

JANUARY 2014  
golfcourseindustry.com

# GOLF COURSE<sup>®</sup> INDUSTRY

SERVING THE BUSINESS  
OF GOLF COURSE MANAGEMENT

## No Turning Back

Our **State of the Industry** analysis looks to the past to see how the industry is moving forward.



### + **INSIDE**

What's in your H<sub>2</sub>O [p. 24](#)

Brauer: Dealing with trees [p. 42](#)

The dirt on compost [p. 68](#)



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 Ingersoll Rand

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## HEALTHIER MARKET, HEALTHIER YOU

The last time I looked there were about 200 female superintendents in the U.S. I've always been surprised that number hasn't grown (it's roughly the same as 25 years ago) because women are generally smarter, more patient and more self-aware than men. Women also tend to take better care of themselves.

So, to the other 15,500-plus of you who happen to have that Y chromosome floating around inside, let me ask you a question: When's the last time you had a physical? Have you done a stress test lately? What's your cholesterol level? And for god-sakes when did you last get a skin cancer screening?

We decided to ask a couple of questions about your health and what concerns you about the health impacts of your job in this year's GCI State of the Industry report. It was pretty clear that you recognize potential problems like melanoma, heart attacks and hearing loss. What's not clear is whether you're doing anything about it.

But, since this business continues to inexplicably be 98.5 percent male, I know the answer to that question... because I'm another idiot guy just like you. I ignore preventative

health measures. I don't go to the doctor regularly. I rarely use sunscreen and I suck at exercising.

Well, as part of my continuing reinvention of Pat Jones (see my Parting Shots column on the back page), I've resolved

to make 2014 the year I start practicing what I preach. I'm having too damn much fun to croak and my spectacular new wife seems to enjoy having me around, so I'm actually going to get a physical and start doing more to work out than just walking 9 holes every once in a while.

I'm also going to break down and get a skin-cancer screening at the GIS (assuming they're still offering those). I'm one

of those morons who's always believed my darker complexion would save me from the Big C. Dumb.

That's what I got out of this year's State of the Industry study. I hope it's just as valuable for you. Thanks to support from Syngenta and survey responses from about 400 superintendents, we were once again able to create a very comprehensive report including budget benchmarking and commentary from some of the smartest guys in the business.

Even better, we do it all to support the Wee One Foundation. Three years ago, we donated \$2,500 from the survey. Last year, it was \$5,000. This year, I'm going to make it \$6,000. Thanks, once again, to Syngenta for helping us grow that contribution to the industry's finest charity every year.

And thanks to you for welcoming us into your life for another year. As always, we welcome your feedback (good or bad), your stories and your friendship. And please go get a check-up! GCI



**Pat Jones**  
Editorial director and publisher

It was pretty clear that you recognize potential problems... What's not clear is whether you're doing anything about it.

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turf from the  
undead



Starring YOU as the  
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End disturbing  
reappearances by:  
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{ EDITOR'S NOTEBOOK }

## THE BUSINESS END OF GOLF

**T**urf is the easy part of being a superintendent, for many supers – it's the people that can make the job difficult. Superintendents gathered from all over the country to work on those business skills that make up the rest of the time not spent growing grass at the annual Syngenta Business Institute at Graylyn International Conference Center in Winston-Salem, N.C. in December.

The four-day seminar, run with Wake Forest University, not only covered business topics, but gave the small group of 23 superintendents the

chance to play through situations and find the best solutions for working with others. During the seminar on negotiations, superintendents worked with partners in a scenario to try to find a resolution that gave benefit to everyone involved.

"Not only can you learn a lot from the instructors because that is their area of expertise, but you can learn a lot from the real-life stories about what happens to this guy here," says Matt Kregel of The Club at Strawberry Creek in Kenosha, Wis. "Everyone is a little bit different and unique, but I think listening to a lot of those stories

and applying what you learn in class, you can definitely better your way of managing."

Also returning from last year's SBI were seminars on financial management and bridging the generation gap. A brand-new module focused on leading individuals and teams across cultures, as well.

Beyond the teaching sessions, superintendents had plenty of time to network and talk about both work and more during receptions and an off-site dinner. The program is free, but superintendents must apply to be a part of the annual sessions.



## Continue the trend

**F**or our third year running, Golf Course Industry will recognize superintendents and industry leaders who are using social media exceptionally well to keep others updated, share course changes and show the world what the life of the superintendent is like.

Once again, the megaphone will be back at the Aquatrols booth (#1013) in Orlando, when Pat Jones takes the floor to announce the winners of this year's Super Savvy Social Media Awards for 2014.

Aquatrols partnered with GCI once again to recognize standouts in the social media world for Twitter, Facebook, video, overall social media strategy and the much-coveted John Kaminski Award for Social Media Leadership. Come by the booth Wednesday, February 5 at 3 p.m. to be a part of the conversation and connect offline with other superintendents and researchers, as well as enjoy some cold beverages and music.

Don't forget to tweet at us with the #GCITweetUp14 tag on Twitter to let us know you'll be there!



## From THE FEED



The Syngenta Business Institute gave superintendents the chance to learn and network, and some of them did a little networking on Twitter as well! There were plenty of opportunities to share some knowledge – and maybe have a little fun in the process.



**Greg Shaffer**  
@gtshaffer  
#SBI13 Day 1. Lets do this.



**Erwin McKone**  
@TurfDoctor  
I can smell the intensity.



**Matt Kregel**  
@CreekSupt  
Day 1 of the Syngenta Business Institute. Great info as we start in on financial management.



**Erwin McKone @TurfDoctor**  
My view of a great industry event, Syngenta Business Institute. #SBI13 Make sure you apply in 2014!



**Ryan Bourne @TCCcaddyshack**  
No better way to network!



## Get in touch with GCI at GIS

Catch an opportunity to meet the editorial staff of Golf Course Industry plus your favorite columnists by dropping by our booth (#3003) on the show floor. Come tell us what you think of our State of the Industry stats this year, and how it looks from where you're standing – or even just to hang out with the coolest golf magazine in the field.

If you haven't had a chance to use our iPad or iPhone app, come by to get hands-on with a giant version on the big-screen in our booth!

## Know your fuel

The Outdoor Power Equipment Institute is focused on a new national ethanol education campaign called "Look Before You Pump."

The "Look Before You Pump" campaign cautions consumers and turf maintenance professionals that it is harmful and illegal to use higher than 10 percent ethanol gas in any outdoor power equipment such as mowers, chain saws, UTVs, generators and other small engine products.

Research that shows high-ethanol blends of gasoline can damage or destroy small engines not designed to handle it. A recent OPEI/Harris Interactive study shows the vast majority of Americans (71 percent) are "not at all sure" if it is illegal or legal to put high level ethanol gas (i.e., anything higher than 10 percent ethanol) into engines such as those in boats, mowers, chain saws, snow mobiles, generators and other engine products.

For more information, visit [www.LookBeforeYouPump.com](http://www.LookBeforeYouPump.com) and search for #LookB4UPump on Twitter and Facebook.



**SUPERINTENDENT**  
R·A·D·I·O N·E·T·W·O·R·K

## Podcast pick of the month

With the Golf Industry Show 2014 coming up, it's hard not to want to be involved in the big show. But it's important to remember your local association, as Tim Kreger, executive director of the Carolinas GCSA reminded us during the Carolinas show last November. Head to <http://bit.ly/1dK3iFe> to hear it.



**Tim Moraghan**, principal, ASPIRE Golf (tmoraghan@aspire-golf.com). Follow Tim's blog, Golf Course Confidential at [www.aspire-golf.com/buzz.html](http://www.aspire-golf.com/buzz.html) or on Twitter @TimMoraghan

## TIME TO GROW

Set a goal to not be at the same place you are now at this time next year.

I know it's rather predictable for the first column of the year to be filled with resolutions. However, also every year I speak at dozens of section meetings and trade shows, talk one-on-one with hundreds, maybe thousands, of superintendents at various stages in their careers, and I'm asked the same thing: Can you help me get a better job?

I can help you; but more importantly, you have to help yourself. And that means growing – improve your skills, master your craft, learn more, work harder, and use your brain, not just your hands.

Two stories. First, when he was 85, a world-class cellist finished a practice session, turned to his companion, and said, "I think I'm getting better." Whether you are 9 or 90, learning never stops. Growth doesn't happen: You have to make it happen.

Second, two lumberjacks were chopping down trees. One said, "I'm falling behind. I need to sharpen my axe." The other lumberjack with a dull axe just kept chopping. The lumberjack who sharpened his axe came back and cut down twice as many trees.

What are you doing to sharpen your axe? Will you read books, attend seminars, invest in mentors or continuing education? Will you tap the Web and all the tools available there to make yourself more valuable?

When I conduct searches and place superintendents in jobs, my clients are looking for candidates who are most prepared, not ones they have to teach. That's why you have to take the first step – no more excuses! – and start developing and practicing the necessary skills. It's also why you

must understand the job is much more than just turfgrass.

So let's make a pact: Since I don't want to be writing this same column next year, I want you to make it your goal not to be at the same place you

his or her personal skills. It's very often the skills you think the least about – public speaking and the social graces – that get in the way of getting where you want to be.

“What are you doing to sharpen your axe? What are you going to do this year to grow, to improve your mind and your career?”

are now at this time next year – mentally, physically, literally. I'd be happy to come up with another column idea if I know you listened to this one.

So get growing! And...

### IF YOU WANT YOUR BOSS'S JOB, LEARN HOW TO DO IT

Don't worry about who's in front of you. Instead, study so you know what they do and how you can do it better.

### DON'T GET TOO COMFORTABLE. STRETCH YOURSELF

Science says we only use about 11 percent of our total brain capacity. That means there's lots of room to learn Spanish, take an accounting course, or start a personal fitness program (I said it isn't just about grass).

### DID YOU TAKE A WEEK OFF AND NOBODY MISSED YOU?

You've got the problem, they don't!

### TO BE SKILLED, DEVELOP YOUR SKILLS

Good players don't get better by only working on what they're already good at. Even Tiger Woods works on his short game. What are you doing to improve your shortcomings? Almost everyone I meet in our business (50+ GCS's) could benefit by working on

### PREPARE A PERSONAL GROWTH PLAN

Don't just say you're going to improve. Create a plan. For example, if you have a half-hour commute to and from work, use that time listening to books or the news, perhaps learning a foreign language. Think about every hour in every day and make the most out of every one.

### FIND A MENTOR

Look around. Is someone helping you plot your path? Someone who has already reached where you want to go? Someone willing to let you learn from their mistakes? Find people who will inspire you to rise higher and help you do so. And don't be afraid to hang out with people who are smarter than you.

### A GREAT CAREER BEGINS WITH GOOD EDUCATION

Our industry offers terrific educational opportunities. If you're not taking advantage of them, you're simply not getting smarter: You're getting dumber because everyone else is passing you.

### TRAVEL, ASK QUESTIONS, MEET PEOPLE

Be curious. Doors only open when you push them. **GCI**

2014

# State of the Industry

Our State of the Industry analysis looks to the past to see how the industry is moving forward.

Presented in partnership with

The Syngenta logo features the word "syngenta" in a blue, lowercase sans-serif font. A small green leaf icon is positioned above the letter "n".

**W**e realize your role as mentor, protector and innovator depends on strong market knowledge to stay ahead of the curve. Sponsoring the research in this year's Golf Course Industry State of the Industry supplement is one small way we can provide information that helps you make decisions at your course to preserve beautiful green spaces, protect the environment and grow the game of golf.

You are asked to control the uncontrollable. From droughts and floods to disease, insects and the economy, we are honored to stand by your side in support and offer innovative products where they fit your course best. In our own way, we work hard to protect every angle and consider every element of your turf as we work together.



Schwenke

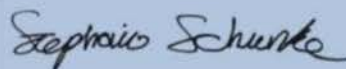
One quick look at the past year's golf rounds played, average temperatures and precipitation rates shows the adversity you face<sup>1</sup>. Depending on where your course is located, rounds played may be up with precipitation down significantly, making it difficult to maintain course aesthetics. Conversely, where rounds are down, helping grow the game to increase revenues is a challenge.

At Syngenta, we've worked diligently to help alleviate stress where we can, but we continue to identify ways in which we can support you and the game:

- Syngenta Business Institute™ – provides superintendents with continuing business education
- Weevil Trak – helps anticipate annual bluegrass weevil movement, tracking and treatment
- Green Cast® Online – website that shares research, development and innovations
- GreenTrust™ 365 – product assurance program with year-long rebates and rewards
- GCSAA Educational Webinars – provide information and insight on current issues
- EcoMeasures™ – helps reduce the carbon footprint of your course
- Operation Pollinator® – creates ideal habitats for pollinators
- Agronomic Plans – best products, at the right time—tailored to fit your needs
- Strategic Partnerships to Grow the Game – active involvement in GCSAA, NCGOA, WGF, RISE, Turfgrass Producers International, Aquatics Ecosystem Restoration Foundation, Aquatic Plant Management Society, The First Tee, Get Golf Ready, Tee it Forward, PGA Junior Golf League and Sticks for Kids

According to the GCI State of the Industry research, our industry has certainly evolved over the past year. Regardless of where you fit within the results, we at Syngenta stand ready to help with any challenges you face.

Sincerely,



Stephanie Schwenke  
Golf Market Manager  
Syngenta



<sup>1</sup> National Golf Rounds Played Report, NGF, September 2013

**WHAT'S DONE IS DONE.** What's in the past should stay in the past, and what's most important now is to take the recent gains and focus on the future. That's the prevailing attitude circulating through much of the golf industry, one that's persevered through thick and thin these past few years. Five years post the Great Recession, it appears many turf maintenance programs have begun to shed their budgetary shackles and focus again on growing turf and the game of golf.

For the purpose of this year's State of the Industry report, GCI editors analyzed the data against data from the 2013 (examining 2012 trends) and 2012 (looking at 2011 trends) reports. To provide a more accurate assessment of industry trends, when appropriate, we also looked at trends as they relate to the number of holes (18 vs. 18-plus).

Sure, staffing levels may not yet be back to pre-Recession levels and budgets aren't back up to snuff, but there is cause for optimism.

For example, nearly a quarter of respondents (roughly 20 percent) report they've either recovered 100 percent or are ahead of pre-recession business levels. Another third (28 percent) indicate their budgets are back to or exceeding 2007 levels.

During the last quarter of 2013, Golf Course Industry created and distributed its annual State of the Industry survey online via eblasts, social media and through its website [golfcourseindustry.com](http://golfcourseindustry.com). The research, administered via SurveyMonkey, was developed to gauge the overall fiscal condition of the turf maintenance side of the golf industry and to chart other industry-wide trends and tendencies as they relate not only to the business of golf course maintenance, but also the personal and professional issues facing golf course superintendents.

