FEBRUARY 2011
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GOLF COURSE INDUSTRY

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INSIDE

Aaron Cape brought ultradwarf greens into the bentgrass home of American golf. Strategic move or sacrilege?

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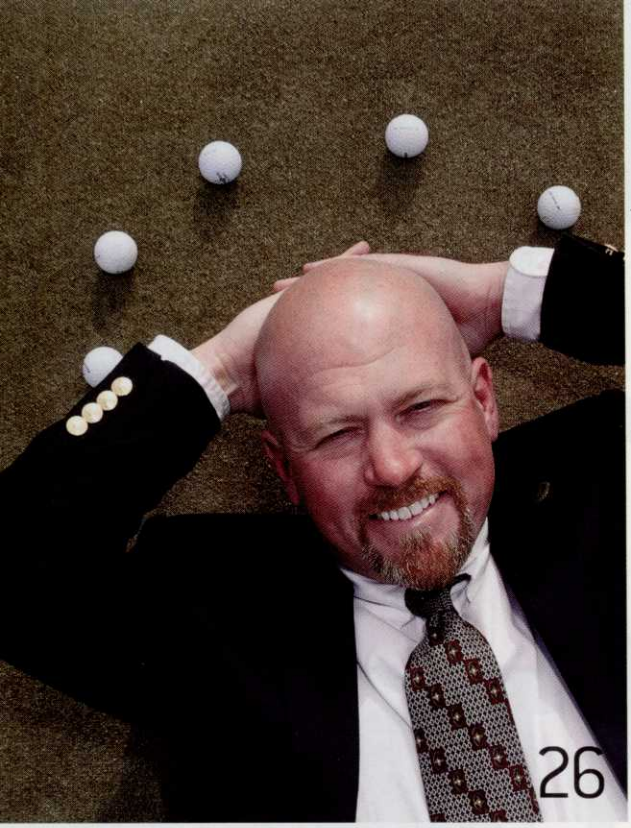

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GOLF COURSE INDUSTRY (ISN 1054-0644) is published monthly.

One-year subscription rate, $33 in the United States, $42 in Canada and Mexico, and $88 in other foreign countries. One year foreign airmail rate: $102. Two year subscription rate: $65. Single issue rate, $10. Subscriptions and classified advertising should be addressed to the Richfield office. Periodicals postage paid at Richfield, Ohio, and additional mailing offices. Postmaster: Send address changes to *GOLF COURSE INDUSTRY* 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286. Canada Post: Publications Mail Agreement #40612608 Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2

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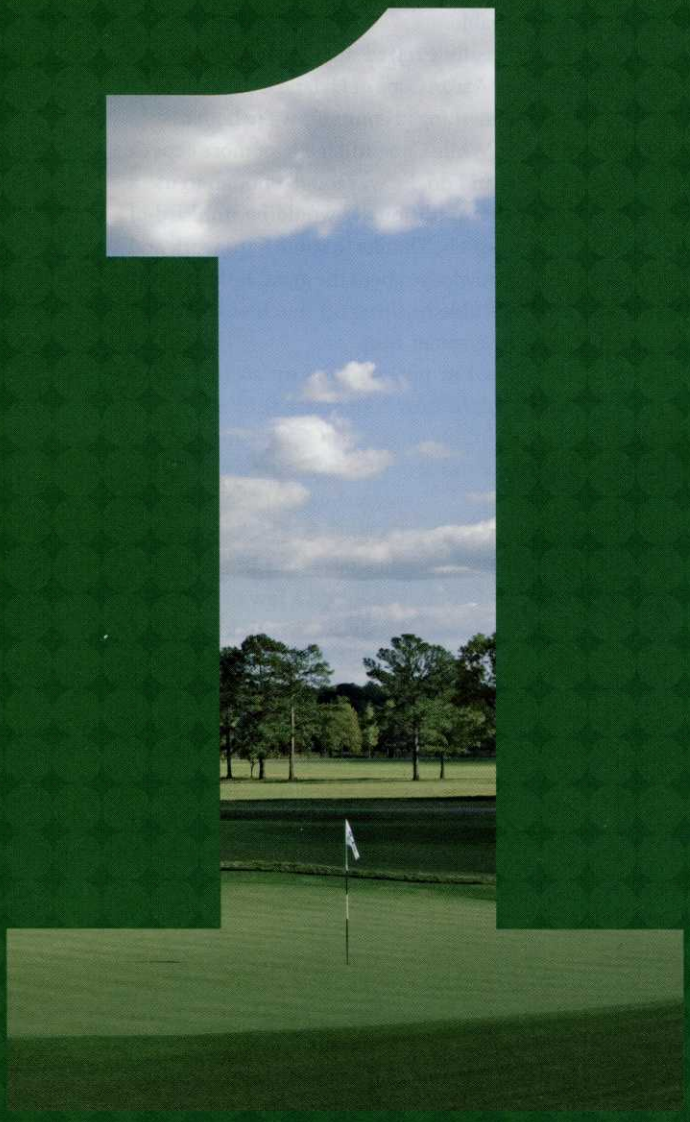

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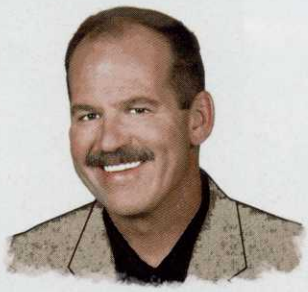
GETTING STARTED

Have you ever been infected by excitement? It's a weird bug to have, but it can get around. I'm just hanging about, writing what I write, when our publisher, Pat Jones, gets me started on turf.

I can honestly say that up to this point in my life, anyway I've never been excited to be writing about golf. I haven't even played the game. Sure, I've seen my fair share of games and have friends and family who play, but that's about as close to a course as I've gotten.

But then, as I'm reading more from you supers through our new and improved Blogroll, and connecting with through our Facebook and Twitter pages, I can't believe it. I'm actually looking forward to finding out more about grass types, water usage and beneficial species. I'm hooked.

So what better time to start than with mere minutes before GIS 2011, ready to hit a huge show featuring the biggest players in the game?



Pat Jones
Editorial director and publisher

If I ran into you during the craziness of the week, believe me, it was my pleasure to meet you and pick up some new and cool information. I'm really looking forward to covering the biggest and best ideas in the industry right here in our pages. If I didn't meet you during the week, I'm sure you at least saw me. I was the guy in the GCI shirt looking completely amazed at each new gadget I saw. Especially if I didn't run into you then, we should certainly talk. Send me an e-mail or give me a call and I will be glad to chat. Just as long as we don't actually play golf until I at least learn how to swing a club.

Speaking of clubs, there's some great advice for course growth in this month's issue, like in "Sustainability 2.0." I know at first glance it doesn't sound like the best idea during the financial climate of the industry, but rethinking things a little bit now with an eye toward being environmentally responsible might make the difference if times get tougher. Being green now could mean staying green then, which will help bring in more players and members later.

Pair that with plan guidelines from "Project Approved" and you'll not only start building your course on a sustainable foundation, you'll do it in a way that will keep your directors and members happy, and your budget manageable.

I'm really excited about our cover story, though. Aaron Cape of Hyland Golf Club and I have something in common we're both new to the job. While Cape still has a lot more experience than I do, he was tough enough to use a grass that traditionally would be unheard-of in the region. Thanks to some hard work and some knowledge about the grass, he kept a turf that was able to shrug off much of last year's intense summer heat.

When I'm not working up stories about course-dwelling badgers, I find my home online much of the time. As I mentioned before, we're always active with our website, enewsletter, Facebook and Twitter pages, but if you check in at our Blog Central, you'll find a few new things. First, we're kicking off a guided tour of superintendents' blogs from around the world through the eyes of our wandering web correspondent, Jim Black. He's looking for the best (and some of the most ridiculous) information out there to bring back to our website in his guest columns.

Second, we've updated our Blogroll with a map! It doesn't seem like a huge deal until you try it out. Find your section of the country (or your particular country, if you're outside the states) and click away. You'll find yourself instantly provided with several local superintendents' blogs local to you, with thoughts and posts about club concerns that come a little closer to home. If you don't see your blog listed, let us know! Every superintendent has something to bring to the online community.

So get connected with us there, and send me a note, if you like. I'm still learning about the industry, but I'm definitely eager to get there. Just wait until next year's GIS before asking me how excited I am about my game. **GCI**

GOLF COURSE INDUSTRY
Serving the Business of Golf Course Management

Vol. 22 No. 11

GIE Media, Inc.
4020 Kinross Lakes Pkwy, 2nd floor
Richfield, OH 44286
Phone: 800-456-0707
Fax: 330-659-0823

EDITORIAL
Pat Jones
Publisher/Editorial director
pjones@gie.net

Mike Zawacki
Editor
mzawacki@gie.net

Kyle Brown
Associate editor
kbrown@gie.net

SALES
Kevin Gilbride
Group publisher
330-523-5368

Amee Robbins
Account manager
310-546-6060

Martha Corfman
Manager, books
330-523-5366

Russell Warner
Account manager
330-523-5385

Maria Miller
Conferences manager
330-523-5373

Bonnie Velikonya
Classified sales
330-523-5322

Jodi Shipley
Marketing coordinator
330-523-5368

GRAPHICS / PRODUCTION
Andrea Vagas, Creative director
Helen Duerr, Production director
Samantha Gilbride, Production coordinator

CORPORATE STAFF
Richard Foster, Chairman and CEO
Chris Foster, President and COO
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We'd like to hear from you.

E-mail us at gci@gie.net with your thoughts and opinions.

Exceptionally average

My name is Bob Noxon. Keith Noxon refers to me in the December article ("(just an) Ordinary, average guy," page 16) written about him being an "average guy" as the guy who passed along this concept. I felt obligated to provide a few more details.

I am a retired Marine officer who normally would not accept the term "average." However, I once had a commanding officer – an EA-6 pilot – who truly was an amazing guy (call sign was "Skull"). He told me that when these "fast movers" land on the deck of a carrier they only get three possible scores – "Average," "Below Average" or "Did Not Land." Therefore, when he was asked "How are you doing, Sir?" he would always respond with "Average." You see, being "average" among such a community was a total compliment.

My point is this, the article on Keith was exceptional, but I can tell you that Keith – and the entire Noxon family… immediate and extended – is anything but as far as accepting the civilian "normal" concept of average. The Noxon clan totally pushes to be "civilian exceptional."

Great article and your writer did a fine job detailing the challenges of your industry – cost, performance, etc. However, he missed the point a little bit: Being "average" in a business that requires exceptional personnel to really make it happen means you are average in an organization of already exceptional personnel.

Bob
"Silver Fox"
Fredericksburg, Va.

Want to read this article?
Enter http://tinyurl.com/64obdnv into your Web browser to read "(just an) Ordinary, average guy"

November kudos

You should know that the November issue of *Golf Course Industry* was excellent from front to back, in my opinion.

Stephen G. Cadenelli, CGCS
Cape Cod National Golf Club
Harwich, Mass.

Want to read the November issue?
Enter http://tinyurl.com/6kas5cf into your Web browser to read the November digital edition.

Kudos

I can't tell you how much I enjoy your magazine and love your witty, personal editorial style.

Vicki Martz
Victoria Martz Golf Design, Inc.
Jacksonville, Fla.

Go get 'em

Good to see you so fired up, Pat. Go get 'em.

Dan Dinelli, CGCS
North Shore Country Club
Glenview, Ill.

ONLINE FEEDBACK

EDITOR'S NOTE:
On Jan. 11, GCI retired its enewsletter and debuted Fast & Firm. In conjunction with a revamped GCI website, this enewsletter introduced a whole new format and approach that provides you – the readers – with a tight, concise package of information that you need to know.

Fast & Firm feedback

Congrats on the new approach and continuing to look at ways to "break the mold" as it relates to industry news reporting and getting beyond the superficial to the "So what?" Like the name (Fast & Firm) and the refined direction from one quasi-media guy to a full-time media guy. Nice play as well on the title, it's where golf course maintenance is going to have to go to meet the crunch between what the customer is willing to pay and how frequently they play and what we can afford to maintain and make a profit on the facility side.

James Koppenhaver
President
Pellucid Corp.

From Twitter

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Trevor Dargan
Woodenbridge Golf Club
Wicklow, Ireland
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We need those steenkin' badgers

Even a moody beast like the badger has a welcome home – thanks to their preferred meals.

They're cantankerous den dwellers that would rather stand their ground than run from any fight, and they're calling the Princeton Golf Course in British Columbia their home. Badgers have taken up residence at the Princeton course, and superintendent Ian Elko is eager to make them feel welcome.

"About 15 years ago, we had a few badgers living on the golf course," he says. "They really took control of the ground squirrel population. They were definitely beneficial for us. We tried a lot of things to take care of ground squirrels and rodents. Nothing worked better than the badgers out here."

Each one of the nocturnal carnivores can put away about two ground squirrels each day. But as tough as they are, badgers are listed as endangered in B.C. Their unwillingness to run from a threat combined with poor eyesight makes them a common victim on roads and highways, which is their highest cause for fatalities. "They wouldn't be too intimidated by a truck," says Elko.

So when three badgers were spotted on the course last June by some club members, Elko jumped into action. He phoned the Badger Sighting Hotline to reach the South Okanagan – Similkameen (SOS) Stewardship Program with the news.

The club joined into a five-year Stewardship Agreement to help preserve the badgers and encourage them to stick around the course.

"We're going to do our part to protect them," he says. "We've put up signs around their dens for golfers to stay away, we keep vehicle traffic away. We don't mow around their dens."

The Stewardship Program is helping with costs for the projects, and assisting them in dealing with other native plants like toad flax and mustard weed that will help the badgers thrive at the course.

The effort is paying off as rodents keep disappearing from the course, and the partnership has alerted Elko and his staff to keep an eye out for other endangered animals that might make Princeton home. "We're on the lookout for other species too, like the red-headed woodpecker," he says. "The golfers like this too. We want to be stewards of our environment."

SUPERS ON ICE

Most superintendents spend all winter trying to avoid mixing ice and green, but in Vancouver, members of the Vancouver Island Golf Superintendents Association were out on the rink to raise money to fight Multiple Sclerosis.

Members swapped their clubs for sticks and raised $100,000 for the MS Society of Canada at the 4th annual Charity Hockey Game and Banquet Jan. 29.

About four years ago, members of the association wanted to try to give back to the community, says Greg Kowalski, president of VIGSA and superintendent at Royal Oak Golf Club.

"Every Friday during the winter months, a group of us get together and play pick up hockey at one of the local rinks," he says. "We thought the hockey game would be a perfect venue to raise funds. In our 'family' of people, we knew several that were afflicted with Multiple Sclerosis, so it was the perfect fit."

Money came in from donations gathered by players and the public, as well as bids at raffles and auctions during the banquet at the Westin Bear Mountain Resort after the game. The association has raised more than $275,000 in total for the cause.

"The event was a great success, with our goal of $100,000 raised," says Kowalski, repeating last year's accomplishment of the same goal.

Maybe next year, we'll see if golfers can pull a hat trick?

"QUOTABLES

"It's a cutthroat industry. The private clubs used to just check what each other was doing. Now, the private clubs are even checking on what the public courses are doing."

— Chris Andrejicka, superintendent, Essex Golf & Country Club, LaSalle, Ontario, and president of the Ontario Golf Superintendents Association, to The Windsor Star

ROLL CALL

J. Rhett Evans has been named the new chief executive officer of The Golf Course Superintendents Association of America (GCSAA).

Mark Esoda, superintendent, Atlanta Country Club, was inducted into the Georgia Golf Hall of Fame.

Daniel "Danny Boy" Gonzalez was awarded the 2010 Superintendent of the Year award by the Texas Gulf Coast Superintendent Association.

The Mississaugua Golf and Country Club, Mississauga, Ontario, hired **Adam Zubek** as its new superintendent.

Jason S. Adams, Blue Hill Country Club, was elected president of the Golf Course Superintendents Association of New England for the 2011 season.

The Iowa Golf Association announced the election of longtime superintendent and Iowa Turf Industry activist **Doug Snook** into its Iowa Golf Hall of Fame.

The Golf Course Superintendents Association of Northern California (GCSANC) recognized **Thomas Bastis**, CGCS, California Golf Club, as Superintendent of the Year; **Richard Lavine**, CGCS, received the **George Santana** Distinguished Service Award; **Ryan Zuehlsdorf**, The Golf Club at Roddy Ranch, and **Jeff Markow**, CGCS, of Cypress Point Club received Turfgrass Excellence Awards; and **Terry Stratton**, Little River Inn Golf & Tennis Resort received the Presidents Award.

Todd Barker, part owner and superintendent of Fore Lakes Golf Course, was inducted into the Utah Golf Hall of Fame.

Chris Condon, superintendent, Tetherow Resort and Golf Course in Bend, Ore., won a 2010 GCSAA/Golf Digest Environmental Leaders in Golf Award in the resort facilities category.

The Ford Plantation, Richmond Hill, Ga., announced the hiring of **Alan Bussey**, equipment manager; Brooks Riddle, assistant superintendent and **Matt Sumpter**, assistant in training.

SUPER SHOT

It's very common for Sean Kjemhus to see elk moving and feeding on the Stewart Creek Golf & Country Club high-mountain course throughout the winter in Canmore, Alberta, Canada.

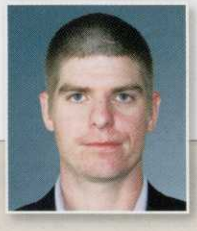
However, Sean shares with GCI this particularly picturesque pic he shot recently with his Blackberry.

"Here we have several elk that have worked through the snow to the turf to feed," says the director of agronomy. "There was actually a herd of 80 elk spread out along No. 2 fairway – which is in the picture – No. 3 and No. 4 fairways, in trees and out in the open. They also will bed down in the open areas... that is they will clear snow away to lay down on the turf as it is much warmer than the outside temperatures. These spots that the elk feed or lay down on reveal themselves in spring time as discolorations due to the exposure to cold temperatures. In addition the elk urine through the snow creates dead patches of turf that need to be repaired in the spring"

Yet another reason Sean says they use protective fencing around all the greens in the off-season.

Check out Sean's maintenance blog at **http://stewartcreekgolf.blogspot.com**.

Do you have a Super Shot?
Forward it along with a brief description to GCI at gci@gie.net.



Stephen Tucker is the equipment manager at the Ritz-Carlton Members Golf Club in Bradenton, Fla., and past president of the International Golf Course Equipment Managers Assocation. He can be reached at 941-309-2913 or stephen.tucker@ritzcarlton.com.

ASK PROBING QUESTIONS

Not long ago we discussed some basic questions to use when interviewing equipment manager candidates. Here are five more great queries to weave into your line of questioning.

