UNDER CONDITIONS OF INTENSE DAILY FOOT TRAFFIC.”

James A. Murphy, Ph.D.

(see full story on page 30)

//COMBATTING ANTHRACNOSE

Topdressing versus anthracnose

A look at the best topdressing practices for preventing anthracnose in annual bluegrass.

By James A. Murphy, Ph.D., James Hempfling, Ruying Wang, and Bruce B. Clarke, Ph.D.

Anthrachnose, caused by the fungal pathogen *Colletotrichum cereale*, can be a devastating disease of annual bluegrass (*Poa annua*) putting greens in temperate climates throughout the world. The pathogen lives in diseased plant tissues and on organic residues in the thatch and usually infects older senescing leaves and tillers, although younger plant tissues can be infected. The disease can be observed at any time of year as either a foliar blight or a basal rot of crown tissue, but is generally most destructive during the hot, humid conditions of summer. Symptoms of the disease often start as a “firing” of individual leaves (a



Research provided and funded by USGA.

change from green to a yellow-orange leaf color) that can progress to death of tillers and crowns and eventually severe thinning of the turf.

Anthrachnose is often more severe on turf that is challenged by extremes in soil water, low nitrogen fertility and above optimal temperatures. Optimum conditions for pathogen development

include temperatures between 77 to 91° F and long periods, 12 hours or more, of leaf wetness. Spores are easily dispersed by splashing raindrops and maintenance equipment. Reduced light intensity is thought to also favor disease development. Thus, warm, overcast and excessively wet or dry soil conditions can encourage development of this disease.

Research has shown that damage from anthracnose will be more severe on turf that is stressed by drought, low nitrogen fertility and low mowing. Mechanical injury from play and cultural practices is often speculated as a factor involved with outbreaks of anthracnose. However, factors that are likely to physically injure turf (for example, foot traffic, light-weight rolling, brushing and double-cutting) have not increased anthracnose severity in our research trials. The effect of vertical cutting on anthracnose is less clear, but research findings suggest that this practice may not be as problematic as once feared (Hempfling et al., 2012; Inguagiato et al., 2008).

REDUCING THATCH

Survival of the *C. cereale* in the soil is heavily dependent on environmental conditions. Cool temperatures favor survival of the pathogen on plant debris in the thatch but the fungus may be a poor competitor with other soil organisms when plant residues are limited. Thus, management practices to reduce thatch may be a useful strategy for suppressing anthracnose.

The practice of topdressing putting greens, believed to be invented by

FIGURE 1



In this untreated check plot 44 percent of the plot area was thinned by anthracnose (image captured on June 6th, 2010).

Old Tom Morris at St. Andrews Golf Course in Scotland, has been practiced with increasing frequency since the 1970s. Modification of thatch to reduce disease severity is one widely stated objective of topdressing putting greens. However, many have speculated that the incorporation of topdressing sand causes abrasion of plant tissues and these wounds increase the infection of the plant by the anthracnose pathogen.

MAT VERSUS THATCH

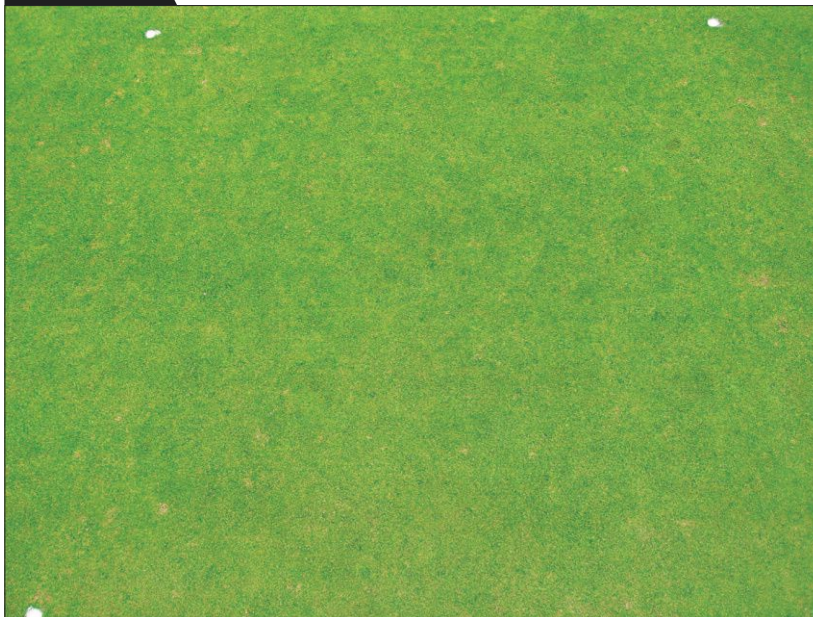
Our initial studies of topdressing found that frequent topdressing (cumulative amount of 800 to 1,600 pounds of sand per 1,000 sq. ft.) during the summer substantially reduced anthracnose severity (Figure 1 and 2). We hypothesize that the reason for disease reduction is due to the formation of a well-developed mat layer rather than a thatch layer at the surface of the turf. A mat layer is a more desirable growth medium for plants than thatch.