GCI had more than 400 superintendents from public and private courses around the United States complete the survey. As an



## Excluding water costs, what is your non-capital operations budget, including labor and overhead?

2013	2012	2011
\$763,250	\$622,500	\$75,978

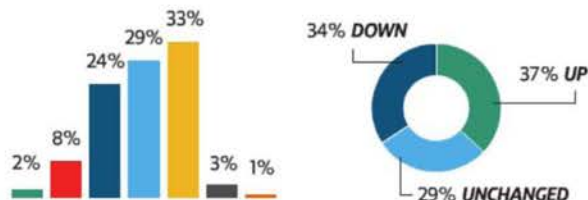
## Annual Budget Breakdown

LINE ITEM	2013	2012	2011
Water	\$40,949	\$32,412	\$26,379
Fuel	30,078	28,000	37,788
Mowing/ Cultivating equipment (non-capital)	26,738	25,000	60,054
Handheld equipment	2,839	2,000	3,705
Course accessories	4,644	4,000	5,556
Energy	2,5615	16,000	29,201
Shop tools	2,682	1,500	3,765
Irrigation parts, heads and maintenance	9,370	7,500	11,164
Fungicides	32,759	25,000	40,356
Herbicides – Preemergent	7,770	5,000	11,078
Herbicides – Postemergent	4,477	2,500	5,569
Insecticides	6,963	3,000	7,893
Granular fertilizers	20,043	15,350	27,655
Liquid fertilizers/bioestimulants/foliar	12,730	6,250	12,983
Wetting agents	5,753	4,000	5,581
Plant Growth Regulators (PGRs)	5,247	3,500	6,645
Seed	5,196	2,500	7,629
Aquatic weed control/ Water quality issues	3,019	500	2,630

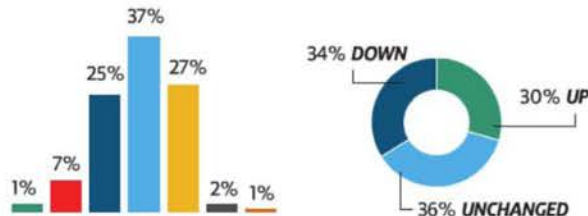
## Year over year budget comparison

- Down more than 20%
- Down 1% to 10%
- Up 1% to 10%
- Up more than 20%
- Down 11% to 20%
- Flat/Unchanged
- Up 11% to 20%

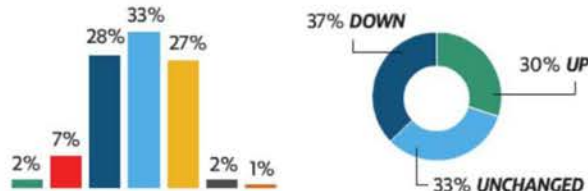
### 2013 VS 2012



### 2012 VS 2011



### 2011 VS 2010



added incentive to complete the survey, GCI committed to making a substantial donation to the Wee One Foundation, a charity group started in memory of Wayne Otto, CGCS, that helps superintendents and other turf professionals in need.

Without a doubt, the industry is on the road to recovery – albeit a long and winding road. What’s important is to keep that view of an industry wasteland in the rearview mirror and focus on the stats ahead.

Here are some of the highlights from this year’s State of the Industry research.

## Budgets

More than a third of facilities (37 percent) report working with increased budgets in 2013, according to the data, while a third (34 percent) reported working with fewer financial resources than in 2012. Nearly another third (29 percent) reported their budgets remained stable.

For those courses with flush budgets, 33 percent reported the increase ranged from 1 percent to 10 percent, and only 1 percent experienced a jump of more than 20 percent. On the opposite end, the majority (24 percent) of those who had to make due with fewer resources saw those cuts range from between one percent and 10 percent. Only 2 percent reported a drastic slide of 20 percent or more.

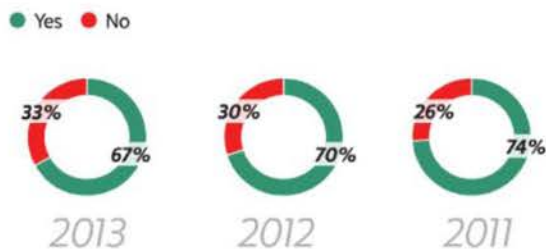
We asked the same question as part of our 2012 State of the Industry research. Interestingly enough, 30 percent of facilities reported more financial resources in their budget, while 34 percent reported their budgets had taken a financial hit.

Line by line, budgets numbers have steadily been increasing for water and energy, as well as chemical expenditures, including fungicides, herbicides and insecticides. In addition, spending spikes are seen in spending on aquatic weed control and seed, according to the data.

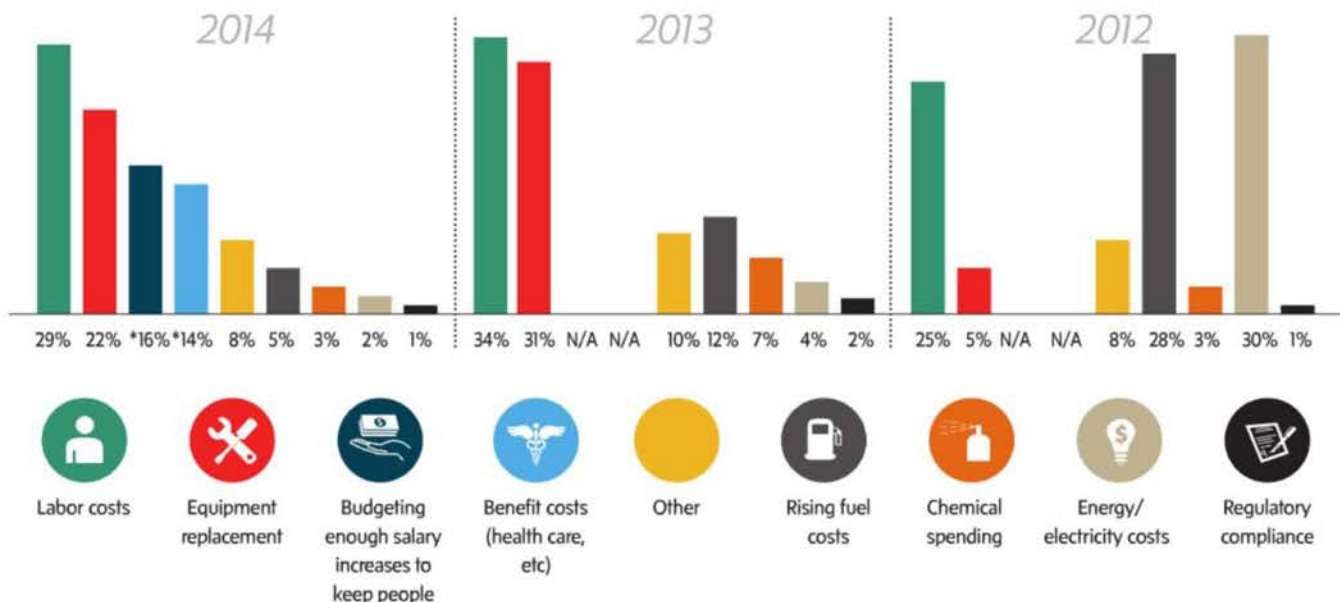
## Capital improvements

In addition to being a budgetary challenge (31 percent of respondents earmarked it as such) equipment purchasing and replacement remains king when it comes to capital expenditures. For three years now earmarking dollars for equipment is a top budgetary priority.


## Have you reduced your budget at any time during the past three years?



## Greatest budget challenges



\*Editor’s note: The options of “Budgeting enough salary increases to keep people” and “Benefit costs” were not included in the 2013 and 2012 State of the Industry research.



**YEAH, YOU COULD SAY THIS IS A  
HOSTILE WORK ENVIRONMENT.**

**FOR THE TURF, THAT IS.**

Day in, day out—your turf has it tough. It must endure daily mowing, UV rays, golfers and extreme weather conditions, not to mention the constant threat of disease. Daconil Action™ fungicide combines the power of Daconil® fungicide with a revolutionary Turf Protein Booster that helps turf activate its own natural production of PR proteins. Use on a regular application interval for stronger and healthier turf that is better able to defend itself against disease while offering greater drought tolerance. So whether it's disease or cleats, it's not a problem. To learn how to rotate Daconil Action with Secure™ fungicide, visit [GreenCastOnline.com/programs](http://GreenCastOnline.com/programs)

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TM

This year, more than half (56 percent) indicated equipment purchases were a primary focus of capital spending. Utility vehicles and greensmowers are at the top of purchasing lists, according to the data.

It should be noted that this year is the first year we offered various renovation projects as separate options in the survey. Taking that into account, renovation projects – overall course, bunker and greens renovations – comprised about 17 percent of respondents' feedback on capital expenditures. This was a slight boost over 2013 (14 percent) and 2012 (15 percent).

Contrary to recent industry discussion and the fact that water remains a major budgetary expenditure, replacement or upgrading of irrigation systems – either in full or in part – remains a low priority, according to the research data.

Given the emphasis placed on the efficient use of water resources, this begs the question as to why irrigation doesn't receive more focus. It's a conundrum given the fact that more than half of respondents believe they could adequately prove the return on investment of an irrigation project. Perhaps it's the price tag. According to respondents engaged in irrigation projects, the average cost runs just shy of \$250,000.

However, those engaged in irrigation projects seem to be focused on nozzle and head replacement. The least popular projects were whole system replacement and head reduction. ■

## Economic health

OVERALL, SUPERINTENDENTS have remained optimistic about their facilities' economic viability, specifically within a three-year time frame.

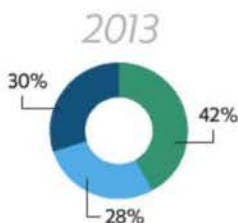
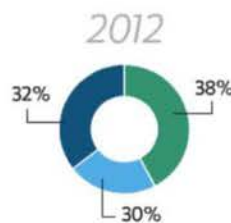
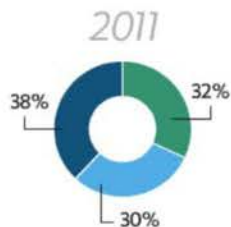
We first asked this question three years ago, and at the time 58 percent of respondents predicted a more lucrative economic future in three years. Today, 55 percent of superintendents see a more economically viable future in three years. However, 39 percent (compared to 34 percent in 2011) believed viability would remain consistent and unchanged. Those seeing a more dour future dropped a bit from 8 percent in 2011 to 6 percent the last two years.

For the most part, superintendents were in line with their three-year outlooks. According to the data, the percent of golf course facilities that remained in the black rose consistently during the last three years, from 62 percent in 2011 to 68 percent in 2012 and 70 percent in 2013. Likewise, courses that turned a profit increased during that time period, from 32 percent in 2011 to 38 percent in 2012 and nearly half (42 percent) in 2013.

So what are the biggest roadblocks to economic bliss? According to superintendents, the top three factors impacting the future health of their facilities include lack of marketing, slow play, and round discounting by competitors.

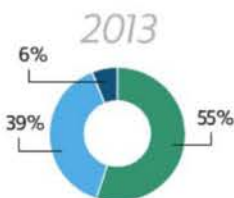
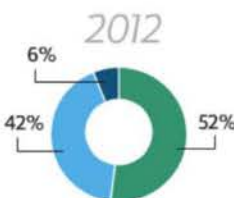
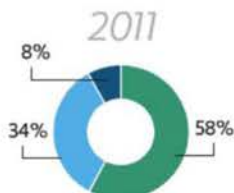
### Did your facility make money or lose money?

- Made money
- Broke even
- Lost money

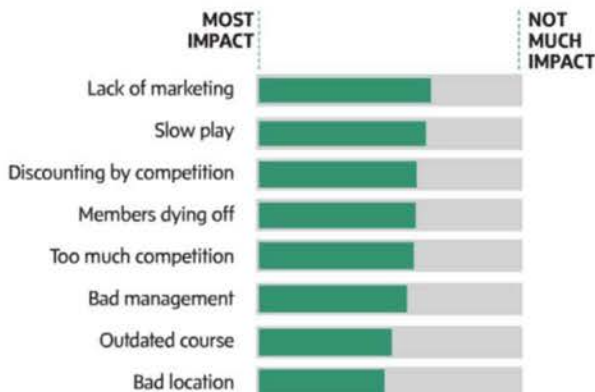


### Do you believe your facility will be more or less economically viable three years from now?

- More economically viable
- The same
- Less economically viable



### What impact will each of the following have on the future health of your facility?



Source: State of the Industry research





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# Capital improvement

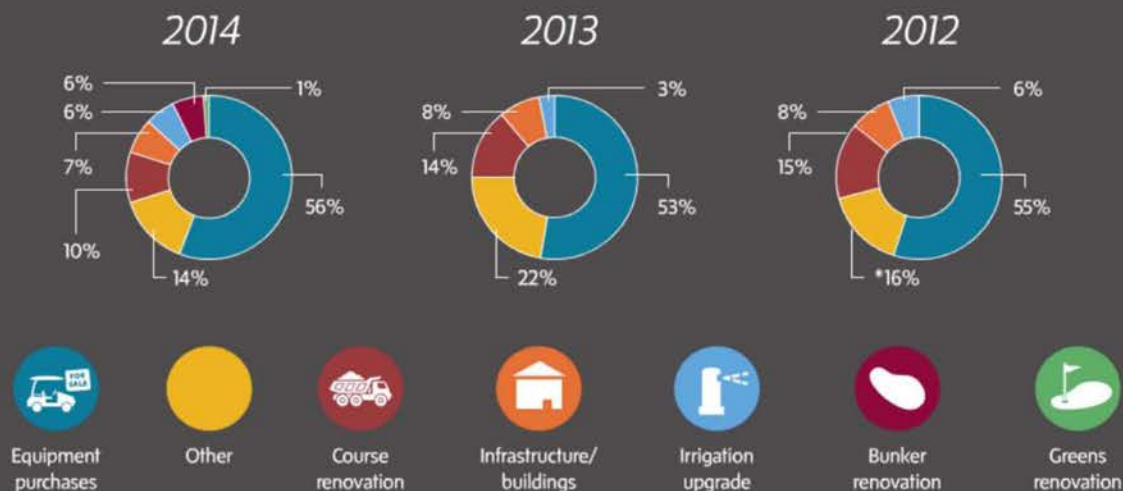
CONTRARY TO THE FEEDBACK in other areas of the research, a certain air of pessimism can be detected when respondents address capital improvement projects. Equipment purchasing remains the No. 1 focus of these funds, followed far behind by course renovation and improvement projects.

It should be noted, that this year is the first time we separated out some of the course renovation projects instead of just lumping them into one category. Taking that into consideration when comparing against the last two years' worth of data, "course renovation" projects would account for approximately 17 percent of capital spending in 2014.

However, when asked about other areas, respondents left remarks like "Need capital in order to spend it!", "Just trying to survive," and "There's no capital to spend... just [money for] fuel and chemicals."

Since "equipment" is a major target for capital funds, the top-planned equipment purchases included utility vehicles (37 percent) and greensmowers (34 percent). And "Other's" No.1 ranking (42 percent) is a bit deceiving because respondents were asked to select all choices that applied to them. In this category, respondents indicated they'd be investing in sprayers, rough mowers, fans, trim mowers, rollers, reels, trailers and small equipment.

## What is the primary focus of your capital spending in 2014?



\*Other responses included: tee building and renovation projects; addressing erosion and drainage issues; and resuming maintenance standards.

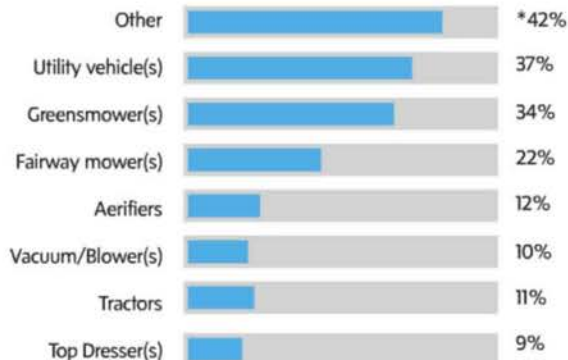
Planned 2014 capital improvement budget

\$119,581

Projected 2015 capital improvement budget

\$105,152

## Planned equipment purchasing in 2014



\*"Other" responses included: sprayers; rough mowers; fans; trim mowers; rollers; reels; trailers; and small equipment.