1 "What were the most significant accomplishments you made at your last job?"

This question reveals whether the individual sets goals at a new position and what they were able to achieve. Your candidate should be able to name some things they've accomplished. You can tell a lot about someone's personality by how they answer this simple question. What you don't want to hear: "They never gave me the things I needed to get anything accomplished."

2 "If hired, describe what your first week would look like."

When I'm interviewing for a position I make some quick assessments: How does the equipment look? How well is the facility organized? How tight are reels set? Is a preventive maintenance system in place? What are the expectations and are they realistic? These are issues I evaluate without ever needing to ask them. This sets my goals for future accomplishments. This question gauges a candidate's interest in the position and gives you an idea of what you would be seeing the first week of their employment. Will they review what has been done already and how it has been done? Will they observe the current processes that are in place? You never want someone to come onboard and just start changing everything.

3 "What was your favorite part about your last job?"

Now you're trying to find something positive from the person's last or current employment. This question gives you insight into what the applicant likes. You also want to know whether an individual is a positive thinker or dwells on the negative. You want to employ positive people, people who can take the good with the bad and brush things off when they don't go just right. Golf course management is not something that goes well 365 days a year. Things will happen, mistakes will be made and you need to have people who can adapt and help when things are rough. This is tough to find, so when you do, no matter what position you are hiring for, hold on to them.

4 Scenario question: "A staff member comes to you with a fly mower that fell off the back of his cart and now the fuel tank is leaking. How do you handle that situation?"

This is the ultimate personality question. You're looking to identify what type of manager or leader you are interviewing. This question can go in three different directions. One: "I would just take the fly mower and give him another one." This tells me that the individual is either telling me what he thinks I want to hear or is someone that goes with the flow. This individual is OK with everything as it is and really won't go above and beyond, but does what is needed to get the job done. Two: "I would take the fly mower and report him to the superintendent." This individual does not want to step on anyone's toes but he wants someone to be aware that there is an issue with an employee and he would like to see it resolved. Three: "I would ask him how it happened, explain to him the proper way of securing the fly mower to his vehicle, remind him of how much it costs to fix the issue and then explain the issue to the superintendent." This applicant went above and beyond to make sure the employee understood what the effects of mistakes cost, trained him in the proper way of securing the equipment and got him back on the course. Overall, this individual would gain the respect of the staff and will be more willing to report accidents when they happen.

You want to employ positive people, people who can take the good with the bad and brush things off when they don't go just right.

5 "Do you or have you played golf?"

It's a simple, but effective, question. A tech is not required to play golf, however those who do have a sense of pride in the product they are helping to create because they understand the importance. You can't expect a technician who hasn't played golf to understand how important it is that everything is cut perfect and that topdressing is necessary. Playing the game is just as important as working in it, no matter what position you are in. **GCI**

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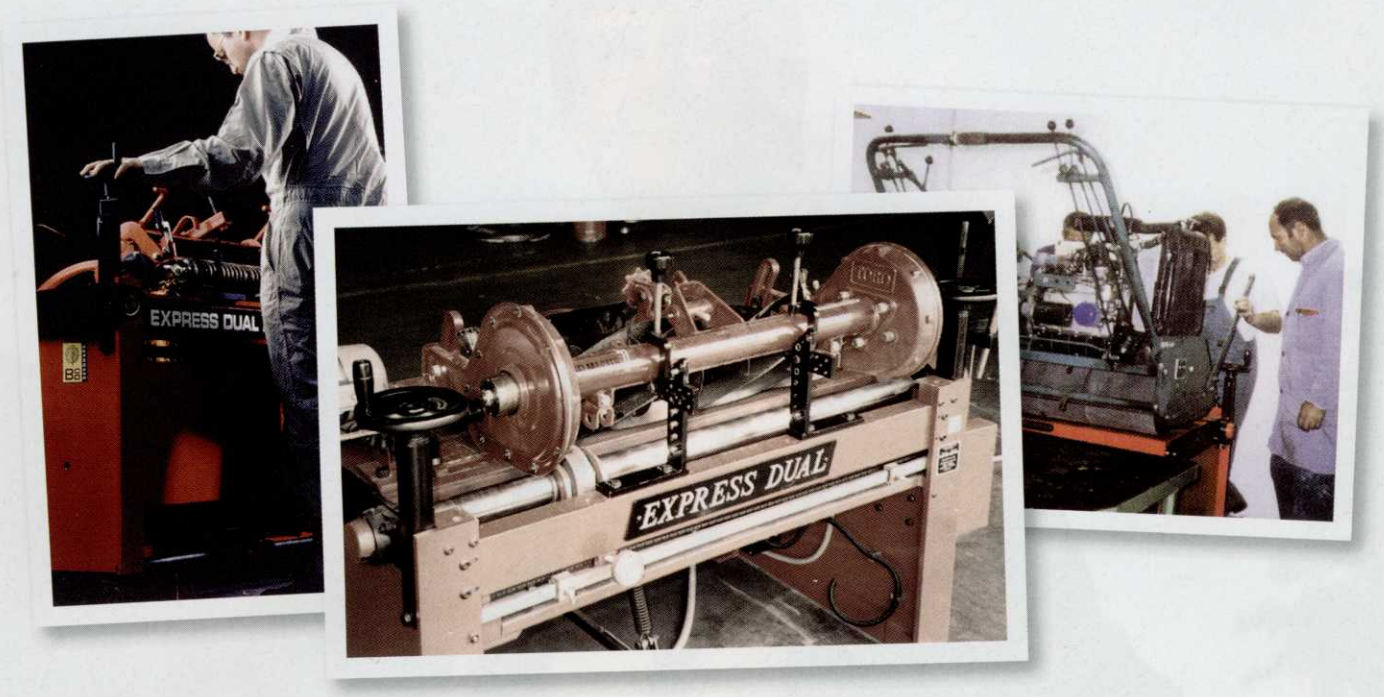

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DON JONES

CONVERGING ON CHANGE

By Pat Jones

JIM KEEGAN and his associates are trying to get facilities to change their old, unprofitable paradigms.

Everyone has a handful of sayings and axioms that they use regularly. Talk with J.J. "Jim" Keegan for 30 minutes and you're very likely to hear him say, "Status quo is a formidable foe."

In short, Keegan believes in change. His group, Golf Convergence, is trying to help facilities change their business paradigm before the status quo takes them into bankruptcy or obsolescence. Keegan is the driving force behind the group, using his background as a CPA and MBA as well as his wide experience with facilities to analyze the weaknesses and strengths of golf facilities and pull together a team to create a strategy and execute a solution.

That may sound like a lot of business-speak bull, but the way it works is usually pretty simple. A case in point is the University of Minnesota Golf Course. The facility was being transitioned from the athletic department over into university services and was losing $450,000 per year. Keegan came in, analyzed the situation and realized that tee times weren't being utilized and that the course had a reputation for being under-maintained. The school adjusted the schedule to change student and faculty access times and raised conditioning standards. The course generated $250,000 in profit the next year without any major capital investment or huge changes in the operation. They simply fixed the status quo. "Condition and price are always the top factors in perceived value," says Keegan. "We always challenge the status quo in those areas first."

Keegan grew up in the Philly area and played golf as a kid, but he also picked up on the family's entrepreneurial genes early. "I was one of those kids who got into Cub Scouts and did door-to-door sales for everything...peanut brittle and Christmas wreathes and all that...and I always had a paper route." Predictably, he started caddying at the William Flynn-designed Philmont CC in Huntingdom Valley, Pa., and the golf bug really got him.

The experience shaped the rest of his life. The Caddie Master liked him and gave him the first bags of the day, telling him: "I expect to see you again in 3 ½ hours. You set the pace of play for the entire day." Heady stuff for a 12 year old. "I still walk very quickly to this day," says Keegan.

He learned a bit about club operations and the maintenance side during his years at the 36-hole facility but never seriously considered golf as a career when he headed off to TCU to get his accounting degree. He went on to get his MBA at Michigan and put his ROTC experience to work for five years in the Air Force. He joined the accounting/consulting giant KPMG after the military but realized that the 8 – 5 corporate world wasn't for him.

In 1989, he was helping to raise capital for small firms when he saw a business plan for an early automated tee time system. He recognized the opportunity in the then-burgeoning golf market, broke off from KPMG and formed Fairway Systems. He put the financing together, got the system built and launched what was at the time the largest tee-time provider for municipalities.

The '90s were a crazy time in the golf market between unprecedented construction and growth, big money coming in and a barrage of technologies like tee-time programs and dot-com "portals"...and Keegan was always smack in the middle of it. "Everyone was launching some kind of tee-time or point-of-sale software," recalls Keegan. "Money was being thrown around like crazy, management companies were trying to sell their own software and new firms were coming to the market daily." The pinnacle of the insanity probably came when bookforgolf.com sponsored a lavish $1 million+ party at the PGA merchandise show in 2000 and hired Hootie & the Blowfish to play a gig.

In 2005, Keegan got off the

merry-go-round and formed Golf Convergence because he recognized that "someone had to start helping facilities act like businesses." For the past five years, he's worked with facilities and owners – many times municipal operations – to fix what's ailing them and return them to profitability and health. For each project, he'll assemble a team (which sometimes includes our Tim Moraghan, Armen Suny or other agronomic experts), assess the situation, create a strategy to change things and then help execute as needed.

Talk about customer acquisition versus customer retention in a daily fee setting.
First, never forget this: 12 percent of customers generate 60 percent of all revenue. You have to figure out who those people are, grab them and hold on for dear life. The average U.S. public course does 32,000 rounds a year and has 5,000 to 8,000 distinct customers. Half of all customers that play that average course once and don't come back. That means half of all customers annually are new.

Communication is critical. Billy Casper Golf sent a "we miss you" coupon out to customers who hadn't been back to one of their facilities. They sent the coupon to people who hadn't played in 10 days, 20 days, 90 days, etc. It definitely generated play, because it was a good customer touch, but the interesting thing was that there was no statistical difference between the results for zero days and 90 days. The touch was all that mattered.

So just blast away with coupons and e-mails?
Obviously not, I have a database of 12,000 names of people in the golf management business that I use to market my books and servicese. I can't bomb them with e-mails every day, but I have sent pretty much the exact same e-mail to the exact people quite a lot – just changing the tagline a little – and my book sales are pretty much identical every time. The repetitive message is what matters.

What else offends your MBA sensibilities?
The speed at which decisions occur is often at a byzantine pace and, partially as a result, the accuracy of decisions they eventually make is often flawed. That's true to some extent on the daily fee side, but you really see it in munis. They are hamstrung by the levels of management. They operate in this public vacuum that is very sensitive to criticism from politicians and taxpayers.

Clubs that are run by boards and committees are perhaps the most inefficient. You have to have a GM who is a benign dictator. Look at Augusta...they have a very narrow organizational structure and it works great. Jack Vickers at Castle Pines is another example. Yes, it's a club, but everything is done based on a common vision.

So give us some examples of how Golf Convergence works.
We're just finishing a plan for city/county of Denver. They have been investing in clubhouses and capital assets that have little return because they don't touch the course. They need to focus on golf! They have a Ross course right next to Cherry Hills. It will take about $800,000 to restore it but the return on that will be enormous. Another one of their courses has an underutilized range. We're upgrading it and rerouting it to make it more accessible. The revenues from that will help fund everything they want to do. The end result is that golfers are excited, it doesn't cost taxpayers a lot, managers are pleased and the politicians are happy. It's a rare solution that makes them feel good.

Sometimes you run into straightforward pricing issues. Contrary to what you'd think, the City of Naperville (Ill.) lost $100,000 on their facility in 2009 because their pricing and discounting strategy drove the perceived value of the course down. Something like 12 percent of residents have annual incomes of $250,000 or more. They were discounting golf for the wealthy! They actually raised or "right-sized" their fees, had fewer rounds but their revenues went up dramatically last year.

That didn't seem hard.
I'm actually sometimes embarrassed at the simplicity of the solutions. The course operated by the City of Ann Arbor, Mich., did not have a liquor license, had big issues with cart traffic and irrigation problems on a couple of holes. All of those were easy fixes and rounds went up 18 percent the next year.

You work with a lot of government courses. The daily fee owners rightfully complain about government subsidized competition. How do you deal with that?
We've studied it and the competitive advantage for a muni over a comparable daily fee is about $176,000 per year. But, even with that "head start," if you gave me the choice between a operating a muni with fixed fees, political restraints, etc., I'd take the freedom of being a private operator in a heartbeat. Golf course owners excel at blaming others for their problems and failing to focus on their own business and bring professional practices and disciplines to it.

The online tee-time market that you helped to pioneer seems to be both booming and controversial right now. What's up?
First, never forget that all golf is local. Will a national reservations system ever be created that books reservations for more than half

This isn't new, but the economy and the technology are **conspiring against the average** operator right now.

In short, he is Mr. Fix-It. Keegan helps repair broken golf courses, so business should be good, because there are plenty of those in this country today.

What things do you see facilities doing today that make your skin crawl?
The clubhouse is such an unfriendly environment. There's this guy behind this huge desk in the pro shop who may or may not feel like welcoming you, but that's just one way the customer experience is usually screwed up. We know that there are an average of 13 customer touch points from first phone call to the parking lot. Very few of those are warm and engaging.

The other thing we've learned is that the image of the course is formed by the lowest-paid employee. What incentive do those valets and cart boys and waitresses have to excel? A perfect example is that the great Steve Lesnick says that every single person working behind the counter needs to do one simple thing: get the name and e-mail address of every single customer. That's a good and seeming simple goal but the people doing it weren't capable of it. We have to train our people to the same standards as other retail businesses routinely do.

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of the country? I doubt it. But, in the Dallas/Ft. Worth market, 40 percent of bookings go through a 3rd-party system so the concept is obviously valid.

Here's the thing: when Orbitz and Hotels.com came to market with discounted fares for excess airline and hotel inventory, airlines and hotels responded with guarantees of low prices on their own sites and for walk-ups. Courses have had to do the same and that continues to depress the average gross fee for a round of golf. Also, third party systems don't give up a lot of info about the customer so the facility doesn't "own" the customer like they want to. So there's an argument about whose customer it is. They say they can't because of privacy, credit cards, etc., but it's really about owning the customer. But, as long as supply exceeds demand, they (third-party tee time companies) will be a force in the market.

How do we fix this?

This isn't new, but the economy and the technology are conspiring against the average operator right now. We did a study in San Francisco Bay on courses that were using various different systems to track golfers, rounds and revenue. We found the discounts may drive play but they generated very little non-golf revenue. Discounts don't really create loyalty. They primarily create bargain shoppers.

So is discounting a death spiral?

Discounting: There is a certain fixed cost required to create a meaningful golf experience. The business plans are prepared based on project yields and associated revenue. The expenditure a course creates is a function of its cash flow and any debt it wants to take on for additional labor or whatever. At the end of the day, that often means reduced capital expenditures. That starts the death spiral. Golf is at 52% of capacity.

What's the most common complaint you hear from owners?

The negative impact of Golf Channel's golfnow.com on gross course revenues is clearly the war cry of numerous owners, leadership at the National Golf Course Owner's Association and even many PGA Sections including Kansas and Colorado. These groups feel that Golf Channel is lowering the price per round across the industry and training the customer to hop from course to course based on getting the lowest price possible.

The result is that golf operators eschew marketing and spend way too little because

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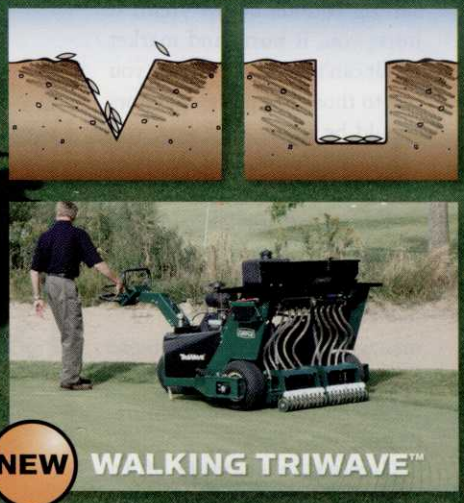

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they think they can't track it. It's simpler to have a third party do it and essentially give away rounds. But when those companies start selling rounds below yield, it hurts you, it hurts and market and it can't be fixed. . The fee you pay to those 3rd party operators should be fixed. That way, you can really decide ROI. Most of the inventory the 3rd party

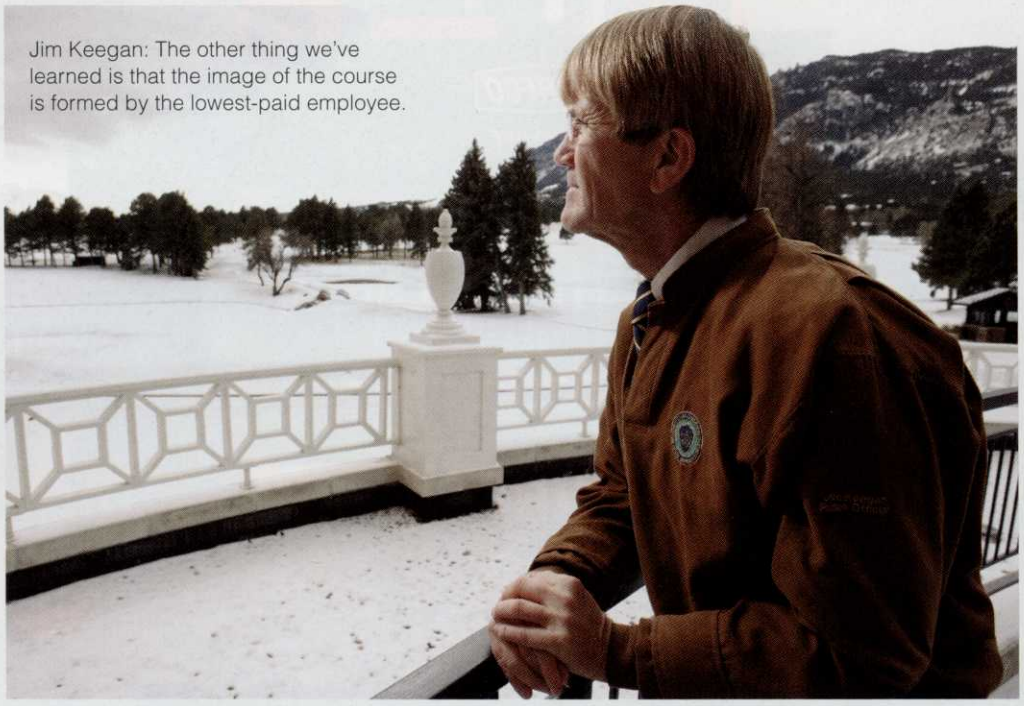
So, golf courses delegate their marketing efforts to third-party companies in exchange for bartered rounds. In turn, golf course managers get upset when these firms liquidate the bartered times earned for the marketing efforts. Nobody wins.

