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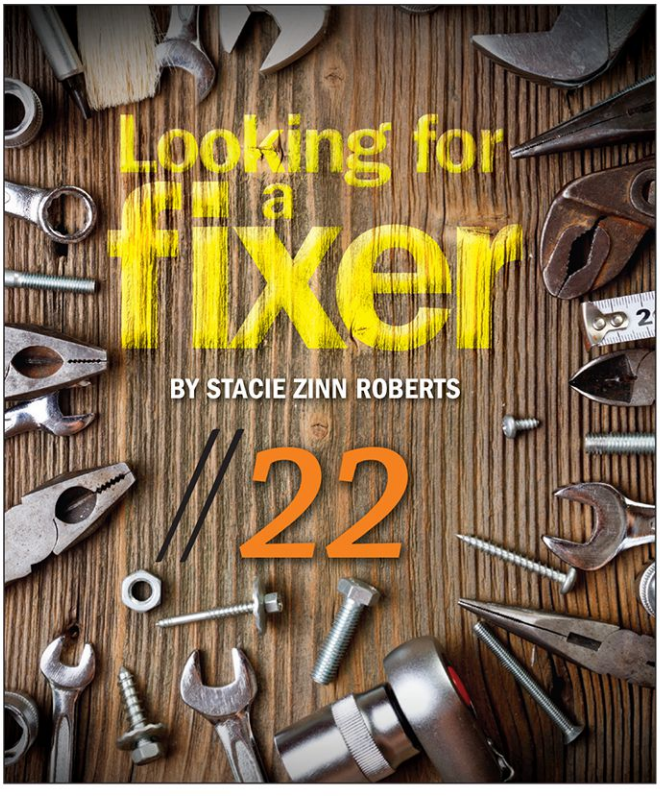

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[...on your greens]

[...on your high traffic areas]

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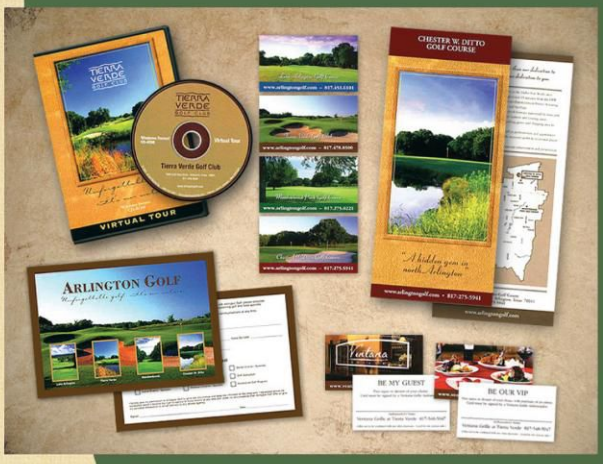

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VERIFIED AUDIT CIRCULATION

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

GOLFDOM (ISSN 1526-4270) is published monthly by North Coast Media LLC, IMG Center, 1360 East 9th Street, 10th Floor, Cleveland, OH 44114. **Subscription rates:** One year $48, two years $69 (U.S. and possessions), one year $70, two years $101 (Canada and Mexico) and one year $105, two years $152 (all other countries). Air expedited service is available in countries outside the U.S. and Canada for an additional $75 per year. Current issue single copies (prepaid only) $5 (U.S. and possessions) $7 (Canada and Mexico) and $8 (all other countries). Back issues (if available, prepaid only) $10 (U.S. and possessions), $14 (Canada and Mexico) and $16 (all other countries) add $6.50 per order shipping and handling for both current and back issue purchases. **Periodicals postage paid at** Cleveland OH 44101-9603 and additional mailing offices.

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Starter

NEWS, NOTES AND QUOTES

//PROMOTION

GREG HUNTER NAMED PRESIDENT OF HUNTER INDUSTRIES

The new president talked to *Golfdom* about his father's retirement and his plans for the company

By Beth Geraci // *Senior Editor*

After 19 years as Hunter Industries' president and CEO, Richard Hunter retired in February and his son Greg, 39, took over.

"I've been working for this for most of my life," said Greg Hunter, who first went to work for the company in his 20s, after graduating from Cornell University. "I feel very comfortable and very well prepared for it."

