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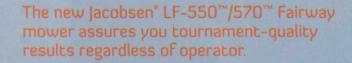


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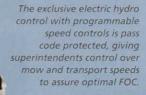


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Oregon State University research shows that daily rolling, along with higher mowing heights, provides high-quality turf and excellent green speeds.

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## LEAN & MEAN

**Pat Jones** 

Editorial director and publisher

bout every 10 minutes during the jam-Apacked 2011 GIS, someone would say to me: "I can't remember a national show where you could stand in the middle of the floor and see the walls at either end." I could indulge in all manner of evocative metaphors ("The walls are closing in on the market!") to describe this phenomenon, but instead I'll say this: It is what it is... get used to it.

Orlando was notable for many things, but it was most noteworthy for its sheer reality. It was a microcosm of the new golf market. It was lean and mean.

Among my observations, there was much ballyhoo about "adjusted attendance" and seminars being up. Hosts said there were about 5,700 "qualified buyers." They are loathe to admit how many actual superintendents registered, but it was probably around 2,500. That means only about one-sixth of all U.S. courses

(plus some international) were represented, but it obviously tends to be biggerbudget courses with higher maintenance standards and an appetite for new products. That, kids, is not bad.

Okay, try not to faint, but kudos to the GCSAA for being straight about the overall attendance numbers and not blowing smoke about how

massive the show is. The glory days of show expansion are over. But, thankfully, so is the attendance freefall. Orlando was a benchmark for the new normal and the association and the exhibitors need to deal with it. The new reality of the post-recession GIS is leaner, meaner, smarter and maybe healthier in the long run.

The CMAA's departure clarified and focused the event. It's once again a turf show, not a "turf plus napkins and wine glasses show." As painful as the divorce may have been, the vast majority of exhibitors were relieved to be dealing with their core customers instead of a weird mix of turfheads and food/bev guys.

Attendees were focused on being there for solid business reasons. Sure, there was partying and mucho camaraderie, but guys I talked with had a PLAN for their trip. They had selected seminars to help their facility or their careers. They hit the floor with an idea of what they needed to see.

Within days after the event, I started seeing supers' blogs outlining for their members/ owners exactly what they'd seen, done and accomplished at the show. That's a smart way to document the facility's ROI in sending their guy to the event.

suppliers back home.

Nearly everyone I spoke with was "cautiously optimistic" that the market is rebounding. Hell, I told everyone I saw I was cautiously optimistic. But, other than a few small budget studies that show some uptick in spending and a sense that capital budgets (equipment,

> flow a little, there's little evidence to support that feeling. I believe it's mostly a sense of hope. As in, I am more hopeful that my facility won't go belly-up.

> You should have seen the line of people in our booth waiting to talk with Tim Moraghan, Bruce Williams and other GCI contributors

There was much Tweeting and Facebooking and social media buzzing. It was a lot of fun... for all 200 of us doing it. We sometimes forget that 85 percent of y'all aren't at this thing and most of the people who are at the show are not spending all of their time waiting for me or anyone else to prove our brilliance in 140 characters or less. Yet, look for much more of this as our market becomes more personal.



EDITORIAL Pat Jones Publisher/Editorial director

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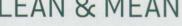
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Maybe it was just me, but it seemed to be a

"mature" group of supers in Orlando. I wonder if the younger guys stayed away because they're less secure in their jobs or didn't have the budget to go. Or, perhaps, they just don't connect with a big show because they have their own virtual network of buddies, self-education and

remodeling) are starting to

who happen to be connected to the "big job" recruiting network. Like I said, the supers in Orlando had agendas and getting advice from these guys was near the top.

I'll conclude by saying with absolutely no modesty that my team kicked ass at GIS. We cranked out outstanding content, covered everything that deserved to be covered, shot hours of cool video and, yes, Tweeted and blogged our tails off. Why? Because like you, we know the same old crap doesn't fly in the brave new world of the golf course industry. GCI



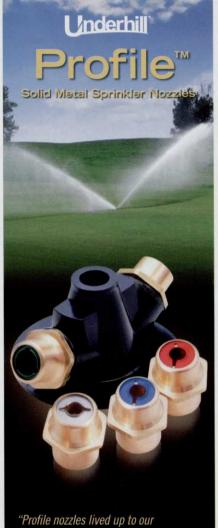
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## Holiday bonus

Here is what I did for my staff this holiday season ("Is it payday yet?" December 2010, page 50). Each staff member was sent a photo CD of each of them and team members "in action" throughout the season, including course projects and a staff photo. Although only one staff member has replied back in appreciation from this most recent mailing, past experience has proven that this is greatly appreciated by most, if not all. My digital camera is always within reach, so taking daily photos is simple and easy to do. At times, I will give the camera to a staff member and instruct them to tour the course taking staff photos and things of interest. This is an excellent way to get photos from a different perspective. Obviously the cost associated with this gift amounts is minimal; just takes time, a CD and postage.

Just thought you should know your publication continues to be my favorite one to read, hands down, over the competition. I believe that says volumes about you and the people that you surround yourself with.

Scott "Otto" Austin, **CGCS Superintendent** Meadowbrook Golf Course Saint Paul, Minn.

To read "Is it payday yet?" enter http://tinyurl. com/4abryr8 into your Web browser.

## Kudos

Another great edition of GCI. Thanks to all who make it the first to be read cover-tocover from January to December.

Patrick Daly Superintendent Framingham Country Club Framingham, Mass.

Check out the online archive to read any back issue of GCI.

## Sad, but true

Just read Pat Jones column on trade shows ("The Cash Cow - RIP?" Jan. 2011, page 90) - interesting and very sad, but true.

Michael A. Maravich Marketing/product manager, turf and ornamental Arysta LifeScience North America

## Nailed it

Your January column ("The cash cow -R.I.P?" page 90) nailed it!

I was vice president of sales for a small manufacturer of golf cars that also accommodated people with mobility impairments. We exhibited at both the PGA Show and the GIS Show. Prior to that, I attended these shows from a golf industry buyer's perspective. I have since retired.

Over about eight years starting in 1999, I watched viable potential for sales and marketing decline steadily at both shows for a couple of reasons. First, golf professionals and others [non-owners] who attended these shows apparently were not held accountable for getting something out of the shows because they increasingly became no-shows, and I know many of them were playing golf somewhere. The second reason for decreasing, meaningful traffic was the activities scheduled during show hours or near show hours. Certainly the economy probably had some impact the past few years on amount of traffic.

As an exhibitor, you go to these shows to expose your products to as many buyers and influencers as possible. We didn't go for seminars... we went to sell! There is a need for the seminars for the same people who attend these shows, but you can't do both at the same time. Apparently no one figured that out or didn't care. It depends on the agenda of those running the shows doesn't it?

The original PGA Merchandise event was a good idea and still is. What isn't a good idea are all the other shows that are scheduled which compete for exhibitors' time and money. What isn't a good idea is scheduling seminars and other events at a gathering designed for suppliers to show their products and for buyers to find out what their choices are. What isn't a good idea is to try to do too many things at the PGA show, and also at the GIS show. What isn't a good idea is to have a PGA show and a GIS show at different times with similar agendas for exhibitors... it is duplication for the exhibitors, costly duplication. Any business organization that strays from its core competency tends to dilute its efforts, spread its resources too widely, fail to serve its constituents and fail in achieving its original goals. The golf industry is finding that out.

## Extra info

I had the pleasure of seeing Terry Buchen's presentation at the (2011 GIS) conference in Orlando and really enjoyed the innovative ideas he presented. I recall seeing a golf course that was using a smart board as a communication tool to its staff. Could you please tell me the name of that golf course? We are looking for new ways to communicate to our staff and would like to speak to someone who has tried this technology.

Darin Hull Environmental management coordinator The Glencoe Golf & Country Club Calgary, AB

There is no reason to have these two major shows... owners can and should come to the PGA show, particularly if they influence buying decisions. Owners at the PGA show might cause golf professionals and others attending to pay more attention to the show instead of area golf courses... to be "seen" by their bosses so to speak! If the industry wants educational seminars and events [they are needed], schedule them somewhere at a different time or after the PGA show and attend, undistracted by hundreds of major exhibitors! Why have all the regional shows if there is one national show that can be attended by all concerned to see all the major manufacturers and their products? Most, if not all of them, plus the GIS, are redundant, frankly. I attended the New England show so I know it is effectively redundant.

After manufacturers spend money and time on all these shows, they are rewarded by golf course buyers who understandably try to squeeze the lowest price they can [I know from the golf car experience]. Eventually, the money will run out and either the shows fail or the prices go up and the competition dries up. Who wins? As a golfer [consumer], I don't see me winning! Maybe that is one of the reasons the number of golfers is not growing.

Tom Durbin Castle Rock, Colo.

To read "The cash cow – R.I.P.," enter http://tinyurl.com/4zn5x6w into your Web browser.



Editor's note: The "smart board" item appeared in the January 2010 issue and featured the innovative interactive white-board being used by William R. Larson, CGCS, and assistant superintendent Ryan Browning at the Town & Country Club in St. Paul, Minn.

## One-year mark

Editor's Note: GCI continues to receive an unprecedented amount of responses to Pat Jones's August 2010 column ("Catharsis," page 4). As has been our policy, we've shared these notes excerpted and anonymous because they often include personal comments.

Knowing how well you know us supers, it probably won't surprise you that I just read your article from last August. As per superintendent tradition, magazines pile up on the floor until the off season. However, reading Pat Jones' work is usually the exception, I usually read you, no matter the time of season.

If I calculate right, you hopefully celebrated the big one-year anniversary. That is very important to us one-day-at-a-timers. Your chances of continued sobriety after the one-year mark go up significantly. God willing, I will celebrate 27 years during the week of the Golf Industry Show. Of course that doesn't mean a damn thing, other than the day-at-a-time plan works beautifully.

You are good at what you do – most of us drunks usually work with half a day, half a brain and half the health of people working full-time at our careers.

I'm glad your boss knew the right course of action, and I am grateful that the disease did not take out another of our brethren. We need you.

To read "Catharsis," enter http://tinyurl. com/49tfxgf into your Web browser.



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## ENERGY IN THE AIR

In terms of going green, many clubs are looking down, working on soil and water conservation; in Melrose, Mass., they're looking up.

The Melrose Park Commission is starting a feasibility study, funded in part by the state, to determine whether wind energy can be harvested at the best possible place in town for a wind turbine: near the No. 11 and No. 18 holes at the Mount Hood Golf Course.

"It was pretty much the only location in town where it would work," says David Shakespeare, chairman of the Melrose Energy Commission. "The initial idea was to power the clubhouse and security lighting."

But as technology has improved and a larger turbine is plausible, the plan for the club to power itself grew into a contribution to the town.

"Originally it just seemed kind of cool if we could do it," says Shakespeare. "But as we looked at it, the economics works out a lot better, and we started thinking, 'Maybe it makes sense to maybe power some schools as well."

In addition to the clubhouse and security lighting, the turbine project, with a large 900kw tower, could provide power for six schools in Melrose.

Though an earlier test showed the course with too little wind to be feasible, site assessments have confirmed enough wind at the location. One FAA study checking interference with airport radio communication later, Melrose is ready to move on to the feasibility study through the Commonwealth Wind Incentive Program, offered by the Massachusetts Technology Collaborative. The feasibility study will only cost the park commission \$4,250 through the program, five percent of the total cost, thanks to the incentive program.

"Assuming we pass the feasibility study, we'd then apply for a construction grant," says Shakespeare. After that, the town would look into purchasing and financing options for the turbine.

Though Shakespeare hasn't received any negative feedback directly from golfers or town residents, the idea of wind turbines making use of the open air near a club is both gaining ground and picking up opponents. In Milton, Mass., the Granite Links Golf Club is suing the town to stop construction of a wind turbine on town-owned land near the course.

Shakespeare expects to hear more discussion once the feasibility study is completed. Until that point, the project is up in the air.



## EXPECT THE UNEXPECTED

While the recent reconstruction project of renovating all 18 greens, greens complexes, tee complexes, and bunkers at Bald Head Island Club in Bald Head Island, N.C., was an impressive task, the most notable part was the discovery of three Civil War-era skeletons buried under the No. 7 green.

Bones!?!?

That's right, confirms superintendent Steen Wansley.

"Rocks, shells from previous tropical storms, burnt wood from a Civil War fort... those were all things we expected to find," Wansley says." But three skeletons were probably the one thing we didn't expect to find in that old subsoil."

The skeletons are still being investigated by the state's archaeology department in Raleigh and will be returned back to their original resting place, near a slightly moved No. 7 green.



## **ROLL CALL**

Robert M. Randquist, CGCS, director of golf course and grounds at Boca Rio Golf Club in Boca Raton, Fla., was elected president of the Golf Course Superintendents Association of America (GCSAA).

James B. Hyler Jr., Raleigh, N.C., has been elected to serve a second one-year term as president of the United States Golf Association.

Valent Professional Products announced that **Heath Lowery** has joined the company as territory manager in the South Central region.

The Hawaii Chapter of the Golf Course Superintendents Association of America named Ka'anapali Golf Courses'

Craig Trenholme its 2010 Superintendent of the Year.

**Ric Stone** joined Jacobsen as vice president of sales and is responsible for leading sales efforts in North, Central and South America as well as customer service and parts support.

Tod Blankenship, CGCS, Emily Merewitz and Alexander Putman each were awarded \$5,000 postgraduate grants by GCSAA as winners of the 2010 Watson Fellowship Program.

Paul Foley, executive director of the Golf Course Builders Association of America (GCBAA), announced his retirement effective the end of February. He is replaced by Justin Apel, assistant executive director.





## GCI's quest to spotlight peoples' lives outside of turf

**WHO:** Armand H. LeSage, a man who carried two business cards at GIS 2011; one for his role as president of LeSage Consulting, and one for all his other roles – as a professional actor, working in theatre from his home at Lake Arrowhead, Calif.

HIS LIFE OUTSIDE OF TURF: Almost by accident, Armand got his start on the stage when Chuck Marra of the Lake Arrowhead Repertory Theatre Company told him to audition for a part. Since 2006, he's traded walking turf for treading the boards with the company and other projects, both on stage and in video production.

WHAT DOES IT MEAN TO BE AN ACTOR? "It's given me a whole new outlook on life. It gives me purpose. If I didn't have my wife and the theatre, I'd be lost."

HOW IS ACTING LIKE WORKING WITH TURF? "In acting, you have to prove yourself every time you walk on stage. You know you're only as good as your last performance. It's just like that. You're only as good as your last mowing. You've got to go out and put your show on every day. I'm doing what I want to do and I like that – but I don't have to get up at 5 a.m. to cut the grass."

FAVORITE STAGE ROLE: He's had several stage roles during the past few years, and while he loved playing Dr. Scott of "Rocky Horror" and Dr. Seward of "Dracula," his favorite (and most recurring) character is Fezziwig of "A Christmas Carol." "I just love Fezziwig. He can be so jolly and fun, and he can dance on stage – I like that." Fezziwig is so dear to Armand that his actor's e-mail address is afezziwig@aol.com.

**CHECK OUT HIS WORK:** "Minnie and Bert," a short play featuring Armand and his wife, Mary-Justine Lanyon, can be found on YouTube by searching for "Armand LeSage."

WHERE YOU CAN SEE HIM NEXT: Armand is a part of the company's "Cabin Fever" show to finish the winter, and he hopes to land a role in the August production of "The Sunshine Boys." He can also be heard on Restless Republic Radio on KCAA, and in a few independent films during the last year.

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## DOH!

hat's Harry Potter doing wearing Homer Simpson slippers and hanging out in the GCI booth with Pat Jones? That's not Harry Potter, rather it's John Kaminiski, subject of the October cover story "The Social Networker" and those are his infamous slippers worn in the story's opening spread. Kaminiski graciously entrusted his footwear to GCI for permanent enshrinement in its Smithsonian-esque museum, housed at GCI's galactic HQ.

## Are you experienced?

MC Professional Solutions introduced QR codes in its advertising and demonstrated them at its booth at GIS, as well as at a reception for the media at the show. For those of you not in the know, QR Code is a specific matrix barcode (or two-dimensional code), readable by dedicated QR barcode readers and camera phones. The code consists of black modules arranged in a square pattern on a white background. The information encoded can be text, URL or other data. The code can be used to direct readers to a particular page of a website, a video, or a specific document. In the case of the media reception, editors were asked to take a photo of several QR codes with their smart phones. Each code took them to a video



on a particular product. After viewing the videos, the editors took a quiz on the subject matter.

## And the winner is...

Ed Underhill pulled Superintendent Mike Fast of Delphos Country Club in Delphos, Ohio, as the winner of a Las Vegas Getaway vacation, compliments of Underhill International. Fast's name was selected in a random drawing held at the Underhill booth at GIS. Fast and a guest will receive airfare, lodging and show tickets.



## Mess'n with **Bigfoot**

Bigfoot was large and in charge at GIS in support of Valent's Tourney fungicide. A long-time supporter of Tourney, Bigfoot posed for pictures with a number of attendees.