Annual bluegrass plants growing in our topdressed plots had deeply buried crowns and much larger, longer leaf sheaths than plants growing in non-topdressed plots. Plant crowns buried and growing in a mat layer are better protected from extreme fluctuations in temperature and soil water during the summer when anthracnose disease pressure is highest compared to crowns growing in thatch.

A mat layer developed from sand topdressing also provides greater physical support and anchoring of grass plants by adding new soil (sand) particles that surround tillers, crowns and adventitious roots, ultimately encouraging better shoot vigor. Moreover, a firmer turf surface improves tolerance to mowing by maintaining a more consistent (higher) effective height of cut, reducing the tendency for mower scalp, especially under wet conditions and low bench settings.

Not surprisingly, higher mowing heights have been shown to decrease

FIGURE 2



Disease severity was only 10 percent in this plot which was topdressed in two split applications totaling 8 cu. ft. per 1,000 sq. ft. of sand during the spring and biweekly with 1 cu. ft. per 1,000 sq. ft. of sand during the summer (image captured on June 6th, 2010).

anthracnose severity on annual bluegrass. As mentioned above, the anthracnose pathogen survives on dead organic matter (as a saprophyte) in thatch when environmental conditions are unfavorable for disease development. Thus, the burying and dilution of disease inoculum with sand topdressing is another plausible mechanism for disease suppression.

HEAVY AND LIGHT TOPDRESSING

Topdressing at a cumulative intensity of 800 to 1,600 pounds of sand per 1,000 sq. ft. during the summer is an expensive and laborious practice that will interfere with mowing and play for several days after the application. More typically, topdressing programs on golf courses apply less topdressing sand during the summer than the rates used to reduce anthracnose severity in our initial studies. Large topdressing rates are commonly applied in conjunction with hollow tine cultivation during periods of low play (for example, spring and fall). These large

volume topdressing applications are then supplemented with much lighter and, to varying degrees, more frequent applications of topdressing sand during the playing season.

Such programs are generally less expensive to implement and less disruptive to play than a program that would apply a greater proportion of the total annual sand application during the peak playing season. We are currently evaluating 1) whether topdressing applied during the autumn or spring affects anthracnose severity and more specifically, 2) whether autumn or spring topdressing alters the effect of lower-rate summer topdressing on this disease (Figure 3 and 4). From this work it appears that large volume topdressing in the spring is more effective at suppressing anthracnose than topdressing applied in the fall.

OTHER FACTORS

Superintendents have expressed concern about the potential adverse

Continued on page 32

FIGURE 3



Graduate student Ruying Wang applies sand topdressing to research plots.

Continued from page 31

effects of sand particle shape and foot traffic over recently applied topdressing sand on anthracnose severity. Our study of sand shape on anthracnose found that both sub-angular and round topdressing sand reduce the disease; in fact, sub-angular sand occasionally reduced disease more than round sand, although the difference was very slight. Thus, the shape of topdressing sand does not appear to be a concern with respect to anthracnose disease (Inguagiato et al., 2013).

We have also studied the effect of daily foot traffic on annual bluegrass. To our surprise, topdressing every week during the summer reduced disease severity even under conditions of intense daily foot traffic (Murphy

et al., 2010; Roberts et al., 2010). In fact, the best turf quality in this study occurred on plots treated with sand and foot traffic.