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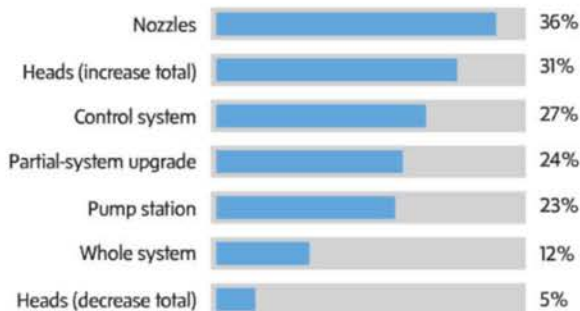
# Irrigation upgrades

NEARLY TWO THIRDS (66 PERCENT) of respondents did not believe an irrigation upgrade would make their facilities more competitive in their markets. This data is in line with respondents' attitudes toward placing a low priority on irrigation upgrades.

However, explaining the return on investment for such a project is not a problem. More than half (55 percent) of those seeking upgrades believe they can adequately justify to their boards or ownership the need for everything from nozzle and head upgrades to whole system upgrades.

And those planning to upgrade seem to be targeting nozzle replacement (36 percent), according to the data. Interestingly enough, despite recent industry debate about increasing irrigation efficiency through sprinkler head reduction, respondents didn't seem to be leaning in that direction. In fact, 31 percent indicated their upgrade plans included increasing the total number of heads, whereas only 5 percent indicated plans to reduce head totals.

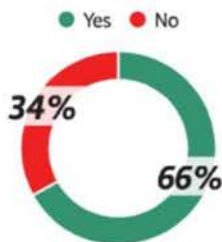
## Plans to upgrade any of the following irrigation components in the next two years?



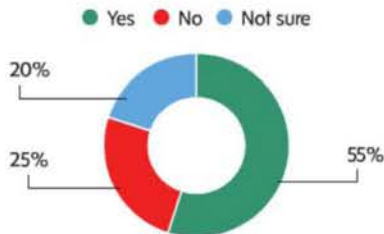
### Average irrigation project cost

\$223,025

### Do you need to upgrade your irrigation system to be more competitive?



### Regarding the approval process for a proposed irrigation upgrade, do you have the ability to demonstrate a return on investment (ROI) to your board or ownership?

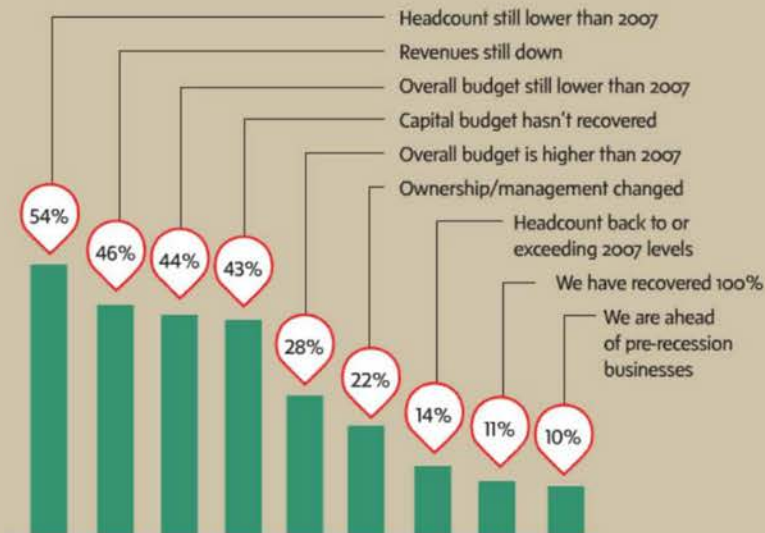


## FIVE YEARS AFTER

IT'S BEEN A LONG TOUGH road out of the mire that was The Great Recession. Five years later the majority of golf courses indicate they're still up to normal staffing levels, and nearly half say their overall and capital budget, as well as revenues, have yet to return to pre-recession levels.

While the overall 2013 State of the Industry data would point that the industry is on the road to recovery, only a slim number of courses indicated they'd recovered fully (11 percent) and were actually ahead of pre-recession business levels (10 percent.)

### Five years past the recession, how is your operation still different?



**Henry DeLozier** is a principal in the Global Golf Advisors consultancy. DeLozier joined Global Golf Advisors in 2008 after nine years as the vice president of golf for Pulte Homes. He is a past president of the National Golf Course Owners Association's board of directors and serves on the PGA of America's Employers Advisory Council.



## MAN WITH A PLAN

Does your membership feel out of the loop? Henry's 5 keys to get them back in.

One important responsibility of any club is also one that receives the lowest ratings from members – communications.

Despite a steady stream of newsletters, email blasts, tweets and Facebook postings, many members feel poorly informed. They don't get the information they need when they need it. And it's often not delivered the way they would prefer it.

So how is this corrected? First, you need a plan. Here are the elements of a solid communications plan:

**OBJECTIVES.** You want to communicate the most important goals and

**AUDIENCE.** Do you really know your members, your customers and your prospects? Do you know what they want as part of their club and golf experience? Do you know what they're jealous of in other clubs and facilities? If you haven't asked them, you might be surprised.

Between your current members, lost members and prospective members you might identify 10 or 15 different segments that need to be communicated with differently. For example, women who don't play golf but enjoy other activities are different from those who play golf on a regular basis. Your communications plan

should align your audiences and content ideas, create a matrix that has audience segments in a column down the left side and content ideas in a row across the top.

**VEHICLE.** What's the best way to deliver your content to the audience segment for which it is intended? There's no shortage of options these days. Newsletter story? Facebook or blog post? Video embedded on the club website? Email? And don't forget the good, old-fashioned letter that arrives unexpectedly in the mail. Some people still prefer that form of communication and it's very effective in some circumstances. Match your media choices to market segments and make the messages resonant with the chosen segment. Talk to people in the way that they listen.

**SCHEDULE.** Your communications schedule should look at least three months ahead. That's not to say you're going to know everything you're going to communicate three or more months in advance. But if you don't look far enough ahead, you're going to miss opportunities to sync up communications with the needs of your other departments.

When building a schedule, don't be afraid of redundancy. You should say the same thing in different ways using different media. The more times your customers or members hear the message, the more effective you can be achieving the desired response.

Communications professionals sometimes talk about the "stickiness" of a message. The key is developing a plan that incorporates the five elements above and then being disciplined enough to execute it. **GCI**

“Your communications schedule should look at least **three months ahead**. That's not to say you're going to know everything you're going to communicate three or more months in advance.”

objectives of the club itself. Those can be traced to the club's strategic plan, which lays out the long-term direction the club's board and management have proscribed. A long-term objective, for example, might be to increase average revenue per round to \$97 while sustaining 35,000 rounds per year. A long-range goal might also be to become the best-maintained course in your city. You also want to communicate near-term objectives. A near-term objective might be to add 10 new female members this quarter or to increase golf shop sales by 20 percent during the spring season. Write down your objectives and distinguish between long- and near-term.

should reflect those differences.

**CONTENT.** Here's where it gets creative. For each audience segment, there should be a list of content ideas that also reinforce a long- or near-term objective. For our group of women golfers, for example, a newsletter story about a promotion that encourages women golfers to invite a friend to play and enjoy a 15 percent discount in the golf shop is a content idea that reinforces the new-membership and golf-shop sales goals. Another idea is a video interview with your golf professional inviting women golfers to a combination demo day and trunk sale that includes a discount on clubs and apparel from participating manufac-



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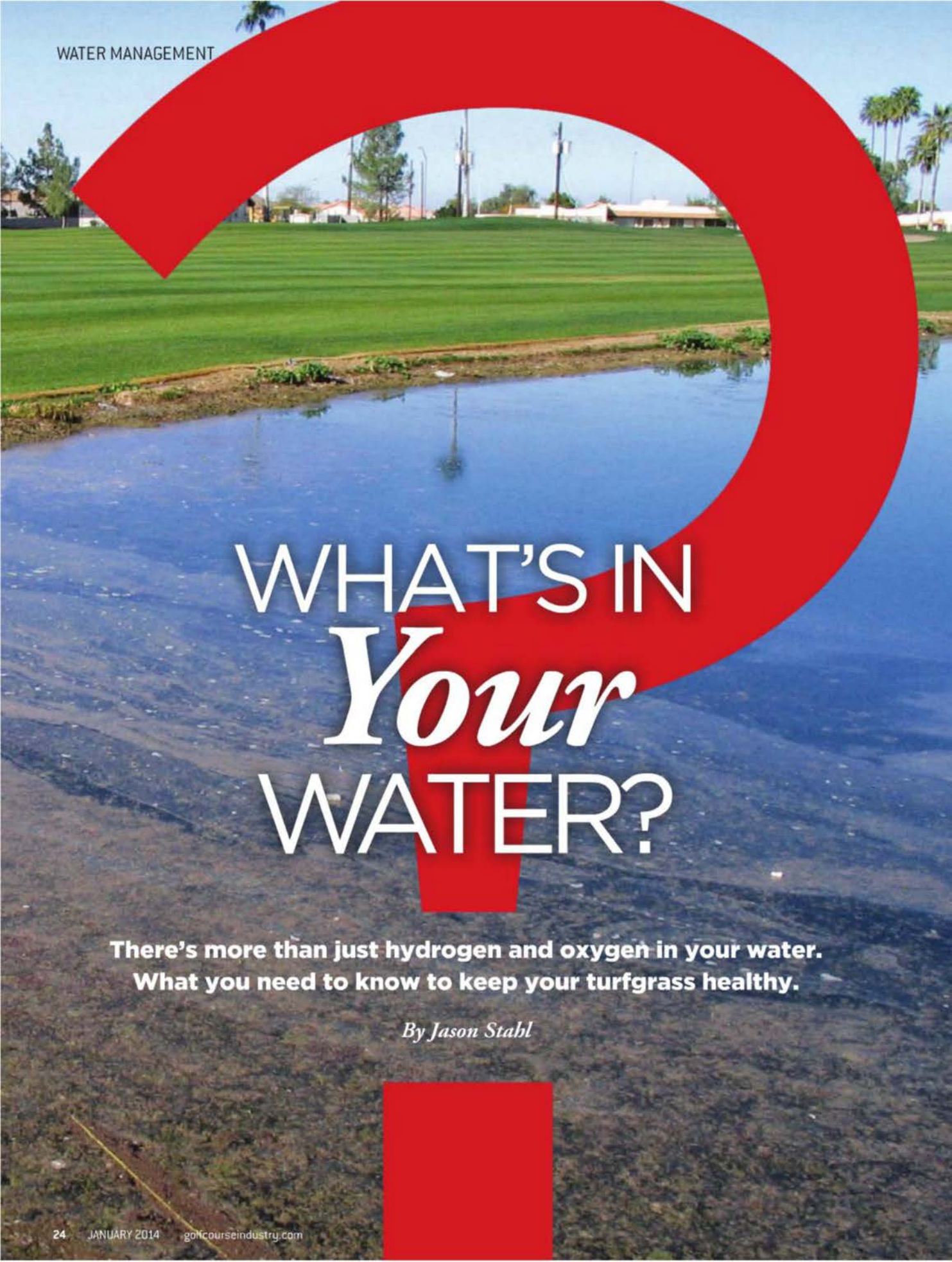


*Sebonack Golf Club, Southampton, NY*



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# WHAT'S IN *Your* WATER?

**There's more than just hydrogen and oxygen in your water.  
What you need to know to keep your turfgrass healthy.**

*By Jason Stahl*





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**W**e learned in high school biology that water is composed of two things: hydrogen and oxygen. Ah, life was so simple then, right? Once we got into the real world, we learned there can be oh so much more in our H<sub>2</sub>O.

As a golf course superintendent, it's important for you to know what's in your water so you can keep your turfgrass healthy.

According to Paul Roche, national sales manager – golf division for Rain Bird, the water source for more than 50 percent of the golf courses in the U.S. is on-site or nearby ponds or lakes. Of the remaining courses, more than 20 percent get their water from streams, rivers, creeks and canals, and another 14 percent use reclaimed/reuse/recycled water. The balance of the golf courses gets their water from municipal supplies (potable drinking water) or wells.

"Because of such a wide variety of water sources with much variability due to upstream impacts, golf

➔ (continued on page 32)

## Fill 'Er Up

**B**elieve it or not, there is a right and a wrong way to collect a water sample for testing – in case you were intending to dunk an empty tin can into your pond and call it a day.

Larry Lennert, Aquatrols' North Central territory manager, recommends taking the water directly out of the irrigation system. "I know some people pull it out of the wet well or pond, but I prefer to see the water go through the irrigation piping and collect it as it comes out of the head or a quick coupler somewhere on the course because that's truly representative of what's coming out of the irrigation system," he says. "If you try to pull a sample next to the pond or out of the wet well, that might not give you the same properties as the water pulled from the bottom of the pond or sitting stagnant in a wet well."

The USGA's Brian Whitlark agrees. "Take a sample from a quick coupler or sprinkler at the furthest point away from the pump station to see what's actually going on the course."

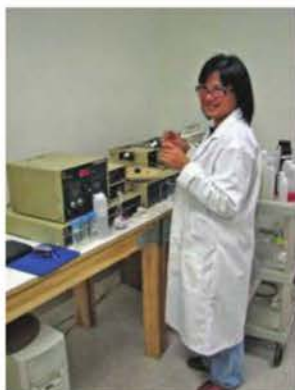
But Whitlark says it's important to also take samples from the source.

"Sometimes water will come in and sit in the irrigation lake and evaporate, or it may pick up salt if it's an unlined lake or may even pick up salt from concrete in the lake," he says. "The bottom line is you need to know what's sitting in your lake and what your source is. It could be that it's picking up something in your irrigation line. Maybe there's some precipitated calcium carbonate in there that the water's picking up between the irrigation lake and the fifth hole. You don't have to sample every single time you go out, but it's at least initially important to do that."

Whitlark recommends that superintendents new to a course

sample every month because the quality of reclaimed water can change throughout a season.

Lennert recommends refrigerating the sample right away and shipping it overnight to a lab. You can even freeze it as long as you leave enough room in the bottle for the water to expand.



In-depth analysis of your facility's water is critical.

"The reason you want to put the water in a refrigerator or freeze it is to cut back on microbial activity," Lennert says. "Once bacteria in there starts doing their thing and creating a chemical reaction, it can change some of the readings in the water."

If you're just submitting the water for chemical analysis to figure out if there is nitrogen, phosphorus, bicarbonates, sodium, chloride, etc., in it, then it's not necessary to refrigerate the sample.

As far as containers go, most people select a 16- or 20-ounce water bottle that has been rinsed out and dried. "Don't use anything metal or aluminum, just a plastic bottle that had nothing other than water in it before," advises USGA's Whitlark. "And when you go down to the irrigation lake, triple rinse that bottle with the source of water you plan to submit for analysis."

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# NIP IT IN THE TUBER



## Echelon® Herbicide: The *Poa Annua* and Crabgrass Treatment That Fights the Growing Problem of Sedges

A single sedge tuber can produce thousands of new tubers in a single year. It's no wonder growing sedge pressure has reached epidemic proportions on golf courses across the country. Once these weeds become established, they are difficult to control. But what if you could "nip it in the tuber" and help prevent sedges without making any more applications than you do currently? It's possible when you choose Echelon® herbicide for your spring preemergence or fall *Poa annua* program.

Formulated for maximum efficiency, Echelon goes beyond conventional crabgrass and *Poa annua* control to provide excellent **preemergence and postemergence nutsedge control** — including both annual and perennial sedges. No other preemergence treatment can deliver this kind of performance. Echelon even provides pre- and early postemergence goosegrass control.