GCI was lucky enough to get a few moments with Bigfoot and asked him his thoughts on the state of the golf industry heading into the 2011 season. Bigfoot responded with a growl and then pawed at the air. When asked to compare his success with that of his cousin, the Jack Links beef jerky Sasquatch, Bigfoot bent a nine iron and placed a furry death grip on a Penn State World Campus rep.







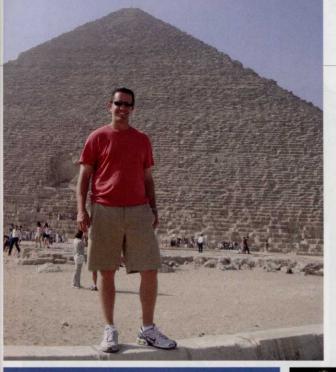
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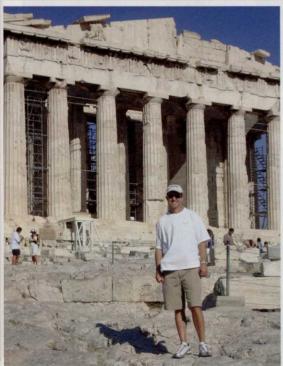






## Go East, Young Man

Lots of architects are traveling to Asia to find work. Dana Fry is moving there.







he legendary bank robber Willie Sutton was once asked by a reporter why he robbed banks. He famously replied, "Because that's where the money is."

Dozens of golf course designers are following Sutton's philosophy as the architecture business in the U.S. and Europe has withered and died the past five years. They are following the money to Asia, where course development in China, Vietnam and India is booming.

That said, doing business in these developing regions can be tougher, riskier and even more dangerous that sticking up a bank. Stories of unpaid bills, institutional corruption and even physical threats abound when these itinerant architects get together over a beer or two.

Our friend Dana Fry has been globetrotting for the past two years to reinvent Hurdzan Fry Environmental Golf Design as a leading international firm. For him, that led to a decision to not just travel to Asia, but to move there.





Fry is now living in Hong Kong but working extensively in China and across Asia. That's a complete turnaround from just five or six years ago when his partner Dr. Mike Hurdzan told me they really weren't that interested in international work. Things do change, don't they?

His story to now is similar to many leading designers. Loved the game, good player, discovered architecture sort of by accident and then found a career in it. Fry's best works include Calusa Pines (arguably the best course in south Florida that gets little recognition), Devil's Paintbrush in Toronto and, of course, Erin Hills, the site of the 2017 U.S. Open.

We were curious about why Fry would leave Columbus,



Dana Fry has been globetrotting for the past two years to reinvent Hurdzan Fry Environmental Golf Design as a leading international firm.







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Ohio, and completely reinvent his life and his business in Asia. The answer was, in one word, passion. When you're completely passionate about one thing - golf course design - you do whatever it takes to pursue that passion. Even when it's 5,000 miles from home.

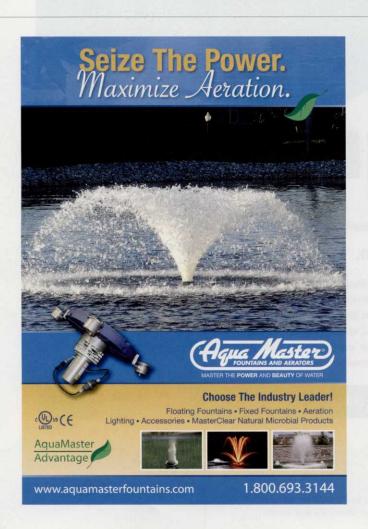
We caught up with Dana via e-mail due to the difficulties of a phone interview halfway across the globe. Here's what he had to say.

## How'd you first get started in this crazy business?

I was playing golf at the University of Arizona and met Andy Banfield, one of Tom Fazio's lead designers, who got me interested in the idea. I worked for Fazio as a shaper from 1983 through 1988. I then went to work for Dr. Michael Hurdzan. I became a partner in 1996. Currently, we have projects under contract and in different phases of design and development: 12 in China, two in South Korea, two in Thailand, Indonesia, Vietnam, two in Italy, France, Costa Rica and two in Brazil.



Fry: "The sights and experiences have been fantastic, but what I cherish the most are the great friendships I have developed all over the world."





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## What prompted the final decision to relocate?

In 2006, 100 percent of our income was in North America. In 2008, more than 80 percent was outside of North America. Now more than 90 percent of our income is from outside of North America. Most of that income is from Asia. It was an obvious decision from that standpoint.

### How hard was it to make the decision?

It was very difficult. I seriously thought about this move for two years. Luckily, my kids are all grown up and in college. It's very difficult for my wife, but she does realize that to keep things going it will be much easier if I have a full-time presence in Asia. I will move to Hong Kong full-time starting April 1, 2011.

## We've followed your travels on Facebook and it seems like it's been amazing. What's it been like in reality?

The sights and experiences have been fantastic, but what I cherish the most are the great friendships I have developed all over the world. To see first-hand these incredible places and to hear from folks in person what their countries have gone through have been very eye-opening. Like most Americans I used to think the world revolved around us but I now realize that we really are just a part of a global community. I will take these experiences with me forever. My opinions about the world, other people and their cultures have been changed forever.

## What are the big lessons you've learned about doing business in Asia?

By far the most important thing I have learned is how important it is to make friends first with potential clients. Business comes later. In some cases it takes several months or longer and many meetings, dinners, etc., before business is even discussed. Golf in the U.S. is also relationship-driven, but not nearly like it is here.

## What are the opportunities for superintendents in China?

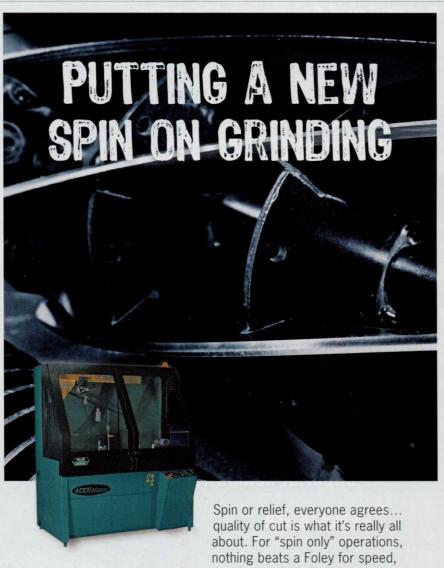
The opportunities are there but breaking into the business in China is not easy. Getting your foot in the door is tough but once you're in there are lots of opportunities.

## What caveats do you have for people rushing over there to work?

Good luck. Anyone who thinks they will just make a trip or two over, send a few emails and then sign a deal... well, good luck! It takes a major commitment to succeed in China. I have spent more than 30 weeks each year in Asia for over four years now... and I still don't feel that was enough. It is very important to the Chinese and other Asians that you have a full-time presence. I feel the commitment I am making will cement that commitment and help us secure more work. I love the energy in China right now and I'm tremendously excited to be a part of it.

### How does the process work?

In most cases the architect is not involved in the permitting in jobs in Asia. In most cases the projects are negotiated and done behind closed doors. I'm kind of glad I'm not part of that process. I can only imagine the things



accuracy and ease of use. And for relief grinding, Foley's handsfree "auto-index" relief system means you can perform other tasks while the machine does the work. No matter how you grind it, Foley makes it easier and faster to keep your reels performing like new.

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Now available in a smaller 190 SGN size, *Spread it & Forget it* is an advanced, high-efficiency fertilizer that is DRIVEN BY DURATION CR™ Controlled-Release Fertilizer. It is designed to effectively feed golf course fairways and roughs for up to six months. In many parts of the country, one application of *Spread it & Forget it* will give you a full growing season of green, healthy turf.

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**Less nitrogen** — Because *Spread it & Forget it* feeds gradually, you use up to 40% less total nitrogen per year. Just two to three pounds of nitrogen per 1,000 square feet is all you need to keep your course lush, green, and healthy for six months or more. This means you'll save on fertilizer costs too.

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More environmentally friendly ••• The innovative polymer coating is based on naturally derived plant oil and gradually meters nutrients to the turf root zone, which minimizes potential losses to the environment, atmosphere or groundwater. Plus, Spread it & Forget it is specially sized (190 SGN) to minimize the wear-and-tear impact and loss associated with heavy traffic from golfers, golf carts, and maintenance equipment.

## What's in it for my course?

Your course gets beautiful, green turf, without the typical peaks and valleys of growth associated with standard fertilizer programs. And because of our high-tech coating, *Spread it & Forget it* delivers nutrients gradually throughout the growing season, so you maximize turf health while decreasing your annual fertilizer budget.

You'll also find that your members and the public will appreciate the environmental benefits of applying less nitrogen by using this unique new technology. Multiple fertilizer applications have a higher risk of off-target movement and loss to the environment. Spread it & Forget it releases nutrients so efficiently you will deliver more fertilizer directly to the turf roots with fewer applications, less total nutrients per year, and less risk of nutrients leaching or being lost to the environment.

## Golf Course Superintendents who have used it think you should, too.

In independent testing, *Spread it & Forget it* one-application fertilizer consistently worked as promised. In real-world situations, more than 100 turf professionals including golf course superintendents across the country trialed the product.

The results of the trial program were overwhelmingly positive. After trying *Spread it & Forget it*, nearly every turf professional said they would be very interested in using it again.

The test group rated it strongly for promoting healthy, green turf while saving time and the labor costs associated with multiple applications. Even more impressively, 95% of them said they would recommend *Spread it & Forget it* to a friend or colleague.

# When you compare fertilizers, you'll see there's no comparison. To clearly illustrate the cost-savings and other advantages of *Spread it & Forget it*, we created an interactive savings calculator to walk you through some impressive numbers. Check out this user-friendly tool online at SpreaditandForgetit.com/golf, and discover the potential savings for you and your course. Typical FOUR Application Program = \$120.00 (Estimates based on: 100,000 square feet fertilized with a 30-0-7 blend with 50% slow release at 4 lbs. total N per 1,000 sq./ft. per year. Price per bag: \$15. Labor/overhead costs: \$2 per 1,000) ONE Application of Spread it & Forget it = \$85.00 (Estimates based on: 100,000 square feet fertilized with a 35-0-5 Spread it & Forget it blend with 95% DURATION at 2.5 lbs. total N per 1,000 sq./ft. per year. Price per bag: \$45. Labor/overhead costs: \$2 per 1,000)

### How it works.

The key to the steady nutrient release of *Spread it & Forget it* fertilizer is an innovative polymer coating based on naturally derived plant oil. Water passes through this polymer membrane and dissolves the nutrients inside, and when activated by temperature, the dissolved nutrients pass through the membrane straight to the root zone, all at a controlled, predictable rate. That steady, long-lasting release enables one application of *Spread it & Forget it* fertilizer to continually and consistently meet your course's nutrient demands for six months, or all season long.

Because the nutrient release depends on temperature, it isn't affected by rainfall or irrigation. There's no need to worry about flush growth or nitrogen runoff from excessive moisture. The membrane coating is also very durable, so the granules stand up to rough handling.

### What's in the blend?

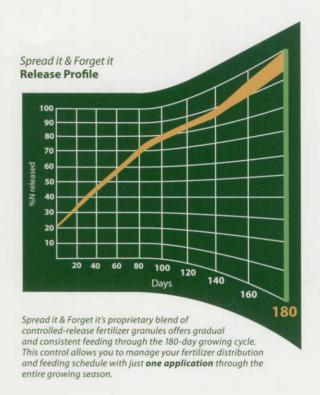
When you see the *Spread it & Forget it* brand, you'll know it is the highest quality—only top blenders and distributors



have been selected to produce and deliver these products. Each *Spread it & Forget it* blend is built using several DURATION CR® technologies along with small amounts of soluble nitrogen and potash to ensure balanced, smooth nutrient delivery throughout the growing season. In addition, special formulas have been developed specifically for northern and southern climates to maximize performance for local conditions.

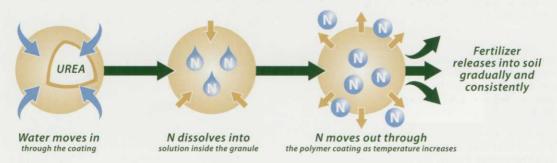
### Don't forget the crabgrass control.

Spread it & Forget it blends are available with popular pre-emergent herbicides, like prodiamine and dithiopyr, to help you maximize your fertilizer application.



### **Temperature-Controlled Diffusion**

Within a week of application, Spread it & Forget it's polymer coating allows moisture in, which activates the encapsulated urea but doesn't release it. With Spread it & Forget it's 180-day release curve, the membrane gradually releases dissolved nitrogen over the entire growing season when triggered by temperature.



## Spread it & Forget it with DURATION CR saves time, money and the environment:

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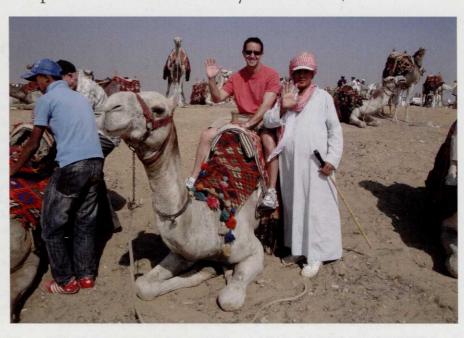


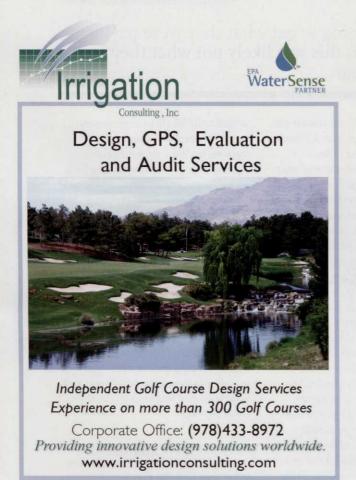
Because Spread it & Forget it is committed to protecting and preserving our environment, the products all support The Fertilizer Institute 4R system, a new science-based approach to best fertilizer management practices. The 4R system calls for the Right Product, Right Rate, Right Time, and Right Place. that are done by clients to help get their jobs permitted.

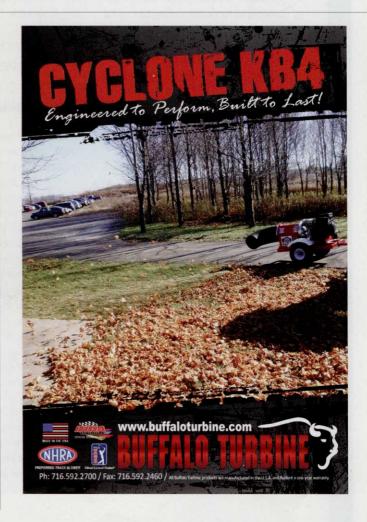
## How have you and Mike regrouped the firm in response to all the changes?

It has not been easy on any of us. Most the people working for us have been with us for years. We consider them family and we both agreed that we would do whatever we could to keep all of us together. For me that has meant a great deal of travel. For Mike it has meant more travel than he wanted at this stage in his life. There's obviously been financial pressure and, for the guys in the office, it has meant cranking out plans in a very quick fashion to keep our clients happy. At times it is very stressful on all of us but it has also been very exciting. There are new twist and turns around every corner. Stay tuned! GCI

"I never dreamed in my entire life I would travel and see the places I have the last few years." –  $Dana\ Fry$ 









## LEARN SOMETHING NEW TODAY?

y father's lifelong philosophy was to "go to bed each night smarter than you awoke." This belief led him from salesman to president of his company. I've tried to live my life the same way, realizing that no matter how much I think I know about my chosen profession, there is always more to learn.

Here is the perfect case in point. Since forming Aspire Golf Consulting in 2007, I've been fortunate to work on dozens of projects. Most have been in my wheelhouse – interviewing and training superintendents, consulting with facilities thinking of undergoing agronomic and/or architectural renovations, or those upgrading to tournament conditions. Every now and then, though, I'm thrown a curveball.

Such was my involvement in the \$75 million exchange of The Desert Mountain Club property, in Scottsdale, Ariz., from the holding entity to the membership; a sale completed on Jan. 1, 2011. Among the many steps in this process was scrutiny of the six golf courses, their conditioning, operations and personnel.

For Aspire Golf, work started in January 2009, when the membership – which was thinking of buying the club from Desert Mountain Properties – called and requested the following:

- Perform due diligence on behalf of the membership, investigating the golf course properties to find out if members were getting value for what they were being asked to pay.
- Provide a detailed report of "visual and such subsurface testing and review to meet the scope of the engagement."
- Review the turf contained within tees, greens, fairways, rough areas and hazards and practice areas to see if standards and requirements of a properly functioning golf course were met and to see if their function was

impaired in any way. Included was irrigation, drainage and landscape features including the grass tennis surfaces.

• Review all agronomic practices currently in use.