During the first year of many of our topdressing trials we have observed small increases in disease severity; however, these initial increases in disease severity dissipated within a week or two as more topdressing sand was applied during the trials. This initial increase in disease could be due to wounding of crowns that were not yet protected by a mat layer developed from routine topdressing. A threshold (minimum) amount of sand is probably needed before the benefits of sand topdressing (i.e., formation of a mat layer) can be seen in the form of reduced anthracnose disease and

improved turf quality. Observations of greater anthracnose severity on golf course putting greens after topdressing may be an indication that the program is insufficient (cumulative sand rate is too low) to reduce anthracnose severity.

CONCLUSION

In our trials, the overall benefits of topdressing have far outweighed any potential negative effects related to abrasion and wounding. A common recommendation for topdressing is to match the sand rate and frequency of application to the growth of the turf (thatch accumulation) so that sand filters through the leaf canopy and incorporates into thatch to maintain a non-layered growing medium that does not interfere with mowing or play.

Our research is indicating that this approach to topdressing is consistent with best management practices for anthracnose disease suppression. The greatest growth of leaf canopy and thatch accumulation occurs sometime in the spring and fall for cool-season grasses such as annual bluegrass, typically when nitrogen fertilizer is applied and irrigation or rain occurs. Relatively large amounts of sand should be applied during the spring and fall to match greater amounts of shoot growth and thatch accumulation. As growth slows during the summer, much smaller amounts of sand should be applied. The frequency of topdressing can also be adjusted during the summer to match growth.

To avoid falling behind the growth rate on well-fertilized vigorous turf, a weekly application frequency may be needed when very low rates (< 50 lbs. per 1,000 sq. ft.) of topdressing sand are applied.

Our current research is focused on evaluating a combination of best management practices (BMPs) such as topdressing, nitrogen fertility, mowing with varying rates and frequencies of fungicide application. Early indications are that implementing BMPs on

FIGURE 4



Graduate student James Hempfling brushes in sand after a topdressing application.

golf course putting greens can dramatically reduce the fungicide rates needed to control this disease, or allow superintendents to extend the intervals between applications resulting in significant savings while maintaining acceptable turfgrass quality and ball roll distance (green speed). However, additional research is needed to confirm these findings.

Acknowledgements

We would like to thank the United States Golf Association, the Tri-State Research Foundation, and the Golf Course Superintendents Associations of America and New Jersey for financial support of this project.

James A. Murphy, Ph.D., James Hempfling, Ruyang Wang, and Bruce B. Clarke, Ph.D. are in the Department of Plant Biology and Pathology at Rutgers University. Jim Murphy, Ph.D. is an Extension Specialist in Turfgrass Management, James Hempfling and Ruyang Wang are graduate

students and Bruce Clarke, Ph.D. is an Extension Specialist in Turfgrass Pathology. Dr. Murphy can be contacted at murphy@aesop.rutgers.edu for more information.

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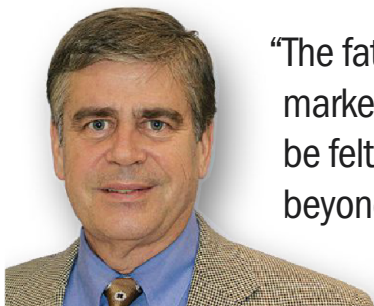
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"The fate of golf courses may follow market forces, but the impact will be felt socially and environmentally, beyond just playing golf."

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

What happens to those green spaces?

I grew up in one of those subdivisions that were built in the 1950s as part of the middle class movement to suburbia. We lived on a dead-end street that abutted what was initially a large farm field that rapidly developed into a city park with slow-pitch baseball fields and makeshift football fields for Pee Wee. Along the southern edge of the park, weeds grew on abandoned farmland. Later I realized that field, with its large milkweed population, was one small reason why we had a large annual monarch butterfly migration through the area.

Our moms often kicked us out of the house in the morning and we all headed for the park where we would spend our summer days playing until it was time for dinner. Just like the old "Leave it to Beaver" shows, all the fathers arrived home from work at the same time.