### Echelon® Herbicide

EXPECT MORE FROM YOUR PREEMERGENCE PROGRAM

Product	Pre crabgrass control	Pre <i>Poa annua</i> control	Early post* crabgrass control	Pre nutsedge control (Perennial)	Pre goosegrass control	Early post goosegrass control	Post sedge activity at <i>Poa</i> timing
Echelon®	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Excellent
Dimension®	Excellent	Fair	Excellent	None	Good	None	None
Barricade®	Excellent	Excellent	None	None	Good	None	None
Ronstar®	Good	Fair	None	None**	Excellent	None	None
Specticle®	Good	Excellent	None	None**	Excellent	None	None

\*1-4 leaf stage.

\*\*Limited to annual sedge only.

## Prevent Sedge for an Edge

Formulated with sulfentrazone and prodiamine, Echelon not only eliminates weeds from the root up and the foliage down, it impacts underground reproductive structures to reduce future populations of weeds. With sedge more prevalent and more problematic than ever before, getting preemergence and early postemergence sedge control with your spring or fall treatment keeps your labor and herbicide costs down and your golfers happy.

Echelon is the first product in its category to provide preemergence control of perennial sedges like yellow nutsedge and green kyllinga for an impressive 3 to 5 months after application. In the side-by-side comparison below, you'll see that at 135 days after treatment, both Barricade® and Echelon show no signs of crabgrass breakthrough. But while Echelon is free of sedges, Barricade could not stand up to the sedge pressure.



Echelon 4SC, 0.57 lbs ai/a  
Applied 4/15/08

Barricade 4FL, 0.5 lbs ai/a  
Applied 4/15/08

Photo taken 135 DAT



## Did you know?

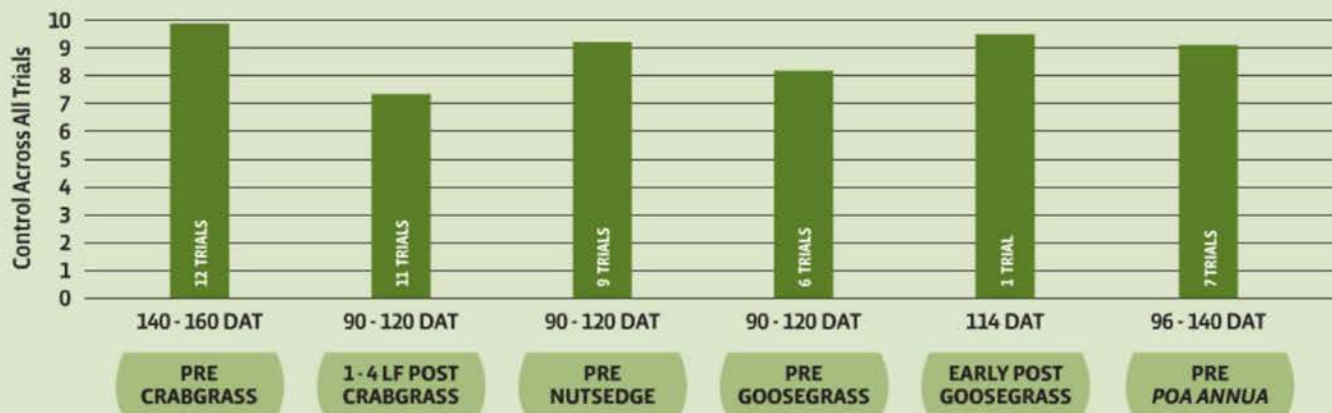
In a 1961 field study, researchers discovered that just one yellow nutsedge tuber planted in spring produced 1,900 shoots and 6,900 tubers in a single year. Source: *Tumbleson & Kommedahl, 1961*

## Consistently Goes Above and Beyond

This composite view of university research conducted across the United States helps illustrate the added value of Echelon. As you can see, Echelon achieved over 90% preemergence control of nutsedge across 9 trials, over 90% preemergence control of *Poa annua* across 7 trials and nearly 100% control of preemergence crabgrass across 12 trials.

### Echelon® Herbicide

COMPOSITE VIEW OF UNIVERSITY RESEARCH



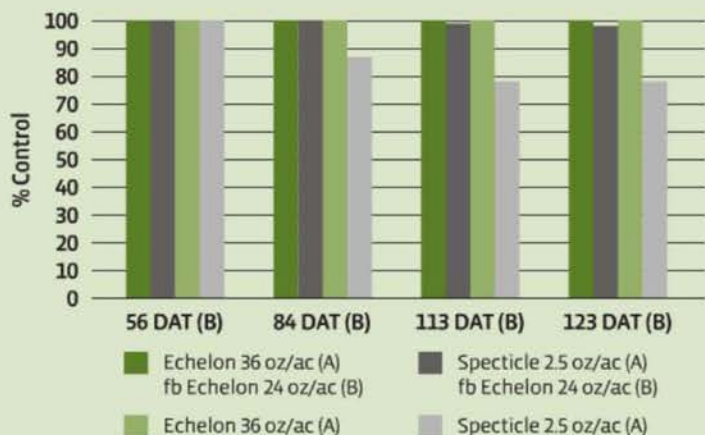
Control is represented as normalized data across all plots where 0 = no control and 10 = 100% control

## Proven, Long-Lasting Crabgrass Control

Despite all of the extra advantages of Echelon, you won't sacrifice a thing when it comes to spring crabgrass results. In university trials, Echelon has consistently delivered performance that is equivalent to or better than Dimension®, Barricade, and Specticle® in warm- or cool-season turfgrass. As the chart on the left shows, Echelon also works well in a single or split application program. And as you'll see in the chart on the right, Echelon even delivers impressive performance against early postemergence crabgrass, whether applied as a sprayable application or a dry application on fertilizer.

### Pre Crabgrass Control

ECHOLON DELIVERS RESULTS AS A SINGLE OR SPLIT APPLICATION

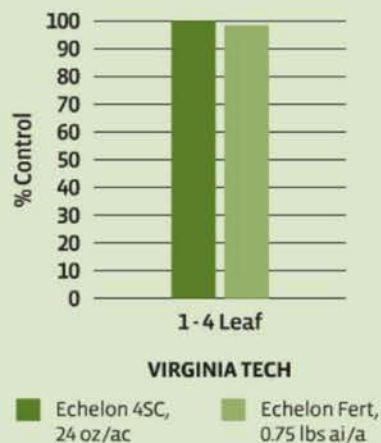


A = September 26, 2012 B = March 14, 2013

Source: University of Tennessee 2012-2013

### Early Postemergence Crabgrass Control

ECHOLON QUICKLY AND EFFECTIVELY CONTROLS EARLY POSTEMERGENCE CRABGRASS



VIRGINIA TECH

Source: Virginia Tech, 2008. Smooth Crabgrass Ratings taken 94 days after treatment

## High-performance *Poa Annua* Protection

The photos below demonstrate how Echelon delivers preemergence *Poa annua* control that stands up to the competition in both efficacy and residual. A full 14 weeks after treatment, the area treated with Echelon shows no signs of *Poa annua* breakthrough. The chart on the right demonstrates the increased residual control Echelon delivers in an application program.



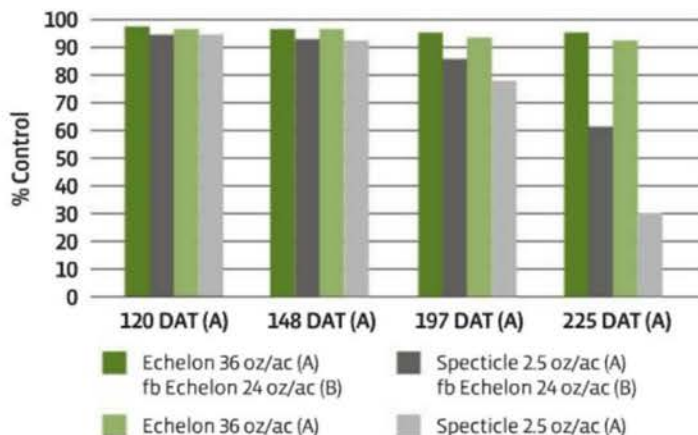
Untreated Check



Echelon 4SC, 0.75 lbs ai/a  
14 Weeks After Treatment

### Pre *Poa annua* Control

APPLICATION PROGRAMS WITH ECHELON DELIVER RESIDUAL CONTROL



A = September 26, 2012 B = March 14, 2013

Source: University of Tennessee 2012-2013

But what truly sets Echelon apart from the competition is its surprising efficacy against postemergence sedges and other weeds present at the time of application that you normally have to clean up later. In fact, a fall application with Echelon could be the last treatment you make all year!

## Don't change your routine. Change your herbicide.

Imagine being able to fight the growing problem of sedges without having to add more treatments to your schedule. It's possible when you "nip it in the tuber" by choosing Echelon herbicide for your spring or fall applications. Only Echelon combines superior crabgrass and *Poa annua* performance with sedge control and prevention, plus control of pre- and early postemergence goosegrass.



For more information on Echelon herbicide, scan this code or contact your FMC Market Specialist or local FMC Sales Agent.



fmcprosolutions.com



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course irrigation water can be quite variable," says Rain Bird's Roche.

That's why golf course superintendents should test their water frequently. So what are some elements that, if found in water, could be bad news for your turf?

Boron, for one. According to Larry Lennert, North Central territory manager for Aquatrols, boron can be toxic to some turfgrass species at concentrations as low

as 2 to 4 ppm in the soil. Irrigation water should contain less than 1 ppm.

"Boron can be leached from sandy soils, but it accumulates and is more difficult to leach from fine-textured soils," Lennert says. "Also, it is more commonly a problem

Bryozoa can gum up sprinkler heads.



### For *more ...*

Looking for more information on this topic? The USGA's Brian Whitlark recommends the following resources. Simply enter the following URLs into your browser to access the online content.

- **Water Quality Testing**

The agony and the ecstasy.

[bit.ly/1dhDZ4L](http://bit.ly/1dhDZ4L)

- **A Step-By-Step Guide For Using Recycled Water:**

An outline of the costs and maintenance practices necessary to manage this valuable resource.

[bit.ly/1B7SUq](http://bit.ly/1B7SUq)

- **Interpreting Water Tests: It's as easy as 1-2-3.**

[bit.ly/17hWVu](http://bit.ly/17hWVu)

USGA

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Chapter 1

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Reclaimed water can harbor unwanted microorganisms.

## Hear it *first...*

Check out this podcast featured on GCI's Superintendent Radio Network which features Larry Lennert, territory manager for Aquatrols, who discusses soil salinity by outlining management practices. To listen, simply enter [bit.ly/JHHUlr](http://bit.ly/JHHUlr) into your browser.

in landscape plants than in mowed turf."

Chlorine is usually only present in minor amounts in recycled water sources where chlorine-containing compounds are commonly used as a disinfectant. Residual chlorine levels above 5 mg/L can be toxic to turfgrass. Also, chlorine is generally unstable in water and will form chlorides – different than chlorine.

"Chloride is an anion (or negatively charged ion) commonly found in irrigation water and can be a major contributor

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to the overall salinity of water," Lennert says. "Chloride is not particularly toxic to turfgrass, but many landscape plants are very sensitive to it."

Carbonate and bicarbonate are interesting, too. They are anions in alkaline irrigation water that commonly react with calcium cations (positively charged ions) in higher pH soils and precipitate out as calcium carbonate, also known as calcite or free lime.

"Less commonly, magnesium cations can also precipitate out of alkaline irrigation water or the soil solution in higher pH soils to form magnesium carbonate ( $MgCO_3$ )," says Lennert. "Either of these events will elevate the sodium absorption ratio."

Rain Bird's Roche explains that the sodium absorption ratio (SAR) indicates the amount of sodium in the water in relation with calcium and magnesium.

"There are different types of acid products that can be used to help manage waters that have a high SAR," says Roche. "Acid products are typically injected at the pump station using proportional pumps that work in conjunction with the pump station's flow meter so that a balanced amount of material is added to the irrigation water throughout an irrigation cycle at variable flow rates. In some areas of the country, a permit must be used to install acid injection equipment, and containment areas and backflow prevention devices must be in place to contain and prevent any spillage or leaks and to protect from back siphonage into the water source."

So what about sodium, that common element found in water? High concentrations of it will increase the total salinity of the water. Salinity and organic components are two of the top issues with water,



An example of bryozoa clogging a bottom filter, reducing efficiency.

says Brian Whitlark, agronomist with the USGA Southwest Region.

"The warmer the weather, the more types of organisms you'll find in water," he says. "Bryozoa, protozoa and clam shells can be problematic in gumming up the screens at the base of sprinkler heads. If you don't have a good filtration system

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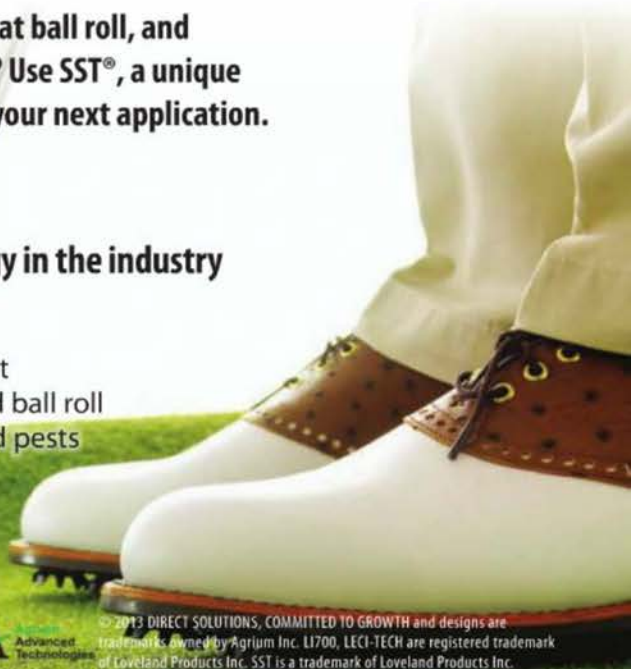
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at the pump station, you'll be chasing around with heads that get stuck or don't come on at all."

Whitlark relates the story of one superintendent he ran into at a meeting who showed him a photo of his pump station filled with bryozoa. Despite the fact that it was a self-flushing system, they had to mechanically remove the filters and clean them off every three weeks; otherwise, they were pumping at reduced efficiency, which, of course, costs energy. This was a new pump station, too – prior to acquiring it, the mess was living in his irrigation lines.

Treating those types of organisms can be dangerous, Whitlark says. Potassium per-

## For *more* online...

Looking for more information on water quality issues? Check out the following USGA Green Section articles by entering the following URLs into your browser.



- **Phosphorus Remediation**  
Improving water quality with phosphorus removal structures.

*By Chad Penn, Greg Bell, Jason Warren, and Josh McGrath*

[bit.ly/K677CM](http://bit.ly/K677CM)



- **Purple Gold**  
A contemporary view of recycled water irrigation.

*By Dr. M. Ali Harivandi*

[bit.ly/1dw7m1R](http://bit.ly/1dw7m1R)



- **Acid Substitutes and pH Reduction**

An evaluation of the new acid-replacement products for improving water quality and the soil rootzone environment.

*By Brian Whitlark*

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manganate is the most popular, followed by hydrogen peroxide or some sort of oxidation strategy (even ozone) to kill the organic organisms in an irrigation lake or wet well.

"These organisms are often associated with reclaimed water with elevated nutrient levels, specifically nitrogen and phosphorus," Whitlark says.

Having nitrogen and phosphorus in your water can be helpful from the standpoint of providing, in some reclaimed water, up to four to five pounds of nitrogen per 1,000 square feet per year. But, during times of limited growth, supers run the risk of leaching those materials through the rootzone.