After a week of walking, probing, poking and digging across 800 acres, Aspire reported to the membership that the golf course properties were in satisfactory condition after 20 years of operation. The members' potential investment was sound and well functioning from agronomic and daily maintenance perspectives. They were going to get what they were paying for. However, this was likely not what they wanted to hear...

have little turf or agronomic background, but they do have opinions and probing questions.

In the case of Desert Mountain, I was pleased with phase one; the membership wasn't. That difference of opinion could have lead to some unpleasant meetings, but once I realized the members wanted a different report from me, I carefully defended my positions. Throughout this phase, I kept the following precepts in mind:

- Two people, at least three opinions. There will always be opposing viewpoints and others are bound to see things differently than you do, regardless of expertise.
  - · Accurate communications are es-

They were going to get what they were paying for. However, this was likely not what they wanted to hear...

If you find yourself in a similar situation, you'll be well prepared if you consider the following factors:

- Read each and every line of your contract and completely understand the primary as well as the secondary meaning of each word and clause within the document, particularly as it relates to your specific assignment.
- Know your business and perform due diligence on each aspect of the contract. The more you are prepared, the better you can explain or defend your position as it's likely you are dealing with successful business people used to significant financial dealings.
- If you have been honest and forthright in your business dealings, expect that behavior to be known. Your books are going to be examined very carefully so be prepared.
- State the facts accurately, be firm in your review and understand that the recipients of your analysis likely

sential to fulfill client expectations.

- When explaining and defending your findings, do not lecture.
   Patiently explain without falling back on baffling scientific terminology and complicated agronomic practices.
- Listen to opposing points of view and put yourself in their shoes, especially about financial issues.
- Take nothing personally. State the facts without passion or prejudice.

A year later, Aspire Golf entered Phase Two of its work after being contacted by the seller, Desert Mountain Properties, to provide a straightforward and complete review of its holdings to insure a smooth sale.

This was a completely different task and this time I was working for the other side. GCI

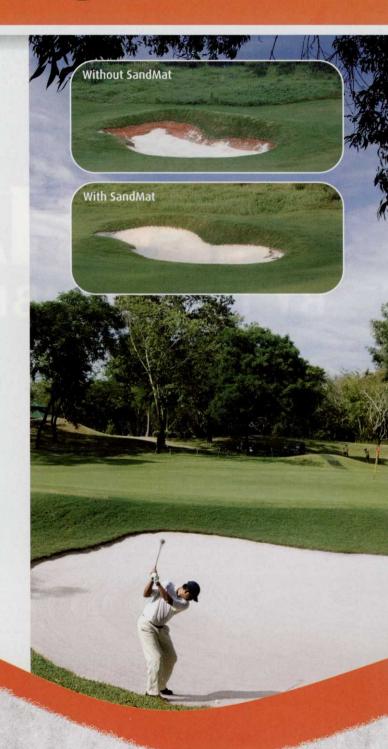
Check out this issue's Online Extras for more about TIm Moraghan's involvement in the historic Desert Mountain Club sale.

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SandMat Bunker Liner





## Are tightening budgets forcing more supers into the shop?





MECHA BY THE NUMBERS

im Pavonetti considers himself lucky to have a full-time mechanic on staff.

Statistically-speaking, as the superintendent of Fairview Country Club in Greenwich, Conn., a "private high-end course with a high budget," there's a good chance a full-time mechanic would be necessary to keep the facility running smoothly, even in the face of a few tight economic years.

Still, Pavonetti has done his share of time in the garage at previous clubs, including his very first superintendent's position, and he's no stranger at Fairview's when the need arises. In either camp, he's not alone, as our research found out.

During the first quarter of 2011, GCI queried North American golf course superintendents about the equipment maintenance trend they were experiencing at their respective facilities. Of the nearly 370 superintendents who completed the survey, three quarters have a full-time mechanic on staff. Here are the trends between the Have's and Have Not's. - The editors

Jim Pavonetti, superintendent of Fairview Country Club in Greenwich, Conn.



75% of superintendents surveyed have a full-time mechanic on staff

## THE HAVES

ason Manfull, superintendent at Crow Valley Golf Club in Davenport, Iowa, handles the occasional mowing and cultivation equipment repair, like nearly 65 percent of superintendents with a full-time mechanic. In addition, 55 percent say an assistant superintendent handles some maintenance and repair duties, and less than 15 percent use an outside mechanic or equipment dealer to troubleshoot problems and keep equipment running.

"Most supers can do the basics," he says. "I don't know anyone who can't set up or work with a greensmower." When repairs get more complex, Manfull relies on his experienced mechanic.

More than a quarter (28 percent) of supers who have a fulltime mechanic on staff indicated an assistant mechanic, part-time mechanic, foreman and other laborers handle repair and maintenance responsibilities, too.

For Jim Myers at Seattle's Plateau Club, that staff is necessary. "We definitely have a need for a full-time guy," he says. "We could use a full-time and a part-time equipment manager, with all our equipment, all the grinding, the repairs. Our equipment manager is just as important as our assistant superintendent."

Overall, facilities with full-time mechanics budget, on average, around \$27,500 annual for equipment maintenance and pay mechanics an average salary of \$42,900, with around \$70,000 on the high-end of the compensation spectrum and \$27,000 on the low-end, the data says. Regarding salary, it should be noted that GCI's research did not break

down facility or fleet size when analyzing compensation.

An on-staff mechanic likely contributes to the quick turnaround rate for broken equipment, with 82 percent of superintendents indicating idle equipment remains out of commission for only 24 hours, and very rarely longer than one week.

Having a full-time mechanic gives Myers the flexibility to have someone working on equipment the moment it goes down, and sometimes well beyond regular hours to keep the staff moving the next day.

"It's necessary, especially during the season, and you're out trying to mow and do aerification and something breaks down, and you've got to have it back up and running within a very limited window," Myers says. "Sometimes he's been in the shop until 11 p.m. getting equipment ready and is back getting it onto the field at 5:30 the next morning."

"He really does it all for us," says Pavonetti of his mechanic. "He comes in an hour before the crew and leaves after them, and has everything set for us. It's a pretty good system. With \$2.5 million in equipment here, to have a guy watching over it full time would be prudent."

Regarding their equipment, facilities with a full-time mechanic purchased the majority of their mowing and cultivation equipment (80 percent) rather than leased it (20 percent). Likewise, they tended to purchase this equipment new (83 percent) rather than used (17 percent).

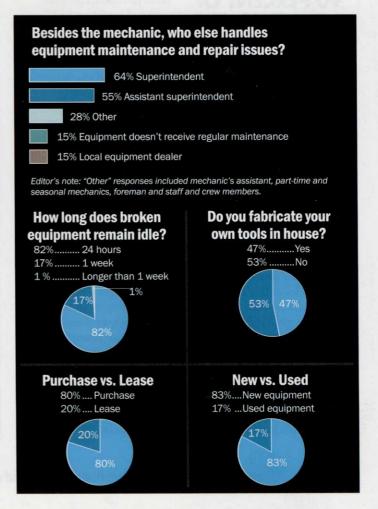
As the equipment ages, Manfull's mechanic proves useful time and again. "It allows us to be so much more efficient with what we have," says Manfull. "We don't have to worry about breakdowns and relying on someone else to fix it. If we didn't have a mechanic we wouldn't be able to give as much attention to the course with our equipment."

Even in terms of repair cost, a full-time mechanic makes the process easier for Pavonetti. "He does all the pricing and the work involved in finding what parts are needed and will come in to tell me where it's at," he says. "I'd rather go without an assistant

than without a mechanic."

Lastly, an in-house mechanic encourages equipment innovation. Nearly half (47 percent) of superintendents fabricate materials and tools in house.

"It's about having the time for troubleshooting or solving problems. It's nice to have an equipment manager that can weld and fabricate things," says Myers. "We do so much fabrication, it's unreal. Recently we basically fabricated a whole trailer to our specs, from tires to hitch to whatever."





## HE HAVE-NOTS

t courses without full-time mechanics, who handles the maintenance and repair responsibilities?

"To the best of my skills, I'm the mechanic," says Dan Mulder, superintendent of Landsmeer Golf Club in Orange City, Iowa, who is one of the 60 percent of superintendents who indicated they handle all maintenance and repair issues. "Our budget just doesn't allow us to hire a mechanic."

## "ABOUT 80 TO 90 PERCENT OF THE TIME, IT'S SOMETHING CAN HANDLE MYSELF."

Dan Mulder, superintendent of Landsmeer Golf Club in Orange City, Iowa

Another 30 percent had an assistant superintendent handle various repair and maintenance duties. And according to the data, less than 20 percent employ a part-time or seasonal maintenance person. Only a small percentage - around 10 percent - contracted with a local equipment dealer to assist in troubleshooting equipment issues.

Though his own history as a mechanic comes from working on vehicles or time spent in the course's garage, Mulder is working with an assistant to train him in the basics he can already cover. He also has a good relationship with a local distributor, who he calls on for quick advice when he's unable to work a repair out himself.

"What I find myself doing is I'll do everything I possibly can. If it gets to the point that I can't do anything with it, it goes to the dealer," says Mulder. "About 80 to 90 percent of the time, it's something I can handle myself."

Fifteen percent of respondents indicated their equipment doesn't receive regular maintenance, less than 2 percent grimly responded that broken equipment just doesn't get fixed.

"I feel confident we have our equipment in pretty good shape," says Mulder. "Sometimes it's just the preventative eye care you can give it just checking it over every day."

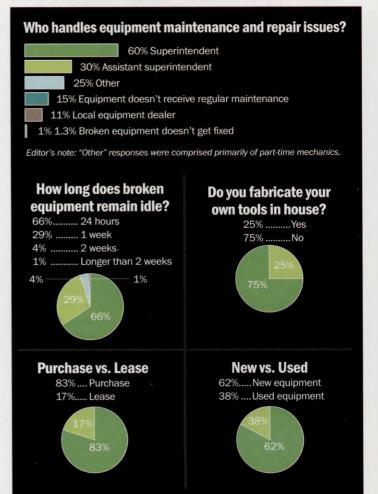
Similar to their colleagues with full-time mechanics, these superintendents are rather proficient with repair duties when equipment does go down, with 66 percent indicating broken equipment remains down for only about 24 hours, and another 29 percent say equipment is typically back in action within a week.

"It's a really hard time when you're trying to work on the turf, like spraying or fertilizer, and something goes down, you have to start asking yourself, 'Should I be working on this or on the golf course?' Where do I spend my time?" asks Mulder.

And like facilities with fulltime mechanics, those courses without more often purchased their equipment (83 percent) than leased it (17 percent), the data says. However, unlike those other facilities, courses without a full-time mechanic didn't purchase new equipment at such a high rate (62 percent "new equipment" vs. 38 percent "used equipment").

However, unlike maintenance departments with on-staff mechanics, these crews are not as resourceful cobbling together unique equipment solutions on site. According to the data, only 25 percent of superintendents indicated they fabricate their own materials and tools.

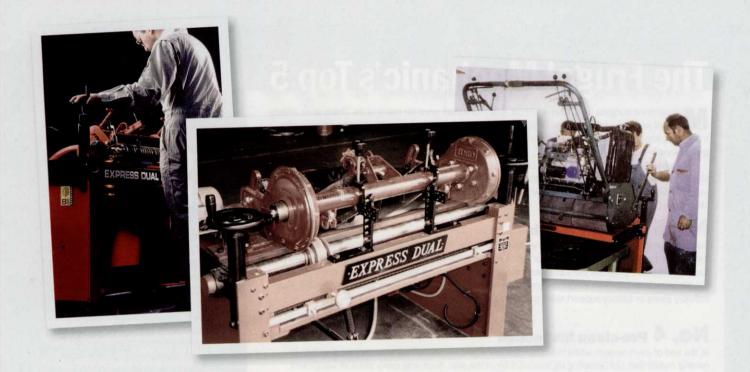
"During the season, it's very stressful," says Mulder. "But during the winter, I actually consider it fun. You have time to work on it and solve your own problems."





25% of superintendents surveyed do not have a full-time mechanic on staff

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## The Frugal Mechanic's Top 5

M aintenance budgets have been slashed, and more than once for many of us. There is no money – or at least very little – left for capital equipment purchases. Unemployment has struck one if not two people you know. Many of us are asking: Is this the new normal for our industry and our

My advice: Let's get back to basics. Let's polish our collective A-games. This can be your day to shine and the day your employers are glad they have you on their payrolls. So I want to encourage you to leave your warm and fuzzy comfort zone behind and follow "Weidler's Top 5 Equipment Maintenance Tips."

## No. 5 Tools for the job

Success comes from tools, and knowledge is one of them. Fill your toolbox and your mind because money is not the only answer when it comes to equipment maintenance and repair. But a full set of tools is necessary to do the job. Computers today are so important for the equipment manager, and the Web can save you from embarrassment. Don't be the guy who won't ask for help or advice. Your industry peers or factory-support team are more than willing to lend a hand.

## No. 4 Pre-clean inspection

At the end of every season when the mowing is done and we want to fall into a winter slumber, I remind myself that I am entering my busiest time of the year. Each and every piece of equipment should be brought in and put up on the lift. Then blow it off with compressed air to remove any clippings that get caught up in the frame or components.

This creates a mess, but what you may find will make it all worthwhile. Check hydraulic hoses for shiny spots - the old residual of hardened water has the tendency to turn the hoses white where they were rubbing. Check all hydraulic lines (metal) for rub points - these can be shiny or rusty. If you have light contact, check your mounts. If they're OK, just slice a small section of rubber hose and place between the affected area. If you find major contact, record this for your winter maintenance. Check the frame for rusty areas - this is where a crack has developed. Record this for your winter maintenance. You can also mark the crack with a paint marker. Check for electrical corrosion at contact points. This will be a green-blue color for brass and copper connection, or white for aluminum connections. Record all of your findings for later maintenance.

## No. 3 Clean all electrical connections

Remember battery terminals and cable ends, then use a protecting spray. Dielectric grease all other electric connections. Of course, this is the time when battery condition is checked and water is added.

## No. 2 Repair instead of replace

Learn more about components and what makes them tick. Rebuild that hydraulic ram; they're not hard. Install new brushes in that starter and check the commutator end for dead spots or shorts. Don't forget to replace the bearings. Most failures in valve bodies are o-rings and sticking components can be cleaned in mineral spirits. Learn to rebuild that engine. You can have the machine shop hone or bore the cylinder for a new piston. Or you can hone it yourself. Just remember it has to be cleaned before reassembly. Open up that transmission - it is only gears, bearings and seals.

## No. 1 Use your imagination

This is where the fun is. Listen carefully to issues or suggestions. Be the go-to guy. As crews dwindle we have to be creative to get the job done. Don't just put Band-aids on things - solve problems. Be creative and inventive to solve problems - it's worked fro me. A sprinkler head trimmer was made out of a used band saw blade, used flower bed edging and one bolt. A set of "bear claw blades" came from the worst set of rotary blades I had and a handful of woodruff keys.

John Weidler is equipment manager at Ironbridge Golf Club in Glenwood Springs, Colo., and a contributor to GCI.

## COURSE

Jim Pavonetti, superintendent of Fairview Country Club in Greenwich. Conn., may not wear the mechanic's hat around his club, but it's not a job he's escaped entirely.

"It's tough, but I've done it periodically," he says. "When I've been between mechanics or he's sick, I have to pick up the slack."

It's hard work to juggle both jobs at times, but it pays off for him in building respect with his crew, he says.

"It's important for supers to be their own mechanic at times," says Pavonetti. "The crew doesn't look at you as much as a suit-and-tie guy. I think I get a little respect from them for it, when they can see I came from where they are."

Besides building rapport with his team, knowing his way around the garage pays off in his being able to check on work being done or train a new crew member himself. Now, whenever he has an intern, he makes him spend a week just working with the mechanic.

"It's part of the intern's requirements to work in the garage," he says, "and the mechanic purposefully sets up machines that need to be worked on.'

It's possible for the intern to find a club in the recovering industry that won't require him to be hands-on with the equipment, but not likely, he says.