Give us an example of an "aha!" moment in your career that shaped your mindset today.

My mind is permanently stamped with the images that "status quo is a formidable foe" and that the golf course industry is ten years behind in adopting professional business practices. This resistance to change is often rooted in the associations who are protecting their respective turf.

I will go to my grave remembering what one association chief told me a couple of years ago. I had sent him, as I did every trade association, a copy of the final draft of my book, "The Business of Golf – What Are You Thinking." I asked him if he had any comments regarding the book and he said, "I get 166 emails a day and I am too busy to look at it. Besides, we will only support the work by individuals with PhDs from accredited universities." That blew my mind.

I have visited golf courses in over 41 countries, have flown over 2.5 million miles during the past two decades, have served as an interim GM for a private country club and, in his mind, I clearly wasn't qualified to assist any private club in America. Amazing.



Jim Keegan: The other thing we've learned is that the image of the course is formed by the lowest-paid employee.

What are most superintendents not doing that they should absolutely be doing every day?

Superintendents are unfortunately viewed by many golf course owners, boards, pros and GMs as the "blue collar" work force at a golf course. That is so ironic, because certified superintendents have far greater educational backgrounds that nearly anyone else at a golf course. The college degrees they receive are based on a very difficult curriculum studying plant sciences, the genetics of grasses, chemistry and biology, use analysis, turf management, and related economics.

Perception is reality. I say it sort of in a "tongue in cheek" way, but I truly believe a superintendent's three most valuable assets might be a fine suit, a dark red tie, and a certificate from a course in public speaking. Superintendents need to don the corporate uniform of business decision making to be truly accepted. Sad but true.

What else?

They are often two to three steps removed from the decision makers of a golf course. That has to change. In every study we have conducted across the country as to what is important to the golfer, conditioning and price are always ranked first or second. Yet, the individuals that manage the course conditioning are often far removed from the decision-making and the allocation of financial and personnel resources. That's dumb.

I look at guys like David Gourlay (of the Colbert Course at Kansas State University). He's a classic example of a superintendent who has cross-trained himself to run the entire facility at KSU. He's the model. Staffs are being reduced across the board. Superintendents have a much better understanding of the entire business of golf. In the best situations, they're the quarterbacks of the golf course.

Where should clubs focus their resources for ROI?

The focus needs to be on the course and the 13 touch points where customer interaction occurs on the 'assembly line of golf." Those are the things customers value and which help create a niche for the facility.

Defining that niche in the minds of the consumer is vital. Let me illustrate. We recently completed a national labor study. Maintenance budgets ranged under $500,000 to over $5 million. Obviously, the experience at East Lake, LACC North, Merion and Pebble Beach is vastly different than that of most municipal courses. Here's the equation: value equals experience minus price. The experience that can be created is solely a factor of the cash flow available for reinvestment plus capital resources available. Defining the experience to be received is the foundation for the course's success. Most courses over promise and under deliver.

By the way, another area coming under increasing scrutiny is junior golf. Many golf courses, particularly municipalities, are investing several hundred thousand annually in programs that may serve 2,000 kids. That's nice, but they fail to reinvest in their courses that serve 50,000 unique customers annually. In today's market, it is difficult to make a short-term investment in hopes of a long-term return. **GCI**

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AFFORDABLE GOLF IS THE WAY OF THE *IMMEDIATE* FUTURE

Recently, I had the opportunity to participate as a panelist at an industry symposium on affordable golf, coordinated by golf course architect Richard Mandell, to openly discuss a broad range of topics and maintenance considerations related to the cost of golf.

An alumnus of the University of Georgia, Mandell (who hails from Rye, N.Y.) has worked with Dan Maples, Denis Griffith and, since 1999, has practiced solo, now based out of Pinehurst, N.C.

The basic premise of the discussions was: "What is affordable golf and does it truly exist?" Each topic for the day had one commonality – golf can be affordable by examining the many ideas already implemented within the industry.

The audience and panelist consensus was that affordable golf is a subjective term and that the *perception* of affordable may be even more subjective. Affordable golf means different things to different people. Sustainable and profitable are terms that need to go hand-in-hand with affordable golf.

According to Mandell's post-symposium recap, an enjoyable and memorable playing experience for golfers is attainable. However, there are perceptions that negate the concept of affordability including:

- The game's perceived reputation as a sport of the rich.
- The differences between the top golfers in the world and the rest of us. We must all stop acting like there is not a difference.
- Golf course set-up for the professional can't be the same as for average golfers (**we** are **not** Phil Mickelson).
- What is seen on television cannot be achieved at most golf facilities.

Ran Morrissett, panelist and founder of golfclubtatlas.com, pointed his finger at the influence of television promoting an unsustainable atmosphere desired by facilities that have neither the financial ability nor the clientele to warrant such an effort.

The industry's perception of golf may discourage affordability because:

- The fallacy that being environmentally-sustainable is too expensive.
- In recent years a lack of honesty or integrity regarding "real costs" has disguised the true state of the industry.
- Golf course rankings are a better marketing tool than the golf experience itself.

The symposium also uncovered problems and threats to the future of the game, including the observation that construction and maintenance technology continues to raise the bar instead of making golf more affordable and the myth that cutting golf course maintenance budgets is the answer to saving money.

From a maintenance perspective, I advocate the following:

- Build on a piece of land that is right for the economics of the region.
- Moderate green speeds and prepare your course for your clientele. The average golfer fails to realize why excessive speeds and golf course difficulty are detrimental to their game.
- Eliminate the frills and extravagances that increase expenses and require more people and equipment to achieve aesthetic perfection.
- Stop mixing turf varieties and grassing philosophies.

"By adhering to these philosophies, the need for renovation and reconstruction should be reduced. Course length is not the answer to affordability."

"Affordable golf also pertains to the audience of families. Keep families and higher handicap players in mind as you consider what can be done at your course to make the game more affordable for a variety of audiences through each day and year."

- Reduce the various heights-of-cut throughout the golf course.
- Manage tournament expectations for the golf course (minimize the perfection standard and allow a blemish every once in a while).
- Focus on strategy and playability over aesthetics. Strategy always keeps a golfer's interest and allows for playability across all levels.

By adhering to these philosophies, the need for renovation and reconstruction should be reduced. Course length is not the answer to affordability.

While there is certainly nothing wrong with Augusta National and The Masters, the Augusta syndrome should not be copied if the end goal is "affordable" golf. What we need to do, as golf course superintendents and the industry, is to minimize perfection and accept blemishes. Most golfers don't see what we see.

The golf industry, in its pursuit of technology in construction and maintenance, automatically sets the standard at a higher a level. Examples may be seen in putting green and bunker construction, as well as in irrigation design.

Affordable golf also pertains to the audience of families. Keep families and higher handicap players in mind as you consider what can be done at your course to make the game more affordable for a variety of audiences through each day and year.

Focus on growing the game and the profit will follow.

The 2011 symposium on affordable golf will take place at Southern Pines Golf Club in Southern Pines, N.C. on Nov. 7-8, 2011. GCI

For additional information, go to www.symposiumonaffordablegolf.com.

New superintendent Aaron Cape takes a chance on new seed in old golf country, even if he stands *alone.*

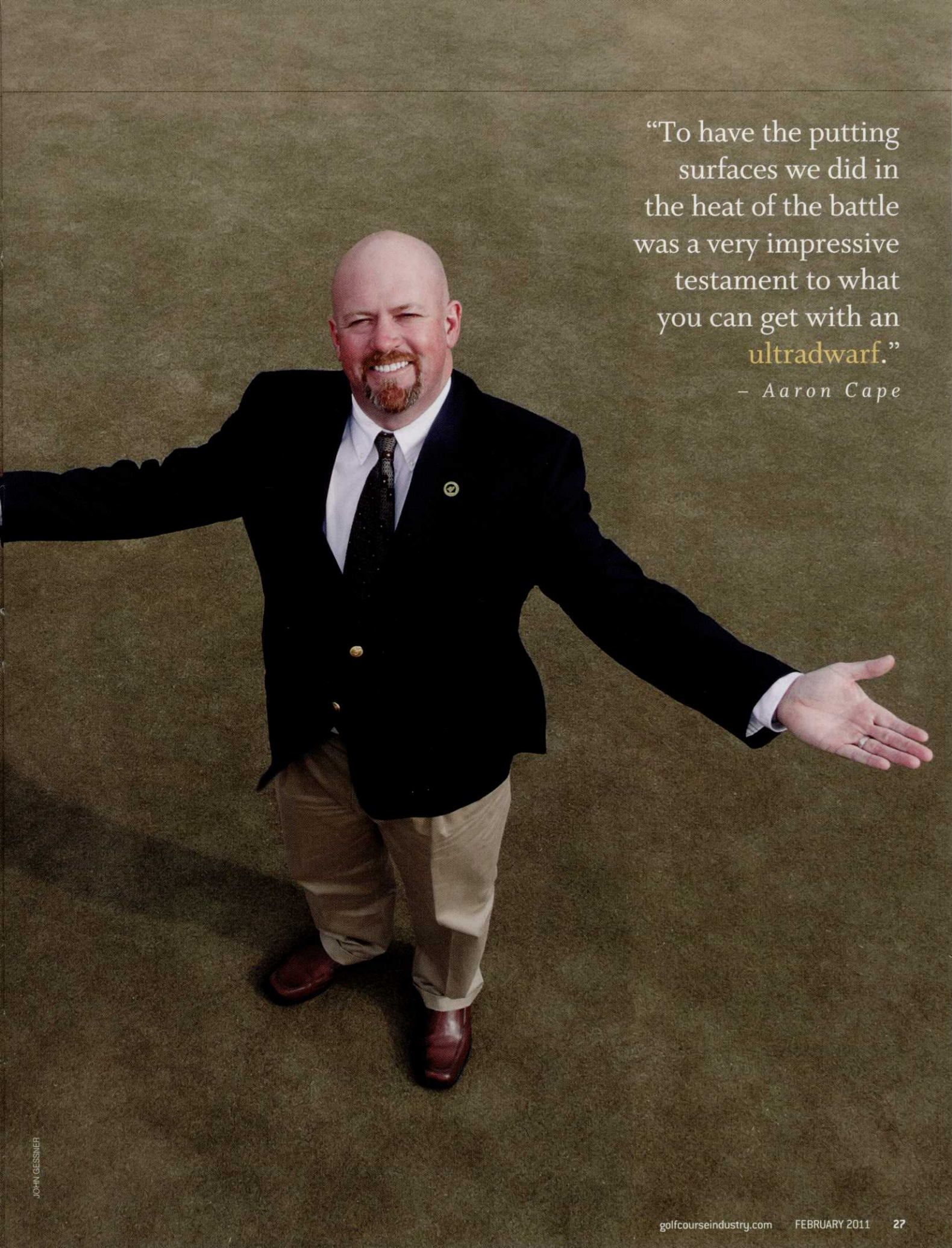
Ultimately Ultra

By Trent Bouts

Aaron Cape remembers a truck rolling slowly by the golf course as he and his crew sodded some barren patches on Hyland Golf Club's practice green early last summer. Cape didn't recognize the driver, but one of his workers did – a superintendent from a nearby course and the first overt signal that Cape and his new Champion Bermudagrass were "in the fish bowl."

In the months that followed there was more scrutiny, some of it obvious, most of it discreet. Either way, it seemed everyone was itching to know how an upstart ultra-dwarf would stack up in a region that had been an exclusive bentgrass preserve for decades – and not just any region.

Hyland sits in Moore County, N.C. – the self-proclaimed and officially trademarked Home of American Golf – with more than 40 courses including venerable No.2 at Pinehurst Resort. They've been playing golf there for more than 100 years: U.S. Opens, U.S. Amateurs, Tour championships, you name it. Donald Ross made those sand hills his home. The game's history runs so deep in the area that any break with tradition risks a whiff of sacrilege.



JOHN GESSNER

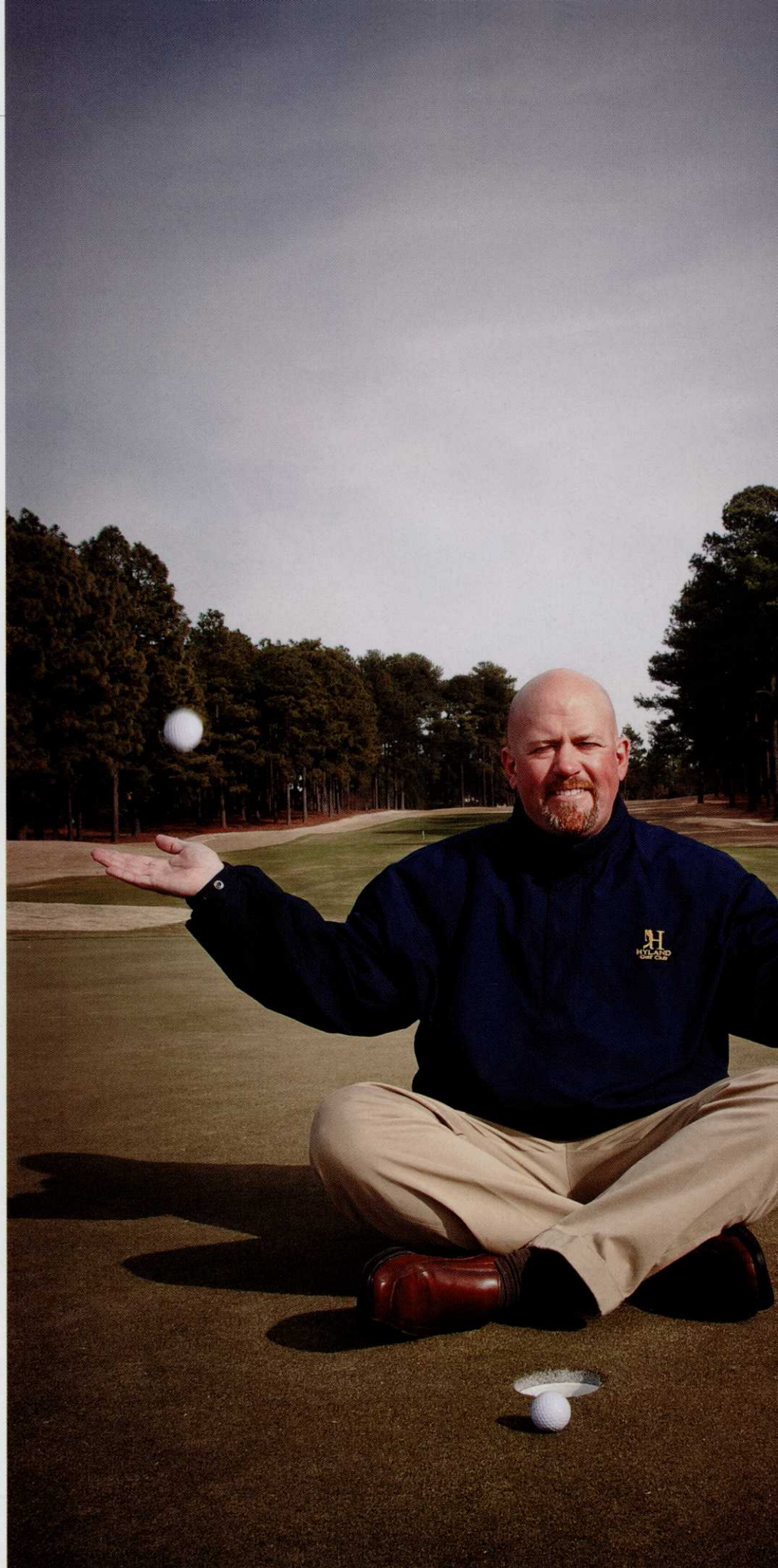
Yet ultradwarfs have spread so widely across the Carolinas and, indeed, across the Southeast that their absence in Moore County was a glaring anomaly. So much so, that it begged the question of whether their exclusion was based on science or stubbornness, maybe even with a dash of snobbery thrown in. After all, Pat O'Brien, the USGA Green Section's Southeast Region director, recalls that when ultradwarfs were first considered at some high-end Southern clubs those members equated giving up their bentgrass to "losing their BMWs."

It was against that backdrop that Cape, now 34, stepped into his first head superintendent job at Hyland in August 2009. Under new ownership, the Tom Jackson-designed course formerly known as Hyland Hills, was the first in Moore County to scrap bentgrass and jump on the ultradwarf bandwagon. The new grass was already down by the time Cape arrived, but it was sparse and there was a mountain of cosmetic work to be done before the Sept. 2 opening.

"It was wide open when I got here," he says. "There wasn't enough staff for what we needed to do but at the time, with the recession on, people were coming out of the woodwork looking for work. They'd say, 'When do I start?' And I'd say, 'How about now?' We went from five people to 12 in a couple of days."

Hyland enjoyed an encouraging fall and Cape was happy with the grass coverage he had as the season wound down. But then came one of the toughest winters on record in the Carolinas. Temperatures plummeted and stayed lower longer than they had for years. The threat of winter kill on Bermudagrass hung heavy in the frigid air, particularly over the ultradwarfs that, since emerging in the mid-'90s, had not yet been tested by such sustained cold.

Some of those superintendents who were already wondering how the Champion would do were now quietly expressing worry on his behalf. The grass was a baby and by some measures,



Bucking tradition in the "Home of American Golf," Hyland Golf Club's Aaron Cape scrapped bentgrass and jumped on the ultradwarf bandwagon.

JOHN GESSNER

> "I knew we were the guinea pigs in the area and that we were, you know, in the fish bowl. Everybody was intrigued to know if we survived."

so was Cape.

He had spent much of the previous decade tending bentgrass on the coast in Myrtle Beach, S.C. His only Bermudagrass greens experience to that point was pre-Myrtle Beach through a part-time gig on a nine-hole course covered in 328, and even then he was "just the weed-eating and groundsmaster guy."

Still Cape knew enough to pick up the phone. Among those he tapped was George Frye, the former Ryder Cup host superintendent at Kiawah Island Resort, who now handles Champion installations with TransGOLF. He also called former workmate, Adam Charles, at Verdae Greens Golf Club in Greenville, S.C. and Chris Underwood, with Davison Golf Consulting in Ponte Vedra Beach, Fla.

The outcome was a strong focus on controlling moisture near the surface of the new greens. "As cold as it was getting so rapidly I really wanted to keep the soil as loose as I could," he says. "I wanted to prolong it tightening up." So he used penetrants to help keep water moving through the soil profile, a profile he topdressed frequently.