"In hot environments that

are growing bentgrass greens, the nitrogen is a real concern," says Whitlark. "You don't want to be applying nitrogen in July and August when it's 105 degrees and elevated humidity. The additional nitrogen is unwanted and creates puffy conditions on the greens."

Whitlark has seen courses where this is a great concern form conglomerates with other courses using the same reclaimed water and work with the water provider to implement reverse osmosis or additional denitrification strategies at the plant.

"Furthermore, the nitrogen and phosphorus in the water create a good environment for algae formation in the lakes,



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## WATER MANAGEMENT

and regardless of how diligent superintendents are at avoiding putting fertilizer in the lakes, if those nutrients are coming from the effluent plant, that can be a real issue," says Whitlark.

When it comes to salinity, you're trying to evaluate the water based on total salts and whether you have a sodium hazard – two different things, Whitlark points out.

"You could have high salts and sulfates and calcium magnesium that make the water salty, but the sodium is low, and that will determine whether you can treat the water or whether it's beneficial to treat the water," says Whitlark.

Water with high electrical conductivity (over 1) may start to cause problems if you have poorly drained soil. Whitlark warns that, outside of reverse osmosis, you cannot reduce the salts in water. But as far as reducing the sodium hazard, if you have a sodium absorption ratio equal to or greater than 5, you might consider treating the water with gypsum to increase calcium. If the water is high in carbonates and bicarbonates, and the residual sodium carbonate (sum of carbs and bicarbs minus the sum of calcium magnesium) is greater than 1.5, then the potential exists to cause precipitation of calcium and magnesium – which would render sodium more potentially destructive in the soil. **GCI**

*Jason Stahl is a Cleveland-based writer and frequent GCI contributor.*



Frequent water tests root out potential turf problems.

"Bryozoa, protozoa and clam shells can be problematic in gumming up the screens at the base of sprinkler heads. If you don't have a good filtration system at the pump station, you'll be chasing around with heads that get stuck or don't come on at all."

— Brian Whitlark, agronomist with the  
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## TIMBER!

Successfully sell your members on the idea of tree removal.

**Y**ou will be reading this in January, when many of you will be taking down your Christmas tree. You hate to do it, but you know you have to. Many superintendents have the same feeling with their golf course trees, with the added problem of convincing extremely reluctant members that it is necessary.

Tree removal is a trend that's here to stay, and this may make your job convincing members a little easier. At a renovation project interview years ago, club members said I shouldn't recommend removal of a large Cottonwood near their 4th green. That seemed reasonable, until I saw it. The tree was almost on the green edge, with its roots actually pushing through the turf. It was messy and blocked morning sun. When asked "Do you think you will save this tree?" I responded, "Sure, if you tell me where to stack the logs!"

I did not receive that commission, but members are more open to tree removal now after seeing many famous courses selectively remove trees and still maintain their character, difficulty and charm. At the current pace, it may take time to reverse five decades of overplanting. But, if the same greens committees responsible for the overplanting are now removing trees, we might be a nation of links courses very soon.

"Golf purists," perhaps rooted firmly in the nostalgia of an earlier time, think that can't happen too quickly, but most golfers still like tree-lined golf holes.

The discussion sometimes paints those old committees as clueless, when in fact, heavy planting helped make any course built in open fields

much more enjoyable. However, too many courses planted the wrong species for quick growth or cheap cost, in the wrong places (trees never naturally grow in straight lines), didn't consider eventual size, or forgot the second half of the old landscaping adage of "Plant thick, thin quick."

In stating the case for removal, removing trees for agronomy reasons should be a no-brainer. Trees and grass usually don't mix well. Trees near greens and tees with canopy over (and roots under), trees that block morning sun or air movement are all

tect will know that:

- Aesthetics can be improved by removing trees, by opening up long-distance views.
- Carefully located tree groups can serve several holes equally and minimize planting.
- Random clumps are more attractive than straight lines.
- This isn't an arboretum. Except for key areas, plantings needn't be showy and expensive.

Many courses are shocked when an arborist tells them many of their best-looking trees and mature trees

“When asked ‘Do you think you will save this tree?’ my response was, ‘Sure, if you tell me where to stack the logs!’”

problems solved by tree removal.

In addition, trees require more water resources than turf, which in some places is reason enough to make them candidates for removal.

Trees too close together to mow between are problems. Although tight clumps with mulch beds between are more natural and mowing production increases when mowing between every tree is reduced.

Objectionable species, including fast-growing, but weak-branched species like most maples, willow, and poplar, or messy trees like sycamores, are problems that are best removed.

Trees can impact play in bad ways, especially low-branched trees that hide balls and plantings that have unintentionally narrowed fairways or caused "forced draws and fades." These may be problems a golf course architect will identify.

As for aesthetics, your golf archi-

are diseased. Your aesthetics may be great now, but consider your trees in a 20-year time frame to maintain – and improve – that look.

Trees are important to most golf courses, defining doglegs, separating holes, and providing backdrop, filtered shade, strategy, penalty and character. They also cost money – both in direct maintenance and indirectly in golf course maintenance. In cost-conscious times, each tree needs to be functional, or multi-functional, while presenting few problems to be justifiable. Less definitely can be more.

Time can be your ally, and many trees should be eventually replaced, with better design, locations, and species. However, you can wait a few years to remove some weak or poor varieties of mature trees until newly planted trees mature enough to provide the same function. **GCI**

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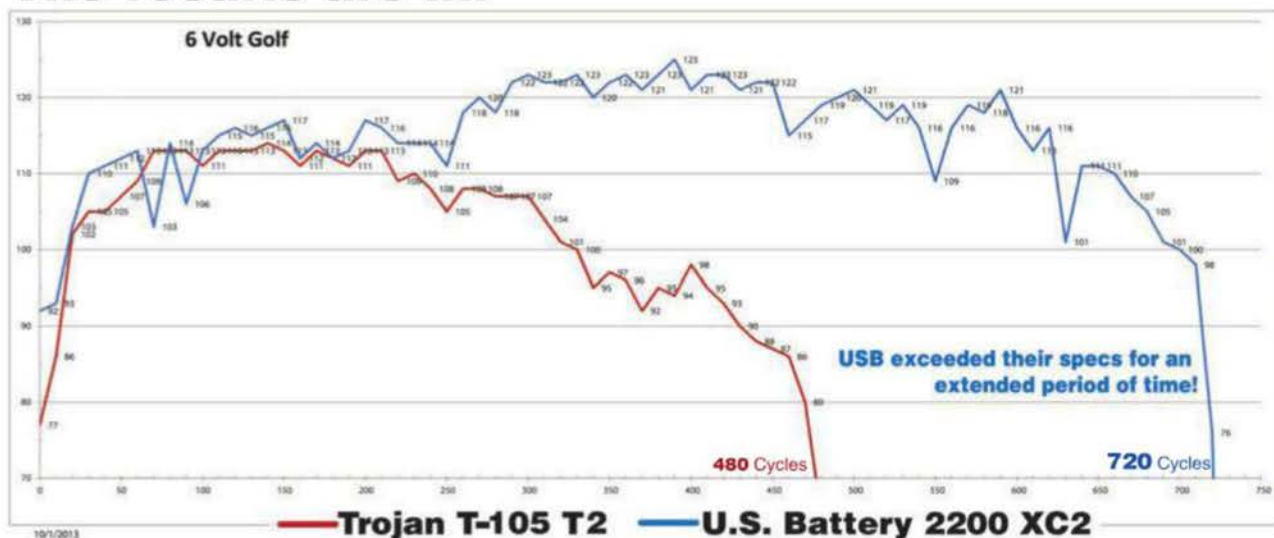
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**R**yan Baldwin will never forget the summer of 2010. His course, Highland Golf and Country Club in Indianapolis, Ind., experienced a stretch of extreme heat and precipitation in June. More than 16 inches of rainfall accompanied temperatures in the upper 90s. The course was saturated beyond the point where most fungicides could be absorbed and utilized properly by the plant. Contact fungicides had difficulty adhering to tissue, and lasted a few days at best. But plant growth regulators (PGRs) came to the rescue.

"On the areas of the course we kept a relatively regular regime of PGR in the mix, the plant survival improvement was noticeable and dramatic," says Baldwin, CGCS/facilities maintenance director. "Once the rainfall stopped, we still had a long summer ahead with much-weakened plants; and the PGR-treated areas handled the remaining seasonal stresses."

Baldwin says his use of PGRs is multifaceted, with the primary role being to suppress top growth. This need is a season-long top priority to his selection and implementation of PGRs. Primo is his primary choice, and rates are adjusted along with windows of application, determined by factors such as weather, growth, fertility timing and member event schedules.

During specific times of the year, or under specific weather conditions, PGRs can take on secondary roles within Baldwin's program. For instance, Proxy is added to the mix on greens/tees during *Poa* seeding windows, and Primo is replaced briefly by Cutless on fairways during this same set of conditions. However, Primo is the primary PGR in play the vast majority of seasonal time.

Due to a severe DMI resistance to dollar spot, Baldwin relies heavily on contact fungicides such as chlorothalonil. To him, it's a logical assertion that by suppressing top growth and clipping production, the contact fungicide will remain at higher concentrations during the effective window.

"The combined plant health benefits and fungicide longevity have definitely improved my disease control," Baldwin says. "I can't say that my intervals have changed much since introduction of PGRs,

# PGR ME



**Superintendents believe plant growth regulators work with other applications to fend off disease; others see a more direct disease suppression benefit.**

By Jason Stahl



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but there is no doubt the efficacy of the fungicide and the plant health provides much less breakthrough towards the end of each interval. I'm fully convinced their use is synergistic for the plants and the combined improvements in plant health and fungicide efficacy lead to a better, healthier surface for my members."

Bob Senseman, CGCS, from Oswego Lake County Club in Lake Oswego, Ore., uses PGRs combined with Proxy in the spring for seedhead suppression. By doing so, he says, he's making the plant stronger and hopes to suppress disease development.

In an interesting twist, Senseman says he and an increasing number of superintendents who use Primo on greens are starting to curtail that use till after June due to an increase in anthracnose. However, he admits that science doesn't support that PGRs actually stimulate anthracnose development – and Dr. Jim Murphy of Rutgers University's Department of Plant Biology & Pathology confirms that.

"A lot of superintendents were worried that Primo would be making the disease worse because that's the most common summertime plant growth regulator used, but we just didn't see that to be the case," says Murphy. "Our research led us to believe that superintendents are better off staying with their plant growth regulation program in summer."

Murphy and his team looked specifically at scenarios where superintendents had a lot of *Poa annua* on their greens and were trying to keep it alive and healthy. They did not look at Cutlass or Trimmit because those PGRs are generally used to get rid of *Poa annua*.

"Rarely did we see a negative effect or enhancing the disease," Murphy says. "We usually saw not much of an effect if at all, and when there was an effect, more often than it being negative, it was actually positive. But the positive aspect was not so strong that I'm confident superintendents should use it for that purpose and expect something out of it. When you looked at how many times we

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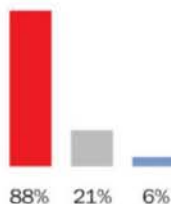


## PGRs: Just the facts

**29%** Percentage of superintendents who indicated they found value in using PGRs for disease suppression.

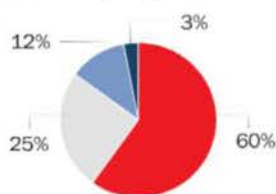
### How do you use PGRs?

- Regular application schedule developed in advance
- Apply on an as-needed basis
- Spot usage



### Where are PGRs used?

- Greens and fairways
- Greens only
- Greens, fairways and roughs
- Fairways only



SOURCE: GCI research

had a positive versus how many times we had a negative, the positive effects outweighed the negative effects by quite a lot.”

Murphy’s standard advice to superintendents when it comes to Primo and anthracnose is that they might see a positive impact on reducing the disease – but don’t count on it. Also, don’t be afraid to use it because there isn’t much of a negative effect at all.

“I would rather have the growth regulating effects you’re using that product for and not worry about any disease increase because it’s probably not going to happen,” he says.

When it comes to dollar spot control, Mark Brotherton, turf

and ornamental product manager with SePRO Corporation, says superintendents have told him of the side benefit of suppression of this disease when using Cutlass or Trimmit – most likely because both products were originally screened as DMI fungicides. Still, he admits it’s hit or miss.

“I would not be using a PGR as a substitute for a fungicide, not even to the point of complementing a fungicide,” says Brotherton. “While it may suppress dollar spot, it won’t stop it from appearing or affecting turf. But it will reduce the amount or severity of it. I would suspect the university folks would say the same thing.

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treated/untreated areas with fungicides. Basically, you have to something to compare it to."

Gabe Menna of Centre Hills Golf Club in State College, Pa., is one superintendents who saw a reduction in dollar spot – specifi-

cally, 20 percent less in the plot where he applied Musketeer. He applied a mid-rate of Cutless, Legacy, Trimit and Musketeer on his nursery green (75 percent bentgrass, 25 percent *Poa annua*) every three weeks during a high-pressure dollar spot season. Menna wasn't even looking to suppress dollar spot, but found it was a side benefit.

"The main thing we were searching for was growth regulation since we have such little *Poa* in our fairways," says Menna. "We looked often and didn't see much difference in any category we were searching for. We had a rep in town and was showing him our testing plots on our fairway nursery, and he didn't notice much either but he pointed out that the dollar spot was less in the Musketeer. It still had dollar spot, but it had less than the other areas. We didn't take any pictures and didn't document anything or take any percentages of dollar spot at the time because it wasn't really what we were concerned with from our test. For me, it was really just seeing if there was any reason to switch from Trimit, which is working well for us for color and growth regulation."

Kyle Erdige of Timber Banks Golf Club in Baldwinsville, N.Y., also believes he gets an ancillary benefit of dollar spot suppression when using PGRs – again, Trimit, as it was originally formulated to be a DMI. But he admits his situation is a little different than other superintendents in that his bentgrass is somewhat resistant to dollar spot. "The varieties of bentgrass I have in my fairways are not 100 percent dollar spot resistant but have done very well in trials as far as not getting dollar spot compared to other bentgrasses on the market," he says.

The rate Erdige uses his PGRs is a little higher than what most superintendents use but still within the label recommendation. Still, he says he asked a couple researchers if he should be worried about DMI resistance, and they said no. "The rate I'm using isn't quite as high as a true regular fungicide DMI, so they said I shouldn't see any resistance from it, and I was glad to hear that," he says.

Erdige has been using PGRs to keep *Poa* from encroaching on the turf since 2010, and he plans on keeping with the program. **GCI**

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## CAN'T MAKE IT TO ORLANDO?

There are always ways to get the information you may be missing.

It's that time of year again. The time for many of us to get out of the cold weather and head south for the annual Golf Industry Show (GIS).

In an article I wrote about this time last year, I gave my top excuses (and my answers) for not continuing your education. A large portion of that article was based on the opinion that EVERYONE should be making an attempt to get to GIS. This year, I'm going to tell you why that might not be necessary if your primary goal is continuing your education.

**IS IT ONLY GCSAA MEMBERS WHO NEED EDUCATION?** First, let's look at the numbers. There are fewer total superintendent/assistant members in GCSAA (roughly 12-13K) than there are golf courses in the United States, thus leaving a lot of superintendents and their employees out of the loop when it comes to what's offered at the annual conference.

While I can't be certain that all of those individuals are looking to continue their education, I would be willing to bet a large portion of those associated with the golf course maintenance industry seek information on a regular basis. They may not be sitting in half-day seminars, but nevertheless they are looking for help.