"Some of the younger guys think their first job is just going to jump right into a position with a mechanic and two assistants. But you have to be able to know all those things so you can take care of them yourself if you have to, and can train your own crew." GCI

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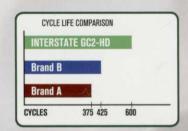
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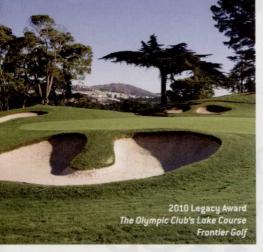
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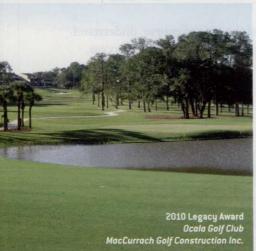


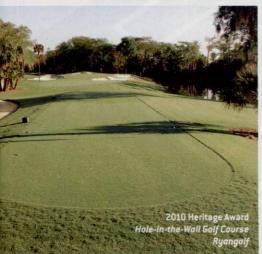
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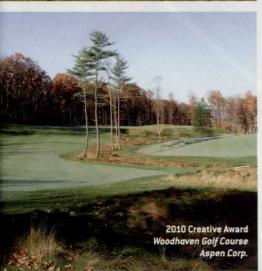


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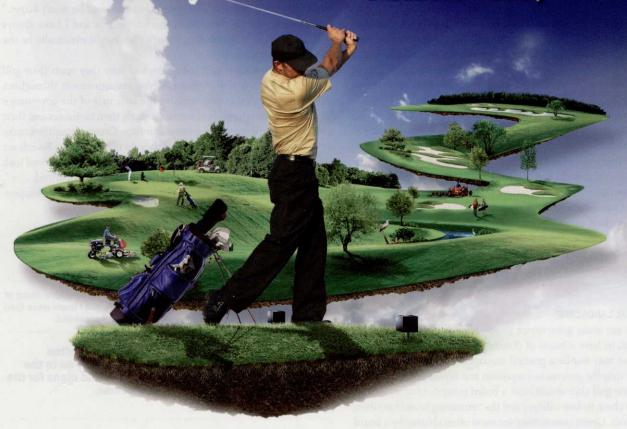
# Maneuvering through CLUB POLITICS

Just like greenkeeping, politics is an art and a science. And regardless of the type of course, understanding the ins-and-outs of your facility is essential to your long-term employment and career success.

By Bruce R. Williams, CGCS



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#### A Game Changer

here are a number of classes that could be added to golf course superintendents' curriculum during their college years. You can't learn everything in college and some things must be taught through practical experience. Understanding the politics of a golf club or facility is essential to long-term employment and success at any golf course.

Just like greenkeeping, politics is an art and a science. It is concerned with the guiding or influencing of policy at any given golf facility. The science part is the political organizational chart that describes the hierarchy in a "perfect" setting. We all know that seldom does that perfect setting exist and there are a lot of variables and pressures that come from outside of the formal hierarchy.

People are passionate about their clubs and that is why they belong to them. Many well-meaning people want nothing but the best. If we channel that passion and energy into developing positive programs, practices and budgets that will accomplish the goals of the club, then we can successfully navigate the political waters of private golf clubs.

#### THE POLITICAL LANDSCAPE

While there are many governance structures it is most common, in private clubs, to have a board of directors and a committee system. There may or may not be a general manager or director of golf but they all play into the governance equation and reporting structure. A typical private golf club would have a board comprised of nine individuals with three to four officers and the remaining board members being directors. Green committees are most often chaired by a board member and are comprised of a cross section of the club's golfing members. This should include both the men and women of the club and all levels of playing skill.

In most scenarios of private clubs the members are equity owners of the club. Membership may vary from 250-750 members for an 18-hole golf course. It is important to remember that each and every one of those members is an owner. While they may have no official authority over the golf course superintendent they surely have influence as a shareholder in the business. Some may have more influence than others and it is important to understand who the movers and shakers are in any club. Every club seems to have a handful of members who can and do exert influence over the elected board and appointed committees.

Never underestimate the influence of any one individual at your facility. It is important to treat all members as though they could be your boss in the future. I had a summer job at a very nice private club while I was in college. The golf course was surrounded by homes and many of them were residences of club members. Just outside of one property line there was a tee that each weekend would be littered by empty beverage cans and such. I suggested to the golf course superintendent that we speak to the father (a club member) of the kids who were having a party and littering each weekend. The superintendent told me to take 5 minutes and clean it up. He followed that comment

with "If you plan on staying at a club for 20 years or more that kid could eventually become your green chairman and he won't forget." I surely never forgot that lesson in club politics and I have always tried to treat every member as though they might eventually be the person I report to.

Everyone that plays golf has an idea of how they want their golf course to look and play. Seldom do you see agreement throughout an entire club. That is why we have the structure of the governance hierarchy. When the system works properly then members and their spouses provide input to the green committee. Green committees make recommendations to the board and they do not set policy. Boards set policy and ideally provide the funding to accomplish the desired look and playing conditions that the members want and can afford.

Once again this is a perfect scenario and seldom does this happen.

#### **TAKE AWAY TIPS**

Here a couple of key components to best deal with club politics. Many of these were shared with me by mentors and friends and I know more than a few that will apply to make you more successful.

Know the influential people that have no official authority but have significant impact on club operations as "when they talk everybody listens." Communicate often and effectively as to the programs and plans for the golf course.

### Know and understand the elected and appointed officials at your club.

In a club that has divided opinions over projects and direction make sure not to hitch your horse to the wrong wagon.

Know what the majority of the members want via formal or informal surveys.

Treat every member and their families as though they could be your next boss.

Board and committee members want the best value they can have and it is up to the superintendent to develop the plans to provide the best product they can afford.

The golf course belongs to the members and while superintendents have pride in the course they need to understand that the golf course is not theirs.

No two clubs are the same.

All politics are local.

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It is important to remember that **each and every one of those members is an owner**. While they may have no official authority over the golf course superintendent they surely have influence as a shareholder in the business."

There are many agendas at most clubs. Some want the course firm and fast while others prefer it to be green and lush. Some members want U.S. Open conditions daily and anything less is unacceptable. It is the responsibility of the green committee to filter the many thoughts of club members and work with the golf course superintendent to develop appropriate maintenance standards and long range plans to achieve the goals of the membership.

#### **FEEDBACK**

One of the best ways to gauge the desires of the membership is to conduct a survey. Some clubs do this internally and may have the right team to develop the appropriate questions. In my experience it has been preferable to use consultants that understand the business to develop the survey. Consultants like McMahon Group utilize a survey that not only looks at the golf course but at the entire club operation as well. The typical questions are asked regarding levels of conditioning but more importantly prioritization of those items and the means to pay for them.

Part of the politics in a club is gaining consensus on conditioning of the golf course. There are several ways to manage the process. In this economy many facilities have had to cut back their budgets resulting in reduced staffing and resources. To a point, efficiencies can be created that will have little impact on the long term protection of the asset -- namely the golf course. Successful golf course superintendents need to work through the green and finance committees to develop plans that will be affordable and accomplish the goals of the majority of the membership. Telling the membership what they should do is a big mistake. While they value your input they surely want to learn more about their options and what it takes to provide conditioning at various levels they can afford. Never forget that it is not your golf course – it belongs to the membership.

#### **STANDARDS**

With recent budget and staff cuts it is important for clubs to go back and analyze their written maintenance standards and make sure the standards are in line with the expenses. Even in a good economy when standards change then resources must reflect that change as well.

A major dilemma at many clubs is a lack of alignment of budgets to standards. The worst case scenario is when a club wants to raise their conditioning standards while decreasing their manpower and overall budget.

#### COMMUNICATION

One of the biggest components of club politics is communication. Golf course superintendents need to spend a fair amount of time developing plans and alternatives in a changing golf business environment. I have worked with clubs to provide them alternatives for 10-to 30-percent budget reductions. The political part of the equation is educating and

communicating the effect of those cost reductions. Clubs do not have to give up great conditions on their greens and main playing surfaces but the periphery might not be as detailed as what members had been accustomed to. This concept needs to be supported by the committees, the board and eventually the entire membership. If it is not then people will think the superintendent is not doing his or her job.

Years ago most information regarding the golf course was shared with the green committee members and occasionally the board of directors. Today that would be a recipe for disaster. Club members play a lot of other golf courses and are constantly comparing their course to others they play. Often times this is done without knowledge of staffing levels and other resources to provide those conditions. There are many variables that go into golf course conditions that would include: soil types, irrigation system, grass types, drainage and equipment provided.

Golf course superintendents are most effective when they spend the time to communicate with as many members as possible and educate them on the business side of golf course management. Today this can be done through blogs, email updates, newsletters, town hall meetings and overall interaction with the membership. Each and every year new members join the club and new faces appear on the committee and the board. No two people are alike and an intuitive superintendent finds out quickly the best way to deal with the many personalities in the governance structure. Some people like lengthy detailed information while others like a short summary. Be sure to understand that your communications are both what the leaders want and in a form they are most likely to absorb.

When I think of the superintendents that have been employed by their clubs for a quarter of a century or more I find that the common denominator is their ability to understand their membership, communicate clearly to them and provide golf course conditions that are acceptable by the majority of the membership. They have learned how to manage club politics in a most effective way. **GCI** 

Bruce Williams, GCGS, is the principal in Bruce Williams Golf Consulting and Executive Golf Search. He is an author and speaker in the golf industry, a GCSAA past president and a frequent contributor to GCI. Reach him at BruceWms1@hotmail.com.

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Monroe Miller is a retired golf course superintendent.

He spent 36 years as superintendent at Blackhawk Country Club in Madison, Wis. Miller can be reached at groots@charter.net.

#### SO WHAT IF GIS IS SMALL?

hen was the last time you could stand on one end of the equipment show and see the other end?" asked one GCSAA member of another as they surveyed the show floor at February's annual industry conference and show.

It was an oft-asked question in Orlando. I didn't actually hear anyone complain about a smaller show floor and fewer exhibitors. The comments were mostly an expression of mild surprise and maybe even approval.

Clearly, these observations were made by superintendents who worked during golf's boom times of the not too distant past and who have seen the "big" shows. Grizzled old veterans, like myself, can remember a time when a show the size of 2011's would have been huge; there have been regional turf shows in recent times that rivaled in size the first GCSAA shows I attended in the early 1970s.

In many ways a smaller show floor is better – even much better. You have a chance to see all of the booths and exhibits. A smaller show gives you time to do some serious shopping, spend time with manufacturers and look long and hard at machinery and products that interest you. You can question engineers and research scientists who are at the show for that exact purpose.

A smaller show is more social because you have the time to stop and talk with colleagues and friends you may only get to see at a conference. For me, that includes people I've known for nearly four decades now. Seeing them is very important to me.

And, when you are on my side of, say 50, physical demands of a smaller show are more reasonable. A show like Orlando provides areas to sit, relax, chat and enjoy lunch. Some past venues provided absolutely no relief from sore feet and a tired back.

In fact, one reason I didn't like the first couple of shows shared with CMAA was their enormity. Before organizers got smart, the two interests – golf course and clubhouse – were so totally integrated you had to walk the entire show floor just to see course management products.

The size of this year's show reflected the economic realities of our times. In past years, when we had a big banquet dinner and entertainment, attendance figures were announced from the head table with great fanfare. It was expected each conference and show would break the previous year's attendance. "The bigger the better"

"Before organizers got smart, the two interests – golf course and clubhouse – were so totally integrated you had to walk the entire show floor just to see course management products."

was the goal. Those were the zenith days of golf and they are over, at least for a while. In singing the praises of a smaller equipment show, I admit to the luxury of ignoring the revenue aspects of a larger one. The advantages for me are worth whatever that cost is. GCSAA is managing their economic situation pretty well, as near as I can tell. Attending the conference and show is still a very worthwhile and terrific experience.

Even if it is smaller.

Let me finish with an expense report of my successor and his assistant, Chad Grimm and Jake Schneider. They had another productive and enjoyable conference, and they didn't break their travel budget to do it. Here's how they attended the Orlando GIS for only a \$306 charge to their education budget.

1 A former summer employee now works for an exhibitor at the show and invited them to ride to Orlando with him. They bunked with him on the overnight during the trip to Orlando. In the time leading up to departure they kept an eye open for a cheap flight home, found one and paid for it with World Points from their golf course charge card.

2 They stayed with three other people in a condo just south of the Hilton Hotel and only had to pay 40 percent of the bill. They also prepared almost all of their meals at the condo and shared the grocery bill; other meals were taken as business clients, in hospitality rooms or GCSAA events. They were able to ride a shuttle bus to and from the convention center. The condo bill was \$418; food and miscellaneous expenses totaled \$188.

**3** They pre-registered last fall for \$700, the best time for the lowest price.

4 Summating expenses gives a total of \$1,306. They received a \$1,000 World Points cash card to cover most of the cost, resulting in a charge to the budget of \$306.

Also worth noting is that they traveled on the bookend weekends and missed only a week out of the shop. Golf was planned on a nearby resort golf course where a former junior player at our club is the assistant golf professional. Even their fun came cheap. GCI

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# Then was the summer of our discontent

Despite the use of respected spray and fertility programs, as well as what should've been efficient topdressing and cultivation programs, some of the best courses and superintendents suffered turf loss last season. Industry consultant Michael Vogt crunches the numbers to find out why.

he 2010 golf season wreaked havoc on greens surfaces from the eastern seaboard all the way to the Rockies in the United States and Canada. Granted, the sustained hot, humid conditions coupled with untimely downpours created an unsustainable environment for bentgrass and Poa annua turf maintained for golf greens. Some of the finest courses and superintendents succumbed to turf loss, with what would be considered bullet-proof spray and fertility programs along with topdressing and cultivation programs that followed the best known practices.

While these significant turf losses received a good deal of press, their actual causes or remedies will in all likelihood not be mentioned in the Wall Street Journal or your hometown newspaper. After the fact, diagnoses were made and the subject of the catastrophic turf failures became a forgotten memory. In my 30-plus years in the golf course maintenance business, I have not witnessed such a largescale disaster with green turf loss.

No one can point to any one physiological or pathological process that devastated green conditions, but these are some of my observations in no particular order:

- · Sustained low mowing heights throughout the summer put extra stress on turf;
- · High organic matter in the top 3 inches of the root-zone held too much moisture;
- · SBI (sterol biosynthesis inhibitors) DMI (demethylation inhibitor) fungicide use;
- · High temperature in the root-zone (>
- · Poor drainage and gas exchange on sandbased greens;
  - · Blue-green algae or cyanobacteria after

some turf thinning;

- · Winter damage turf never recovered;
- · Reduced maintenance budgets;
- · Bacterial wilt;
- · Fairy ring; and
- · Sand and soil thermal properties.

This past summer, I attempted to discover several main causes for greens failure. One commonality was the unusually high temperature in the root-zone of thinning turf. Soil, soil with sand root-zones and some types of sands tended to have lower root-zone temperatures than most straight sand-based greens and fared better having increased rooting and more turgid green leaf tissue. Of course, total turf coverage was the best insulator from the sustained high ambient air temperature. After looking into high-percentage sand greens as opposed to soil greens, I launched a short survey. More severe turf loss was experienced on sand-based root-zone green construction than all others in both occurrence and severity.

My totally unscientific conclusion was that sand-based root-zones retained and transmitted heat more efficiently than the soil-based or soil/sand root-zone mix contributing to a more severe turf loss.

It is difficult to say something general about the soil thermal properties at any location because these are in a constant state of flux from change from angle of sun exposure, organic fraction and, most importantly, the entire water fraction in soil's capillaries. Air is a poor thermal conductor and reduces the effectiveness of the solid and liquid phases in the root-zone to conduct heat. While the solid phase of sand has the highest conductivity, it is the variability of soil moisture that largely



determines its heat retention. As such, the green's root-zone moisture properties and root-zone thermal properties are very closely linked. It comes as no surprise that temperature variations are most extreme at the surface of the root-zone and these variations are transferred to sub-surface layers but at a highly reduced rate as depth increases.

Generally speaking, heat capacity indicates the ability of a substance to store heat energy; the greater its heat capacity, the more heat it can gain (or lose) per unit rise (or fall) in temperature. The heat capacity of dry soil is about 0.20 BTU per pound-per degree Fahrenheit of temperature change, which is only one-fifth the heat capacity of water. Therefore, moist or saturated root-zones have greater heat capacities, typically in the range of 0.23 to 0.25 BTU per pound-per degree Fahrenheit. Light, dry, sandy soils experience greater seasonal temperature swings than most wet soils.

This is because their lower heat capacity

causes their temperature to rise or fall more than wet soils for a given amount of heat energy gained in the spring or lost in the fall. Thus, moisture-laden sandy soil or dry sand root-zones have the ability to conduct greater amounts of heat faster and in high moisture cases longer than soil type root-zones.

Creeping bentgrass root growth ceases at temperatures above 77 F, and most cool season turf plants are subjected to indirect heat the original root-zone, and on a regular basis to dilute organic matter accumulation and a timely cultivation program incorporating heavy topdressing.

#### WHAT KIND OF SAND?

Calcareous sand – which is composed primarily of calcium carbonate – is predominantly debris from once-living marine organisms. Plants and animals used calcium carbonate

sands are easily obtained and often used for construction of golf course putting greens and other sand-based root zone media. However, their use is in question because of possilbe problems with their long-term stability. It is suspected that calcareous sands may break down, resulting in restricted or plugged pore space. The result could be poor drainage, restricted rooting due to root-zone saturation, and eventually thinning or turf death.





Left: Aerification remains the single most important cultural practice for a functional root-zone. Right: A dead green. High organic matter in upper three inches of root-zone caused turf to decline and die.

stress above 86 F. Bentgrass root death occurs after five days of 90 F temperatures.