When the weather finally turned and the Champion began growing again, Hyland had survived surprisingly well. There were some trouble spots but shade was the culprit more than the cold. It would have been worse but for a concerted tree trimming and removal campaign Cape carried out early that winter. Overall, he estimates he lost 15 percent of coverage, most of it on the still heavily-shaded third green. Holes 4, 10, 15 and the practice green were also among those affected, but on review Cape was "very, very pleased."

Even so, the grapevine carried a different message. "It turned out that the story was going around that we lost our greens, which wasn't the truth," Cape says. "Nowhere near the truth. But that's okay. I knew we were the guinea pigs in the area and that we were, you know, in the fish bowl. Everybody was intrigued to know if we survived."

A few months later, that fish bowl served as insulation against a brutally hot summer that left those bentgrass superintendents on the other side of the glass gasping for breath. Putting greens up and down the east coast shriveled up and died en masse. The carnage even made headlines in the Wall Street Journal.

All the while, Cape watched his Bermudagrass soak up the sun like a reptile. Early on he had some anxious moments though when his pump station went down in May and for three weeks he had to rely on a single jockey pump. His overseeded ryegrass fairways suffered and the course "looked like Shinnecock at the U.S. Open," he says. "Although one of my owners, who is a really good golfer, absolutely loved it."

A few months later, thanks to no real rain to that point, Cape again worried about his water supply. The levels in his two ponds were down to within a couple of feet of the intakes. He was limited to irrigating only greens and even then just sparingly. "If they were getting brown they got a spit," he says.

Along the way, Cape found himself marveling at the resilience of his greens. "You can pretty much take the grass anywhere you want to," he says. "It all depends on how much work you want to put into it. To have the putting surfaces we did in the heat of the battle was a very impressive testament to what you can get with an ultradwarf."

For dyed-in-the-wool ultradwarf proponents like Pat O'Brien, the summer slaughter on bentgrass confirmed what they'd been saying for some time. "For a lot of clubs, particularly those low- to mid-range budget courses, they are finding that the bentgrass model just doesn't work anymore," O'Brien says. As he wrote another course further east in North Carolina, recently: "A new world order exists now with the development of the ultradwarfs. Numerous courses in the Carolinas and Georgia have been converting since 1996 and this trend will not go away."

Others in the Pinehurst area will follow Hyland's lead, O'Brien says. "Some areas are a little slow to embrace change but I think the folks at Hyland will be seen as geniuses in a few years. Particularly in this economy, it has become more of a business question." Citing a survey of 36 Southeast courses that have converted from bentgrass, O'Brien adds: "The ultradwarfs can improve the golf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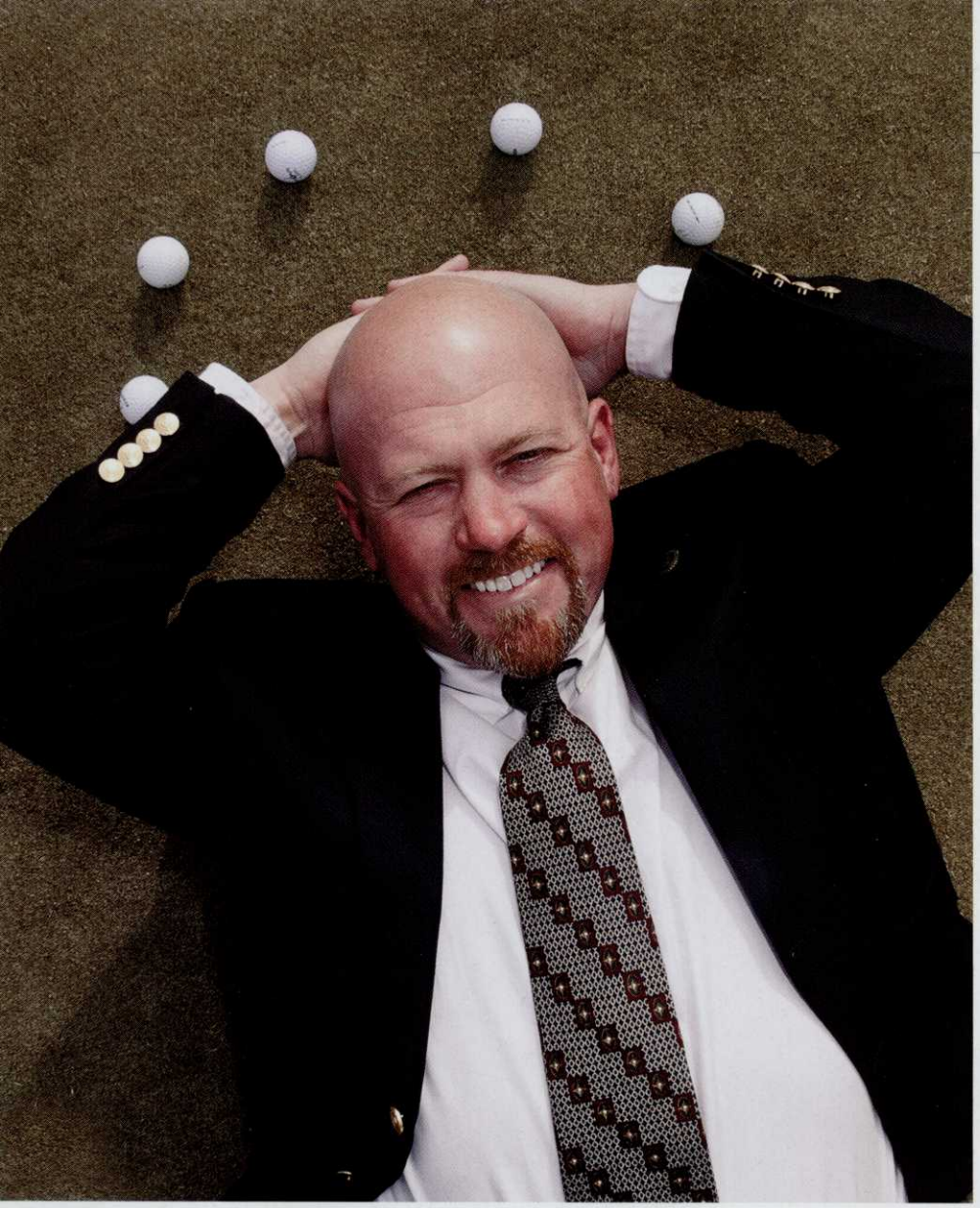

Aaron Cape's recent experience, albeit brief, with an ultradwarf leads him to wonder why more courses have not made the switch.

experience, reduce costs and reduce the risk of devastating turf loss."

To date, Cape is an advocate. "Certainly, I was pretty happy to have Bermudagrass this past summer. My heart went out to the guys with bentgrass, no doubt. If I could have changed the weather for them I would have done it in a heartbeat because I've been there. There's a lot for us still to discover as these greens mature, but I have to say I'm fairly much a believer that the ultradwarfs are the way to go."

To some degree, maintaining an ultradwarf is not that different from care for bentgrass. "My basic philosophy is the same, it's just you're applying that approach to different seasons," he says. "Winter is our wilt season like summer is to bentgrass. If it's cold, really low humidity and windy then we'll take a hose out there and hit some of the mounds and high spots. Similarly, we don't have the disease pressures in summer like bentgrass but we are on guard in spring and fall. That's when we're scouting our greens."

Cape's fundamental goal is to provide a solid nutrition plan. "I want to make sure that what the plant needs is readily available when it wants it," he says. "Whether it's going into dormancy or coming out, I don't want that plant having to look for anything."

Cape went into this winter far better equipped, both mentally and physically. Mentally, he knows he survived the worst winter many veteran superintendents had ever seen in the region. Chances are he might never encounter a tougher one. Physically, his grass is that much more mature, most of the lingering shade issues have been addressed and to literally cap it off, he now has covers to protect those vulnerable areas that remain.

Rather than overseed, he paints his greens, twice that first summer but "hopefully" only once this time around thanks in part to a prolonged fall that kept a green tinge hanging around longer. He looks forward to spring like a kid waiting for Christmas, when he can get to play with his new toy all over again.

Cape's experience, albeit brief, with an ultradwarf leads him to wonder aloud why more courses have not made the switch. "I suspect it's a question of whether those on the other side of the table are interested," he says. "But I think if superintendents can convince their owners and their golfers, they will not be disappointed. You get a more consistent putting surface year round. You're not having to aerify as much in the playing season. It's a win-win in my opinion. I'm sure with a little more time that more courses will jump on the train." **GCI**

Trent Bouts is the president of Tee Media Consulting in Greer, S.C.

> "I suspect it's a question of whether those on the other side of the table are interested. But I think if superintendents can convince their owners and their golfers, they will not be disappointed."
> – *Aaron Cape*

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THIS PAGE: THOMAS BASTIS, CALIFORNIA GOLF CLUB
OPPOSITE PAGE: PAUL SCENNA, BEACON HALL

By David McPherson

Like open-heart surgery, replacing your irrigation system is invasive, done hopefully only once in a lifetime and best left to experts.

And like your heart, if not maintained regularly, it's prone to breaking down.

"It's not a glamorous topic for the membership," says Paul Scenna, superintendent at Beacon Hall. "You bury it in the ground, you don't see it and members don't even want to see the water run. The whole objective is to hide it, but it's the most important piece of equipment on the course."

In the past, industry wisdom said a system would last approximately 20 years. Today, that's not necessarily the case. "The truth is there are components of the system that a course has to be willing and ready to replace after three years up to about 40 years ... a lot of golf courses get caught because they don't have the budget for those three-year items," says Tim Fredericks, a principal in the full-service irrigation consulting firm Fredericks McGuire.

A key to a successful irrigation project begins with understanding where this capital investment fits in the club's long-range plan. Do research, hire experts, and don't settle on either the highest or the lowest bid. Gary Taylor, golf irrigation manager, Turf Care, says having accurate records documenting system repairs (materials and labor) is valuable to convince a board/greens committee on the deterioration of the current system and the need for a new one. Have a plan in place to avoid getting caught without the money to finish the project or replace components at a later date.

"Financial planning is always the key," he adds. "Whether money will be borrowed, members assessed or other avenues explored, a new irrigation system is a major purchase that will be in place for many years. Research should be carried out prior to making a decision. Too many people make a purchase based on price alone and then have to live with their decision."

When deciding what type of system is needed, focus on water efficiency, not water use. While it may be unseen, it's a key to maintaining the playing conditions members expect. It's also one of the most expensive line items you will ever have to convince them to pay for. Most systems cost millions of dollars after adding parts and labor. Fredericks tells greenkeepers to treat irrigation as infrastructure. In the short term, this helps sell the system. In the long term, it ensures the system is built with quality materials and lasts longer.

Go through the entire planning process treating a new irrigation system as infrastructure – the same as would be done to build a new clubhouse or maintenance shop. Fredericks cites Beacon Hall as a project where he used this concept. Since it opened in 1988, the course, located in Aurora, Ontario – just north of Toronto – is regularly recognized among the top 10 courses in Canada. The 241-member equity club had not replaced its irrigation system since the grow-in when superintendent Scenna says corners were cut. He didn't want the same thing to happen this time around, so he relied on Fredericks to help sell the return on this huge capital investment to his membership. Fredericks recalls pulling into the club's driveway and noticing the road was ripped up outside Scenna's shop where the city was installing new water mains. The consultant used this illustration to help members wrap their heads around the scale of the project and the need for the proposed irrigation system.

"'Did you see them putting in that huge pipe on the road outside,' I asked. 'The tax dollars to afford that must be incredible right? I'm asking you to spend a lot of money here; the piping we are using is bigger than the pipe they are using. The pressure we are using is twice the pressure and the velocity is two and a half times. You have to ask yourself: are you putting in a sprinkler system or do you spend the money and treat it as infrastructure and make it last, getting the best dollar value doing it? As a tax payer, would you want to see the same street dug up in 20 years

Look for water efficiency in a system, not just water use.

Get members behind the system as infrastructure.

Budget for the entire project, and replacing components.

Build a system for the course to grow into.

after they've done all that?'"

While some clubs can adapt their existing irrigation systems to a new one, due to a lack of pipe size, Beacon Hall had to install a brand-new system, which ended up costing the club more than $2 million.

"Members always ask: 'Should we put in a Cadillac or a Chevy?'" Scenna comments. "I said, 'We are going to put in a Volvo.' The reason is because we never wanted to come back and do this again. We want to put in something that is quality and long-lasting and keeps the grass safe. In the end, it was a lot of money, but long term, it is going to apply the water the way we want.

"What drove the cost up was the size of the pipe and the amount of sprinklers," Scenna adds. "We chose a lot of sprinklers because that is the only way to apply water more efficiently. How available is water going to be three years from now? We want to be able to control and water every part of our property. In the future, the club will be a lot better for it."

"Research should be carried out prior to making a decision. Too many people make a purchase based on price alone and then have to live with their decision."

— Gary Taylor, Turf Care

What led Beacon Hall to install a new system (besides its age) was a lack of reliability of the current system and, more important, member demands. "They wanted to improve course conditions and to improve course conditions we needed to be more accurate applying our water," Scenna says. "We had limited irrigation heads before, which would apply water inaccurately and the spacing of sprinklers was not appropriate – they were either too far apart or too close together."

The club is located in the Oak Ridges Moraine – an environmentally-sensitive geological landform in south central Ontario, covering 190,000 hectares. The course gets its water from a well, but they wanted to make sure that if there are further limits on its water use in the future, they could handle any of these restrictions thanks to the sophistication of its system.

Scenna started the discussion with members at Beacon Hall back in 2006. After the members voted to go ahead with the project, they narrowed the selection to two manufacturers based on research and past experience. Fredericks drew up plans with sprinklers and piping using the products of both manufacturers, then contractors bid on the job. Once the contractor and manufacturer were picked, the new system was installed in phases in the fall of 2009 and spring of 2010, closing one hole at a time. Scenna was especially impressed with the way the contractor restored the course.

"Restoration is a huge part of the cost when it's an established golf course," Scenna says. "That's

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what the members focus on."

Rich Wagner, director of agronomy, at North Ranch Country Club, a 27-hole facility in Westlake Village, California, recently replaced his club's 30-year-old irrigation system. The club hired an irrigation specialist and brought in a consultant. The club also relied on the expertise of their USGA regional representative to help sell the need for a new system, which they installed on all three of their 9-hole courses in 2007. They went from about 3,200 sprinkler heads to nearly 6,000. Even at almost double the heads, it does not equate to more water usage. Rather, the new system lets Wagner water more efficiently, saving up to 25 percent, which is critical, especially in the dry California climate. "Anytime you can do that is a good thing for the membership, the owners, and it's also a good thing to share with the community," he says.

Thomas Bastis, superintendent at the California Golf Club of San Francisco, equates choosing a new irrigation system to buying a computer. "Nobody goes out and buys the base model. You go out and say, 'There is a chance I'll need to use the Internet and at the same time I may want to use Photoshop, etc.' So ask yourself, 'What I can buy that I can grow into?' and then buy something a bit above your level."

Another crucial step when planning and designing an irrigation upgrade is to walk the course with the architect or consultant.

"Don't rely on the irrigation designer to lay out your system," Bastis says. "Walk the course with him. You are stuck with it. Eventually everybody is going to be gone and that first two years are probably going to be your hardest as a superintendent from the standpoint you are responsible for everybody's hopes, dreams and wishes about what they thought or what they were sold on about this project.

"It's like if somebody said, 'we installed this brand new $2 million irrigation system, so why the hell are those guys out there on the fairways with hoses?' You are the one that has to defend everything you do." GCI

David McPherson is a freelance writer based in Toronto.

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- Improve aesthetics; and
- Meet competitive forces from neighboring courses.

2. REDUCE MAINTENANCE COSTS

- Eliminate system downtime due to repairs;
- Reduce labour costs to use on other projects;
- Reduce stress associated with failures; and
- Utilize updated technology to make their jobs easier.

3. INCREASE REVENUES

- People will pay more to play a "good looking" course; and
- Additional funds can be used elsewhere within the club

4. UPDATED TECHNOLOGY

- Computerized control provides optimum control with a minimum of "programming" time required;
- Graphic interface of the course when combined with GPS allows precision control;
- Pump station interface allows interaction and monitoring between the pumps and irrigation system which have always been separate;
- Newly introduced soil sensing technology allows you to see "under the grass" at infiltration rates, salinity levels and temperature values.

Tips courtesy of Gary Taylor, golf irrigation manager, Turf Care

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Brian Vinchesi, the 2009 EPA WaterSense Irrigation Partner of the Year, is president of Irrigation Consulting Inc., a golf course irrigation design and consulting firm headquartered in Pepperell, Mass., that designs irrigation systems throughout the world. He can be reached at bvinchesi@irrigationconsulting.com or 978/433-8972.

IRRIGATING CONTROL SYSTEM DECISIONS

In recent years, technology has born new types of control systems. As with any new technology, they have scared some, excited others and confused even more. Sorting through the irrigation control systems available on the golf market can be a daunting task. Golf course irrigation control systems are expensive, and depending on the bells and whistles you include, the price can vary dramatically. Let's take a quick look at the various control systems available today.

The basic system is a manual system and, believe it or not, they're still out there. But let's move on to a basic automatic system which would consist of standalone field controllers. These systems provide a large step in automation, but the operator usually has a spreadsheet that they've developed over time to make sure the start times don't overlap too much and exceed the water supply capacity. These supers dream of having a central control system that manages the field controllers and allows them to toss the spreadsheet. Of course in today's market we have field controller systems and decoder/two-wire systems. When talking about standalone systems without a central we are usually talking about field controllers, but some manufactures do make decoder systems that operate from field controllers without a central.

Next, we have the typical golf course irrigation system consisting of field controllers or decoders/two-wire system operated by a computerized central control system, which may include a handheld remote control for field operation and a weather station for providing relative ET values. It may include soil moisture sensors, pump station communication and operational access through a smart phone. These days the options are limitless.

Since this all seems pretty straightforward, where does all the decision-making occur? The computerized central control system is the basic and most important component, but what equipment do you choose from to help the computer out? There are conventional field controller systems and decoder/two-wire systems. You need to decide what type of control system is best for your golf course as well as determine what control system best fits your management style and allows you to sleep at night. Your local sales representative can review the various pros and cons of their basic control equipment versus the competition and why theirs is better. They will also have an opinion on what system you should purchase.

So, let's look at the most controversial difference between the various types of control systems. No, not field controller versus decoder/two-wire, but the required lightning protection for each.

There are views on what the additional equipment each system might require, what isn't required and what the added costs of those items may be. So, let's look at the most controversial difference between the various control systems. No, not field controller versus decoder/two-wire, but the required lightning protection for each.