So for those of you that are not members of GCSAA or aren't provided with the funds to travel to the annual conference this year, I say it's not that big of a deal. First of all, there is only so much education you can actually sit through at GIS and second, there are a ton of other options closer to home.

**LOGISTICALLY IMPOSSIBLE TO SEE IT ALL.** While GIS and the GCSAA educational sessions have probably the largest number of educational seminars in a

concentrated time and place, it's not really possible to attend more than a few in any year.

This year the conference education is primarily limited to two days (Monday and Tuesday) with a few specialty sessions ("Answers on the Hour" and "Tech Tips on the Half") on Wednesday and Thursday. This means from a seminar standpoint that you can take two 8-hour seminars (have fun with that) or four 4-hour seminars. That's actually

working of GIS at a fraction of the cost.

While some of you may have a more difficult time than others finding "regional" conferences, I have to believe that there are a large number of opportunities for most.

Some of the larger regional conferences include the Carolinas Show, The New England Regional Turfgrass Conferences, and the Ohio Turfgrass Foundation Conference. These conferences attract thousands of people

“Unfortunately, the fact remains that many of you in the industry just aren't given the opportunity to attend.”

a lot of education to push into a short period of time and probably enough to fry a brain or two along the way.

The benefits of the annual meeting is the diversity of the seminars which give attendees more options to build an educational program that best suits their needs. Unfortunately, the fact remains that many of you in the industry just aren't given the opportunity to attend.

**YOU'VE GOT OPTIONS.** The way in which we get information is certainly changing and is undoubtedly becoming more diverse. We have the traditional education found in universities across the country, national and regional conferences, and a multitude of online resources that all provide some level of information.

**REGIONAL CONFERENCES.** I will skip over the role of a formal education (it's just flat out necessary to advance) and go right to the regional conferences, which are perhaps the best way to experience the educational opportunities and net-

annually and have much of the hype and buzz of GIS. They all have educational seminars (many of which are the same as those offered at GIS), big-name keynote speakers and relatively large trade shows.

In addition to some of the larger regional shows, many state turfgrass associations have multi-day conferences that offer a similar level of information. In Pennsylvania, we actually have four annual conferences reaching thousands of attendees including the Eastern, Western, Northeastern and Penn State Conferences. That's a lot of education offered in a relatively small region.

**TAKING IT ONLINE.** So you can't afford to go the national conference and you have another excuse why you just couldn't make it to your regional conference this year. Well there's another option for you and it comes at the convenience of being able to sit in your pajamas with a cup of coffee while you learn.

A variety of online resources are  
*(continued on page 77)*



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# for business

While new openings are at record lows, the construction side of the industry is excited about 2014's prospects.

By **Richard J. Skelly**

**W**ith fewer than a half-dozen new facilities coming online in 2013 and dozens of older golf courses closing, people not intimately involved with the golf industry might be nervous.

But much of the reduction in the number of courses last year can be attributed to old-fashioned supply and demand, resulting in an ultimately healthy market correction, argues Greg Nathan of the Jupiter, Fla.-based National Golf Foundation.

New courses that opened in 2013 are innovative, challenging layouts like the Rees Jones-designed Kohanaiki in Hawaii, on the West coast of the main island, where six

holes front the Pacific, and Mystic Creek Golf Club in El Dorado [doe-ray-doe], Ark., built on naturally rolling hills two hours south of Little Rock.

"Since 2006, we've had more closures than openings and this will be the eighth consecutive year in the U.S. where we see this natural market correction," says Nathan. "Over those six years, including this year, there's been roughly 600 net reduction in supply."

Folks in the non-golf media may look at this like the sky is falling on golf, Nathan says, but "in 2000, we opened net positive 400 golf courses in a single year. In the 20 years roughly from 1990 to 2010, we were probably net positive 3,500 facilities in the U.S. Last year, I think the number of openings in the U.S. was the lowest since we started recording."

The point is, according to Nathan, if you're currently an owner or operator of a golf course, you don't want to see any more openings than we've had this year, because over the last 20 years, there's been more than enough openings to create new competition.

"In 1988, in the U.S., you had roughly 40,000 rounds of golf on average per 18 holes. Today, it's roughly 33,000, so you might understand that the loss on average of 7,000 rounds is the difference between losing money and making money for many golf courses," he says.

Currently, another 50 facilities are in planning or construction phases around the U.S. Not all of them are expected to open in 2014 or even 2015. A percentage will go on hold indefinitely or be killed outright.

Several of the new courses that came online this year began planning and financing before the Great Recession of 2008. Other courses with renovation plans that were put on hold are now getting things into gear and obtaining financing for improvements to clubhouse, grounds or both.

"I do know the fall of this year has really shown our members some excitement for 2014 projects. There's been a lot of bidding on renovation work for 2014," says Justin Apel of the National Golf Course Builders Association in Lincoln, Nebraska.

"They've had these projects on hold for a number of years. Now these projects

Kohanaiki Golf and Ocean Club opened April 1 in Kailua Kona, Hawaii. Here again, construction was delayed and there were setbacks owing to the Great Recession.

are moving forward, funding has been secured and bidding is active," Apel says. Whether the hesitation was concern over the elections or what's going to shake out with health care, "now the research has been done and the funding is secured and they're making sure the projects will be done in 2014. I'm not sure banks are more willing to loan, but I do know the funding for these projects is going ahead. I think funding has gotten very creative," Apel says, noting interest rates remain low, so clubs can borrow money inexpensively and use the capital improvements option.

Much of the renovation work Apel sees coming into his office is irrigation improvement-related work, as courses are getting savvy about their use of city water and seek to contain costs further with more efficiency in irrigation systems.

Just because there is an imbalance of supply and demand doesn't mean new courses can't be successful. By way of example, Nathan offers up Streamsong, a resort course [Doak-Coores-Crenshaw design] in central Florida that opened in January 2012 with two 18-hole courses.

"Streamsong is a course built on an old phosphate mine and it's so unique that people are willing to make the drive from other parts of Florida," Nathan says, "so there will be opportunities in other markets where the right golf product that is not currently available comes online. There's a demographic there that is looking for this product that was not previously available. But it's harder and harder to find these opportunities because there's really no shortage of places to play, anywhere."

Here are some interesting facts and figures about the handful of new courses that opened in 2013:

**MYSTIC CREEK GOLF CLUB.** Mystic Creek Golf Club is an 18-hole facility set on gently rolling hills two hours south of Little Rock



### *Editor's Note*

In attempting to highlight new course construction that came online in 2013, we recognize that it's easy to overlook new facilities that may have opened without much fanfare or industry-wide recognition or accounting. If you fall into that category, we'd love to hear from you and learn more about your facility. In fact, we may even feature your story in an upcoming issue.

in El Dorado, Ark. Bryan LaRue is head professional and Scott Kuhn is superintendent. The owner, Pete Parks, says bringing the course to opening in May took about seven years. The designer was Ken Dye of Finger Dye Spann in Katy, Texas. From the tips it measures out at 7,492 yards.

"Most people build a golf course to sell real estate, but we kind of did it backwards. We sold real estate to help build the golf course," owner Parks says. Plenty of hurdles stood in the way of the course. A local bank backed out of the deal, and Parks had to acquire additional land. On top of that, power lines had to be installed to the pump station. Finally, in 2009, there was 10 months of rain.

"The rain didn't wash out freshly planted seed, but it was just too wet to work. We'd

get something ready in anticipation of having our power and when the power didn't come we had to recore some greens and do a bit of reshaping," Parks said. The par 3 No. 12 hole at Mystic Creek resembles No. 12 at Augusta, "but if you asked 10 people to pick out their signature hole you'd probably get about nine different answers. No. 17 is our only uphill hole and the other holes pretty much play downhill, at least on tee shots."

Parks said he and others involved built the course to be an elite public access course. Once the clubhouse and on-site cabins are completed, they'll start marketing the course that way, they anticipate, in 2015. Mystic Creek is 90 minutes northwest of Shreveport, four hours from Dallas and four hours from Memphis.

**THE CLIFFS AT MOUNTAIN PARK.** The Cliffs at Mountain Park is a Gary Player design that opened in September in Marietta, S.C., in the northwestern corner of the state. The 18-hole facility is part of a series of golf courses attached to housing developments. Marietta is 30 minutes north from Greenville. Others in the rubric of courses with the same owners, all attached to housing developments, include the Cliffs at Glassy, the Cliffs Valley Course, the Cliffs at Keowe



Many courses that came online in 2013 had been on hold since the recession.

Vineyards, the Cliffs at Walnut Cove, the Cliffs at Keowe Falls and the Cliffs at Keowe Springs, says Brian Peebles, director of golf for all seven courses. Jason Harris is the superintendent at the newly opened Cliffs at Mountain Park.

Construction at was delayed by the bankruptcy of the original company, Peebles says, and after a merger in August

2012, construction recommenced in September 2012. "The course lays in a valley. It's a links-style course with few trees. Our other six are more parkland style, and we have no rough outside the fairway. The fairways are diamond zoysia, and we have 13 acres of regular and waste bunkers."

"It's a warm season golf course and it does play firm and fast. Mr. Player designed it so members can enjoy themselves without too many forced carries to the greens," Peebles adds.

"His design at Mountain Park allows the golfer to hit a variety of shots on the approach, and Jeff Lawrence, the senior designer with Gary Player, did an outstanding job."

**THE DAVID TOMS GOLF ACADEMY.** The David Toms Golf Academy in Shreveport, Louisiana opened on Sept. 26 of last year. Jason Patten is the general manager and head professional at the facility, which has nine par 3 holes, three regulation-sized practice holes, a driving range and practice putting and chipping greens set on a 60-acre tract.

"We don't have a clubhouse yet, but from the day we started clearing, it was about 14 months to our opening," Patten says. PGA Tour Player David Toms is a native of Shreveport and this is one of many ways he's giving back to the community, Patten added. Toms is a 13-time PGA Tour winner who won the 2001 PGA Championship. He received the 2011 Payne Stewart Award for his philanthropic activities.

"We run this as a non-profit business under David's foundation. There are memberships where people can join by making a donation to the foundation. We run a 1st

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Tee Program but we also do other programs on the side for junior golfers in this area," Patten says.

The property sports 2.5 acres of tee space, miniverde turf on green surfaces, some zoysia turf and celebration Bermuda and tift grande are used as well. The architect Jim Lipe worked closely with Toms in laying out this facility, where the superintendent is Scott Tolar.

Patten says dry, hot weather was a factor. "Trying to get it opened up during the growing season was a challenge because we had an unusually dry year. But it was a blessing in disguise. If we'd gotten rain, it probably would have caused us to lose more weeks for our grow-in."

**KOHANAIKI GOLF AND OCEAN CLUB.** Kohanaiki Golf and Ocean Club opened April 1 in Kailua Kona, Hawaii. Construction was delayed and there were setbacks owing to

the Great Recession. Director of Golf Marty Keiter started at the facility in October 2007. About half the holes were completed when the project shut down in October 2008. Four people were kept on board, including Keiter and Colorado-raised superintendent Brian Tanner, who moved out there to help oversee construction of the Rees Jones-designed course, which measures 7,329 yards from the tips. When Keiter started three holes were completed.

"We kept four people here and all they did was water and mow to keep the golf course alive. In 2012 we built up our maintenance team once again and got it ready for opening by April 1, 2013," Keiter says.

"Rees Jones did an amazing job. We have six holes right along the ocean, and the first 11 holes are very user-friendly," he says.

"It is paradise," Keiter says, "The golf course is in fantastic shape and whereas most new golf courses haven't matured, by

the time we opened up, this place already had four years of maturing." Kohanaiki is connected to 450 home lots and sales of golf course homes have commenced.

Superintendent Brian Tanner adds similar praise for Jones and his team, based in Montclair, N.J., because he had to design the course around 20 anchialine pools. These ponds, found in Hawaii and other volcanic regions, range in size from a basketball to over an acre, Tanner says. They all connect with the nearby Pacific Ocean.

"It's water that is connected to the ocean via subsurface fissures," Tanner says, noting they're environmentally sensitive areas that are off-limits to golfers. "All of these ponds had been surveyed and Rees had to fit the golf course in and around these ponds, so there were challenges." **GCI**

*Richard Skelley is a Spotswood, N.J.-based freelance writer and GCI contributor.*

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## RAINY DAY WORK

Looking for an offseason project? Fine-tune your central control database.

If you or your irrigation technician are looking for something to do on a rainy day or over the winter, consider improving and fine-tuning your irrigation system central control database. Why? The database contains information that operates the irrigation system efficiently or, at a minimum, helps better manage your system.

Sprinkler spacings, along with nozzles, their associated flows, arcs and operating pressure are all tracked. As a result, the database calculates precipitation rates which then set the time that a sprinkler will operate. Combined with the ET or other weather input it is all done automatically if you so desire. If any of the information is incorrect, then the overall database will be inaccurate and your system will use more water than necessary.

First, determine how inaccurate the database may be. Do this by comparing the water use your central control system says you used in an irrigation cycle to how much water your pump station flow meter says you pumped during that same irrigation cycle. You may already know your database is way off based on what the pump station capacity is set for in the central control computer. For example, you have a 1,800-gpm pump station, but it is set in the database at 1,500 gpm. The 300-gpm difference is so that the pump station does not trip the low pressure discharge safety in the middle of its cycle because you are pumping more water than the control system thinks you are. Having a significant difference in actual capacity versus the programmed capacity is a sign of an

inaccurate database. It increases your overall water window, too; operating your system less efficiently.

So where to begin? Most databases are inaccurate because the sprinklers are operating at a higher or lower pressure than the database thinks. The pressure in the database should be what the pressure regulator is set for; 65, 80 or 100 psi is standard, but there can be others. Remember, valve-in-head sprinklers will not regulate unless they have a minimum of 10 psi above the desired pressure, so to regulate to 80 psi, the

rate which changes the run times which changes the water use.

The central control database uses theoretical flow based on the nozzles installed in the sprinklers per field controller station. The manufacturer's software then assigns the flow for that particular nozzle and calculates the precipitation rates. It is very important the nozzles in the database match the nozzles in the field. Many times nozzles are changed and that change is not reflected in the database, or the right nozzles were not entered into the database to

“An accurate database is essential to having an **efficient irrigation system**. It takes time and commitment to get the database accurate.”

sprinkler needs to receive a minimum of 90 psi. Many sprinklers on an 80-psi operating system probably will receive somewhere between 80 psi and 90 psi which will use a little more water than at 80 psi. Since it is per sprinkler, the additional flow adds up quickly over an irrigation cycle. If you do not have pressure-regulating sprinklers (non-valve-in-head) the amount of water the sprinkler actually flows can be much different than what is in the database. The database also assumes set sprinkler spacing in a set geometrical pattern with limited choices; triangular, square, rectangular. The sprinkler arc (0-360 degrees) also needs to be inputted, and in most cases those are a guess and not very accurate. A sprinkler in the field at a 230-degree arc is much different than a sprinkler in the database with a 180 degree arc. Improper spacings, geometry and arcs change the precipitation

begin with. The pump system does not use theoretical flow, but actual flow exiting the pump system based on the flow meter in the discharge piping. Flow meters themselves have various inaccuracies and need to be calibrated to register flows correctly. They should be calibrated every few years to stay accurate.

Most pump system flow meters are also not very accurate at lower flows and this needs to be considered when making comparisons of theoretical versus actual flow. Some manufacturers' central control databases also have other required inputs such as slope and soils. They are also used as inputs to compute the overall schedule, so they also need to be accurate.