#### **AGING GOLF GREENS**

In the recently published research study by R.E. Gaussoin, Ph.D., University of Nebraska, aging sand greens is noted for the changes in physical properties. After the 10th year infiltration rate decreased 75 percent. In years one through eight, the decreases were the most significant. As infiltration rates decreased, so did large capillary space (critical for root gas exchange and root-zone temperature change). Also of note, total capillary space increased over the years, meaning that small capillary space was more inclined to hold additional water. The number one cultural practice to keep aging greens functioning properly, according to the research, is a sand topdressing program that closely matched (CaCO<sup>3</sup>) to form their skeletons and shells. When the organisms died, these pieces became part of the soil and sand.

Non-calcareous sand, in inland continental settings and non-tropical coastal settings, is silicon dioxide (SiO<sup>2</sup>) usually in the form of quartz, which, because of its chemical inertness and considerable hardness, is the most common mineral sand resistant to weathering. Non-calcareous sands are not saturated with excessive calcium, making it easier to maintain a balanced fertility program.

The absence of excessive calcium leads to slower nitrogen breakdown which helps prevent disease in susceptible turf. Due to lower pH levels, applied nutrients are more available to the plant.

The physical properties of calcareous sand can be defined as any sand that contains at least 1 percent CaCO<sup>3</sup> by weight. These

Laboratory experiments have been conducted using small PVC columns to simulate putting green profiles. The columns were filled with sands of varying calcite content.

Dilute acid was added to the columns on five day intervals, with water added on the days in between. The addition of acid simulates some of the reactions that occur following fertilization. Chemical properties of the drainage water were measured, as well as physical and chemical properties of the sand at the conclusion of the experiments. These studies confirmed that calcium carbonate does break down in response to acidification of the soil.

Unfortunately, the study needs to be continued to arrive at a solid conclusion regarding the fate of high-calcium sands. I would be interested in seeing a more complete study of these occurrences in the future.

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#### GAS EXCHANGE IN THE ROOT-ZONE

A misleading fact is that the leaves of a turfgrass plant are the only portion of the plant that accumulates air and disposes carbon dioxide for transpiration. The roots are an important gas-exchange medium also. In fact, roots are the primary source of a grass plant's mechanism to capture oxygen. The roots gather oxygen from the soil matrix and release the carbon dioxide waste product into the soil. Carbon dioxide will gradually increase in the soil, and the oxygen content will decline, unless air circulation or soil permeability permits the release of carbon dioxide-rich soil gases with the atmosphere and the replenishment of the oxygen supply. Venting the rootzone with solid tines throughout the summer months helps balance the soil-gas ratio and evaporate moisture to cause a cooling effect to control high temperatures.

#### AERIFICATION, ORGANIC MATTER DILUTION AND **GAS EXCHANGE**

The golf maintenance industry has not found a superior cultural program to replace regular hollow core aerification. In an effort to increase play days this important cultural program has been neglected or reduced to increase rounds and revenue. Hollow core aerification relieves compaction, aerifies and removes organic material.

Historically, aerification relieves compaction and permits air to permeate into the root zone. With several hollow core aerifications annually it has been found to control and manage organic material build-up.

Organic material is removed with cored plugs. Removing organic material and filling the cavities with straight sand reduces the amount of organic material in the upper root zone. In addition, organic material gets diluted and migrates through sand-filled aerification cavities and dissipates into the lower root zone.

Green root-zones with high organic concentrations (>2.5 percent) will contaminate the sand-air macro pores and seal off these larger cavities. Organic concentrations in the upper three inches of the root-zone less than 2 percent generally do not have this sealing effect. Organic material continues to migrate through the sand with the percolating water, but the lesser amount of migrating organic material does not materially inhibit the cavity's air permeability.

It is a common phenomenon of hollow coring that the turf initially responds positively to the aerification. Unfortunately, the turf eventually returns to its original condition. On some greens the decline is rapid while slower on other greens. It is believed the phenomenon is explained by the organic sealing off the sand-filled cavities. The difference observed between turf systems is primarily attributable to differences in the upper root zones' organic content. While the cavities remain open, the turf thrives. Once the cavities are sealed off, the grass reverts to its former condition. As a common observation, it will take four to six hollow core aerification applications, with at least a 1/8-inch tine, before the observed positive changes to the turf will appear permanent. Some root zones require less applications, many root zones require more applications.

At minimum it is recommended that US-GA-specification greens receive, on average, twice-annual aerification to merely maintain their physical condition. That is, twice-annual aerification is needed to merely remove the organic material deposited by the roots. This general rule, however, has its exceptions.

If twice-annual hollow core aerification applications are required with 5/8-inch tines or similar equipment to maintain a root system, an accelerated program is required to reduce the organic concentration. On grossly organically-affected root-zones the recommendation is an accelerated aerification program consisting of at least four aerification applications per year.

An accelerated aerification program is not intended to be permanent. In time, the greens will achieve optimal visual and physiologic properties which are capable of being maintained, due to the changes in the root-zone's physical properties, during periods of stress. It is possible to over-aerify a green; however,

(continued on page 80)

#### **Hitting the Re-do button**

The following are write-in responses to the question: "If you had a re-do button, what would you have changed for turf to better survive the summer of 2010?

- · Mowing practices ranged from using smooth front rollers sooner, skipping mowing, raising heights of cut and rolling less and rolling in place of mowing.
- · Add drainage
- · Added more fans for air movement
- · Better-timed fungicide
- · Changed tournament scheduling
- · Cooled my irrigation water
- · Drainage in greens
- · Drainage was the key, surface, sub-surface and air
- · Flush greens more
- · Go to smooth rollers sooner
- · Had covers available
- · Hand water
- · Have roots checked for pythium infection
- . I did all the rest of the items on the list
- · If I had them, run sub-airs and fans
- · Improve air circulation
- · Improve winter drainage
- · Increased watering
- · Just not mowed at all
- · Less mowing when wet
- · Less verticutting
- · Listen less to the members,

- do what is necessary playability be damned
- · Managed wetting agents more carefully
- · More fans
- · More fans installed
- · More hand watering and wetting agent use
- · More roll, less cut
- · Mowed less often
- · Possible snow removal to reduce freeze thaw cycles from day to night.
- · Push it harder with fertilizers in the spring and use more wetting agents in the spring when it was wet
- · Put up more fans
- · Raise height of cut earlier than I did.
- · Raise it sooner
- · Reduce applications of growth regulators
- · Reduced rolling
- · Reduced traffic on greens
- · Remove tree canopies
- · Shoveled all the snow
- · Skip mowing greens on days of extreme heat
- · Solid tine aerify
- · Solid tine and then vent the
- · Stop growth regulator

- applications on greens sooner
- · Switched to smooth rollers quicker, most importantly on cleanup mower
- · Tree removal
- · Used fans on pocketed
- · Use different wetting agent
- · Used more wetting agents
- · Use impermeable covers · Water a bit more. I was too conservative during the most extreme periods
- · Watered more
- · Tree removal
- · Switch to solid rollers
- · We aerified greens pretty aggressively on June 8-9 thinking we had plenty of time to recover. This year the heat hit early and never let up causing thin stressed turf by late June, with the whole rest of the summer to go. In hind sight, we would have been better served if we had not been so aggressive (heaving surface and tearing roots).

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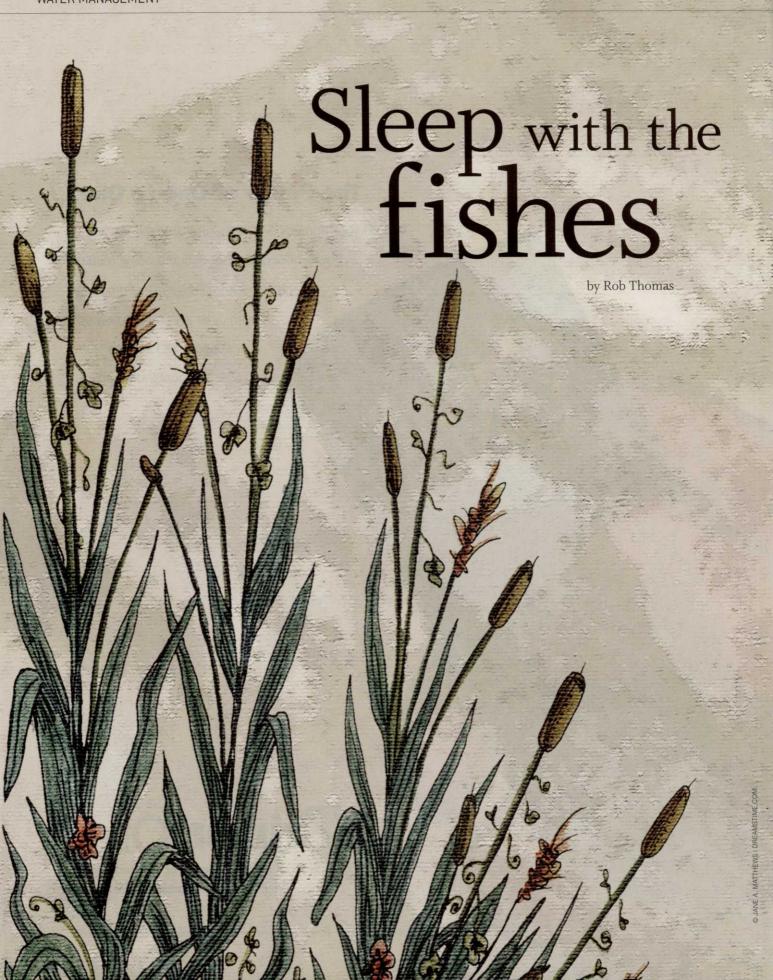
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Three superintendents share how they rub out troublesome aquatic pests like algae, cattails and milfoil on their courses.

here is more in those ponds than just fish swimming and errant golf balls resting in their watery graves. From algae to cattails, aquatic weeds are the superintendent's often evident and sometimes sneaky foes.

#### CYPRESS LAKES GOLF & COUNTRY CLUB

For Heath Puckett, CGCS, at Cypress Lakes Golf & Country Club in Muscle Shoals, Ala., beauty is in the eye of the beholder. His course a par-71 layout designed by Gary Roger Baird has 20 water features touching 17 of the 18 holes... some with cattails.

"I like the way they look," says Puckett. "And I feel they improve water quality by serving as a buffer... although some would disagree, especially regarding the aesthetics or lack of ability to find an errant golf ball."

Cattails and their accompanying leaves generally stand between 5 and 10 feet high and feature distinctive cylindrical, brown spikes that resemble cigars. They primarily grow in marshes, ditches and shallow water of lakes, ponds and rivers. A fibrous root system and rhizomes often lead to the formation of dense colonies.

While it is illegal to kill cattails in some states, such is not the case in the Heart of Dixie. Puckett says they have seen success with multiple, repeated biweekly applications of glyphosate and oil of limonene.

"We first cut and removed all above-ground plant material, and began treatment immediately after," he says. "It was a very slow process though, and took most of the season to finally get complete control of the cattails. I have also resorted to digging them up with a backhoe in the past."

In addition to cattails, Puckett deals with algae in his ponds. Fountains and aerators help, but aren't practical in every case.

"Since we do not have a lot of resources devoted to lake management, we've only used minimal inputs in our ponds that do not have a fountain or aerator," he says. "Keeping oxygen levels elevated is the best method to curtail algae problems, in my opinion."

According to Puckett, grass carp can also be very effective in preventing aquatic weed problems until their metabolism slows down and they don't eat as much.

Puckett's team applies light rates of copper sulfate preventatively in some of the smaller ponds that are not aerated or stocked with grass carp. For curative applications, late in the summer they use a mixture of Reward, Cutrine and oil of limonene sprayed over the top on sunny days. Last year, he also used Regal Chemical Co.'s Earth-Tec to reduce the algae and eliminate the bad odor with good results.

From fountains and grass carp to barley straw bales and chemical and biological controls, Puckett has mixed feelings on the results.

"Most of the biological control products I've used for algae have not provided enough control to justify the extra cost," he says, adding that they would prefer natural solutions over chemicals. "I have experimented with them in the past, but budget pressure and unsatisfactory results have required us to return to using more cost-effective chemical controls."

A superintendent for seven

years, all at Cypress Lakes, Puckett says there are some benefits of having algae and cattails.

"Certain types of algae are beneficial to the pond ecosystem," he says. "However, due to imbalances in the water and high nutrient load from runoff, algae can become a smelly eyesore. Filamentous algae is the source of our problem because it develops into a floating mat."

Though cattails can be aesthetically pleasing to some and provide a buffer for the pond to help filter surface runoff, he says they are very aggressive plants and cannot be left unmanaged.

"They spread rapidly and are difficult to control," Puckett says. "Our best success with them has been on the edges of some of our deeper ponds... where it's difficult for them to establish beyond a few feet. In shallower ponds, they can spread and take over the entire pond basin."

#### ARIZONA NATIONAL GOLF CLUB

Water may be a precious commodity in the desert, but aquatic weeds certainly do not treat it with reverence. Located in Tucson and home to the University of Arizona's men's and women's golf teams, Arizona National Golf Club is not immune to these nuisances.

Superintendent Rick Darby is charged with maintaining the Robert Trent Jones, Jr.-designed layout situated in the foothills of the Santa Catalina Mountains. Both algae and cattails have tried calling his course "home."

"The only benefit to cattails is [they] provide environment to wildlife," Darby says, adding that he sees no benefit to algae. "Otherwise they are a nuisance and extremely invasive. They can become a major problem if not kept under control."

Cattails are common in a protected water crossing at Arizona National, but the state does not rule against their killing as long as aquatic-label herbicides are used when spraying them. Darby says his team chooses Aquamaster (glyphosate) and sometimes adds Reward (diquat) to spray the cattails, at labeled rates, though mechanical methods seem to work best.

"We did our [mechanical] removal during the winter," he says. "In the previous fall, we sprayed every three to four weeks until the growth stopped. February or March we started mechanical removal."

Darby's team designed a rake made out of 5/8-inch rebar, which was about 4 feet wide and 2 feet tall and had "about six or eight tines." The rebar handle was roughly six feet long and they used a tractor to pull the rake through the cattails and the mat it had developed over the years. The rake was placed about 20 to







Cattails and milfoil can ruin the aesthetics and health of a pond, but creative superintendents find ways to deal with them like this fabricated cattail rake.

30 feet into the cattail area and a few of the team stood on it to hold it down and dig in. Then the tractor would pull cattails to the edge, where they were then allowed to dry for a day or two.

"This is a messy process but I think the guys thought it was somewhat fun at times, seeing who was the messiest or cleanest at day's end," Darby says. "You definitely need a few good pairs of hip-waders.

"It is a time-consuming process, but the areas I did last year had less than a 10 percent growback," he adds.

According to Darby, the removal labor cost used has already been recouped by not cutting the cattails down at water level every month in the summer. When they cut them down monthly, that was six cut downs, with two working for two days.

As if cattails weren't enough, an irrigation lake on the property that holds approximately 4 acrefeet of reclaimed water complete with a waterfall that circulates its contents.

Excess nutrients, often from fertilization run-off near greens and fairways, grass clippings and fish food or feces, are generally the cause of algae. The ability of sunlight to penetrate through to the bottom soil makes shallow, clear ponds highly susceptible to this foe, which not only can leave the water unsightly, but also malodorous. Of the three most common algae superintendents battle - planktonic, filamentous and attached-erect - only planktonic serves any useful purpose.

Darby, who has been a superintendent for 13 years and approaching eight seasons at Arizona National, combats algae by injecting microbes into the lake, which has worked well.

"Other methods on algae have failed," he says. "Using any form of copper is very short lived... only good for a few days."

#### OLD OAKLAND GOLF CLUB

Paul Anderson, a superintendent for a dozen years, is in the minority. He has not had to worry about battling aquatic weeds since joining Pinewood Golf Course in Elk River, Minn., in 2006. That's because the city-owned executive course has only one pond, which is blessed with a manmade liner.

"This was done three years ago and we haven't had any problems with weeds there," says Anderson.

Chase Walden, superintendent at Old Oakland Golf Club in Indianapolis, is not so fortunate. The 27-hole facility has six ponds in all, totaling approximately four acres. He has hit the trifecta of aquatic weeds: cattails, algae and milfoil.

Milfoil or the scientific term Myriophyllum, which comes from Latin myrio meaning "too many to count" and phyllum meaning "leaf" is a submersed aquatic plant with whorled leaves that are finely, pinnately divided. The leaves above the water are stiffer and smaller than the submerged leaves on the same plant. The flowers are small with four petals and are borne in the leaf axils or in a terminal, emergent spike.

While scientists are looking into ways to turn this invasive plant into biofuel and various animals include parts of it in their diets (like the aquatic weevil, which eats nothing but), superintendents find very little use for milfoil.

According to Walden, Old Oakland had a "bad" Eurasian milfoil problem in 2010. Because it is more common to recreational lakes, he wasn't quite sure what was growing in his ponds.

"I had it identified by two different aquatic professionals," he says. "As for an attack plan... I did a lot of research online."

A representative from SePRO recommended a herbicide treatment to treat the milfoil.

"He performed the application himself and we had very good results," Walden says of the treatment. "Renovate cleared it up with one application."