Hunter has served in several executive leadership roles at the company — in areas as varied as engineering, product management, information systems and marketing. He most recently served as Hunter Industries' COO. That diverse experience will help him as president, he said, because it has given him a broad understanding of the company.

Greg Hunter, president and CEO, Hunter Industries

While his father's expertise centered on finance, Hunter's marketing skills are among his strongest. He served as Hunter Industries' VP of marketing for three-and-a-half years. That experience, he said, "is going to help me leverage our strengths. Marketing is primarily what we are offering to our customers, and how we're going to deliver those products to them is something I'm very interested in."

Though Hunter is confident about serving as president, he allows that "filling my father's shoes is a whole different topic of conversation. I'm not my father. There are things I'll never be able to do as well as he does, but we have a very strong leadership team to help me with that."

Richard Hunter helped launch the company in the early 1980s together with his father, Edwin, brother Paul and sister Ann. Under his leadership, Hunter Industries grew into one of the world's most widely known irrigation equipment and landscape lighting manufacturers.

Though Richard still will serve as a company adviser, he has spent the last five years preparing the company for a leadership transition. Now, Greg Hunter feels primed to move the company forward.

"I'm most looking forward to watching what Hunter Industries does over the next 10 years," he said. "We have a lot of opportunities in the current marketplace. In the last five years we've invested more in R&D, and a lot of results of that are now coming to play.

"Our ability to innovate and bring products to market in a timely manner," he added, "is stronger than it's ever been."

//CHECK, PLEASE

BECKER UNDERWOOD DONATES TO WEE ONE FOUNDATION

At the Golf Industry Show, Becker Underwood presented the Wee One Foundation with a check for $5,210, further empowering the non-profit to assist superintendents and their loved ones overburdened with medical expenses.

In presenting the award, Becker Underwood Product Manager Joe Lara said the foundation works hard to help those who "have been through some pretty tough times." Since its founding in 2004, the foundation has gifted nearly $600,000 to families in 17 states.

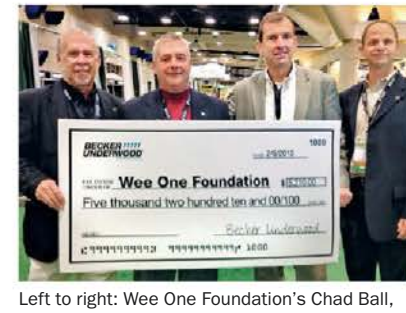

PHOTO COURTESY: BECKER UNDERWOOD

Left to right: Wee One Foundation's Chad Ball, Paul Bastron, Steve Cook and Luke Cella

//THE AWARD GOES TO...

MEREWITZ NAMED MUSSER WINNER

The Musser International Turfgrass Foundation selected Dr. Emily Merewitz, Assistant Professor in Molecular Turfgrass Biology at Michigan State University, as the 2013 Award of Excellence recipient. The award is given to outstanding Ph.D. candidates who, in the final phase of their graduate studies, demonstrate overall excellence throughout their doctoral program in turfgrass research.

"It is quite an honor and it will motivate me even more to excel in the turfgrass industry," Merewitz said. "The industry has been extremely supportive of my research and this award is something that means a lot to me."

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EMAILS @ TEXTS # TWEETS

Thanks so much for recognizing Wayne Kappelman for all of his good (incredible) work at Sharp Park. Richard Harris and I have been in the foxhole for many years now, with many more to go, but we're totally dedicated to preserving — and restoring — this very special place. The battle has been lonely, but with friends like Wayne and good friends such as the staff at *Golfdom,* who recognize what's rooted in the ground at Sharp Park… well, that just makes the fight all the more worth it. So thanks for the shout out.

Bo Links
Co-founder, San Francisco Public Golf Alliance
San Francisco, Calif.

//GOLFDOM WISDOM

Whenever you find yourself with an angry person shouting and pointing at you, you might have done something really bad... but it's just as possible that you did something really right. #golfdomwisdom

Swing Perfect

UNDER REVIEW

REVIEWED BY CHRIS ZUGEL // *Whistling Straits Golf Course*

Catching up with the guys and gals at *Golfdom* during the GIS has become a welcomed tradition as of late. This year in San Diego, Seth Jones threw a little gizmo at me, the Swing Perfect (www.swingperfect.com), said to help improve one's golf swing. While I'd like to think that Seth wanted my expert analysis of new products, as I walked away I couldn't help but think, "He thinks I suck at golf!"