As time progressed the vacant farmland and subsequently the park, were developed for industrial use. The entrance to the park became a 30-foot-high cement wall. The resulting impact was a drab, decaying subdivision that had lost its property value along with its middle-class population.

Natural qualities of an area or locality that make it an attractive place to live and work are called amenities. Natural amenities can include unique natural characteristics of the region to

recreational opportunities that make it a destination. Natural aspects usually fall in three categories: 1) mild climate; 2) varying topography (for example, mountains); and 3) proximity to water. Given that many areas in the United States do not contain many of the natural amenities associated with growing populations, golf courses have played an important role in community development and dynamics.

In Ohio we found that golf courses planned and developed by local municipalities in the 1990s could not only increase property tax revenue, but change the population dynamics. Golf courses attracted white-collar workers with higher levels of education.

So it is with mixed emotions that I read about golf courses being closed,

abandoned and now being redeveloped for condominiums, rental property and such as the housing market begins to recover. Do I think there are too many golf courses that are too long and difficult, take too long to play and are too costly to play and maintain? Sure I do. Do I think the golf initiatives like Pace of Play and Play Forward as a few examples have come at a good time for the health of golf, especially in light of the courses built in the 1990s? Sure I do, and I'm excited about golf's future.

Golf courses attract people to live, work and vacation in a community. The impact of a golf course on numerous communities in improving the quality of life, in my opinion, has been astounding. In our study we found that 50 percent of the residents who lived around the golf courses didn't even play golf. These people bought their homes on the golf course for the aesthetic value and the feeling of being closer to nature.

It is with that in mind that I wonder what impact golf courses that are slated to be redeveloped for housing have on homeowners and the surrounding community. Will there be enough surrounding green space and activities to retain people? Or will these communities mimic strip malls that eventually lose customers and businesses only to be abandoned and replaced by a new strip mall down the road?

The fate of golf courses may follow market forces, but the impact will be felt socially and environmentally, beyond just playing golf. Communities face challenges in what to do with these new green spaces and whether they need to be protected, converted into multifunctional uses or developed. What these communities decide will determine to a large extent how the community is perceived by potential homeowners and to some extent, the value of golf.

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

Bacterial etiolation and decline of creeping bentgrass greens

Paul Giordano is a Ph.D. candidate in turfgrass pathology at Michigan State University and the topic of his dissertation research is bacterial etiolation and decline of creeping bentgrass greens. Paul can be reached at giorda13@msu.edu.

Q What is the correct name of the disease you have been investigating?

We use the name bacterial etiolation and decline to describe the disease caused by *Acidovorax avenae* subsp. *avenae* to distinguish this disease from other bacterial diseases in turf.

Q How widespread is the disease?

Since 2009 we have isolated *Acidovorax avenae* subsp. *avenae* associated with etiolation and decline of creeping bentgrass samples from 30 golf courses in 13 states. Most of the courses with the disease are in or around the Transition zone or Mid-Atlantic states.

We have only isolated the pathogen from putting green turf and from plants in the *Agrostis* genus. Creeping bentgrass is by far the most common turfgrass species infested, but we have isolated *Acidovorax avenae* subsp. *avenae* from colonial and velvet bentgrass as well.

The disease can be widespread on a particular golf course, affecting many greens, or sometimes more localized to one or a couple problematic greens.

A common trait among the golf courses with bacterial etiolation and decline is that many are high budget and intensely managed. Often the disease is observed during or immediately after the greens have gone through intense tournament preparation for an important golf event.

Q Describe the etiolation and decline phases of the disease.

Etiolation of leaves is the first symptom of the disease and occurs during warm days and cool nights in late spring or early summer. Etiolated leaves are several times longer than other leaves in the canopy and are noticeably yellow or pale green. The etiolation phase of the disease is more of a cosmetic problem that can result in an uneven playing surface.

When summer temperatures reach around 86° F for several consecutive days, and warm nights with high relative humidity are prevalent, the decline phase begins in areas where etiolated turf was observed. The decline phase will kill grass plants and result in a noticeably thin stand. Up close, the infected plants appear spindly, necrotic and seem to “melt” away as the disease progresses.