Control also can be achieved through mechanical management, such as lake mowers, a long-reach lake rake or aquatic weed razor blade tool, but caution must be used since milfoil is a fragmenting plant, and the

fragments may grow back. These tools are most effective before seeds set.

Considering the ponds at Old Oakland aren't connected to any recreational lakes through rivers and tributaries, Walden is left to speculate on how it found its way to his property.

"I believe it was brought in on the boats of our pond service company," he says. "I suppose it is possible for geese to transfer it as well."

For Walden, Renovate worked on milfoil, and weekly, contracted copper treatments were a "good success" in managing algae, but he isn't quite sure fountain aeration did much of anything.

Like Puckett in Alabama and Darby in Arizona, Walden is able to combat cattails with little government interference. His team removes them by cutting the weed just below the water line.

Methods for controlling aquatic weeds are seemingly as numerous as the uninvited guests, themselves.

Sometimes, superintendents who have battled the nemesis, or chemical company representatives with expertise on various product offerings, offer the greatest insight into controlling these invasive watery foes. GCI

Rob Thomas is a freelance writer based in Cleveland.



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# IRRIGATING CONTROL SYSTEMS... MORE DECISIONS

here is no doubt that a decoder/two wire system needs to be grounded well. Not that a field controller system doesn't, but the decoder/two-wire systems are more sensitive due to the fact that electronic equipment is installed underground, where high voltages can be induced on the circuit by lightning. If the grounding is not adequate, then the system will be very susceptible to damage. A field controller system is also susceptible to damage, but the overall amount of damage would usually be less in a field controller system versus a decoder/two-wire system. Additionally, the odds of losing several holes or more at once are low in a conventional field controller system since the circuits are isolated in groups of sprinklers per controller.

In a decoder/two wire system, everything is basically connected as one circuit, so a lightning strike can be devastating if the system is not properly grounded and protected. Therefore, a great deal of attention should be paid to grounding. A high percentage of the wire savings from a conventional system should be used to increase the lightning protection. Lightning protection should consist of multiple pieces of equipment – not just grounding rods. These include:

Grounding Electrodes. Lightning occurs at a variety of frequencies, from zero to 100 megahertz. Ground rods are only effective in dissipating the lightning energy into the ground for low frequency strikes. Ground plates are effective at the full range of lightning frequencies because of their large amount of skin in contact with the soil and their low inductance characteristics. The combination of ground rods and plates provide broad band ground

grids that dissipate the lightning energy at all lightning frequencies.

Surge Suppression Devices. These devices, also known as lightning arresters, are required by the manufacturer and are installed at strategic points along the wire path to limit the voltage to a level below the specifications of the irrigation systems electronic equipment. The arresters divert the excess energy to the grounding electrodes and the energy is dissipated in the ground in the form of heat.

Cable Fuse Devices. These handy devices are installed in the communication cabling, usually at tee junctions, to allow one or more legs across and down into the soil. The shield wire is intended to "shield" the wires below it. The shield wire has a lower path of resistance than the insulated wires below it.

Since many of these lightning protection devices are copper-based, they are expensive. The manufacturers have recommendations as to what degree of protection should be employed on their decoder/two-wire control systems, but many times additional lightning protection and surge suppression devices are eliminated or left off the design for cost-cutting, or to look less expensive than the competition or a field controller system. Based

"In a decoder/two wire system, everything is basically connected as one circuit, so a lightning strike can be devastating if the system is not properly grounded and protected."

to be shut off so that troubleshooting can be more easily accomplished. The fuse, when blown, identifies which leg of the cable has a problem. Think of these devices as similar to isolation valves in a hydraulic system.

Exothermic Welding Connectors. Instead of putting a clamp on a rod that requires maintenance – yes, it needs to be cleaned and re-tightened at least annually – an exothermic connection fuses the ground wire to the rod, giving a better and long-lasting connection. Ground rods with prewelded lead wires are now available.

Shield Wires. A shield wire consists of a solid, bare copper conductor installed 6 to 12 inches above the cabling; or, in a field controller system, above the wire bundle and is there to absorb electrical impulses traveling

on experience, some designers specify and recommend additional or more elaborate protection than is required by the manufacturer, so there will be fewer issues if lightning strikes or other electrical problems occur.

I would argue that when properly designed and installed, the type of control system, in terms of longevity and reliability, is the same. You decide what control system is the best fit for you and for your golf course. This decision includes not only how you manage the irrigation system but also your budget for the cost of the installation itself and your maintenance personnel in terms of how much time they have to work on any irrigation control system problems. Do your homework, sort through the rhetoric and pick the system that best works for you. GCI

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# Ready to go

An unpredictable winter means broadleaf weeds are ready to start showing up. Is your program prepared?

inter might be toying with parts of the country with sudden changes in warm and cool weather, but eventually, spring will show up. With it will come broadleaf weeds, eager for their day in the sun as turf is coming around from a tough season.

Dealing with broadleaf is a top priority this time of year, but the best plan for doing so sounds different from course to course. Is it better to use preemergent or postemergent? What's the best way to determine the right chemical mix?

Regardless of how broadleaf is dealt with, Trey Anderson, superintendent of Hickory Ridge Golf Course in Carbondale, Ill., says it takes a sharp eye early in the season to keep ahead of the weeds.

"We'll go scout out areas in spring to see where broadleaves are going to be a problem," says Anderson. "Then we'll get a good three-way mix and go down and clean those up. Once the summer comes along, it's not really conducive to putting anything on those leaves."

Anderson's transition-zone, zoysiagrass course sees some knotweed and clover, with some broadleaf plantain showing up from year to year. Each year, he and his crew watch for the weeds to start showing up, noting where trouble spots might be and where it might pay off to give a little more attention to a section of turf.

Aside from early recognition, taking notes from year to year will also pay off, according to Patrick McCullough, extension turfgrass weed specialist at the University of Georgia.

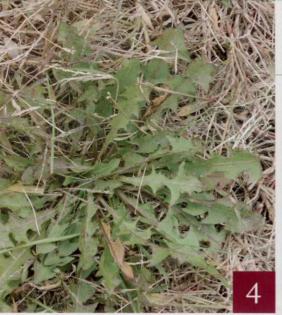




#### Know the enemy:

Be on the lookout this spring for these golf course invaders

- 1 Buckthorn plantain
- Common chickweed
- Corn speedwell
- 4 Dandelion
- Hairy bittercress
- White clover
- Purple deadnettle
- 8 Sticky chickweed







"Scouting turf in winter and early spring is recommended to identify broadleaf weeds that warrant control," he says. "Turf managers should also note weeds that were present in previous years and pay particular attention to new species that may have become established."

Be especially aware of sections of turf that thinned or were weakened from traffic, disease or injury during fall and winter, as well as turf grown in shade, compacted soils, or with poor drainage, since all of these scenarios are prime situations for broadleaf weeds to show up, says McCullough.

For Anderson, it's about dealing with the weeds as they show up.

"When I see what kind of catch we got through the winter, we'll start getting ready for the season," says Anderson. March means the use of preemergent for Anderson, and his crew follows up in later March and early April with postemergent as needed.

"Although we've used some preemergent, it works better for us to use post," he says. "We'll go out there with it and we know about how much we'll need because of seasons prior. We try to spray as little as we have to. If we don't have to go out and spray wall-to-wall, we won't."

Knowing where the weeds are likely to turn up and what he's likely to tangle with gives Anderson the edge to clear out problem areas with small doses of FMC Professional Solutions' Solitare without doing big, costly applications, he says.

"We're just trying to clean everything up, trying to get a nice, clean look for spring," he says. "If we can do that when we're putting down postemergent and three-way in spring, that sets us up for a really good start going into the summer golf season."

The mixed pre and post strategy feels like too much for Ken Mangum, director at the Atlanta Athletic Club in Johns Creek, Ga.

"I've always been a big proponent of just not letting it be seen," he says. "If you let even a couple weeds out there, the amount of seed it produces, it just spreads."

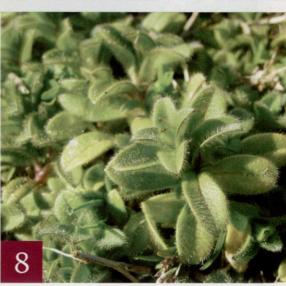
Mangum just didn't have regular trouble with broadleaf weeds until a resod of the course with Champion ultradwarf in 2006.

"When you solid sod your golf course, you bring in weeds from other areas," he says. "Once we covered the golf course with sod from who knows where, we had some hitchhikers."

Mangum started seeing knotweed and crabgrass appearing throughout the course, and that was not going to over well with members.

"Our weeds just multiplied," he says. "It had really become a notice-





#### A line in the grass

Methods for taking out broadleaf weeds are specific to each course, and even to the preferences of each superintendent. Beyond the battle of preemergent and postemergent herbicide is the argument of weed tolerance.

When cost is high and repeated applications get in the way of course play, it might be time to loosen the iron grip on turf, says Trey Anderson, superintendent of Hickory Ridge Golf Course.

"We're pretty clean throughout the year, but we can live with a little bit," says Anderson. "Sometimes we can be our own worst enemies. It might be good sometimes to maybe just try to decide if that's okay for your place. Everyone's program is a little different."

A municipal course, Hickory Ridge runs on a moderate budget, so when just one weed or so is spotted, he takes a moment to decide whether it's worth the money and interruption to play, and possibly bringing more attention to a dead weed stalk on the turf.

To Ken Mangum, director at the Atlanta Athletic Club, it's about cost and dealing with the weed, and all the seeds it will produce, later.

"What's your threshold for pain?" asks Mangum. "It's a question of management."

Mangum runs a tight course with a high standard on weed control, but with the Atlanta Athletic Club listed as the site for the 2011 PGA Championship, it's a standard worth upholding to him.

With a decreased budget, it might make more economic sense not to always try to play up to tournament levels, says Anderson.

"Sometimes we choose to just leave a few weeds if they're not going to have an impact on playing conditions," he says. "It's so tough to keep up to those conditions, and costly to go out with the spray repeatedly. It's a choice you have to make for your course."

Players understand and generally haven't complained to Anderson, he says. Mangum also has never heard from his players about it, but for a different reason.

"If you never see a weed, you'll never get a comment," he says.



able problem, so we wanted to get it before it even started growing."

After dealing with the weeds, he started use of Bayer Environmental Science's Specticle to get control of the knotweed, and started a regular program of Dow AgroScience's Dimension and Gallery herbicides to hold that line against the weeds. The battery of preemergents is Mangum's way of fighting off the need to do postemergent application.

"It's because of the visual, and you can typically do preemergent easier in the off-season rather than spraying during the summer when the course is busy," he said. "Not only do you have dead weeds then, your turf is off-color around where you spray sometimes. It's better if the weed is never seen at all."

Early spring is a key time of year for dealing with broadleaf, as many broadleaf weeds will start to show up alongside healthy turf. In the warming climate, growing weeds are most vulnerable to herbicide. Though it's important to get a jump on broadleaf, knowing when to attack keeps costs down.

"Broadleaf herbicides applied under cool weather in early spring often have reduced efficacy and require sequential treatments to control weeds," says McCullough. "Efficacy of broadleaf weed herbicides generally improves when temperatures are consistently in the 70s compared to cooler weather."

This is especially important with the irregular warm-ups happening as spring starts to come around this year, bringing temperatures up and giving broadleaf weeds a little bit of a jump start on superintendents.

"The timing of things is always important, especially with the crazy weather in this past year," says Mangum. "We're very warm right now. We're scrambling to get things down and get ahead of the weeds."

Anderson tries to set up his course as best he can in March and bulk out the program with aerification after.

"The best defense is a good offense," says Anderson. "The best way to deal with broadleaf is just to have a really great stand of turf. We find that if we take off that early and work in aerification, it gives the turf a chance to go into spring and summer strong."

Spring and fall applications round out a broadleaf program, but not all broadleaf decisions come down to setting up a schedule. Choosing the right product is a balancing act between finding the correct coverage for specific weeds at an application price that fits.

"In today's economy, it's trying to take your economic ability and find something that



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matches your weeds," says Mangum. "You always have to evaluate the cost of control per acre and the number of applications."

The mix of chemicals used in the main preemergent application is worth the cost to Mangum, since it covers his course's needs before paying for postemergent as well. For Anderson, being able to fall back on the single product makes a huge difference to his crew, since he'll only use very small amounts in postemergent applications.

"It's just simple for my guys," he says. "We're a municipal golf course. We've got an average-sized budget. It's great to have something in the shed to know that you don't have to worry about mixing, or mixing well."

More important than just finding a chemical that works is continuing to try to find a better herbicide. As technology has improved, chemicals have evolved through the years, changing the game almost every season.

"It used to be about pounds of it in every application," says Anderson. "Now it's just ounces. It's much less product than it used to be. Sometimes we get so busy you might not know what's out there. Some of the chemistry, the way it's grown in the last four to five years, now there's just so much more available. If you keep up on it, you might find you can take care of something with one spray.

"We do as much as we can education-wise," he adds. "We want to put the spray rig out the minimum number of times we can. Some chemicals have changed, and the amount of herbicides that are available now; it would be easy to just get stuck in buying the cheapest three-way without looking to see if there's something else that covers the weeds you have better."

Mangum continues to research new mixes and herbicides. "Even though you've got something that works, always be looking for something better," he says. "You have to start looking at everything. We're fortunate to have products that are actually cheaper to work with now. Look for plenty of help, staying up on all the new things. Look at trade publications and read articles."

Mangum takes the time to test new mixes before using them throughout the course.

"I tend to test things," he says. "Most everything we spray new has been tested somewhere on the golf course until we get a feel for it, see how the turf reacts to it and what kind of control it gives us."

When a superintendent finds the right application setup for their course and the right herbicides after research, dealing with broadleaf weeds is easy after all, says Anderson. "A super today is pulled in so many directions, it's helpful to just have that ready to fall back on," he says. "The less you have to worry about that the better." GCI

Kyle Brown is GCI's associate editor.

Dealing with broadleaf weeds? Patrick McCullough, extension turfgrass weed specialist at the University of Georgia, covers winter broadleaf weed control in our Online Extras.





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Jeffrey D. Brauer is a licensed golf course architect and president of GolfScapes, a golf course design firm in Arlington, Texas. Brauer, a past president of the American Society of Golf Course Architects, can be reached at jeff@jeffreydbrauer.com.

#### DESIGNING FOR THE REAL PLAYER

ith the start of the PGA Tour season, we are again hearing about how easy courses are for tour pros. While a double-digit under par score still has the potential for alarm, the average winning scores – not to mention the average of average scores – really haven't changed much from the days of Arnie and Jack.

In my opinion, there is too much design directed at professional golfers who will never show up at the typical course. So the question to me is, "Why?" Why do we design primarily to thwart the best of the best in the world from playing well?

Why are we designing to raise the score of a tour pro who will never play our course, when it makes the course much harder for the everyday, average golfer in terms of speed of play, enjoyment and reasonable challenge? Even the difference between tour pro and top amateur is more substantial than most think, and most good players really prefer a chance at shooting 68 more than the difficulty level of a tour course.

Why are we building for "tournament standards" when:

- Location, infrastructure and tour schedules mean there is almost no chance of hosting a tournament?
- When the USGA has shown us that we can modify the rough depth, fairway width, green speeds, pin locations and even reduce par itself from 72 to 70 temporarily to make par a good score?
- In resort or retirement areas, knowing that 99 percent of players will play a far shorter course? Or, stated differently, do we really need every course to have back tees at 7,200 yards for the few dozen each year that actually use them?

Why are we doing this to sell real estate, including:

- Numerous bunkers specifically to create views from surrounding property?
  - Steep contours for shadow patterns
- Longer courses (up to 8,000 yards) to create more real estate opportunity?
- Long cart rides between holes to add real estate value but slow down play?

Finally, I question why we're designing to obtain "Top 100" or "Best New" ranking for marketing, which typically requires a large degree of

difficulty, when chances of obtaining such a rating are slim? And, even when studies show that 90 percent of golf rounds are played on the nearest course, with the most friends, and at the most reasonable price, meaning those designations probably provide very little marketing value?

Even at existing clubs, how many committees are dominated by the top players at the club, resulting in changes to increase difficulty?

I believe in the old design adage that "form follows function" and I realize that golf course design has drifted from that truism substantially. After designing for tournaments, views and awards, too little thought is given to the actual end user, who is normally the focus of design. While the economy is certainly the biggest reason

"I believe in the old design adage that 'form follows function' and I realize that golf course design has drifted from that truism substantially."

for less play, and since golf has weathered worse storms in its more than 600 years of existence and will probably bounce back at some point, I have to wonder if these designs will enhance or reduce golf's appeal and vitality.

Part of the greatness of the older courses still on tour, such as Riviera and Colonial, is that they were designed primarily as "member's courses" to be enjoyed in everyday play, but which can be made more difficult on occasions, even if the pros score a little lower than we might like. Perhaps we need the Seinfeld characters to remind us: "Not that there is anything wrong with that."

Given the greater competition for all recreation time and money, golf courses will need to embrace the classical elements of these courses that make them "fun courses" rather than "tough courses." They should be renovated to very specifically target what makes golf fun for the average player.