An accurate database is essential to having an efficient system. It takes a commitment to get the database accurate. It's a rainy day project that will take many rainy days. **GCI**



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by Rob Thomas

# PROPER I.D.

**Correct bug identification allows you to better manage their threats to your turf.**

**C**ontrary to the popular idiom, what you don't know can hurt you. If you think you're managing the bugs on your golf course correctly, take a moment to consider there may be an even better way to handle these potentially harmful pests.

Juang-Horng "JC" Chong, Ph.D. of Clemson University says a common misconception among superintendents is that they don't need to identify white grub species. After all, if they all look the same, they can manage them the same way. Right?

Wrong.

"This attitude/myth perhaps cuts across all insect pest groups and is largely the result of complacency or laziness, in my opinion," Chong says. "In fact, it is quite important to identify the white grub species that is causing the problem because each species has different life cycles and,

therefore, requires slightly different management approach."

To complicate the problem, dominant species seem to change from location to location, Chong says. For example, in South Carolina, the dominant species along the Coastal Plain are the masked chafers and the May/June beetles (*Phyllophaga* spp.), while the Japanese beetle is added to the mix in the Piedmont and Mountain regions. The masked chafers have a one-year life cycle and the peak activity in South Carolina is between late May to late July; the Japanese beetle has a one-year life cycle and is active mid-June to August; the *Phyllophaga* has a three-year life cycle and is active from late May to mid-August.

"Ideally, preventive treatment of white grubs should be tailored to the activity period of the adult beetles and long-residual insecticides applied to the soil before or

at the onset of the activity period," Chong says. "Curative treatment in July and August using fast-acting, short-residual insecticides is more appropriate for courses that had a sudden, damaging white grub population. Preventive treatment usually works a lot better than curative. Typically one preventive application with neonicotinoids in mid-May will do the job for the rest of the year; but this is only true for the masked chafers and the Japanese beetles, which have grubs of the same age and all got wiped out at the same time. But for *Phyllophaga*, if the infestation has been there for a while, there are likely grubs of different sizes.

"Preventive treatment kills the young *Phyllophaga* grubs, but another curative treatment may be needed to deal with the older, larger grubs or be prepared to suffer a little more damage until the larger



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“Most superintendents treat insects based on what kind of budget they have. Golf courses with larger budgets and higher expectations for no-insect or pest damage tend to use more preventative treatments that might cost more to treat larger acreage areas to ensure no damage. Courses with smaller budgets might use insecticides on a more limited and curative basis.”

— Matt Martin, North Carolina State University

grubs pupate next spring,” he adds. “If the species can be identified, then preventive treatment can be applied at the best time; the superintendent can minimize the need (time, labor and materials) to do a curative treatment later on.”

Matt Martin, turfgrass extension associate in the North Carolina State University Crop Science Department, deals with white grubs, too, as well as other insects that are common from Texas to North Carolina including mole crickets – both Southern and Tawny – billbugs, sugarcane beetles, armyworms, black cutworms, nematodes and occasional outbreaks of Bermudagrass.

“Most superintendents treat insects based on what kind of budget they have,” Martin says. “Golf courses with larger budgets and higher expectations for no-insect or pest damage tend to use more preventative treatments that might cost more to treat larger acreage areas to ensure no damage. Courses with smaller budgets might use insecticides on a more limited and curative basis.”

Chung thinks tight budgets – forcing the need to minimize labor and equipment costs – has led to superintendents incorrectly putting out preventive treatment for white grubs at the same time as pre-emergent herbicides. He warns superintendents to beware of the counterproductive possibility.

“One of my previous studies showed that neonicotinoids and chlorantraniliprole provided less than 60 days of residual, preventive control against Japanese beetle eggs and young grubs in the sandy loam soil in South Carolina,” Chung says. “So, if the insecticides are put out there way too early

in the spring and, when the adult beetles show up and start laying eggs at the tail-end of the residual efficacy, then the efficacy of the preventive insecticide treatment will be greatly discounted.

“When that happens, the turf will suffer damage and the crew will have to go out there and do a curative treatment ... more time, labor, material and money,” he adds. “So, for a golf course that suffers persistent infestation by white grubs, it may be best to do preventive treatment at, or just before, the flight period of adults.”

Martin feels as though many superintendents think treating for insects for a certain amount of time means they won't be back.

“The truth is that most insects have life cycles that may be altered due to the local environment that they are reproducing,” he says. “Changing weather patterns from year to year can significantly [alter] insect life cycles from year to year and their reproductive success. Wet years versus dry years or cooler weather versus hotter weather might affect how insects behave.

“Some insects also can have fluctuations in populations and show up more sporadically during a decade or longer, rather than showing up every growing season,” Martin adds. “An example of this in the southeast United States is the sugarcane beetle. Many golf course superintendents battled this insect 20-25 years ago and then it seemed to go away. Within the past five years we have seen a resurgence in this insect throughout golf courses in this area.”

Martin recommends a proactive approach in battling turfgrass bugs.

“In many cases, some of the newer preventative pesticides are extremely effective

for certain insects for long-term control,” he says. “Map critical damage areas at the end of the growing season to know areas that need to be treated the following year. Also, keep in touch with local golf course superintendents to see what kind of insects they are dealing with in a given area.”

According to Martin, most golf course superintendents he deals with are very proactive to identify insects before treatment. He says they understand the environmental and economic benefits to only treating insects that might damage the turf. And most use university entomology labs or local extension offices to facilitate the identification process.

Professor of entomology Rick Brandenburg – also at North Carolina State University – battles the misconception of insecticide resistance.

“So many times when a product doesn't work, the user claims insecticide resistance,” Brandenburg says, though really we're “only seeing it right now in annual bluegrass weevil in the New England [region].” “That is not why the product didn't work in most cases. We really are not having any issues with resistance right now other than the annual bluegrass weevil.”

Also on Brandenburg's list of bug myths to bust: A cold winter means fewer insects next year and a mild winter means more insects. False, he says.

“Each region has insects well-adapted to its region,” he points out. “There are insects in Alaska. If a cold winter hurt insect populations, it would also negatively impact the beneficials that keep them in check. While there are examples of this, like fire ants at the northern fringe, it simply is not true as a general rule.”

And don't tell Brandenburg today's new products aren't as good as the older ones. “Wrong,” he says of that notion. “Today's new products are awesome. Lower use rates, long residual, great environmental profile, work really well against the target pests, etc.”

Or the higher the rate, the better the product will work. That's simply not true.

“We have seen time and time again that really high rates can often repel insects and they avoid exposure and the treatment does not work as well,” he says. “I see this often



in mole cricket control.”

Lastly, but less aggressively, Brandenburg disputes that more irrigation to water in a product will always be helpful.

“We have not observed this to be true,” he says, offering a blueprint for success. “A light application prior to treatments and a modest irrigation after application are a good recipe for improving control of soil insects like white grubs and mole crickets.”

R. Chris Williamson, professor of entomology at the University of Wisconsin-Madison, takes a different approach to the thought of attacking bug myths. After all, why is the industry so quick to assume it’s a bug in the first place?

“Insects may not necessarily be the cause of turf damage despite one’s initial thought,” Williamson says. “It is critical to properly and accurately diagnose the cause of turf damage. To do so, sampling

and monitoring of the damaged turf area is an effective means to accurately assess the cause of the turf damage.

“Other issues including biotic (e.g., disease pathogens) and abiotic factors (e.g., heat stress, drought stress) may be responsible for the turf damage,” he continues. “One classic example is vertebrate damage by birds on golf course putting greens. Superintendents often equate bird feeding damage to the incidence of insects such as black cutworm or sod webworm caterpillars. Birds not only feed on insects, but certain bird species prey on earthworms, seeds and other non-turf insects.”

Why are we eager to point the finger at bugs? History, Williamson speculates. But just because something has always been seen or done a certain way, does that mean it’s the right way? Of course not, he says.

“Some of these myths are based on

hearsay or legends that have been passed down over the years,” he says. “In addition, the [amount] of research as it relates to these myths or legends is rather limited. Because research is not available for all of the problematic turfgrass insect pests, the truth lies somewhere between fact and fiction (myth).”

Unfortunately, misconceptions can cause a superintendent to choose to apply an unnecessary insecticide application, Williamson says.

It’s not all doom and gloom from Williamson’s perspective. By minimizing these fictitious beliefs, the superintendent and the budget can benefit. “By appropriately and accurately diagnosing an insect problem and dispelling the myth, a superintendent can mitigate an inappropriate insecticide application – consequently reducing cost and manpower.” **GCI**

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**Monroe Miller** retired after 36 years as superintendent at Blackhawk CC in Madison, Wis. He is a recipient of the 2004 USGA Green Section Award, the 2009 GCSAA Col. John Morley DSA Award, and is the only superintendent in the Wisconsin Golf Hall of Fame. Reach him at [groots@charter.net](mailto:groots@charter.net).

## FOREIGN SERVICE

Overseas duty may be an exciting and lucrative goal.

**F**or as long as I can remember I have been a book guy, but never more so than since I retired. Reading requires time, and I have had more of that these days.

I just read the autobiography of a Wisconsin-born-and-educated Roy Chapman Andrews (1884-1960). Born in Beloit, he knew he was going to work outdoors for a natural history museum and explore the world.

His first job after graduation from Beloit College was at the American Museum of Natural History in New York City. He started as a janitor and ended up museum director.

Andrews was a superstar during his working years and made five daring journeys into unexplored territory in central Asia, especially Mongolia and the Gobi Desert. The trips were well-organized and resourceful and set new standards for exploration. His trips scored unbelievable treasures that helped explain the history of the Earth and man. During his career Andrews collected whales, seals, mammals, reptiles and just about any animal you can think of; many are still on display at the museum. His autobiography, recently reprinted, is titled "Under a Lucky Star." Discover magazine lists it as one of the 25 most outstanding science books ever written. So exciting was his life that there are persistent rumors that R.C. Andrews was the person the popular movie character Indiana Jones was based on. I don't know if that is true or not, but even the rumor gives evidence of how exciting his adventurous life was. Andrews' friendship with Douglas Fairbanks and Fairbanks' desire to do a movie of Andrews' life probably inspired the rumor.

So what has this to do with those in

the golf course industry? It has to do with the difficult job faced by college grads who graduate with a degree in turfgrass science, as well as experienced and qualified superintendents looking for a golf course. In my life we have gone from a place where a

well-educated and prepared for a turf career in foreign service? It certainly seems plausible to me.

I have visited with any number of colleagues who have worked overseas. Steve Cook and his wife Robyn enjoyed their time in Europe.

“ In my life we have gone from a place where a new grad went directly to a superintendent position to now where a new grad may hope for a second assistant position or a job as a spray tech.

new grad went directly to a superintendent position to now where a new grad may hope for a second assistant position or a job as a spray tech.

We have gone from a time when we built a golf course each day in America that had to be staffed to today where there is little new domestic golf course construction. I have read that many golf course architects are now working almost exclusively overseas, especially Asia (the places where Roy C. Andrews spent so many exciting years). Some of those architects have even moved there.

So, there it is. Maybe overseas duty as a golf course superintendent is not only an option, but also an exciting and lucrative goal. It could be that an undergrad turf science option would include coursework in international relations or studies. Might the coursework include intense study in foreign languages – Chinese or Russian or Korean, for example? Construction of new golf courses in Brazil could be a catalyst to learn Portuguese. Wouldn't it be valuable for a developer to have the chance to hire someone so

Mel Lucas has spent time overseas and has fascinating stories. A friend loaded up with greensmower parts before he left visits Wisconsin to go back to his position outside the U.S.

Such a career aspiration isn't for everyone. What if you are married and ready to start a family? Do you want to do that in a society very different from ours? What if you already have children – do you want to be separated from them? What about health care and safety issues?

On the other hand, there are tax advantages to working across either ocean. I didn't investigate what they specifically are and what they could mean. But it seems a few years overseas at a good salary and low or no tax obligations could set a person up financially for years to come.

There are no easy answers when considering this as a career path; it is a highly individual thing. Read "Under a Lucky Star" and see how adaptable Roy Andrews was and how he prospered.

Are there any turfgrass Indiana Joneses among us? **GCI**

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## BY JOHN TORSIELLO

**S**ome of the best material to topdress fairways and other portions of a golf course may be right under a superintendent's feet... literally.

Research has shown that using compost gathered in a variety of ways, including grass clippings and other routine maintenance activities, can have positive effects on a variety of grass strands, especially fairway-cut creeping bent grass and *Poa annua* strands. A recent study by Ohio State University researchers and industry experts, among them Dr. Michael Boehm and Dr. Joseph Rimelspach, demonstrated that color and foliar-nitrogen concentrations were positively affected for up to 50 days after topdressing with a locally available compost sludge. The report cited research at Ohio State and elsewhere has documented the disease-suppressive qualities of some composts and that composted material can improve soil fertility and physical structure.

Most composts used by superintendents are produced by piling fresh organic matter and stacking the material, which stimulates decomposition by microorganisms. As microbes involved in the process degrade organic material, they generate a great deal of heat, which, in turn, kills or inactivates many weed seeds, as well as plant, animal and human pathogens. The microbes exhaust the available carbon and nitrogen, the composting slows and the pile begins to cool. Other microorganisms, including wind- and rain-borne types, may then colonize the pile. During the final curing stage, microbes proliferate, including some that are capable of suppressing plant pathogens such as pythium. After compost cures adequately, producers typically screen it and it is then ready for incorporation as topdressing.

Dr. Tom Samples, extension specialist of turfgrass

management at the University of Tennessee, is a proponent of topdressing turf (but not usually golf greens) with appropriate organic materials, such as high-quality, well-decomposed compost, in certain situations and immediately after core aeration. He says the suitability of heavy clay soils for maintaining turfgrasses may be improved by routinely core aerifying and lightly topdressing with a high-quality organic material.

He cautions, "Unfortunately, some organic materials contain a high level of soluble salts and can be detrimental to turfgrass growth and persistence. This can be especially problematic in areas of the country that receive very little rainfall."

He adds that depending on the source(s), organic matter may also contain significant amounts of heavy metals and toxins that can be very detrimental to turfgrass plants. "One goal when using compost as a topdressing material is to increase the organic matter content and water-holding capacity of the root zone soil below the thatch layer. In order to do so, the topdressing material must be moved below the thatch layer, which magnifies the need to core aerify just before topdressing."

Dr. Samples cautions that topdressing turf with organic matter does not ensure that the population of beneficial microorganisms in the soil will rise.

Dr. John Soroachan, assistant professor of turfgrass science at the University of Tennessee, says there are several types of compost materials that can be used for topdressing turf, including decomposed organic waste products, poultry, and yard waste materials. "However, it is important to make sure the compost materials are fully decomposed (beyond the thermophilic stage)." In addition, the compost should be ground and screened to remove any large debris. Finally, composts may contain toxins. Therefore, it is important to know the source and history of the compost product.



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**“One goal when using compost as a topdressing material is to increase the organic matter content and water-holding capacity of the root zone soil below the thatch layer.”**

**— DR. TOM SAMPLES,  
UNIVERSITY OF TENNESSEE**



The only agronomic drawbacks he envisions would be if superintendents were to topdress with a compost material over a sandy rootzone. This could potentially cause a negative layering affect; where, you would introduce a finer textured layer over a coarser textured layer. “This would restrict water infiltration and drainage that would cause increased disease susceptibility, and decreased rooting and turf density.” The cost, including compost purchasing/production, delivery, and equipment and labor used in the application, may be a consideration.

How much compost is used and how often depends on budget, mowing height and benefit expectations. “You never want to apply too much topdressing where it cannot be incorporated into the turf canopy,” says Dr. Samples. “Topdressing with a compost material, as with sand topdressing, should be done when the turf is actively growing.”