With the onset of hot weather, the decline phase can happen relatively quickly, and seems to be worse in cleanup passes and other high traffic areas where the turfgrass is stressed.

Q What steps can be taken to minimize damage from the decline phase of the disease?

First, reduce any and all added stress on the plants. In a few cases superintendents have skipped mowing for a few days and saw symptoms retreat. Do all the common sense steps to reduce stress such as increase mowing height, lay off aggressive cultivation, and give the plants a break.

Bacterial diseases are notoriously hard to control in plants, and no antibiotics are labeled for use on turf. That said, based on our trials and that of colleagues around the country, there

“ON COURSES AND IN TRIALS, APPLICATIONS OF TRINEXAPAC-ETHYL MAKES THE SYMPTOMS WORSE.”

does not appear to be a silver bullet to control the disease remedially.

A couple of things we have observed on golf courses and in our trials are applications of trinexapac-ethyl seem to make the etiolation symptoms worse. Additionally, ammonium sulfate applications also seem to enhance etiolation. We have much to learn about why this seems to be happening, but for now, in cases where bacterial etiolation is present, we suggest that a superintendent not apply trinexapac-ethyl or ammonium sulfate until etiolation symptoms subside.

Q Anything else to add?

Not all etiolation is created equal. By that I mean etiolation of turfgrass can have many causes. In some cases the etiolation is caused by *Acidovorax avenae* subsp. *avenae* or *Xanthomonas translucens*, but not in all cases. We have received samples in our lab with obvious chlorosis and abnormal growth and etiolation, but showed no sign of bacterial infection whatsoever. Just because a superintendent observes etiolated leaves, it doesn't necessarily mean the cause is a bacterium. A diagnostic confirmation of bacterial infection should come from your local turfgrass pathologist.



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

Professional Grade

NEW PRODUCT HIGHLIGHTS // IT WAS A VERY GOOD YEAR

BEST OF 2013

JUST A FEW OF THE PRODUCTS WE HEARD PEOPLE TALKING ABOUT THIS YEAR

BY THE **GOLFDOM** STAFF

1. GenNext Biotech

GENNEXT BIOTECH is a bio-nutritional that contains a water soluble carbon in a fertilizer carrier. It improves color, increases turf density, improves root depth and mass, while increasing green smoothness and speed. A key to GenNext Biotech is that it promotes bentgrass growth, allowing the bentgrass to out-compete *Poa annua*, without actually hurting the *Poa annua*. The C&D balanced turfgrass formulation contains over 3,000 complexes of natural organic ingredients, microbiological bi-products, organic hormones, extracts and enzyme complexes delivered in a high energy liquid fertilizer carrier.

gennextbiotech.com

2. Enclave

From **QUALI-PRO** comes Enclave, a new broad-spectrum fungicide, giving superintendents a powerful weapon in the war on fungal diseases in turfgrass and ornamentals. The first product of its kind in North America, the company says, Enclave is formulated with Quad-Control Technology that delivers effective, long-lasting protection from snow mold, anthracnose, brown patch, dollar spot and a broad range of ornamental diseases. Foursome is a unique pigment designed to enhance the aesthetic appearance of turf.

quali-pro.com/products/enclave/

3. GreenIndex+

First featured in our August

2013 issue, the GreenIndex+ from **SPECTRUM TECHNOLOGIES** consists of a board with three colors and a smartphone app. The GreenIndex+ allows users to precisely measure how green the grass is. Users take a photo of the board with the grass as a backdrop. Using the colored board as a control, the app calculates a numeric value as well as an equivalent visual rating for the grass. The value, according to Spectrum Technologies, is to take the guesswork out of applying nitrogen. But we like the idea of telling members that no, the grass literally is not greener at the neighboring club.

specmeters.com

4 ProCore SR

The **TORO** ProCore SR Series of deep-tine aerators works to alleviate subsurface soil compaction on greens, fairways and other areas. The eight models in the ProCore SR Series are available in widths from 48 inches to 75 inches wide and depths up to 16 inches. They have hydraulic remote depth adjustment, which allows the operator to change depth without getting off the tractor. A wide range of solid and coring tines are available for specific aeration applications. Models 864

and 1298 have precision-balanced coring heads to eliminate hopping, rocking and unnecessary vibration. With its 64-inch coring width, the 864 can aerate 1.5 acres per hour. Available in three-point mount and PTO drive.