Certainly with the decoder/two-wire system there is less wire than with a field controller system. Field controller systems also have the cost of the controllers in the field, but these costs are offset by the cost of the decoders themselves or the more expensive costs of the sprinklers. Where the water gets muddy is in the lightning protection – grounding and surge suppression – that is required for the field controller system versus decoder/two-wire systems. A typical field controller system may have somewhere between 20 and 30 controllers for 18 holes. Some are more and some are less, but the controllers would be grounded per location or, depending on your designer, may be grounded per controller. The grounding will include at least a rod, three rods or a combination of a rod and a plate depending on the design.

Additionally, a good system will have a #6 bare copper wire throughout the system to act as a shield/bonding wire. Grounding connectors would be exothermic (Cadweld type) which is a better connection as opposed to a clamp type. The system might also have a lightning detection system that disconnects both field controller power and communication when lightning is detected. Grounding for field controller systems has been adapted over time and follows for the most part American Society of Irrigation Consultants standards. There is not a lot of variation in what is designed and installed.

On the decoder/two-wire systems the grounding requirements are manufacturer driven. A typical decoder/two wire design might be a grounding "system" every 500 feet or every 15 decoders/solenoids and at dead ends or something similar.

So the question becomes: Is this enough and what does the grounding consist of?

To be continued! **GCI**

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PROJECT APPROVED

BY MICHAEL D. VOGT

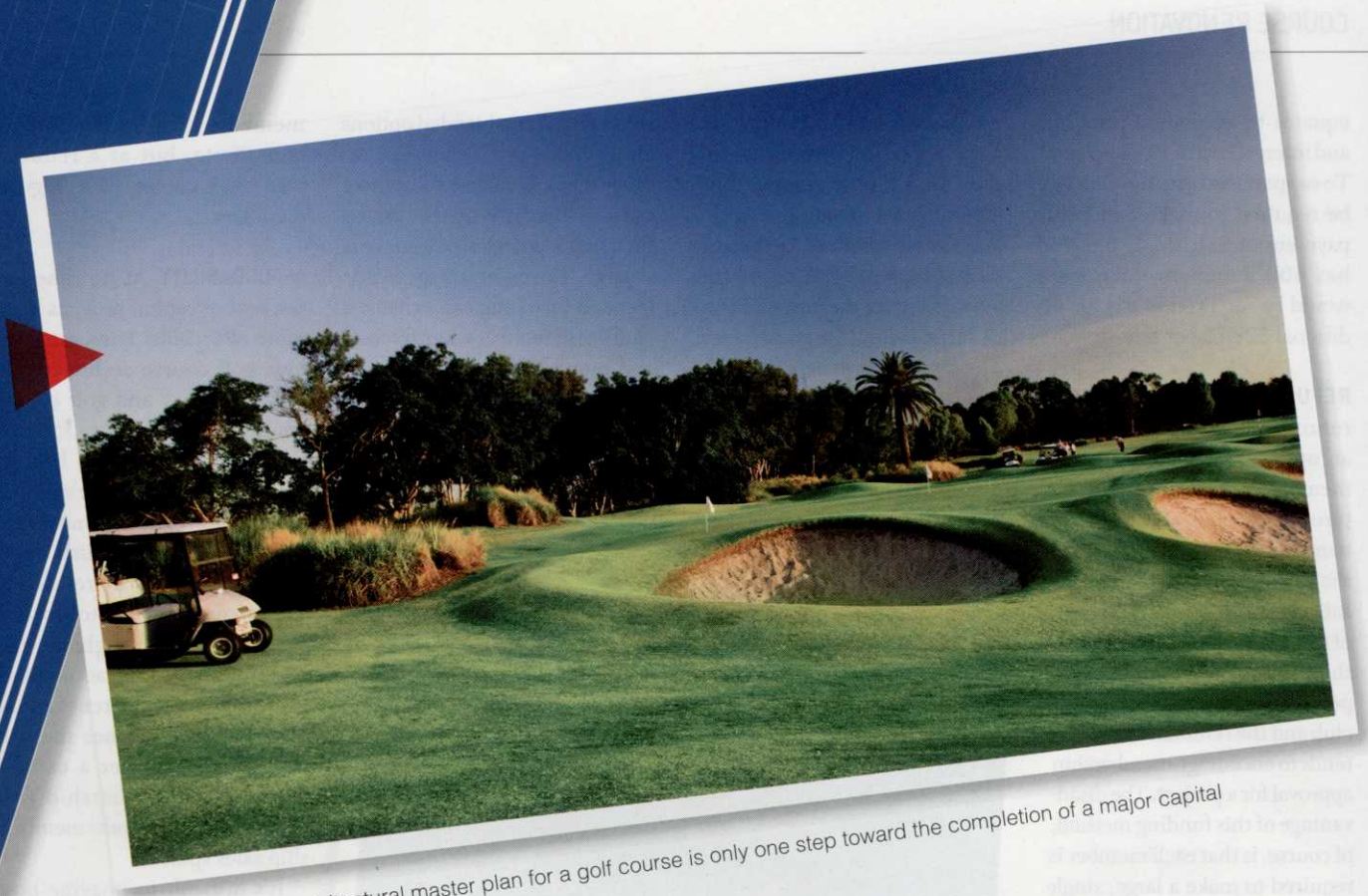
With a tough economy and steep competition, now might also be the perfect time to pull ahead by getting that capital improvement project approved.

Despite the recent decline in new course construction and subsequent rounds played, the golf course still remains the primary asset at the private club. The number of public golf courses has ballooned by nearly 50 percent since the early 1990s, compounding the oversupply of available golf. Many of these new public courses have excellent turf quality and architectural merit, and private clubs located in close proximity have been compelled to upgrade their facilities to remain competitive in the marketplace. When the leadership of a private club finds it necessary to campaign for a major capital improvement, seeking valuable input from the membership, developing a realistic budget and offering a feasible financing plan are just as important as commissioning a detailed architectural drawing.

One of the best ways of checking the membership's pulse in the early stages of a capital improvement program is to circulate a well-crafted survey. To gather valuable input from the membership, survey questions should be written in a manner that allows each member to rate his or her satisfaction with individual components of the course. Individual areas of concern will be unique to each course but items such as the playing quality of the bunkers; the condition of the greens, tees, and fairways; and the enjoyment of the course's layout should always be included.

Given the right circumstances, it also can be appropriate to include questions pertaining to the course's unseen infrastructure, such as the maintenance facility, drainage system and irrigation system. Additionally, a good survey should identify specific capital improvements that are most important to the membership and their general willingness to pay for these items.

For several reasons, an objective third party is typically the best



Developing an architectural master plan for a golf course is only one step toward the completion of a major capital improvement project.

administrator of a membership survey. First, surveys conducted by a third party can provide greater credibility and objectivity for gathering important information. Second, a third party can share information and offer guidance in dealing with unexpected club political issues that tend to arise on a frequent basis.

And, finally, a qualified third party will have a proprietary database that can be used to compare the survey results to those of similar clubs. Such benchmarking can help shed light on the course's competitive position in local and regional markets.

The task of developing a realistic budget for capital improvements oftentimes is assigned to the greens committee or a golf course planning committee. Ideally, this committee should be composed of a representative from every segment of the club's membership.

For technical expertise, the committee also should include the club's professional staff and specialists appropriate to the task at hand, such as a golf course architect, an irrigation system designer and/or a civil engineer.

Once convened, the committee's initial task is to study the existing condition of the course and its infrastructure to determine the full scope of work needed in a master plan of improvements.

From here, a master plan can be developed by a golf course architect, and the committee can solicit cost estimates and begin the process of piecing together a realistic budget that is in line with the funding capacity of the club.

After a realistic budget has been assembled, the next crucial step in cultivating membership approval for a large capital project is to determine feasible financing options.

Again, this is an opportunity and is appropriate when surveying the membership to include questions pertaining to the golf course's unseen infrastructure, such as drainage, the irrigation system and the maintenance building.

> "One of the best ways of checking the membership's pulse in the early stages of a capital improvement program is to circulate a well-crafted survey."

FINANCING OPTIONS. The most common methods of funding capital improvements are: a monthly capital dues increase, a refundable assessment and a non-refundable assessment. Each funding method offers a club and its members a different set of advantages and disadvantages.

MONTHLY PAYMENT. A monthly capital dues increase is simply a means of generating extra income to cover the cost of financing a loan for capital improvements over a period of years. The advantage of this financing method is that most members prefer a low, monthly payment in lieu of a large, single payment. If a member chooses to resign from the club after the completion of a capital project, then he or she is excused from future payments. The disadvantage of this financing method is that taking out a loan will put the club in debt, thus threatening its financial future should a significant number of members resign unexpectedly.

For example, AnyTown Country Club borrows $1,000,000 to pay for a capital improvement. The loan interest rate is fixed at 6% over a term of 10 years, which

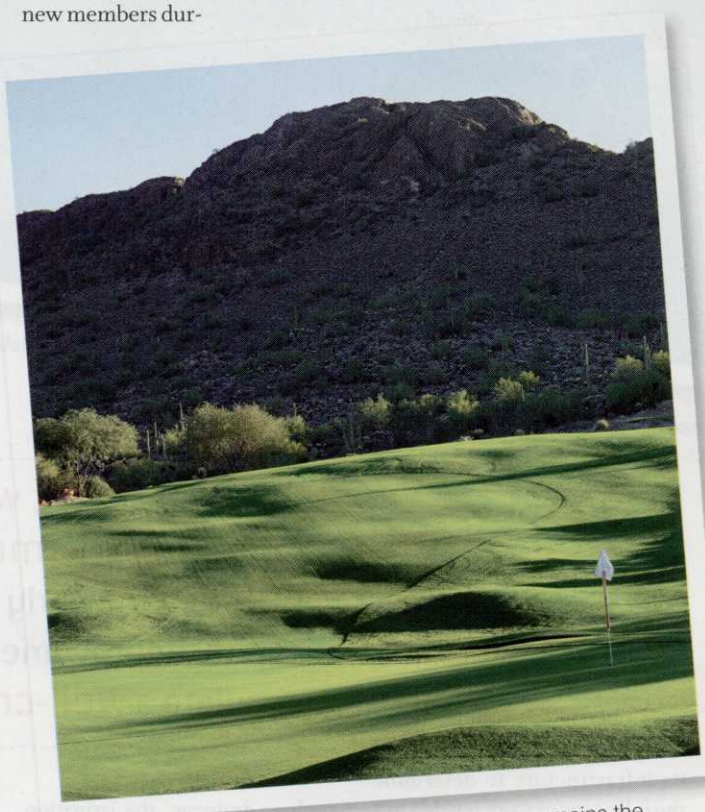
equates to an annual principal and interest cost of 13.32 percent. To support the loan, the club will be required to make a monthly payment of $11,102. If the club has 400 members, then each would be required to pay an additional $27.76 per month.

REFUNDABLE ASSESSMENT. A refundable assessment entails an up-front payment from each member with a refundable feature that becomes effective if a member leaves the club before the end of a specified amortization period. The advantages of this funding method are that the up-front assessment supports the financial future of the club and the refundable feature tends to encourage membership approval for a project. The disadvantage of this funding method, of course, is that each member is required to make a large, single payment.

For example, at AnyTown Country Club each member is assessed $5,000 to fund a proposed capital improvement. Assuming an amortization schedule of 10 percent per year for 10 years, a member resigning from the club after five years would receive a refund of $2,500 or an amount equal to 50 percent of the original assessment.

NON-REFUNDABLE ASSESSMENT. A non-refundable assessment entails an up-front payment from each member covering the total cost of a capital. The advantage of this payment method is that it covers the complete cost of the project and thereby doesn't threaten the financial future of the club. The disadvantages of this payment method are that it obliges the current membership to cover the entire cost of a capital project and that each member is required to make a large, single payment.

ASSET RESERVE ACCOUNT. In some instances, private clubs are established with a bylaw that sets aside a portion of the monthly dues in a capital reserve fund. The obvious advantage of this accounting method is that the club is capable of using existing assets to cover the periodic costs of large capital improvements. The disadvantage here would be that it increases the monthly dues that in turn might make it more difficult for the club to sign up new members during stressful economic times. A complete asset reserve study preformed periodically is the preferred way to forecast the needed resources to fund course components before the end of their useful life.



Despite the state of the economy, the golf course remains the primary asset at the private club.

BLENDED FINANCING. Most often a club will be in a situation that a blended financing option is most attractive. The cost of large capital expenditures is paid for by a combination of a commercial bank loan, cash from asset reserve accounts and a small monthly assessment. These blended options are as varied as the clubs that arrange them. Members value these options because of the varied financial ideologies of members at large. The disadvantage is that blended financing can exhaust a club's cash reserves when fix costs and monthly dues income cannot cover that portion of capital expenses.

WHO PAYS? One important detail in the process of developing a feasible financial option is evaluating which segments of the membership should pay for a large capital improvement. If the scope of the project is limited to golf course improvements, then logically those members who play most often are typically required to pay for the bulk of the improvements.

If a social club member is granted limited access to the golf course, then he or she might be required to contribute a small amount. Additionally, senior members may be required to contribute, but at a reduced rate when compared to regular members.

AFFORDABILITY. At no time has the cost of capital projects been more affordable. Bank rates are low, golf course architects are less than busy and golf course contractors are looking for cash flow. A club that has a healthy view towards the future will find that planning and committing to projects will accomplish these capital ventures at relatively low prices compared to just five years ago. Now might be the best time to plan and accomplish these much-needed renovations or projects to enhance the golf course. Often after a capital renovation, membership will increase usage and new membership sales spike.

It's difficult to imagine how many master plans are rolled-up in the corner of superintendent's offices, never acted upon. It may be an opportune time to resurrect these plans and get the ball rolling before interest rates climb, contractors begin working on penned-up demand and golf course architects start traveling and begin plying their trade.

Developing an architectural master plan for a golf course is only one step toward the completion of a major capital improvement project. In an era when public golf courses are being developed that rival and, in some cases, surpass the playing quality of private clubs, it is easy to recognize the importance of keeping up a modern, well-cared-for golf course facility. After all, current industry surveys show that access to a high-quality, well-maintained golf course is still the primary reason for joining a private club. **GCI**

Michael Vogt is head of McMahon Group's golf division and a frequent contributor to GCI.

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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.

BIG VALUE IN SMALL PROJECTS

Well-designed projects achieve better long term results than an un-designed one, even if it is difficult to "quantify" those results in terms of better aesthetics, maintenance or fairer play conditions. That alone makes the cost of involving a golf course architect inexpensive, especially when spreading out the cost over the 15 to 50 year lifetime of a well-built feature. As insurance salesmen say, "it's only pennies a day."

That most clubs who involve architects have learned the hard way that their in-house projects didn't really solve problems, and may have made them worse is further testament that design fees are less expensive than rebuilding one green twice, and that designers usually don't increase the cost of a project, but reduce it. In addition to a better, more useful product, golf course architects typically bring substantial short term value for clients through their services, even on the smallest of projects.

Here are some valuable knowledge and skills that golf course architects bring to even your smallest projects, presented David Letterman-style:

10 PERMITS
It's not fine to work without a permit, but there are fines – sometimes substantial – for working without certain environmental, ADA and other permits.

9 BROAD PERSPECTIVE
Typically, superintendents design for maintenance, contractors design for construction ease and members design for their own games. Golf course architects design from all perspectives and have the skills to bring it together with appropriate compromises.

8 "APPLES-TO-APPLES" COMPETITIVE BIDS
Even a cart path isn't always a cart path, as one club found out when they got widely-varying bids. They retained a golf course architect to provide a simple bid package that clarified "industry standard" concrete strength, reinforcing, finish and curbing, and got consistent and acceptable bids. Their cost was a few weeks' delay, but it might have been much more.

7 BID ANALYSIS/VALUE ENGINEERING
The golf course architect is capable of weeding out unqualified contractors, providing for alternate bids while bidding, when you get competitive pricing, rather than after the bid, when the contractor has more negotiation power. Selecting the right contractor, all factors considered, isn't always a matter of taking low bid.

6 CONTRACTS
You wouldn't buy a house (which costs about the same as small renovations) without a contract, and you shouldn't hire a contractor without one. In small projects of any kind, displeasure arises from differing expectations of responsibilities.

5 CHANGES ON THE FLY
Surprises happen – construction is a dynamic process. Even after the bids, we are experts at balancing changes – deleting one thing for another, always in your best interest.

4 CONSTRUCTION EVALUATION
Owners should use their architects to monitor their contractor to get what they pay for. The need for expert construction evaluation can is summed up in these phrases:

"You don't get what you expect, but what you inspect."

"Trust your mother, but cut the cards!"

"If the contractor becomes your best friend, he got the best of you."

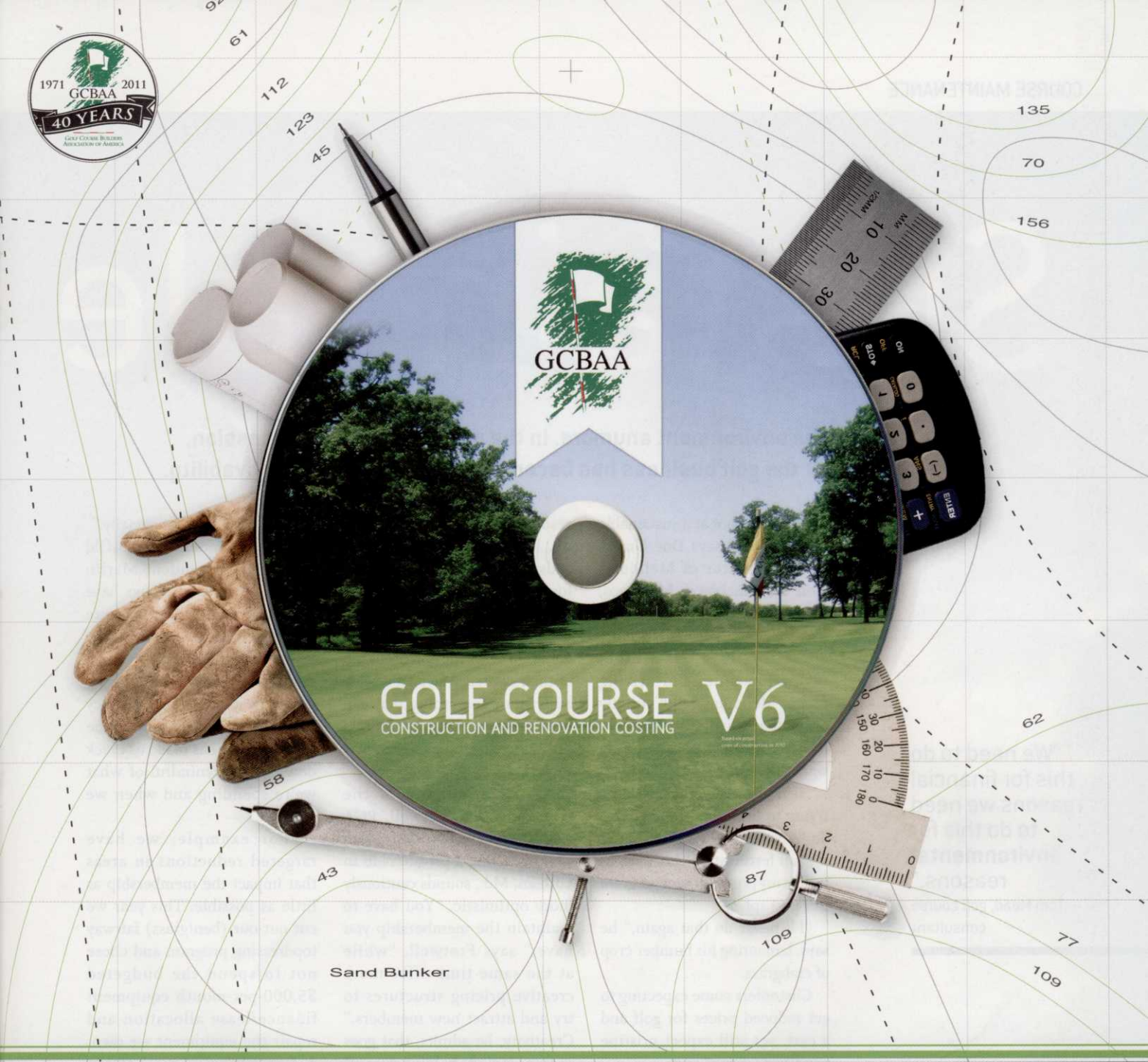
3 SCHEDULE
Missed schedules cost you more than high bids, so setting a realistic one is imperative.