Scott Kinkead, executive vice president of Turfco Manufacturing, says it is important to make sure compost is not introducing a new kind of seed into the turf.

“It needs to be a quality, consistent product that has been tested so you’re not introducing something new to your greens profile,” Kinkead says.

It is also crucial to make sure there’s a consistency to the material and chemical properties of the compost.

“The word compost is pretty far reach-

ing--it can go from someone who is supplying a consistent, granular compost to someone who is getting compost from a municipality,” he says. “There’s a wide variety of meanings with the word compost. There can be a lot of variation.”

Kinkead says his company fields calls regularly from individuals “asking if we can spread a specific kind of compost, and yes, our equipment can spread most of it. But we always tell people they need to know if it’s going to be consistent from year to year. Our patented chevron belts can handle literally any kind of compost material.”

There are a multitude of options when it comes to compost. “It covers a very wide spectrum, so if you’re integrating it into your golf course you need to define it clearly,” says Kinkead. “The last thing you want to do is start using something and have the particle sizes changed on you. You want to make sure you use the same size particles. You don’t want to create layering because of different-sized particles. For example, if you start throwing different sized particles onto the course, they won’t integrate well into your profile. If you have USGA spec’d greens, you want to be careful.”

As for how much compost should be used in topdressing and when it should be applied, Kinkead says it depends upon the composition of the compost material and how it fits into a maintenance program.

Compost isn’t rigorously tested and

monitored like fertilizer or synthetic chemicals. “The supplier needs to show they are providing a consistent product. Compost can change seasonally or due to weather patterns or the diet of animals. You just have to find something that has been rigorously tested before adding it to your program. We can spread anything, it’s just a matter of whether you want that ‘anything’ on your golf course.”

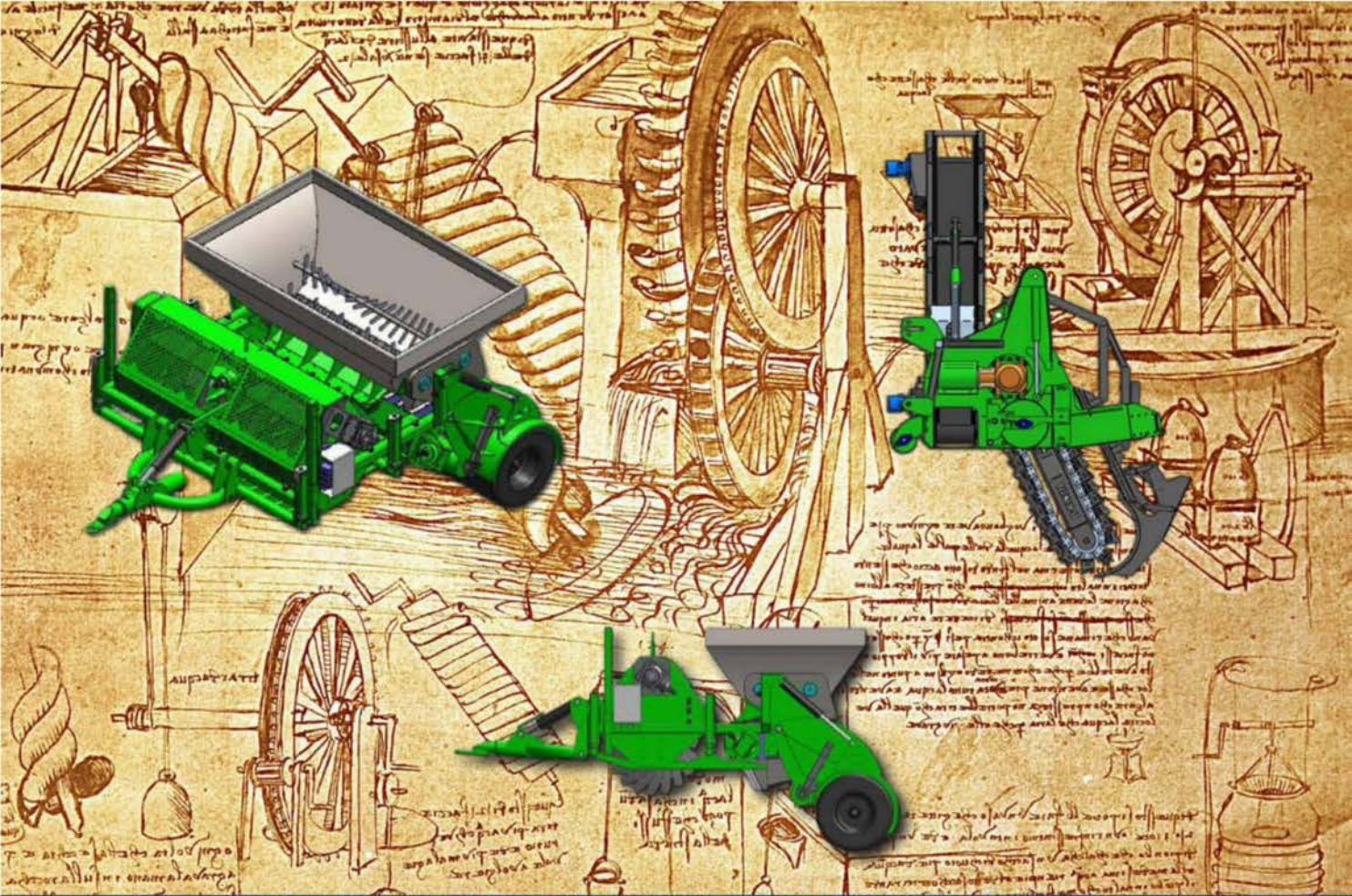
Scott Phelps, head superintendent at The Golf Club at Newcastle in Washington, has conducted several trials using different sources of compost as a topdressing. He’s tested poultry waste and food waste products on his course’s practice facility, tees, divot mix boxes, highly compacted areas, and areas that typically show drought stress in the summer time.

“I have also tested compost products more as a fertilizer,” Phelps says. “These would include a pelletized poultry material, and liquid food and fish waste products.”

He concludes, “As a topdressing material it increases our CEC, it holds more water, it provides nutrients for the microbial population and seems to improve the overall soil structure. We have noticed slightly quicker seed germination and better color and growth of new seedlings.”

He says cost is usually the biggest drawback in the process. “This is especially true if you are using the compost in large enough quantities for it to replace syn-





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thetic fertilizers. In some cases the odor from the products prevents us from using them. I have not been bold enough to use compost as a topdressing on greens because of the layering effect that it may cause."

Phelps believes there are many materials that can be considered a useable compost, including animal and human wastes, food wastes, and plant wastes. "They are packaged and formulated in many different ways. You can choose the best method for you based on why you are using the compost. Is it being used in flower beds around the clubhouse or as a topdressing on tees?"

When Phelps employs compost as a topdressing he uses 1/8 to 1/4 of an inch of the product in raw form. "We aerate first and then apply and drag in. We also use a 80/20 sand to compost ratio with 1/4 inch screened compost when we aerate and top dress our tees. We also use this in our divot mix boxes and bottles."

Phelps says the practice is not without its concerns: layering, odor, and salt content being the biggest three. "You have to make sure you are using a well-aged material and are testing the material at a laboratory prior to use." He says that A1 Organics of Colorado has developed a classification system for composts that he uses when determining if a compost is suitable for turfgrass or in planter beds. "I have the compost tested several times a year because it is amazing how much the same compost can change

from one load to the next."

The Meadows of Sixmile Creek in Waukegan, Wis. has had significant success using Purple Cow Organics. Purple Cow Organics has seven composting sites processing yard trimmings in the southern Wisconsin area. Beginning with fairways and tee boxes in 2008 and 2009, within three years The Meadows of Sixmile Creek was able to replace 100 percent of its synthetic fertilization and 95 percent of its chemical herbicides.

Rob Schultz, superintendent at The Meadows of Sixmile Creek, says Wisconsin's ban on phosphorous fertilizers was one of the reasons the course stopped using synthetic, granular fertilizers, "which have coatings, and tend to release other ingredients."

Topdressing with a Turfco CR-10, compost is applied in the spring and again in the fall at a rate of three to four cubic yards of compost per acre. The compost has been effective in providing the nutrients once supplied by fertilizer, at lower cost, Schultz says. "It took two or three years to get enough material in the soil, and then we started seeing results. One of the reasons maintaining healthy course grass is challenging is that in most areas the bent grass is cut to a half-inch height, which is shorter than a traditional, bluegrass lawn," he explains.

Now used on fairways, roughs and tee

boxes, the course superintendents also use a sand-compost blend on greens after they are aerated. The compost applications are further supported by a comprehensive liquid biological program using compost teas or extracts as the delivery vehicle for a range of additional soil amendments.

Says Schultz, "We've seen a reduction in thatch, and an increase in water holding capacity, the benefit especially evident in the severe drought of 2012. There is no question that healthier soil has resulted in healthier turf."

When developed in 1995 the area around the golf course included several farmed wetlands that were not functioning ecologically. There was a tremendous interest, says Schultz, in reducing runoff to improve water quality and fish habitat, in addition to controlling erosion. These areas have been mitigated into what are today working wetlands, and the neighboring property is now a nature refuge.

"The one thing that must be ensured; you have to use good compost. Aerobically maintained, fully mature compost will be weed seed and pathogen free. It will have a carbon to nitrogen ratio that 'gives' rather than 'takes' from the soil."

It's available, effective, has few serious drawbacks, and is, well down to earth. **GCI**

*John Torsiello is a Torrington, Conn.-based writer and frequent GCI contributor.*

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## Travels With Terry

Globetrotting consulting agronomist Terry Buchen visits many golf courses annually with his digital camera in hand. He shares helpful ideas relating to maintenance equipment from the golf course superintendents he visits — as well as a few ideas of his own — with timely photos and captions that explore the changing world of golf course management.

### PUSH BLOWER PUMP

The fairways at the Noyac Golf Club in Sag Harbor, Long Island, N.Y., utilize an extensive XGD Drainage System to assist with subsurface drainage issues. To help remove the excessive water from the piping system, Brian Goleski, golf course superintendent, and J.R. Wilson, equipment manager, conceived and built this blower modification. The 2010 Little Wonder Model SP-170 (6-hp) push-type blower's fan was reversed so it will suck air/moisture out of the piping. A 1.5-inch diameter threaded black iron pipe is welded to the blower's shroud and a male camlock is attached to it. A 1.5-inch diameter rubber hose with a female camlock is attached to the blower and T-shaped 1.5-inch diameter fitting is attached to the other end that is inserted into the XGD outlet. The blower can be converted back to its original design by reversing the fan and adding a new shroud. The materials cost about \$200 and it took about 2 hours labor time to modify each blower. The club also has a 13-hp Billy Goat push-type blower.



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This Honda Model EU2000I Generator has 2000 Watts/110 volts that powers the green's fans. The generator's internal fuel tank can operate approximately 9.6 continuous hours with a 1/4 load factor. The extended auxiliary fuel tank can increase the operating time (all night) for 72 continuous hours. IPI Industries manufactures the Fuel Extender Kit at a cost of about \$120, which includes the 5-gallon fuel tank (with fuel gauge), fuel line, fittings and specialized gas cap for the generator, which is available from Northern Tool & Equipment. Brian Goleski, golf course superintendent, and J.R. Wilson, equipment manager, at the Noyac Golf Club in Sag Harbor, Long Island, N.Y., developed this idea, which took about one-half hour labor time to be up and running.



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available that offer the same high level of education that the national and regional conferences are known for. The best part is that they all come at a fraction of the costs associated with registering for and traveling to a conference.

Although I pointed out the large number

of industry professionals that aren't members of GCSAA, the association's members have free access to a wealth of webcasts. These webcasts, as you might have guessed, are taught by many of the same people you would find teaching at conferences across the country. **GCI**

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## REINVENTION

A unified theory for a personal and professional life well-lived.

**B**y now, you've probably grown accustomed to (and weary of) me spilling out the gory details of my personal life on this page.

Just to recap, in the past five years alone, faithful readers like you have been forced to endure my ramblings about my kids, my crappy golf game, tinnitus and hearing loss, divorce, being broke, overcoming alcoholism, quitting smoking, etc., etc., etc. For me it's sort of like an instant therapy session. I pound out 835 words about whatever weirdness is bouncing around in my head, hit send and instantly feel better.

I'm weird like that. But, to me, it's not weird to share my life with my friends. The late great Harvey Penick used to say, "If you play golf, you are my friend." My version is, "If you grow grass for a living, you're my friend."

Well, my friends, this month I have something really weird... something very, very strange... to reveal: I got married a few weeks ago.

Yup, I finally convinced the fabulous Kim to become Mrs. Jones. Astoundingly, this wonderful, beautiful, creative and compassionate woman agreed to marry an aging, half-deaf, recovering addict with no savings, a bad comb-over and a golf swing that has more flaws than a Shakespearean villain. She's a little nuts... and I am eternally grateful for it. I'm the luckiest man in the world.

This continues my ongoing reinvention. I'm incredibly blessed. Looking back five years, my prospects for anything beyond darkness, despair and delusion were dim. Yet now, I love madly, laugh loudly and live with a new sense of purpose.

Let's talk about that last thing for a bit. In my case, my sense of purpose is simple: I want to live the rest of my life honestly, help others and have fun.

I know that sounds goofy and idealistic. The real world still lurks menacingly around every corner. I still have to run Golf Course Industry and our sister publication *Lawn & Landscape*, make money for my boss and keep a bunch of awesome, passionate, talented people employed. I still have to get my kids through college and off to their own adventures. I still need to be a good husband to the amazing woman who agreed to put up with me. I still have to stay sober, tobacco-free and (hopefully) less crazy than before. In short, I still have bills to pay and promises to keep.

“In my case, my sense of purpose is simple: I want to live the rest of my life honestly, help others and have fun.”

Yet, those things will all happen naturally if I simply continue to do the next right thing.

I learned that “next right thing” concept in AA, but it's a fundamental idea that turns up in nearly every religion and philosophy out there. I just didn't absorb it until it hit me square between the eyes that dishonesty, delusion and selfishness weren't right no matter how well I rationalized them. It turns out being a drunk, hitting bottom and starting over taught me the important stuff I should have learned had I been paying attention to all those goddamned books I read over the years. I recently was informed by my brilliant new stepdaughter that there's actually a word for it: *pathemata*. It means “learning through suffering.” Wow.

I don't want to waste those tough lessons. I'm excited to put what I've learned to work in every aspect of my life. And, in the spirit of adding rel-

evance to this column, let's start with a renewed commitment to this wonderful community of turfheads.

This year, we're going to begin to tackle the real issues facing our industry head on. We've always been pretty candid about the business, but the most important thing we can do is help solve problems instead of just writing about them. So, look for GCI to start leading the charge on issues and partnering with some important and surprising organizations to make a difference. We'll be announcing those programs over the next few months but

all of our new initiatives have this in common: We're committed to being an independent advocate for our industry, its people and its values. Stay tuned.

If you're coming to Orlando, let's talk. Find me, grab me and tell me what you think we should be doing to serve your needs – and the larger needs of the industry – more effectively. Let's talk about the challenges you face and your hopes and dreams for the future. Let's talk about how we can help you succeed and how you can have a voice in what we do. Mostly, let's talk because we're friends.

And, if you're very lucky, you might get to meet Mrs. Jones. She'll be there the last day or so of the big show. She'll be easy to find. She's the tall, gorgeous blonde following me around telling me to calm the hell down and reminding me to focus on what's important.

Did I mention I'm the luckiest man on the face of the earth? **GCI**

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