A good start is to recognize that the highest honor a course can achieve is the label "fun to play every day." **GCI** 

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#### Seven equipment pros share their techniques and philosophies behind their grinding regimen.

Dennis Blackwell Equipment manager Martindale Country Club

Auburn, Maine

66 T don't do backlapping. I used to do it, but I now I feel it's not the best solution unless it's an emergency. My old superintendent liked backlapping, but the new superintendent doesn't. Grinding is all in the angles. If you do grinding on the reel, it puts a virtual relief onto it versus backlapping where you are making it a flat surface hitting the bed knife with those angles when they start wearing. That's the theory. It makes sense. Based on what we've seen now, the way it cuts the turf... it just seems like the best way. You see, you are not getting the right contact on the bed knife. What we would do before is put more angle on the bed knife, but we learned that's not the way to go as you end up wearing them prematurely. With our Bernhard grinder, it is so easy to set it up. It only takes five minutes to do it the right way. It's sometimes a pain taking off the reels versus just putting it up in the air for backlapping. But, with grinding I know they are nice and sharp and ready to go. We grind our greens mowers and touch them up every few weeks."

**David Blowers** 

Equipment manager East Lake Golf Club

Atlanta, Ga.

t East Lake Golf Club, we run a zero Contact program using a pair of products from Bernhard. We sharpen as required. When the unit comes in from the field it is checked every day. When the crew is done using it, we check it. If it doesn't cut a single piece of paper cleanly and satisfactorily, we sharpen the reel and then reassemble it. We strive for that clean cut. If it doesn't cut to our satisfaction, we then put it on the grinder and grind for a fresh edge. The key to maintaining a sharp edge is maintenance. If you maintain constant, vigilant adjustment in the repair process that cutting edge goes a lot farther in between sharpening requirements. If you let it go to point it doesn't cut to your satisfaction, you are no longer in maintenance mode, but in repair mode. There are no short cuts, the key is diligence. We make the time and set the priorities. I do not believe in backlapping. I've been in the golf business for 30 years both a mechanic on a golf course and a service manager. I've seen all programs. Backlapping is certainly a tool somebody has to use, but it's more for someone working by himself with a limited number of mowers. You can't control or modify the angles with backlapping."

Mike Koopman

Equipment manager The Old Collier Golf Club Naples, Fla.

**66** T've been spin grinding for 18 years. That Leseems to fit my schedule the way I like to keep things the best. We do not backlap at all. The one thing we do, every time a machine is used, it gets cleaned, brought in the shop, checked and adjusted. If it cuts paper we will use it the next day. If not, we will grind it. That's the routine we do. Every time it's used it gets checked. Some places mow two or three times and check it, but I'm a firm believer if you used it, you need to bring it back in and check the height and the cut on it and have it ready for the next time. We check our greens mower every day. I like the ease of setting units up in the grinder we have. We have the Express Dual Reel Grinder and we have the Anglemaster bed knife grinder from Bernhard. You can set them up, grind them, and you are in and out in three minutes. One man can grind two or three sets of reels before lunch. I backlapped years ago before I had spin grinders. When I went to spin grinders it was a night and day difference. Backlapping is a thing of the past because I can almost take the units off and grind them as fast as I could backlap and not have the mess."

#### Andy Caddell

Director of golf course maintenance Pinehurst Resort and Country Club Village of Pinehurst, N.C.

\*\*We do 90 percent grinding. We still do some lapping on the larger fairway and rough units. But on tee mowers and green mowers, we only grind. The grinding advantage is speed. We have close to 400 reels here. We have eight golf courses. Grinding units are easy to set up. Typically, we start the latter part of March into May, topdressing every two weeks with light topdressing, so we are mowing in sand 50 percent of the time during the summer. Our greens mowers will typically grind once to twice per week, sometimes more, depending on how heavy the sand is going down or whether we are aerifying. But, once per week is the norm. We still do a little backlapping and relief on our fairway units. but it's so much easier, it's so much easier on the smaller units, to just snatch the reel off, stick them and spin them and put them back on. For the bigger fairway units, it's harder to get the reels off and get it set up and done in a hurry, so we will backlap in between grinds. We grind our fairway units about four times per year and do regular maintenance on all our equipment. Every greens mower that goes out, we will put them up on the lift, check them, set them, reset height every day and determine from that whether they need to be ground or not. Usually first mowing after sand they will be ground. I have two divisions of my shop - six guys that do nothing but reels all day. From the middle of April until October, our grinders are running all day long, every day. We have three sets of grinders at the main shop and another set at each of my satellite shops; we have four total shops."

#### Todd Bartos

Head mechanic Canterbury Golf Club Beachwood, Ohio

They topdress a lot, which tears the mowers up. So, I backlap the greens mowers to keep them cutting until they pick up all the sand. I then put a fresh set of reels on that are already ground, and then I will regrind the knife. It's a full-time job for me just to keep the mowers sharp. I'm always backlapping or grinding. If they cut two days in a row, the mowers would be completely dull, so I backlap. I could grind every day. For the fairway units, I put relief in them. We put relief in the greens mowers this year, too, and



Sand and heavy topdressing eats through blades – regular maintenance is the only way to always have a healthy cut.

it helped a lot. It didn't take the front of the knife off and it gave the sand a place to go. I spin them, release them, and then put them back together. I don't get that washboard effect and they cut so much nicer. I spin grind the mowers, then put in a relief grinder and then put a little relief in each spiral reel, so the front edge is touching the knife and not the whole blade. In the summer, I'm always doing something with the mowers."

#### Shahid Bhatti

Equipment manager, Congressional Country Club Bethesda, Md.

When I need to and I lap when I need to. If it just needs a little touch up, I'll lap it. But if it's in bad shape, I'll grind them. I use the Bernhard Dual Express to grind. We topdress our greens and this eats up the mowers, so it is time to grind. When it gets to the point, it gets worn and the reel is rounded, it's time to grind. If there is only a little light sand, I'll lap it. We do a lot of grinding. I'll grind my greens mowers five to six times per year. The fairway mowers I do twice per year. When we

open in the spring, we start with the sharpest mowers we can have. I don't angle grind. I flat grind. It takes less time and it takes less meat off the reels. You don't want to take a lot of your reels. You're putting your angle on the bed knife instead. When you relief them, you relief your bed knife a little more than you would normally. I grind 12 greens mowers in a day. Normally, we don't tear them all up at one time; rather, three to four at a time. If they are not cutting 100 percent, I'll backlap. I check my mowers every day. For every mower that goes out, I check the cut, the height, and the machine for leaks to make sure it's ready to go for the next morning."

#### James Cleaver

Equipment manager Roaring Fork Club Basalt, Colo.

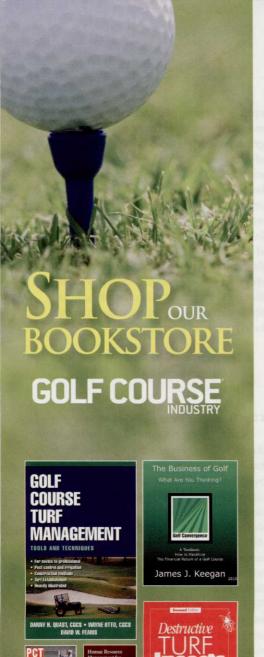
ur sharpening procedure is a war between cut quality and its link to disease resistance in relation to the benefits of top dressing and its effects on soil profile and overall plant health. My job is to inform the superintendent what the equipment can and cannot do, and to provide machinery that is sharp and accurate on a daily basis and under different types of conditions. Last season, we mowed greens daily with Jacobsen Eclipse 22inch electric greens mowers. We have six of these machines, and one is dedicated to green No. 6 where we have some air flow problems and disease problems. That one was sharpened once per week. The three that mow the rest of the course were sharpened every third or fourth day. So one mower would mow 18-24 greens then be completely dismantled, the bedknife sharpened or a new one installed, and the reel sharpened. We do not backlap. When sand is introduced we will sharpen each day until we feel we're out of it.

"The two fairway units (with one set of extra reels) came in at least once a week for adjustment, and were sharpened every two weeks last season. The walking tee, approach and specialty mowers are all checked by operators and sharpened or adjusted as needed. I run the course each day with a prism and sometimes a handheld microscope to look at height and quality of cut." **GCI** 

David McPherson is a freelance writer based in Toronto.

#### **ONLINE EXTRA**

For more perspectives on grinding, check out March's Online Extras.





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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.

#### **BEDKNIFE RACKS**

The storied Turf Equipment Management Program at Florida Gateway College has set the standard for training equipment managers in the science and art of maintaining and repairing golf course maintenance equipment. Mark Yarick, professor and program coordinator and Jonathan Morriss, instructor, along with student help, built these bedknife racks that are made from 1-inch-wide steel strips. They are about 42 inches long, but they can be made any length. A 1-inch strip was used for the support pieces, which are 4 inches long and spaced 4 inches apart and welded at a slight angle to keep the bedknives from sliding off. They made them in pairs and attached them to the wall at the appropriate distance apart to accommodate the bedknives' length. They are attached to the wooden studs underneath the drywall with appropriately-sized wood screws depending on the length and overall anticipated weight of the bedknives. The materials were in stock and it took about four hours of labor time.





#### **GREENS COVER TRAILER**

This trailer was built totally out of recycled materials around the shop to transport winter greens covers in the fall and spring. Two employees can easily drag the covers on and off without having to lift them off the ground because of the low-profile design. The covers can be tied down to the railings and the trailer can also haul tree limbs and other material. Recycled 1.5 inch x 6-foot to 8-foot long fence posts, ½-inch and 2-inch metal tube stock, 4-inch U-bolts, one axle with 16.5-inch x 6-inch x 8-inch wheels and four-ply turf tires, welding rods, two cans of primer and spray paint and a 4-foot x 8-foot piece of ¾-inch marine plywood flooring were used. Bob Pruneau, equipment manager at the Halifax Golf & Country Club (Old Ashburn), Halifax, Nova Scotia, Canada, designed and built them. The recycled materials were all in inventory, the spray paint cost about \$25 and it took about eight hours to build.





#### SOD CUTTER **TRAILER**

Bob Pruneau, equipment manager at the Halifax Golf & Country Club (Old Ashburn), Halifax, Nova Scotia, Canada, designed and built this Ryan Jr. Sod Cutter user-friendly trailer. When the tow bar is in the vertical position, the sod cutter is attached to the trailer with a 1-inch x 32-inch long round rod stock that slides through factory-drilled holes in the sod cutter, with holes drilled on each end of the rod for lynch pins to hold it in place. The tow bar is then lowered to the horizontal position and the sod cutter is cantilevered onto the trailer with a perfect weight balance. 2-inch x 2-inch x 1/8 inch thick square tube stock & 1/8inch flat metal stock was all welded together and painted green and one recycled axle with 16.5-inch x 6.5-inch x 8-inch wheels and four-ply turf tires were used. The materials were all recycled and in inventory, except the primer and paint at \$15, and the labor time was about six hours.





Terry Buchen, CGCS, MG, is president of Golf Agronomy International. He's a 41-year, life member of the GCSAA. He can be reached at 757-561-7777 or terrubuchen@earthlink.net.





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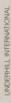


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# Super Saver

Retrofitting irrigation nozzles not only saves water, but courses are learning it can have a dramatic impact on reducing water costs, too.

ith U.S. golf courses using upwards of an estimated 476 billion gallons of water each year, management companies like American Golf Corp. are taking the lead in implementing innovative conservation strategies.

American Golf, based in Santa Monica, Calif., operates more than 110 private, resort and public courses across the country, with 60 in the drought-prone "golden" state of California.

One water-saving strategy that's delivered measurable results is American Golf's ongoing switch-out of plastic rotor nozzles to solid metal nozzles.

Just during the last three years, American Golf has retrofitted more than 20,000 nozzles on nearly 20 southern California courses with an estimated annual water savings of at least five percent per year. With a typical southern California course using more than 100 million gallons annually, a five percent savings translates to five to 10 million fewer gallons per course – or hundreds of millions less for American Golf.

#### **REBATES FOR SWITCH-OUTS**

Driving the nozzle retrofit effort is the powerful Metropolitan Water District of Southern California (19 million customers), which has been offering rebates to courses in key counties for every set of Profile nozzles they install. Referring to them as "high-efficiency nozzles," MWD only accepts field-proven Profile nozzles in the rebate program.

"At American Golf we are committed to being good environmental stewards and to finding new ways to reduce water consumption," says Scott Bourgeois,

American Golf's southern California director of maintenance.

"The MWD rebate program has been an excellent opportunity to participate in a beneficial partnership to help achieve water conservation goals," he says.

An obvious byproduct of the program from a customer perspective, says Bourgeois, is improved turf conditions through Distribution Uniformity, which enhances playing conditions.

DU rate is typically a barometer of turf condition and indicates whether a sprinkler is delivering uniform irrigation coverage. A low DU rate of 0.55 or less indicates that coverage is inconsistent, resulting in dry spots, donuts or over-watered areas. A high DU rate of 0.80 or better shows that irrigation is uniform, resulting in healthier turf and improved appearance. With a







Using retrofit irrigation nozzles not only provides better coverage distribution uniformity for turf, it actually saves the course money in energy costs. American Golf courses using retrofitted nozzles in the last three years had an annual water savings of at least five percent per year.

higher DU rate, sprinklers can be programmed for shorter run times, saving water and energy.

In just the last three years, numerous public and private courses in southern California have used the rebate program, "Save Water – Save a Buck."

#### ANNUAL SAVINGS

In promoting the program, MWD estimates that installing "high efficiency" Profile metal nozzles can result in annual water savings of up to 6.5 percent.

"Mostly used on golf courses and other open landscapes for long-range and close-in watering, high-efficiency nozzle retrofits provide a healthier and greener turf with improved water distribution," according to www.mwdsaveabuck.com. "These nozzles also save water, save energy and result in lower maintenance costs."

Made by Underhill International of Lake Forest, Calif., Profile are the only nozzles approved by MWD for rebates on large rotary golf course sprinklers.

The MWD program was implemented following a comprehensive study on Profile nozzle performance conducted by Dr. David Zoldoske at the Center for Irrigation Technology (CIT), California State University, Fresno.

After two years of rigorous testing at five representative California courses, CIT concluded that Profile metal nozzles retrofitted to Rain Bird or Toro golf rotors performed with consistently higher Distribution Uniformity. Each course in the study saved about 6 million gallons annually with the Profile nozzles.

One of the keenest observers of golf irrigation practices is Brian Vinchesi, president of Irrigation Consulting Inc. of Pepperell, Mass., and Huntersville, N.C.

Vinchesi became acquainted with Profile nozzles through both the CIT study and cross-country business travel, talking with superintendents who had installed the solid metal nozzles.

"What sets Profile nozzles apart is they are essentially 'custom made' for the industry's most popular golf heads," he says.

"They're not a product that can be mass produced and still perform at the same level of consistency. The precision required for uniform coverage is better accomplished by a smaller manufacturer with good quality control," he says.

In surveying irrigation systems at hundreds of courses in the U.S., Vinchesi concluded that older sprinklers deliver very poor Distribution Uniformity (DU), which is only minimally improved with maintenance.

#### PRACTICAL AND INEXPENSIVE SOLUTION

Sprinkler heads manufactured in the 1980s and 1990s were, in fact, never designed to deliver optimum DU, he says, as water use was not an issue.

The options for superintendents have been limited up to now. Typically, courses either replaced the internal mechanisms or the entire head, or resorted to daily hand-watering of dry patches during the summer.

"However, in this current economic climate, Profile metal nozzles have become a practical and relatively inexpensive solution to improving Distribution Uniformity without the expense of replacing a golf sprinkler or its internal mechanism," Vinchesi says.

That's exactly what Superintendent Logan Spurlock had in mind when he retrofitted the entire Jack Nicklaus-designed Sherwood Country Club in Thousand Oaks, Calif., with metal nozzles.

Although Rain Bird 700 Series rotors were installed in 2005, loose impediments, such as sand, were restricting flow through the nozzles, resulting in uneven water distribution. Nozzle cleanouts were becoming a routine.

The course, situated in a picturesque area north of Los Angeles, was once a popular location for early Hollywood adventure films. The original "Robin Hood" was filmed on what is now Sherwood's front nine. Because of the movie, the area became known as "Sherwood Forest."

Each December the course hosts the PGA Chevron World Challenge, benefiting the Tiger Woods Foundation.

After prepping the course for the 2009 tournament and battling the clogged nozzles, Spurlock looked for a better way.

Networking with fellow superintendents, he investigated Profile nozzles and learned his course qualified for the MWD retrofit rebates. He ordered a sample set and after testing them on a fairway, Spurlock and his crew were convinced.

"The nozzles totally lived up to our expectations," he says.

"We decided to do a major switch-out and within three months our irrigation crew changed more than 500 heads, working on three to four fairways a day," he says. ""It was a hectic pace, but worth it. Right away, we could see better DU from close-in coverage out to the furthest reach of each head."