2 TRANSITION FROM CONSTRUCTION TO POST-CONSTRUCTION
Changes in grasses and/or green construction often need a new maintenance regimen. While superintendents usually network to find out, your architect is also a valuable source of information past design.

And the NO. 1 REASON to use a golf course architect:

WHEN THINGS GO WRONG, YOU HAVE AN EXPERT TO BLAME!
OK, I am just kidding there. Having an outside consultant design – and explain – proposed changes can go a long way towards blunting the often-unfounded, but always-ongoing rumors and criticism.

Every project – no matter how small – is unique, and will go better when a combination of experienced people look at its parameters rather than assume it is standard, can't be done better, or will encounter no problems. Sometimes, the smallest projects require the most detailed planning to pull off, and experienced golf course architects can help you achieve success, often for a very reasonable fee. GCI



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Sustainable

It's not just for the environment anymore. In the midst of a historic recession, sustainability for the golf business has become synonymous with survivability.

BY JIM BLACK

"We need to do this for financial reasons we need to do this for **environmental** reasons."
— Tom Mead, golf course consultant

"We are not at a sustainable level," says Doc Grace, owner/operator of Mellomar Golf Park in Lower Marlboro, Md.

A very family-friendly facility consisting of a par-3 nine, regulation nine, and driving range, Mellomar relies heavily on golf-rewarded volunteers to keep his operation running smoothly.

"If it wasn't for that, we'd be trying to find something else to do," says Grace. "I had to cut out my fall fertilization this year, as well as my pre-emergent program this past spring.

"I'll never do that again," he says, lamenting his bumper crop of crabgrass.

Customers come expecting to get reduced prices for golf and a cart, yet still expect pristine conditions, Grace says.

"The seniors always want a break because they're on a fixed income, and my comeback response now is, 'If this keeps up, I'll be on *no* income,'" he adds. "I think what will help is for the superintendent to become more involved with the golfers more proactive as to what is going on with the maintenance of their course. Maybe a weekly bulletin or something that can help educate the customers a little as to why things are the way they are."

At the other end of the spectrum, Bob Fretwell, PGA Club Professional at Old South Country Club, a private club in Lothian, Md., sounds cautiously more optimistic. "You have to maintain the membership you have," says Fretwell, "while at the same time offer more creative pricing structures to try and attract new members." Creativity, he admits, that goes so far to include holding dues off altogether for a year or two.

"Right now play is not off, but you've got to cut your expenses 10 percent to keep up financially."

On the maintenance side, Old South superintendent Marlin Ewing says, "Sure, things have slowed down a bit and there have been budget cuts. If there is one thing positive that can be said about the downturn in the economy, it is creating efficiency from necessity. The state of the industry now has made us crack down and be mindful of what we're spending and when we spend it.

"For example, we have targeted reductions in areas that impact the membership as little as possible. This year we cut out our (bentgrass) fairway topdressing program and chose not to spend the budgeted $5,000-per-month equipment finance/lease allocation and repair the equipment we own. As far as labor goes, our in-season summer staff was hired based more on need than on promising guys a 40-hour work week. A

THINKSTOCK

Golf 2.0

bigger seasonal staff in the mornings before play allowed us to get more work accomplished, freeing up the full-timers to handle the handwatering duties in the afternoon," Ewing says.

"Taking advantage of early order programs, using generic chemicals when possible, all helps to chip away at the bottom line and ease the strain on your budget."

For some, sustainability can be simply a business matter, where revenue exceeds expenditures. For others, like myself, sustainable golf is an intricate triangular weave of golf and the environment, golfer expectation and sound golf business practices to maintain revenues."

Michigan-based Golf Course Consultant Tom Mead, a 36-year veteran of the golf business and who is represented by Resort and Golf Marketing, Bloomfield Hills, Mich., has seen this "bust" building up for some time.

"Private clubs in Michigan are going out of business and many decision-makers are uncomfortable because they are now having to make crucial decisions that have long-term ramifications. What really needs to happen is there has to be a significant shift in values, standards and practices among golf clubs in order to stay open. I'm not talking about minor adjustments to the current business model. A new, sustainable business model based on dwindling natural resources and less disposable income for golf will help to assure short- and long-term financial success.

"What many courses are doing now to stay viable can't sustain them long term," he says. "For facilities to offer value-added things like a free boxed lunch at the turn or even free golf, hoping to survive on the cart revenue, may help solve short-term problems for certain facilities, but does little to improve their long-term financial viability."

Mead has been at the forefront of sustainable golf since his first project with architect Tom Doak, High Pointe Golf Club near Traverse City, Mich. Mead says, "Our goal was to create a course that was affordable, low input and walkable. As the saying goes, 'In order for golf to grow, it needs to be for everyone.' Like a lot of daily fee courses built during the boom, the green fees were never truly affordable for mom and dad and the two kids to all spend the day playing together." Sadly, High Pointe closed in 2009.

The point? "I think there's a better chance for long-term financial success if we get off the treadmill of trying to meet golfers' expectations by continually increasing maintenance intensity and budgets, and figure out how to make money respecting the real intent and spirit of the game while protecting the planet's vital resources. Plenty of superintendents can see the need for some sort of transition, and they have the ability to develop a sustainable maintenance program. The problem is that they do not have the time or ability by themselves to educate their boards and members, or owners and paying golfers, about what they are doing and why.

"To remain profitable the game

"If there is one thing positive that can be said about the downturn in the economy, it is creating **efficiency from necessity**. The state of the industry now has made us crack down and be mindful of what we're spending and when we spend it."
— Marlin Ewing, Old South Country Club

needs to evolve back to its origin, more connected to the natural world and local community. A new business model must address the fundamental problem of the business. We must reduce inputs. Especially water. We need to do this for financial reasons we need to do this for environmental reasons. Everyone in the business must make an extra effort to educate the paying golfer on the real intent and true spirit of the game and why it's important to preserve and protect our natural resources," says Mead.

Andy Sheehan, CGCS, now a sales representative for Davisson Golf, has seen the sustainability issue come to the fore throughout his territory in the mid-Atlantic. "What I'm seeing now," Sheehan says, "is people are once again having to prepare 'real' budgets which, in a way, is good. It's forcing them to be smarter superintendents.

"Guys will order, say, 14 bags of fertilizer for a greens application," Sheehan says, "because that has always been the number of bags it took to fertilize their greens. They don't take into account the area of their greens, calibration of their spreaders, or the fertilizer analysis it's just 'what we've always done.' Sales is no longer about being a good pitch man. You have to help out and be a consultant. I've helped lots of guys calibrate their spreaders and sprayers and they end up saving in the long run because they can more accurately determine their needs and stay within budgets."

Nothing wrong with that, Andy. **GCI**

Jim Black is a freelance writer based in St. Leonard, Md.

GUEST COLUMN

Time for change

Golf courses have long been perceived as environmental wastelands that use high amounts of chemicals and too much water. We all know these intensively managed areas have slowly begun to integrate organic and sustainable management practices. Although this topic is very highly publicized, actual changes in practices are sluggish. Maybe golf is such a traditional game that even its managers are afraid of change? If we want golf to thrive in the future we need to change the way we do things so the game is able to sustain itself.

For the game of golf to endure the rigors of the social, economic and environmental demands, attention must be given to specific areas of golf course management. According to the Environmental Institute for Golf this includes water management, integrated plant management, wildlife/habitat management, energy/waste management, and golf course siting, design and construction. As a course manager, improving in all five areas is a daunting task, not to mention the money and time consumed. With man hours being decreased, budgets being slashed and unprecedented environmental conditions present, it can, at times seem impossible. Like any new skill, we need to crawl before we walk and walk before we run and not dive head first into the two foot kiddie pool. Here are some simple steps towards making your facility more sustainable.

New generation, new ideas

As a new breed of young, up-and-coming turf managers, we bring a new train of thought to the industry. Challenge yourself to seek changes from the ordinary by thinking outside the box.

Use your intelligence to initiate and try new, well thought out ideas. Don't become complacent. Test your comfort zone and step outside boundaries. Assess your daily practices and justify why things are done. Doing things the same way because it has always been done that way won't cut it.

Learn principles of habitat/wildlife management

Golf course managers are generally not well-educated in habitat/wildlife management. This can be attributed to the unique differences between golf course and habitat/wildlife management. Golf course managers want things perfect immediately and habitat/wildlife managers understand this process takes time and has a lower threshold for perfection. Furthermore, courses tend to strive for uniform monocultures, whereas habitat/wildlife management seeks polyculture and diversity. Learning, but more importantly, understanding the basic principles of habitat/wildlife management will make our jobs easier.

Also, understanding the environment we are in can help us in becoming better golf course managers. We can look at things holistically and manage systems as a whole, instead of independently. Nature is a system in which things are always in relative balance and changing one thing may cause harm elsewhere if proper care is not taken.

Spread the good word

If the general public was asked what they though about golf courses, the majority would define them as resource hogs and heavy chemical users. We need to encourage communication of the positive aspects of golf courses, such as providing wildlife habitat, as well as serving as water treatment systems that can not only catch runoff, but also reduce the amount of pollutants that reach groundwater sources. We need to spread this message.

Be accessible to the community. Many non-golfers have valid concerns about golf courses and how they are managed. Educate and explain to people what you are doing and why you are doing it. Do things the right way, especially when no one is watching. Also, handle criticism effectively and take advice with an open mind.

Most importantly, share your information with your peers whether success or failure. Your local GCSAA chapter can be a great outlet for this. We are all in this together.

Every little bit counts

In today's rebuilding economy, it's difficult to justify improvements towards sustainability. Budgets are being slashed and golfers are still expecting comparable or even improved playing conditions. This seems impossible, but with the right action plan the mission can be accomplished.

Prioritizing is important. Choosing areas for improvement need to be thought out, justified and hopefully cost effective. Projects can be as small as installing compact fluorescent lamps at your facility or as large as an irrigation system overhaul.

There are also federal and state funds available for habitat/wildlife management, especially if there is a species of concern at your facility. These funds are highly sought after but may be a way to move towards sustainability with spending little or no funds.

We owe it to ourselves and to the future of golf to do our very best to ensure the long-term vitality of the game.

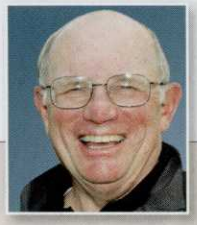
Seril Shimizu, M.S., is assistant golf course superintendent at Makalei Golf Club, Kailua-Kona, Hawaii.

REVOLUTIONARY STORIES

Looking to really know **what's going on** around you in the golf market? **Look to GCI** for stories no one else is telling told by the **industry's best writers.**

GOLF COURSE INDUSTRY

DECLARE *YOUR* INDEPENDENCE



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.

HANGING ON 'TIL SPRING

For me, one of the beautiful things about being a golf course superintendent is the extreme and distinct pleasure brought about by the different seasons of the year. Here in the North, we have four well-defined seasons, and each is very different from the others. On a golf course, the work also changes radically from season to season.

I have noticed in my life that about the time I'd get tired of a particular season, the next would slowly arrive. Right now, I am getting a little weary of winter. We have had enough snow and brutal cold to last us this year. Spring will be very welcome.

Make no mistake – I love the winter season. Golf courses are under a cover of snow and colleagues of mine are enjoying some relief from job pressures. That's even truer because we have made it this far with little ice accumulation on turf; we are hopeful of a new season beginning without winter injury.

The snow is not only a beautiful addition to our landscape, but it also is a major recreation feature. Skiing, snowboarding, snowmobiling, snowshoeing and more of the like add fun to the year. Winter gives us hockey, ice fishing and hard-water golf tournaments. We have several good-sized lakes in our town, and the iceboat racing is a big deal, too.

In our state we relished the season the Green Bay Packers gave us, and we were proud of the Badgers despite their loss in the Rose Bowl. We enjoy basketball at all levels, and some even get a real charge from the winter wrestling season. Winter gives us a chance to enjoy the arts more than we might when the weather is warm and the golf course owns us. A few years ago we attended a wonderful performance of the musical "Guys on Ice." It was an American Folklore Theatre play about ice fishing. The tough ticket this winter was one to see "Guys and Does, a musical about Wisconsin deer hunters and their quest to bag 'da buck.' There is nothing like intellectual stimulation to help pass the time!

I read "The Coldest Winter," David Halberstam's magnum opus about America and the Korean War. GIs were fighting in temperatures as low as -40 degrees, in miserable conditions and weren't treated any better when they returned home than those of us who were soldiers in the Vietnam War. At least that has changed.

The hot stove league gets underway in January, just in time, too. At one point this winter, 48 of our 50 states have snow cover somewhere. You can pretty much figure people all over were starting to think, "When is it going to be spring?" That emotion begins to heighten when the GIS is over, the local turf conferences are past, and the days are noticeably longer.

"In midwinter, when you're not paying attention, you'll hear the soft sound of a piano playing "Song of the South." You'll see a gently fluttering yellow Masters flag on a yellow flagstick against the bright green of Augusta National and hear Jim Nantz's rich baritone inviting you to watch the Masters in the first week of April. That is when you suddenly realize spring isn't that far away."

In midwinter, when you're not paying attention, you'll hear the soft sound of a piano playing "Song of the South." You'll see a gently fluttering yellow Masters flag on a yellow flagstick against the bright green of Augusta National and hear Jim Nantz's rich baritone inviting you to watch the Masters in the first week of April. That is when you suddenly realize spring isn't that far away.

For many years, in late winter, when the aching for spring and golf and birds and even rain showers, I sit down and read in Aldo Leopold's "Sand County Almanac." He was as good of a writer as he was a conservationist, and could write about the seasons better than anyone else.

But none other than Arnold Palmer wrote the best and most wonderful words about spring back in 1965:

"Especially in the spring of the year, when the first warm sun presses down on your shoulders, when the grass has just been mowed for the first time and sits there damp and green, with its fresh-cut smell floating up to your nostrils, when the sky is a deep blue roof over your head and an occasional cloud drifts by so white that it dazzles your eyes, a golf course is an intoxicating place. That was the sort of day, this was the sort of happiness that we kept waiting for all winter when I was growing up in western Pennsylvania. The winters are long and hard around Latrobe, my hometown: the golf course usually was frozen over the middle of December; we had to content ourselves with skiing until that first perfect day came along some time toward the end of March. We dreamed about it all winter and went out of our minds when it finally arrived."

It would be a safe bet that most golf course superintendents in places like the one where Mr. Palmer grew up are also going slightly out of their minds these last few days of winter. Hang on – it's almost here! GCI

Building your *personal* brand

By Brenda Bence

How employees, colleagues, members and guests perceive you can impact your efforts at your golf facility. Here are eight ways to maintain and maximize a positive personal brand.

Every day at work, a golf course superintendent – or any manager, for that matter – runs the risk of damaging his or her personal brand – even if they don't think they have one.

A personal brand is the way people perceive, think and feel about a manager in relation to others. The people who work at an organization already have perceptions, thoughts and feelings about their superiors, so just by virtue of being "the boss" in the workplace, a manager already has a personal brand.

The question is whether a golf course superintendent has the personal brand he wants – one that is bringing them greater success or holding them back. Not knowing the answer to this question could mean the difference between a department that stays land-locked

"The question is whether a superintendent has the personal brand he wants – one that is bringing them greater success or holding them back."

and one that skyrockets. Here are eight ways to keep personal brand damage under control.

GET CLEAR ABOUT WHAT YOUR CURRENT BRAND STANDS FOR RIGHT NOW. This means discovering how people perceive, think and feel about you in the present moment. Enlist a friend you trust to ask several work colleagues for the top five words they would use to describe you. Are you described the way you want to be? If not, your personal brand needs some adjustments.

DETERMINE WHERE YOU NEED TO MAKE IMMEDIATE CHANGES. If you aren't happy with the results of your research, that's good news. Why? Because it will clarify exactly what you need to change to create the brand you want.

DEFINE CAREFULLY WHAT YOU WANT YOUR BRAND TO BE. Once you have an idea of where your current personal brand is failing, you need to define your desired personal brand. Most people struggle with their personal brands because they haven't taken the time to clearly define them. Not having a personal brand definition is like meandering from point A to point B without a map. You might get there eventually, but you'll make a lot of wrong turns along the way.

So, take some time to consider: How do you want to be known? What are your strengths, and how can you best fill the needs of your brand's "target audience" – i.e., your employees and/or your customers?

COMMUNICATE YOUR BRAND EFFECTIVELY. Defining your desired personal brand is an important first step, but if it remains on a piece of paper in a drawer, it won't do you much good. In other words, no one's perceptions, thoughts or feelings about you will change unless and until you communicate the personal brand you really want.

So, keep your personal brand definition in mind as you go about the top five activities that all of us do every day. These activities best communicate what you stand for: your actions, reactions, look, sound and even your thoughts. The key to success is being consistent with these five activities – in what you say, do and think – day-in and day-out.

Do you act like someone with your desired personal brand would act? Do you stop yourself before reacting negatively to situations that arise? Do you look and sound like someone with your desired personal brand? And, yes, do you think like someone with your desired personal brand?