toro.com

5. Practical Golf Course Maintenance: Third Edition

Co-written by the late **GORDON WITTEVEEN** and *Golfdom* Editorial Advisory Board Member **MICHAEL BAVIER**, this new third edition, released this year, includes major revisions to address the latest information on computer-operated irrigation systems, new equipment for all aspects of course maintenance, water quality and conservation issues. Of course the bread and butter of this classic is the basic techniques, in non-technical language, on maintaining consistent bunkers, topdressing, aerifying, pesticide storage, mowing techniques and more.

amazon.com/practical-golf-course-maintenance-green-keeping/dp/1118143744

THOUGHTS FROM OUR READERS

We heard talk of **GenNext Biotech** and the positive impact it was having on turf from several sources, including these reports from Hawaii and Texas:

"Our biggest pressure here in Hawaii is dollar spot. I have been using the product in rotation of my different 'cocktails' and it has changed our cultural practices in six months," says Rick Dunwell, superintendent at the Experience at Koele GC in Lana'i City, Ha. "We have gained 1 to 2 inches of root depth and cut our recovery time in half, when we have dollar spot outbreaks."

"I'm in Central Texas growing Tifgreen bermudagrass greens. I've been very pleased with the results. We have not put any fungicides or insecticides on these putting surfaces for the last three seasons," says Jamie Kizer, superintendent at Hidden Falls GC in Meadowlakes, Texas.



CONTINUED ONLINE

For more of the year's best, go to golfdom.com/category/products

These two photos, submitted by Jim Knulty, superintendent at Bigfoot CC in Fontana-on-Geneva Lake, Wis., show a green that was aerified on Sept. 4th. The first photo was taken on Sept. 6th, the day GenNext was applied. The second photo was taken five days later, on Sept. 11th.



1



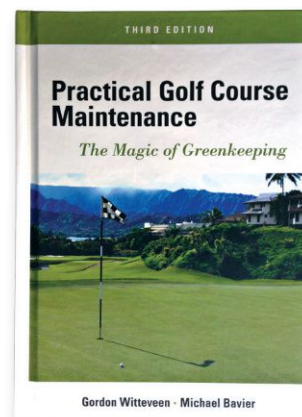
2



3



4



5

THOUGHTS FROM OUR READERS

Jacobsen's Eclipse greens mowers had a lot of people talking, including supers from Tennessee and New York:

"In addition to the many environmental benefits, the Jacobsen Eclipse mowers have also allowed us to provide a quality-of-cut that we haven't been able to produce before," says Paul L. Carter, CGCS at the Bear Trace at Harrison Bay in Harrison, Tenn. "The machines' programmable frequency-of-clip gives us the flexibility to change the amount of grass removed from the green quickly without having to change gears, sprockets or fittings."

"For me, the main selling point was the adjustable frequency-of-clip. We're using the FOC settings to raise the height-of-cut and maintain ball speed. I also like that you can set and lock settings to take the operator out of the equation," says Scott E. Dodson, CGCS at Park CC in Buffalo, N.Y. "If Jacobsen ever comes out with a fairway mower that has the Eclipse technology, I would buy it without a demo."



1



2



3

1. Eclipse greens mowers

2013 was a banner year for **JACOBSEN'S** hybrid and all-electric walking and riding greens mowers. The greens mowers are the first of their kind to offer separate, adjustable settings for reel speed and mow speed on an easy-to-read LCD screen. This allows superintendents to quickly and easily set the frequency-of-clip to match course conditions. With no hydraulic oil to change (or leak), coupled with significantly reduced noise and exhaust emissions, the Eclipse line appeals to superintendents with environmental concerns and noise restrictions.

jacobsen.com

2. Briskway fungicide

Briskway fungicide from **SYNGENTA** combines a cooling DMI (DeMethylation Inhibitors) active ingredient called difenoconazole with azoxystrobin, the strobilurin active ingredient found in Heritage fungicide. The differing modes of action from azoxystrobin and difenoconazole work together at a calculated rate that performs in high temperatures, reducing the risk of harmful side effects. Together, they enable Briskway to control a broad spectrum of diseases, including dollar spot, while delivering the plant health benefits of azoxystrobin — all without any heat restrictions or PGR effects.