#### CONSERVATION AND WATER MONITORING

Spurlock has a mixed bag of water sources: 50 percent reclaimed, 25 percent well and 25 percent potable, only used on the greens.

"Even with our multiple water resources, conservation is a still a concern," he says.

Before installing the Profile nozzles, he ran the irrigation system for extra minutes to green up the course. Now he has shortened run times for a more efficient schedule and has implemented "cycle and soak" programs



Profile retrofit nozzles have tiny notches pressed into the nozzle face along the stainless steel insert. The notches strip away a small amount of water from the main stream, dropping it closer to the sprinkler head, spreading the stream more uniformly.

for healthier root growth and less run-off.

Even while courses are enacting water conservation measures and adjusting scheduling, Vinchesi warns water monitoring by state and local water districts may be on the horizon.

"In areas of the country, especially in the west, there is no requirement to measure or report how much water a golf course is using," he says.

"In most eastern states, however, to pull water from the ground or from surface water, a water withdrawal permit is required. These permits are usually for diversions of 100,000 gallons or more on an average daily basis, which an irrigated golf course easily exceeds," he adds. "Measuring and monitoring your water use is also the responsible thing to do. If your water usage jumps up or your water use significantly decrease, it's a sign that something in the irrigation system has changed. So monitoring water use can be a troubleshooting tool, as well."

By anticipating coming trends in golf course water management, superintendents who implement conservation strategies now will be better able to work with new mandates while still maintaining "fast and firm" championship courses. GCI

Nancy Hardwick is head of Hardwick Creative Services in Encinitas, Calif.

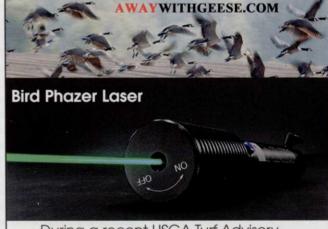
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# REVOLUTIONARY CHOCKES



### Real Science

BY ROB GOLEMBIEWSKI, TOD BLANKENSHIP AND BRIAN MCDONALD



### Can annual bluegrass putting greens be healthy and fast?

Oregon State University research shows that daily rolling, along with higher mowing heights, provides high-quality turf and excellent green speeds.

uring the past 30 years the successful management of golf course putting greens in the U.S. has generally been associated with green speeds, which can be traced back to the introduction of the Stimpmeter in the late 1970s. The USGA's goal was to give superintendents a tool to assist them in creating consistent putting conditions across the entire golf course.

With the advent of the Stimpmeter, many cultural and chemical practices have been implemented through the years by superintendents in a quest for the "perfect" firm, fast greens. These include lowering mowing heights or increasing mowing frequency, reducing irrigation and fertilizer amounts to limit plant vigor, applying plant growth regulators to limit vertical growth or employing devices like rollers. Some or all of these practices may be implemented at any one time to optimize putting green speed,

which is measured in terms of ball roll distance (BRD).

With the advances in mowing equipment, some golf course superintendents are now mowing greens as low as 0.075 inches in an effort to satisfy golfers' continuing desire for faster speeds. These low mowing heights are extremely dangerous to the overall health of the turfgrass plant. During the summer months, greens maintained at these low heights of cut often lose density, lack vigor,

recover slowly from wear, and exhibit poor resistance to pest infestations. Dr. Thom Nikolai (Michigan State University) reported mowing heights on creeping bentgrass greens could be raised from 0.125 inches to 0.156 inches during the summer months, if combined with lightweight rolling, to maintain green speeds and an overall healthier turfgrass stand. Lightweight rolling is conducted to smooth and improve turf canopy uniformity on putting greens

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### Real Science

Table 1. Treatments for research trial.

Treatment	Roller
Mow Daily (Check)	
Mow Daily (Check)	
Mow Daily - Roll M, W, F	Gas
Mow Daily - Roll M, W, F	Electric
Mow Daily - Roll Daily	Gas
Mow Daily - Roll Daily	Electric
Roll Daily - Mow M, W, F, Sa	Gas
Roll Daily - Mow M, W, F, Sa	Electric
Alternate Mow & Roll Daily	Gas
Alternate Mow & Roll Daily	Electric

as well as to increase BRD.

Overwhelmingly, green speed research to date has focused on creeping bentgrass. The objective of this study was to investigate the effects of various mowing and rolling regimes on annual bluegrass (Poa annua) green speeds.

#### MATERIALS AND METHODS

The research trial was conducted at the Oregon State University Lewis Brown Research Farm located in Corvallis, Oreg., on a 100 percent annual bluegrass (Poa annua cv. Northwest Poa Greens) putting green. The treatments (Table 1) were chosen to compare the effects caused by different roller technologies and mowing and rolling frequencies on annual bluegrass putting green speeds. Each treatment plot (3.33 ft. x 15 ft.) was replicated three times for a total of 30 plots.

All mowing was performed using a walk-behind greens mower (Jacobsen PGM 22) set to a cutting height of 0.150 inches. Rolling treatments were performed with a Smithco gas roller (845 lbs.) or with a Smithco electric roller (1,140 lbs.). The plots were mowed at

#### **EDITOR'S NOTE**

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8 a.m., and immediately following mowing operations, rolling was applied as a single pass across plots. In 2009, plots were fertilized (0.15 lbs. N/1000 ft2) and topdressed weekly. In 2010, plots were fertilized every 10-14 days and topdressed biweekly. Putting green speed was evaluated daily by measuring ball roll distance with a Stimpmeter at 9 a.m. and at 2 p.m.

#### **RESULTS AND DISCUSSION**

All ball roll distance data were averaged over the two-year trial length. The effect of rolling when averaged across all treatments was significant. Both the gas roller and electric roller provided approximately a one foot increase in BRD when compared to the non-rolled plots. It is interesting to note that no BRD differences were observed between the gas and electric rollers, even though the electric roller is 300 lbs. heavier than the gas roller. This illustrates the point that heavier is not necessarily better when it comes to BRD.

Since no differences were observed between the two rollers, mowing and rolling treatments were averaged across all roller treatments. The greatest increases in BRD were observed with mowing and rolling daily (+17.5 inches), followed by rolling daily and mowing four days each week (+12 inches). Mowing daily and rolling three days a week, along with alternating mowing and rolling, also resulted in positive BRD. The afternoon measurements were comparable to the morning, with an average decrease of two inches. Dr. Doug Karcher (University of Arkansas) and his research team determined golfers cannot distinguish between green speeds of 6-inch differences or less. Based on these findings, there was no distinguishable difference in green speeds from morning to afternoon. These data would indicate that superintendents can maintain desirable annual bluegrass green speeds throughout the day, following an appropriate mowing and rolling regime in the morning.

Based on the significant annual bluegrass BRD increases obtained with various mowing and rolling regimes, we compared the differences with those previously reported on creeping bentgrass. The data, while not identical, mirror the effects of the various mowing and rolling treatments for creeping bentgrass and annual bluegrass.

Annual bluegrass exhibited slightly lower green speed increases for all treatments compared to creeping bentgrass; however, in 2010, mowing at 0.150 inches and rolling daily provided an average BRD of almost 11 feet. This is significant because a survey conducted by the USGA during the summer of 2010 showed more than 90 percent of the respondents preferred putting greens with BRD ranging from 9 to 11 feet.

#### CONCLUSIONS

The results indicate annual bluegrass green speeds can be significantly increased by rolling in combination with higher mowing heights, and that the increases observed are not lost from morning through the afternoon. In addition, the quality and overall health of the putting green are greatly improved as a result of the higher height of cut. It is recommended that all golf courses consider raising mowing heights and implementing a rolling program, because this is a win-win situation for both the course and the golfers. GCI

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Annual bluegrass green speeds can be significantly increased by rolling in combination with higher mowing heights.

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#### TURF MANAGEMENT

(continued from page 52)

the more common mistake is to reduce the number of annual applications too soon. Regular monitoring, consisting of at least annual testing, is essential to ensure the success of the program year after year. Eventually, the program will be modified to maintain the physical properties you have achieved.

#### WHAT CAUSED WHOLESALE TURF LOSS?

I have had conversations and have observed more devastation on golf greens than I care to talk about. I am by no means a scientist but I have been around golf turf for more than 30 years. What I have is evidence that nighttime temperatures never dropped in some cases below 80 F for extended periods, never allowing drier sand-based root-zones to cool.

Fans at green sites have a substantial benefit in aiding the cooling effect due to the evaporative effect on the turf canopy. Fans surrounding the putting surface are a distraction to the aesthetics. With the ongoing cost to operate, you'll soon discover over a period of several years a small fortune can be spent to keep bentgrass turf healthy with artificial wind. Why must greens be designed and built in depressions with large trees blocking natural sunlight and air circulation? Many superintendents responded in a write-in portion of the survey that increased air circulation would have improved turf conditions.

Older sand greens have problems with drainage and gas exchange. Whether from a high percentage of organic material in the upper portion of the root-zone, poor topdressing sand, not enough topdressing applications or perhaps a degradation of calcareous sand, the take away here is water and gas exchange in most cases were severely compromised. Second only to air circulation; superintendent's sited drainage was the limiting cause for healthy turf on greens they managed.

Organic material was the culprit in many situations. Superintendents are being placed under increased pressure to skip or curtail vital core aerification procedures and routine topdressing to increase playable days and in turn maximize revenues.

In normal, less stressful summers, the impact of accumulated organic material in the upper 3 inches of the root-zone was not a critical factor. In 2010, golf course turf roots cooked in the soupy, low-oxygen mess of thatch and organic matter.

High content or straight sand greens suf-



A sand green root-zone after multiple heavy topdressings.

fered significantly more because the physical ability of sand to transfer temperature is greater than soil on mostly push-up type greens. Even sand greens that have limited amounts of organic material to buffer temperatures were affected. Greens that have a soil component or had limited sand topdressing on top of soil base fared better, in my opinion, due the temperature buffering ability of the soil fraction if the green was well drained.

#### WHAT NEXT?

There are some fundamental questions that need be asked:

- · Could maintenance and construction methods be changed to regulate/moderate the temperature in the root-zone?
- · In older sand greens, do calcareous sands cause a reduction of drainage and air exchange?
- · Can new bentgrass varieties be bred to withstand higher root-zone temperatures?
- · Could a soil fraction in the root-zone be incorporated to create an environment to increase decomposition of organic matter and perhaps buffer soul temperature?
- · Is the sand size specification optimum to support drainage and gas exchange as the green ages?
- · With just several minor changes during the last 50 years, can new research improve sand-based root-zone systems?

We all know, and the research bears it out, that the sand-based root-zone green begins to change dramatically with age, and the hanging water column (perched water table)

system begins to be non-functional after the onset of organic material accumulation. The American Society of Golf Course Architects recommends replacing greens at an interval between 15-30 years. With aggressive and proper care I have witnessed sand-based as well as soil greens last more than 20 years and sustain great turf stands.

Sand-based root-zones are not for every golf course, the sand root-zone is very costly to build and maintain and the benefits of these greens diminish substantially if not cultivated and topdressed religiously. Less expensive sand/soil blends can be built and maintained for far less money and perform nearly as well.

The surveys point out that fundamentally, if not aggressively managed, the root-zone is the area that failed during the summer of 2010. And, expensive sand-based greens designed and built to enhance root-zone management have performed less than adequately, actually reducing water and gas exchange in the all important root-zone if not managed to a high level.

A new look needs to be taken to engineer and or manage a more stable root-zone that can sustain an environment for optimum root growth and function without the high cost and down-time of the current sand rootzones. GCI

Michael Vogt is a consultant with the Mc-Mahon Group and a frequent contributor to GCI.

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### OH SNAP!

s if we needed more technology...
For the past year, mysterious little doo-dads have increasingly begun to appear in advertising and other media. To the uninformed – like me up until a month or so ago – they seem to be a square made up entirely of squiggles. Almost like a UPC code drawn with a Crayola or some kind of hieroglyph. Yet, they are hardly primitive.

They are called QR codes or "snap tags" most commonly. Here's what the great and terrible Wikipedia has to say about them:

"A QR Code is a specific matrix barcode (or two-dimensional code), readable by dedicated QR barcode readers and camera phones. The code consists of black modules arranged in a square pattern on a white background. The information encoded can be text, URL or other data."

I am told that all the cool kids are using their smartphones to "snap" a close-up photo of these thingamajigs. Also, according to Wikipedia, when you snap the picture, "a tiny elf jumps from the tag into your phone and he uses his wee little hands to quickly draw a pretty little picture on your screen."

(Note to self: stop trusting everything on Wikipedia.)

Seriously, something techy happens inside your phone and said web page is opened automatically and you are treated to an informational goodie right there on your fancy device. Some companies use these for specific product information, downloads, digital coupons, links to social media or just as a way to infotain customers with a video or game.

By way of disclosure, the companies aren't doing this just to be all hip

and such. Marketers often use these gizmos to collect data about you. For sure your e-mail address, where you snapped it from and whatever else you volunteer. That's pretty much status quo for marketing these days...reveal a little about yourself, get something cool in return and hope the other party doesn't abuse the privilege.

We've already been using them here at GCI in print and online to offer downloads of our iPhone/iPad app.

Nearly 3,000 of you have grabbed the app so far, but we have no idea how many of you did it using the QR code option. Apple won't tell us anything about who downloads the app or how

they did it. This is why Steve Jobs will eventually rule the known universe.

We've also seen advertisers like FMC, Aquatrols, Toro, Deere and others use them in the magazine and as part of trade show promotions. "It's a mobile society and we need to put exactly the right information into the hands of superintendents and

other customers," says FMC's Adam Manwarren. "The codes are a way to do that instantly."

Anyway, I think the future holds some interesting possibilities for QR codes beyond marketing and fun. Imagine if every part in your shop had one and you could simply snap the code to get the assembly instructions you lost five years ago. How about a code on a bentgrass bag that directs you to a specific site with up-to-date seeding instructions based on current climate and germination info? In

short, these little doohickeys attach the Internet to any object and that is very cool.

So, we're going to break some ground here and find out just how many of you are boldly going where few turfheads have gone before. Just to make it fun, we've cleverly positioned a tag right in the middle of this page. Snap it and you'll get something fun and exclusive from us AND earn a shot at owning one of our fabulous, VIP-only, limited edition GCI long-sleeved golf shirts.

Mostly, we just hope you'll all play along and give this a try so we have a sense for how useful these things are.

And we promise, by the way, not to misuse your e-mail or other information. I give you my word as one of America's most trusted journalists that we won't screw you for snapping this! Wait... sorry... let's make that more believable: I give you my word as a Kansas Jayhawk we won't spam you. That's a very solemn promise with March Madness looming upon us

ing upon us.
(Nerd alert: If you have a smartphone with a camera and want to try this, you'll need to download a QR or barcode scanning software like Optiscan, Microsoft Tag or something comparable. I'm told there are hundreds of free ones out there that can be installed in just a few seconds.)

So, with that, I humbly ask that you snap my tag. Hold on... that sounded dirty. I want you to scan my thingy. Rats! Oh hell, I give up... just point your camera at it and push the appropriate damn button please. GCI



Grab your smartphone and use QR or barcode scanning software to check out a GCI exclusive, as well as earn a chance at a GCI long-sleeved shirt.

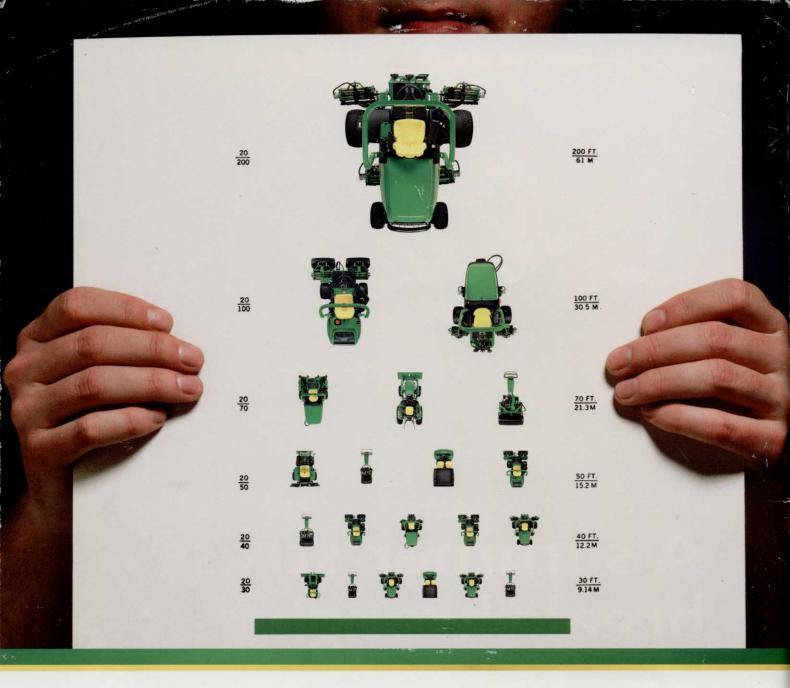


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