Thoughts are incredibly powerful and can not only affect your own feelings but how others perceive, think and feel about you as well.

AVOID DAMAGING YOUR PERSONAL BRAND. After you have defined your personal brand and created a plan for communicating it, you also need to take special care to keep it intact. How do you do that? One way is to watch others and learn from their mistakes. Even if you don't know anyone personally who has damaged their personal brand, you have certainly heard of celebrities who have made serious blunders. For some of them, the damage has been so severe that their careers have never bounced back. So, pay attention to what others do that damages their personal brands, and avoid doing the same things.

BE AWARE OF YOUR OWN MISTAKES AND FIX THEM QUICKLY. If you do commit a personal brand blooper, do whatever is necessary to fix it. Apologize for it, show that you take responsibility for your errors, and go out of your way to correct them. This promotes a positive personal brand.

LEARN FROM YOUR ERRORS TO AVOID MAKING THEM AGAIN. When you realize your brand has taken a beating after a mistake, ask yourself: "What did I learn from this?" Write down the lessons and make a commitment to never make that mistake again.

KEEP A SENSE OF HUMOR. Most importantly, if you make a personal branding mistake, be willing to laugh at yourself. Everyone likes to work with someone who doesn't take themselves too seriously. **GCI**

Brenda Bence is a consultant and business coach based in Las Vegas.

Honing Personal Brand

"Personal branding" refers to distinguishing characteristics that gives something an easily, quickly recognizable image. Simply put, it's what a business, product, service or even an individual stands for in terms of quality, dependability, security and niche. At a golf course, these characteristics allow you and your facility to thrive.

You always want your members, players, even staff and superiors to associate you with a positive, upbeat and successful experience. A loyal – particularly a brand-loyal – base should be the ultimate goal of successful personal branding. You can achieve this by establishing yourself as an authority or a leading expert in a particular profession, service or niche.

Some small-business industry experts argue that personal branding isn't so much about being overly concerned with standing out from others, but melding all of your experiences through a period of time into one. Personal branding isn't based solely on a created perception. It encompasses total experiences into the creation of a final product or service. Uniqueness and outstanding qualities occur naturally from there. It should inspire and, perhaps, empower you to examine what your colleagues and competitors are doing, and how you can stay a step ahead or add a different spin to your product. Consider these key points:

Make a conscious effort to listen to what the public says about your facility and the quality of play through word of mouth or random, simple surveys.

Include a uniqueness of product or a service-marketing niche. Promote the one-of-a-kind or you'll-never-find-this-anywhere-else distinctiveness.

Promote and highlight your strengths.

Your personal brand should match the perception that people have of you and your services. Some argue that we're all branded from birth, and the overall perception people have of you as an individual also parlays into your business' image. Some experts contend that there is a standard formula for branding that, if followed, will yield positive results. They are:

- *Define your values.* Since it's common to become enmeshed in a corporate culture delegated by an employer, clarify your position as an entrepreneur.
- *Be original.* Personal brands are not created or invented; they're experienced. Personal brands are defined by businesses that are willing to allow their talents to stand out without presenting themselves or products/services as phonies.
- *Become visible.* Marketing yourself and your company is the key element in promoting a personal brand. You can accomplish this by participating in panel discussions, teaching at a local college or writing regularly for a Web site or newspaper.
- *Establish and maintain relationships.* Personal relationships can and often do transcend into business relationships. Solid credentials and positive interactions with people will likely dictate the possibilities of long-standing relationships.

Ultimately, personal branding is synonymous with niche marketing. Major restaurants and some corporations have logos that automatically identify their organization with a particular service or product. As a small-business owner, you, too, can develop a logo and/or catchphrase that will quickly identify your company or brand to customers. – NFIB.com

Poor distribution uniformity (DU), produces donuts, or dry patches or soggy greens. It's a common problem on courses with aging sprinkler systems.

Dealing with donuts

By Nancy Hardwick

Nearly exhausting his options to combat donuts, one superintendent swapped out irrigation heads to improve distribution uniformity on his golf course.

Assistant superintendent Dennis Eichner had enough donuts on his course to start a Krispy Kreme franchise. Working with his crew at the prestigious Silverado Resort in the Napa Valley, Eichner had exhausted his playbook.

Adjust heads, check.

Fine tune irrigation schedule, check.

Install new factory nozzles, check.

But the donuts wouldn't disappear. Time for a new strategy.

Silverado is among the most prestigious golfing venues in California's Wine Country. It features two 18-hole courses with more than 100,000 square feet of fairways. The property was recently purchased by golfing legend Johnny Miller and the course is undergoing major improvements to prepare for PGA tournaments. With this kind of attention, the Silverado staff had no tolerance for donuts or other distractions.

After isolating the problem to sketchy nozzle performance, Eichner had one more play to try. He had seen Profile stainless steel retrofit nozzles at the Golf Industry Show and spent some time with inventor David Malcolm. Eichner knew the nozzles had undergone testing at the Center for Irrigation Technology at California State University, Fresno, and was familiar with courses that had switched out plastic nozzles for the solid metal alternatives.

THE TEST: FAIRWAY NO. 16. The Silverado irrigation system has more than 3,500 Toro 830s and 835s, which were installed 10 years ago. Looking at Big Bad Fairway No. 16 and its dirt-dry donuts, Eichner decided to give the nozzles a try.

The set arrived, the crew switched out a couple heads and waited skeptically. Within a week, Eichner's test turned out to be a win-win-win for the course, the players and the crew. "The donuts disappeared and the improvements were visible to everyone," he says. "You could actually place your hand over the spray pattern and see the uniform coverage. It's like a fine, gentle rain."

Since Eichner's initial experiment in 2008, Silverado has embarked on an active retrofit program. More than 1,000 nozzles have been replaced, with the crew switching out 400 to 500 heads each spring.

"We concentrate on fairways and greens surrounds and have also switched out a couple roughs," he says. "The improvements are obvious and the greens committee has been impressed.

"We now budget the money each season for the switch-outs. This retrofit program has also extended the life of our Toro system while immediately improving course appearance and playability."

ADDRESS DISTRIBUTION UNIFORMITY. Poor distribution uniformity (DU), which produces donuts, dry patches or soggy greens, is a common problem on courses with aging sprinkler systems.

While superintendents can often identify the cause, most don't know

Top: Donut damage. Superintendent Dennis Eichner says you can place your hand over the stainless steel nozzle's spray pattern and see the uniform coverage.

there is a specific tool designed to resolve DU issues.

Irrigation industry consultant and trainer Kurt Thompson of K.Thompson and Associates in Huntersville, N.C., and Pace, Fla, has spent more than 20 years consulting with supers on issues related to water efficiency. He says most courses would benefit from individual nozzling to improve coverage.

"Where superintendents have retrofitted with (stainless steel) nozzles, there have been significant improvements on fairways, even with mounds and elevation changes," he says. "They are also effective on greens that are covered by two or more sprinklers and operated by one station. Metal nozzles are also useful anywhere there are varying soil conditions that require different amounts or rates of irrigation."

TEST SITES. Before being released to the golf market, the nozzles underwent two years of extensive testing, which was coordinated by the California Department of Water Resources and conducted at the Center for Irrigation Technology (CIT) at California State University in Fresno. Five representative courses were used as test sites.

Dr. David Zoldoske, director of the Center for Irrigation Technology, conducted the study entitled: "Improving Golf Course Irrigation Uniformity: A California Case Study." The CIT identified potential water savings through improved irrigation uniformity and focused on the simple and cost-effective method of retrofitting nozzles.

Data was collected one year prior to the nozzle change and one year of operation post-nozzle change at each course.

Sprinkler audits were set up at each course measuring DU, the most common calculation for irrigation coverage. DU is the ratio of the dry or under-watered areas to the average applied within the sprinkler coverage area. DU above 80 percent is considered excellent and 55 percent or less is considered poor. The lower the DU, the longer the system must operate to provide the turf grass with the required water, wasting both water and energy.

CATCH CAN VALUES. Catch cans were systematically spread out over the coverage areas. The sprinklers were operated for a period of time with the amount of water collected and location of each catch can recorded. The catch can values were used to calculate uniformity.

One method to depict irrigation uniformity is a graphic densogram, a non-quantitative way to show the wet and dry spots within the sprinkler coverage area. Wetter areas (higher precipitation) are indicated by darker blue patterns and drier areas (lower precipitation) were indicated by lighter blue.

Densograms give an overview of how water is distributed in a repeating pattern between the sprinklers. It also indicates where the dry and wet spots are likely to show up on the fairways.

PLASTIC NOZZLES. Figure #1 shows the wet and dry areas within the sprinkler coverage (operating at 55 psi). The sprinkler heads were spaced on a 65-foot equilateral triangle and three green dots indicate the location of the heads. Using the original plastic nozzles, the driest point received only 57 percent of the average while the wettest point received 139 percent of the average.

METAL NOZZLES. Figure #2 shows the same irrigation system with Profile metal replacement nozzles (also operating at 55 psi) in the same spacing of a 65-foot equilateral triangle. Three green dots again indicate the location of the sprinklers. The image shows a graphic view of the wet and dry areas within the coverage zone. Using Profile replacement nozzles, the driest point receives 70 percent of the average. The wettest 5 percent of the pattern area receives 128 percent of the average.

A higher uniformity rate (DU at 80 percent or above) is the goal of most golf courses, and translates into savings of applied water and energy.

The CIT tests concluded that the factory plastic nozzles delivered only 57 percent of the average in the driest area, while the metal replacement nozzles delivered 70 percent of the average in the driest area. In the wettest areas, the original plastic nozzles delivered 139 percent of the average, while the metal replacement nozzles delivered 128 percent of the average applied water.

WATER SAVINGS. In addition to improving DU and overall course appearance, Profile nozzles provided new opportunities for water and energy savings.

The estimated total gross water savings for all participating golf courses in the CIT study was 99.8 acre feet of water (32.5 million gallons) or 6.5 percent of the applied water. After reviewing all data and test results, the CIT concluded that the actual amount of total savings was 91.4 acre feet (29.8 million gallons) with an average savings of 6.1 percent per course of the applied water and energy.

Additionally, sprinklers that provide superior Distribution Uniformity at lower operating pressure reduce energy demands. As shown in Figure 2, excellent uniformity in irrigation distribution can be achieved while operating at the relatively low operating pressure of 55 psi (at the base of the sprinkler).

CHRIS LANG PHOTOGRAPHY

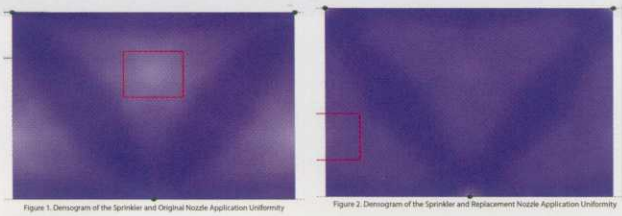


Figure 1. Densogram of the Sprinkler and Original Nozzle Application Uniformity

Figure 2. Densogram of the Sprinkler and Replacement Nozzle Application Uniformity

Top: Figure #1, wet areas with plastic heads. Figure #2, with stainless steel heads.

The CIT concluded that Rain Bird or Toro golf rotors retrofitted with Profile metal nozzles performed with consistently higher and measurable distribution uniformity, indicating greater efficiency while saving water, energy and maintenance.

Test results also showed that with water, energy and labor savings, the nozzles would pay for themselves within two years.

"The real power is knowing that retrofitting sprinklers with Profile nozzles can be phased in to work within a course's operating budget, rather than having to use capital improvement money," Thompson says. "The course can even use their own personnel to do the work if they choose. The financial returns and overall course benefits present a real advantage to the superintendent who keeps Profile metal nozzles in his irrigation toolbox." **GCI**

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

How they work

Manufactured by Underhill International of southern California, the Profile housings are constructed from solid brass and feature stainless steel nozzles engineered to provide uniform distribution and reduce wind drift.

Along with producing a main stream of water, the stainless steel insert has tiny notches pressed into the nozzle face, which strip away a small amount of water from the main stream, depositing it in close proximity to the sprinkler head. This produces the most uniform distribution of water possible, next to rainfall.

Primarily designed for golf courses, the metal nozzles operate reliably in sandy or rocky soil as well as in clay or loam, and are designed to resist clogging from dirty water. They are engineered to deliver a consistent, uniform application of water and reduce wind drift while providing long-range and close-in coverage.

The Profile Toro Series includes replacement nozzles for the: 730, 760, 860, 830, 834S, 835S, 670, 690, 750, 780, 854S and 855S. For Rain Bird heads, Profile retrofit nozzles are available for: Eagle 700, Eagle 900 and 51 and 91 brass impacts. Nozzles are color-coded for easy field ID.

BY GREGORY E. BELL AND KYUNGJOON KOH

Nutrient and pesticide losses caused by simulated rainfall and sprinkler irrigation

Oklahoma State University researchers conducted field studies to measure both nutrient and pesticide runoff from plots receiving both sprinkler irrigation and simulated rainfall. Among the findings: pesticide and nutrient losses from simulated rainfall did not differ from runoff losses caused by sprinkler irrigation.

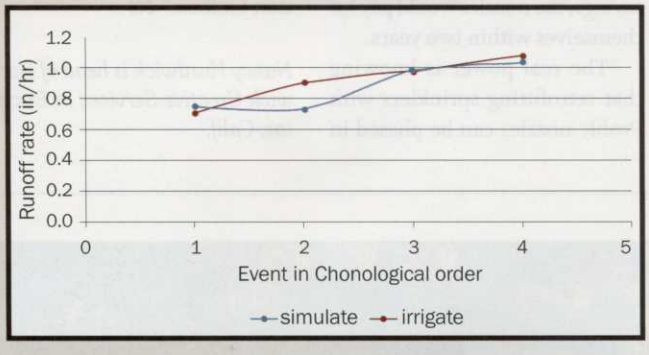
Research in crop production and turfgrass has identified grasslands, turfgrass stands and grass buffer strips as impediments to nutrient and pesticide transport in runoff (7, 12, 13, 27). Dense grass stands have unique characteristics that encourage water to infiltrate soil and impede and filter runoff (10, 19). However, research has also demonstrated the runoff-reduction characteristics that naturally occur in a dense turfgrass stand are not sufficient to prevent the substantial runoff caused by major storm events (2).

Urban turfgrasses are managed to provide relatively high aesthetic and functional value. Maintenance applications of fertilizers and pesticides required to satisfy consumer expectations followed by major storm events can result in unsatisfactory product transport to surface water features. Normally, surface runoff from turf has little environmental impact (6). However, because maintenance applications of nutrients and pesticides are required to maintain color and density at commercially or socially acceptable levels, there is a danger that some portion of a recent nutrient or pesticide application may combine with surface water runoff and flow into adjacent water features.

NUTRIENT RUNOFF. An important environmental hazard caused by nutrient runoff is eutrophication (9). Low levels of nitrogen (N), mostly in the form of nitrate (NO3-), and dissolved reactive phosphorus (DRP), including H2PO4-, HPO4-2 and PO4-3, can cause algal blooms resulting in a loss of oxygen in surface water. Eutrophication is responsible for the "dead zones" in the Mississippi Delta and the Chesapeake Bay, as well as numerous lakes and other water features throughout the world. At least one state, Minnesota, has passed legislation that restricts the application of phosphorus fertilizer to turfgrass (22). Nitrate in surface water at concentrations as low as 1 ppm may lead to eutrophication (26). High NO3 levels in drinking water are also a human health hazard. The Environmental Protection Agency has established a drinking water standard of 10 ppm for NO3-nitrogen (27).

Generally, about 99 percent of the phosphorus (P) in soils is unavailable for plant growth (3). Fertilizers are thus important as a source of plant-available P. Most inorganic fertilizers, however, are highly soluble, and if not properly applied, increase the risk of P loss to surface runoff (11). Dissolved reactive phosphorus can contribute to eutrophication at concentrations as low as 25 ppb (4) and is typically the limiting factor for eutrophication of surface water (23).

Figure 1.

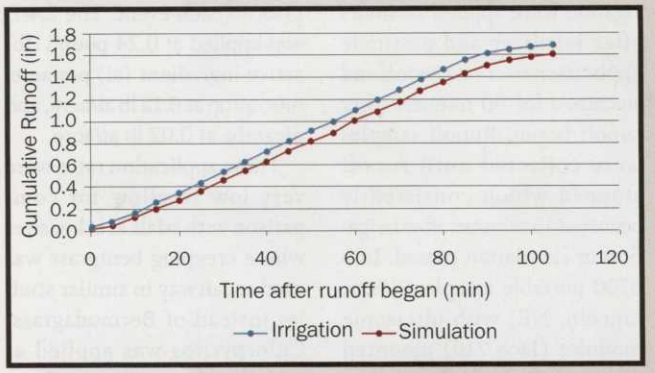


Nutrient transport in surface runoff is affected by rainfall or irrigation amount, intensity and duration of rainfall or irrigation, soil moisture, soil texture, slope, fertilizer application rate and fertilizer formulation (10).

PESTICIDE RUNOFF. Pesticide loss from turf depends on pesticide chemical properties, soil type, turf species, thatch, application timing and weather conditions (10, 21). Pesticides may be transported to surface water through runoff or eroded sediment. Cohen et al. (6) analyzed water quality data from 18 studies on golf courses in the U.S. and one Canadian study. Thirty-one pesticide chemicals were detected in surface waters, nine exceeded maximum allowable concentrations for aquatic organisms, and five exceeded maximum contaminant levels for drinking water. The average concentration of the pesticides ranged from 0.07 to 6.8 ppb.

Transport of pesticides such as 2,4-D [(2,4-dichlorophenoxy) acetic acid], dicamba (3,6-dichloro-2-methylphenoxy-benzoic acid) and mecoprop [(ffl)-2-(4-chloro-2-methylphenoxy)-propanoic acid] in runoff from turfgrass

Figure 2.



can be significant if the soil is saturated and rainfall duration and intensity is high. Smith and Bridges (25) for instance, found that 9 percent, 14 percent and 13 percent of the applied 2,4-D, dicamba, and mecoprop, respectively, from hybrid Bermudagrass during four simulated rainfall events over an eight-day period, was lost to runoff. Researchers have concluded that the greatest mass and concentration of pesticides in runoff from a turf area occurs during the first significant runoff event after pesticide application (7, 18, 25), and the amount of pesticide loss is primarily related to its solubility (24).