greencastonline.com

3. 7500A fairway mowers

The 7500A E-Cut Hybrid fairway mower from **JOHN DEERE** was sneak-previewed at the 2013 Golf Industry Show, but it turns out we'll have to wait a few more months before we can get our paws on it. The 7500A features a TechControl display for improved supervisor controls during operation, maintenance and diagnostics; LoadMatch settings for improved cut quality and productivity; enhanced operator comfort with increased legroom and multiple steps; and is Tier 4 compliant.

deere.com



CONTINUED ONLINE

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The 19th Hole

Bill Maynard, CGCS

DIRECTOR OF GC OPERATIONS // The CC of St. Albans, St. Albans, Mo.



What can I get you, Bill? I prefer Miller Lite, but in St. Louis, Millers are few and far between.

What is St. Albans known for? Quality. Quality from their culinary team, professional service staff and quality golf experience on two top-10 ranked courses in the state of Missouri.

So any suggestions from the menu?

Grilled salmon on sautéed vegetables and spinach.



What has been your golfing highlight?

Two hole-in-ones, both within 9 months of taking a new job. The first hole-in-one was the very next shot after a member holed out on the par

three eighth at Milburn CC (Overland Park, Kan.) during the member-guest.

Back-to-back holes-in-one? C'mon! It was a "beat the pro" contest, I was asked to sub for the injured golf pro. After we celebrated the member's hole-in-one, I said "there is no way I am getting it

closer." As luck would have it — and odds of 1,700,000 to 1 if Tiger Woods were hitting the shot — I knocked it in the jar on top of him. I was told to shut my exuberant mouth when I proclaimed

"you haven't beat me yet, tee it up again!" The golf professional explained, his ball is on the bottom of the cup, therefore he *did* knock it closer. The member won a set of irons, I won a slice of humble pie, a reputation for a golf game I don't

have and a muzzle for my mouth.

How will you and your staff celebrate the holidays?

A pot luck lunch in the shop, a gift exchange and some fun games. My favorite staff game is grown men on children's tricycles relay games.

You don't really have guys getting on children's tricycles?

I sure do! Hint to success — push over the guy next to you right at the start, then pedal like your life depended on it.

Fill in the blank: The state of our industry is:

Getting smarter and smarter. We never stop learning. We are learning from each other, university researchers, technology and our association. Golf maintenance professionals are gaining recognition across the globe and we are pulling our weight like never before at our facilities.

Dressing better than ever, too. Is that a half Windsor knot?

Actually, it's not — I go for the full Windsor. I try for the middle ground of the Shannon Sharp 4-inch-wide knot and the Blues Brothers 1-inch-wide knot.

What is the ugliest tie you own?

A tie from my college days that I used to tie my toga at the Sigma Alpha Epsilon house toga party. I still keep it in the closet because you never know when you'll get invited to another toga party.



As interviewed by Seth Jones, Nov. 22nd, 2013

"SERVING ON GCSAA'S BOARD OF DIRECTORS HAS GIVEN ME THE ABILITY TO GIVE BACK AND SERVE OUR MEMBERSHIP... AND HONESTLY, I THINK THE WHOLE THING HAS MADE ME A BETTER SUPERINTENDENT."





Intelligent Irrigation

What is your root zone telling you?



The LCD screen displays:

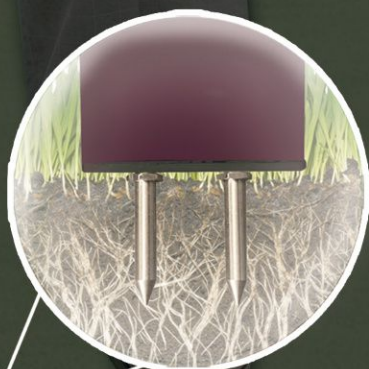
- Current Measurement
- Rod Length
- Number of Readings
- Running Average



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(September 6, 2013 - day one after aerification)

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