TURF AS A DETERRENT TO RUNOFF. Krenitsky et al. (16) compared natural and man-made erosion control materials and turfgrass. They found tall fescue sod was an effective material for delaying the start of runoff and decreasing total runoff volume. Gross et al. (12, 13) studied nutrient and sediment losses from turf and found turfgrass alone – without buffers – effectively reduced nutrient and sediment losses compared with bare or sparsely vegetated soil. Linde and Watschke (17) found sediments in runoff were low even after vertical mowing of creeping bentgrass and perennial ryegrass. Wauchope et al. (28) investigated pesticide runoff from bare soil plots compared with grassed plots and determined that the bare plots required one-third less precipitation to produce the same amount of runoff and yielded twice as much sediment as the grassed plots.

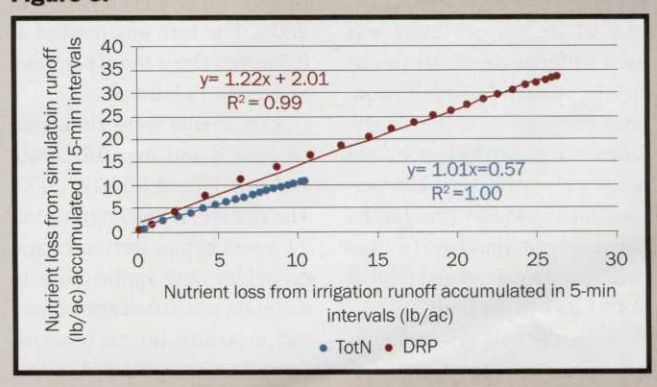
Harrison et al. (14) determined nutrient and pesticide concentrations in runoff from sodded Kentucky bluegrass. Plots were fertilized with N, P and K in a maintenance program typical of golf course turf in the northeast U.S. Irrigation at rates of 3 inches per hour and 6 inches per hour for one hour was applied one week prior to and two days following fertilizer applications. The researchers reported nutrient concentrations in runoff remained low throughout the experiment and generally were no higher than the concentrations found in the irrigation water. However, the N concentrations in runoff were as high as 5 ppm, and dissolved P concentrations were as high as 6 ppm. Both N and P concentrations were above those that can cause eutrophication of surface waters. The researchers concluded that under the conditions studied, nutrient runoff from established turfgrass areas was low due to low runoff water volume and was not affected by establishment method.

Gross et al. (12) studied nutrient and sediment loss from sodded tall fescue and Kentucky bluegrass plots. The plots were sodded on land that was previously cropped to tobacco. Slope at the site was 5 percent to 7 percent. Plots were fertilized with either urea dissolved in water as a liquid application or urea as a granular application at a rate of 4.5 pounds N per 1000 square feet per year. Control plots were not fertilized. Nutrient and sediment losses were low for all replications. The researchers concluded nutrient and sediment runoff from turfgrass areas is low, especially when compared with a previously cropped tobacco study (12).

Gross et al. (13) studied runoff and sediment losses from tall fescue stands of various densities under simulated rainfall conditions. Plots were established at seeding rates of 0, 2, 5, 8 and 10 pounds per 1000 square feet in September 1986. Simulated rainfall was applied at intensities of 3, 4 and 5 inches per hour in June 1987. The highest runoff volume was observed from the non-seeded plots at each of the rainfall intensities applied. Runoff volume was not statistically different among the seeding rates. The researchers also recorded visual quality, density and tiller counts. They concluded even low-density turfgrass stands can significantly reduce surface water runoff from well-maintained turfgrass areas. Kauffman III and Watschke (15) studied phosphorus and sediment runoff from creeping bentgrass and perennial ryegrass following core aeration. They concluded the DRP concentrations found in the runoff and the minimal soil erosion should not be considered a serious threat to surface waters. When turfgrass is healthy and dense it is an effective deterrent to off-site transport of nutrients and pesticides in runoff. Easton et al. (10) reported the establishment of turfgrass on bare soil increased soil infiltration by more than 65 percent over a two-year period. As shoot density increased, infiltration rate increased and runoff decreased.

Nonetheless, turfgrass sites can contribute to nutrient and pesticide losses to surface water in concentrations greater than recommended. It is the turfgrass manager's responsibility as environmental steward to practice management techniques that limit runoff transport of potentially-dangerous nutrients and pesticides. We used a rainfall simulator and

Figure 3.



typical sprinkler-type irrigation system for turf to create runoff and measured runoff losses of nutrients and pesticides to determine how much product was lost to runoff during a severe precipitation event. We also wanted to determine if the two precipitation systems differed in the amount of nutrients and pesticides lost to runoff, and whether or not the application rate of the products caused a significant difference in the amount product lost.

METHODS. The research was conducted on the Oklahoma State University Turfgrass Runoff Research Site, Stillwater, Okla., on a Norge silt loam (fine-silty, mixed, active, thermic Udic Paleustolls) with an infiltration rate of less than 0.5 inch per hour. The runoff site was divided into whole plots of event containing subplots of simulated rainfall and sprinkler irrigation replicated twice. The subplots (simulation and irrigation blocks) consisted of two experimental units each that measured 20 ft wide with a uniform 5 percent slope that measured 80 ft long.

The site was graded and sodded with 'U-3'Bermudagrass in the summer of 1998 and has been used for runoff research since 2000. An in-ground sprinkler-type irrigation system that delivered a precipitation event of 1.61 inches per hour was used to force runoff on the irrigation plots. A rainfall simulator designed after the Coody-Lawrence patented system and adjusted for peak sprinkler performance by Mark Carroll at the University of Maryland (5) was used to supply simulated rainfall at 1.51 inches per hour.

Our irrigation system could not supply sufficient water to operate the irrigation system on two plots and the simulator system on two plots simultaneously, so the simulator was supplied with water through a fire hydrant fed from a reservoir by gravity flow. The Christiansen's coefficient of uniformity (1) for the simulator averaged 78 percent compared with 80 percent for the irrigation system. To maintain experimental precision, the two plots that generated precipitation using the simulator system in 2005 were exchanged to receive irrigation in 2006, and the two plots that received irrigation in 2005 received simulation in 2006. The turf was mowed at 0.5 inches three times per week to simulate a fairway.

Rain events were simulated on June 8 and Aug. 18, 2006, and July 17 and July 22, 2007. The site was irrigated to runoff 24 hours before fertilizers and pesticides were applied to help maintain consistent antecedent soil moisture for each event. Samples were collected at this time to test for residual pesticides, but none were detected.

Simulated rainfall and irrigation were applied 24 hours after fertilizer and pesticide application to create runoff and sustained for 90 minutes after runoff began. Runoff samples were collected until runoff stopped which consistently occurred 15 minutes after irrigation or simulation ceased. Isco 6700 portable samplers (Isco, Lincoln, NE) with ultrasonic modules (Isco 710) mounted over each Parshall flume were programmed to collect samples in 5-minute intervals and to measure runoff flow rate in 1-minute intervals.

NUTRIENT AND PESTICIDE APPLICATIONS. In addition to N from urea and P from triple superphosphate, a fungicide, flutolanil (Prostar, Bayer Environmental Science, Research Triangle Park, N.C.), a broadleaf herbicide, 2,4-D plus mecoprop plus dicamba (Trimec Classic, PBI/Gordon, Kansas City) and an insecticide, chlorpyrifos (Dursban, Dow Agrosciences, Indianapolis) were applied prior to each event. The 2,4-D was applied at 0.24 pound (lb) active ingredient (ai) per acre, mecoprop at 0.12 lb ai/acre, and dicamba at 0.02 lb ai/acre.

These application rates were very low to allow for comparison with trials at other sites where creeping bentgrass was used as fairway in similar studies instead of Bermudagrass. Chlorpyrifos was applied at 1.00 lb ai/acre. Flutolanil applications were made at high rates and varied by event to investigate the relationship between flutolanil applied and flutolanil lost in runoff. N and P applications varied by event for the same reason and were determined by random selection of spreader settings.

ANALYTICAL PROCEDURES. Water samples were analyzed for NO3-N and NH4-N using colorimetric methods by automated flow injection analysis and DRP using the phosphomolybdate colorimetric procedure em-

Runoff concentrations detected varied primarily by solubility, but pesticide and nutrient losses from simulated rainfall did not differ from runoff losses caused by sprinkler irrigation.

Acknowledgements Funding was provided by the United States Golf Association through its Turfgrass and Environmental Research Program, as well as the Oklahoma Turfgrass Research Foundation and the Oklahoma Agricultural Experiment Station.

ployed by Murphy and Riley (20). The detection limit was 0.01 ppm for each nutrient in the runoff water samples. The average background levels of nutrients in the irrigation water samples were 2.7 ppm for total N (NO3-N + NH4-N) and 5.8 ppm for DRP and 2.5 ppm total N and 7.0 ppm DRP in simulated rainfall samples. The concentration of NO3-N, NH4-N and DRP in the precipitation was measured during each event and subtracted from the measured concentrations in collected runoff before statistical analyses were performed.

COMPARISON OF RUNOFF LOSSES DURING RAINFALL SIMULATION AND IRRIGATION. The irrigation system produced precipitation at 1.61 inches per hour and the simulator produced precipitation at 1.51 inches per hour. This difference in precipitation rate caused a slight difference in runoff rate (Figure 1). Runoff from the irrigated plots averaged 0.93 inches per hour and runoff from the rainfall simulator plots averaged 0.88 inches per hour. However, the differences in runoff flow rate between irrigation and simulation were not statistically significant. The amount of runoff that occurred during individual precipitation events differed in spite of considerations such as uniform plot size and slope, individual flume calibrations and steps to maintain uniform antecedent soil moisture designed to improve consistency. Differences in water pressure from the gravity-fed rainfall simulator resulted in variation among runoff flow rates by event (Figure 1), but these differences were not significant nor was there significant interaction between precipitation sources and events. However, the difference in precipitation rate between the irrigation system at 1.61 inches of precipitation per hour and the simulator system at 1.51 inches per hour caused a significant difference in cumulative runoff between the systems (Figure 2).As a result, the runoff rates for irrigation were adjusted downward by a factor of 1.51/1.61 prior to analysis of cumulative nutrient and pesticide losses.

RESULTS. A total accumulation of 1.67 inches of irrigation runoff was lost from a single plot during each event. A total accumulation of 1.59 inches of runoff was lost from each rainfall simulator plot. After adjusting by multiplying irrigation runoff by a factor of 1.51/1.61 total irrigation runoff was reduced to 1.57 inches making total runoff losses from irrigation and rainfall simulator nearly equal.

Nearly 2.5 percent of the N applied was lost in irrigation runoff and the same amount (2.4 percent) was lost to simulation runoff. The total P lost was nearly 20.1 percent of that applied to the irrigated plots and 16.6 percent of that applied to simulated-rainfall plots. Neither P loss nor N loss from irrigation and simulation were significantly different, nor did losses differ for any pesticide.

The concentrations of 2,4-D collected in irrigation runoff accounted for 1.1 percent of that applied and accounted for 0.8 percent in simulation runoff. Nearly 3.5 percent and 3.1 percent of the mecoprop applied and 12.3 percent and 15.7 percent of the dicamba applied (analyzed for only one event) were lost to irrigation and simulation runoff, respectively. Chlorpyrifos was lost to irrigation runoff at 0.28 percent of that applied and lost to simulation at 0.14 percent of that applied. Nearly 15.1 percent and 15.7 percent of the flutolanil applied was lost to irrigation and simulation, respectively. None of these results differed significantly by precipitation type demonstrating irrigation or simulated rainfall applied to Bermudagrass turf did not differ in their influence on runoff or nutrient and pesticide losses.

COMPARISONS OF PRODUCT APPLIED VERSUS PRODUCT LOST IN RUNOFF. The amount of P applied did not significantly affect the amount of P lost to runoff. The amount of N applied also did not significantly affect the amount of N lost, nor did the amount of flutolanil applied significantly affect the amount of flutolanil lost.

However, the work does suggest the amount of nutrient or pesticide applied has some effect on the amount lost. Averaged over all plots and events (n=16) regardless of precipitation type, 0.2 percent of the chlorpyrifos, 15.4 percent of the flutolanil, 3.3 percent of the mecoprop, and 1 percent of the 2,4-D was lost in runoff. Dicamba losses were only assessed for one event (June 18, 2006) and amounted to 14 percent of that applied. Dicamba was the most soluble pesticide applied, and although it was only applied in a small amount, 14 percent of it was lost in runoff demonstrating how easy it is to lose a highly soluble product to runoff.

Of the remaining pesticides, chlorpyrifos has poor solubility, flutolanil has medium solubility, and mecoprop and 2,4-D have high solubilities. With the exception of flutolanil, pesticide losses in runoff followed what would be expected according to pesticide solubility with chlorpyrifos having very low loss rates and mecoprop and 2,4-D demonstrating higher losses. However, it must be remembered that flutolanil was applied at very high rates (4.4 pounds per acre on average), and mecoprop (0.09 pounds per acre) and 2,4-D (0.17 pounds per acre) were applied at very low rates. In fact, 49 times more flutolanil was applied than mecoprop and 26 times more flutolanil than 2,4-D. It is likely that the large difference in application rates affected the high loss rates of flutolanil and the low loss rates of mecoprop and 2,4-D.

Consequently, the fact that application rates did not significantly affect the cumulative losses of nutrients and pesticide applied does not necessarily indicate that application rate did not influence the amount of product lost. More likely, there are other factors that collectively interfered with a direct relationship between product applied and product lost.

Perhaps future research will determine more about additional factors that need to be considered when attempting to determine the amount of product likely to be lost during a measured runoff event.

In the meantime, high application rates should be considered more likely to generate high runoff losses than low application rates. Although the research has demonstrated high losses of nutrients and pesticides from turfgrass systems are unlikely, the relatively huge losses of P and flutolanil in this study demonstrate what can happen when nutrients and pesticides are applied 24 hours after soil saturation and a severe rainfall event occurs 24 hours after application. **GCI**

Citations
See February's Online Extras for a complete list of this research's noted citations.

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.

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 terrybuchen@earthlink.net.

PORTABLE BEDKNIFE GRINDER

Florida Gateway College, formerly Lake City Community College, of Lake City, Fla., has a world-class turf equipment management program for aspiring equipment managers. Program instructors Mark Yarick and Jonathan Morriss fabricated a frame under their Foley bedknife grinder to hold the coolant tank and facilitate easy relocation of the unit.

They wanted to easily move the grinder to facilitate cleaning and reorganization of the shop. A simple frame was constructed so a pallet jack could move the unit. The frame attaches to the leveling feet of the machine. As an bonus, the coolant tank, which previously sat on the floor, was mounted onto the frame. The grinder frame is 2-inch x 56-inch square tubing with angle iron welded on the ends and extends about 5 inches to give the lift needed for the pallet jack. Slots were ground in the angle iron to receive the leveling bolts on the machine. These bolts were also used to attach it to the bottom of the grinder. The tank holder is 2-inch x 24-inch angle iron pieces bolted the correct distance to receive the coolant tank. The materials were already in stock and it took about two hours to complete. **GCI**

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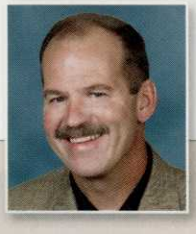

Pat Jones is editorial director and publisher of Golf Course Industry. He can be reached at pjones@gie.net or 216-236-5854.

US VS. THEM

I'm actually in Orlando at the GIS while I write this. Yes, I'm waaaaay behind schedule because of all the time and effort we put into preparing for the show. So, the bad news is I'm late and I've delayed the magazine by a day because I couldn't make time to get this done. The good news is that, because of my tardiness, I can offer you a little perspective from the many smart folks I've already spoken with the past day or so while I've scampered about for meetings, events, video shoots, speeches, booth set up and all the usual craziness that comes with the industry's biggest schmoozefest.

Any time you want to have an interesting conversation with any veteran grass god, just ask one simple question: "What's up with jobs in your area?" They will glance around to see if anyone else is within earshot and say, "Well I'm sure you heard about so-and-so leaving the Blazer Club..." And then you will learn what's really going on in that person's local market.

Good jobs are, in a word, scarce in our happy little business these days and great jobs are rarer than talented Kardashians.

Our business – to put it crudely – has a bad case of employment constipation. And there's no bottle of Ex-lax on the horizon to get things, er, flowing properly any time soon.

So, the tales being told by those veteran guys I've run into here in Orlando are ones you've probably heard before: 400 applicants for every good job that opens, long-term assistants being passed over for jobs they thought they'd been "guaranteed" and unemployed high-level supers accepting any position they can get to keep working, pay the bills and follow the professional path they're passionate about.

But there is a new twist on those tales I'm hearing more and more often. In the past, when a good job became available, you'd hear about applicants getting to the top five, learning whatever they can about the facility's current status and boning up on their presentation skills prior to the final interview. If they were smart, they'd reach out to a few colleagues or perhaps a club member they'd befriended for a reference or a good word with the selection committee. All that was accepted and cool.

Now there's something different: the full-court press. The intense interest in those all-too-rare good jobs has created a new kind of team approach for top candidates. They are literally putting together a group of high-powered supporters who will back them through the process, do all the right things to "endorse" a candidate and even coordinate a mini PR effort on the candidate's behalf.

It feels, for all intents and purposes, like a political campaign with managers, advisers and promotional people. There's deal-making, arm-twisting, favor-granting and smoke-filled backroom deals. All to position an already highly qualified person for those $200,000+ opportunities.

Frankly, there's absolutely nothing wrong with the approach. It's just taking old-school recruitment advice and practices to a more sophisticated level. I do find it mildly disturbing to hear rumors that some savvy folks actually charge a candidate a fee for their services – successful or not. If true, it seems odd in a profession that's always placed such a high value on mutual support and helping friends without expecting compensation in return. Yet, if the candidate chooses to go that route, so be it.

But I was a little uncomfortable when a major position search was described to me by two people – both guys I respect – as an "our team beat theirs" kind of thing. It felt like a competition...and I'm not sure that's the best way to approach the employment process.

There are times in your life that you quite simply have to stand alone. Sure, advice and encouragement are great. But an organized effort where each side makes their case, whispers in the ears of decision-makers and pits their "marquee" endorsements against the other's feels...weird. What happened to self-determination?

I wonder how long it will be before this mini-trend evolves – like politics has – to include smearing the opposition. I do not believe that any of the people who described this to me would stoop to something like that. They're honorable men who understand the culture and traditions of this profession. But, when it becomes a game, there is always a temptation to bend the rules. Sooner or later, honor will lose out to winning.

Honestly, this isn't something that the vast majority of you will experience directly. But, at the highest level of the business it is a distinct possibility every time a world-class job opens. It's a once in a blue moon occurrence, perhaps...but it's a sign of the times that the culture of the business is changing and becoming a bit more dog-eat-dog every day.

The late great Gordon Witteveen told me once that he feared the erosion of the "band of brothers" philosophy that has always bonded greenkeepers and superintendents for generations. I fear Gordon was more right than he knew. **GCI**

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