Upon returning home to Wisconsin, I stopped by the indoor golf center to try out the Swing Perfect. I opened up the package, put the battery in and tossed the directions. Like any other American man, I don't need directions. After a few minutes I realized I had put the battery in backwards. I fished the packaging out of the garbage, did some brief reading and put the DVD safely in my coat pocket for later.

The Swing Perfect attaches to any club. Turn it on, align it with the face of the club and swing. The unit vibrates when the club is in the wrong position. A little shocking at first but you get used to it. The proper order of events would have had me open the package near a DVD player, watch the DVD, get some tips and commence my assent of the PGA Tour ranks.

The Swing Perfect's vibration feedback and compact design are both positives. Some of the drills seem effective. With two young kids getting into golf I spend many afternoons at the range hitting balls. The Swing Perfect would be great to toss in the golf bag and bring along. Will it make me a better golfer? Time will tell. I can tell you how far I can hit my 7 iron but I doubt that Swing Perfect will be the piece of the puzzle that sends me to the PGA Tour. But then again, maybe it will make me just a little bit better. Isn't that what we all keep coming back for?

PHOTO COURTESY: SWINGPERFECT

READER JOKE

AS TOLD BY **Joe Stribley, Yellowstone CC, Billings, Mont.**
Send us your jokes at golfjokes@northcoastmedia.net. If we publish yours we'll send you a $50 gift card!

True story from Lee Trevino: One day after joining the PGA Tour in 1965, Lee Trevino, a professional golfer and married man, was at his home in Dallas, mowing his front lawn as he always did. A lady driving by in a big Cadillac stopped in front of his house, lowered her window and asked, "Excuse me, do you speak English?" Lee responded, "Yes ma'am, I do." She then asked, "What do you charge to do yard work?" Lee thought about it for a moment and said, "Well, the lady in this house lets me sleep with her." The lady immediately put the car in gear and sped off.

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Golfdom Gallery

WE CAME.
WE SAW.
WE TOOK PICTURES.

1 All eyes on you Jacobsen president David Withers (left) and sales manager Dave Wanta (center) with Bermuda Run CC superintendent Scott Fallon at the Carolinas GCSA GIS party. Look closely, that's Jake's VP of Sales Ric Stone in the background with the photo-bomb. Nice job, Ric!

2 Dick's Last Resort It was our *The Hangover* moment of the GIS — this pic taken outside of Dick's Last Resort. This photo proves we were there, but damned if we can remember any of it. One-man wolfpack, indeed.

3 Hello, Mrs. Kreger Greg Bowersox of ShowTurf with Stacey Kreger, wife of Carolinas GCSA Executive Director Tim Kreger. Great seeing Greg and all, but we really just wanted to get a pic of Tim's better half in the magazine.

4 Leaders of the pack (L to R) Patrick McHugh of Cardinal Chemicals and his wife, Deb; Robert Arrington of Catawba CC with his wife, Denise, and friend Willy Kim. Robert and Denise were happy to be at the GIS, but we know they would have rather been at Sturgis.

5 Friends from Florida Kirk Swaggerty of Beard Equipment Co. (left), with John Deere Landscapes' Hal Richburg and Shingle Creek Golf Club's Rickey Craig at the Florida GCSA reception in San Diego.

6 GIS of the Living Dead Brains! These zombies, lurking at the FMC booth, hit paydirt when they met *Golfdom* Senior Editor Beth Geraci. Her Northwestern University-educated brain was a tasty delight. (They let Seth go.)

7 Mucha Lucha We saw this dude in the Gaslamp, and while we can't prove he was a superintendent in disguise, he was shouting about a steel cage match with nematodes.

PHOTOGRAPHY BY: GOLFDOM STAFF (2, 5, 7-13)
BY TRENT BOUTS (1, 3, 4) / COURTESY FMC (6)

QUICKSILVER® HERBICIDE

You've tried everything to kill moss. Now, get something that actually works.

Golf course superintendents have struggled to find an answer for silvery thread moss on bentgrass and Bermudagrass greens and tees. Due to the non-vascular nature of moss, systemic herbicides are ineffective, making moss difficult to kill.

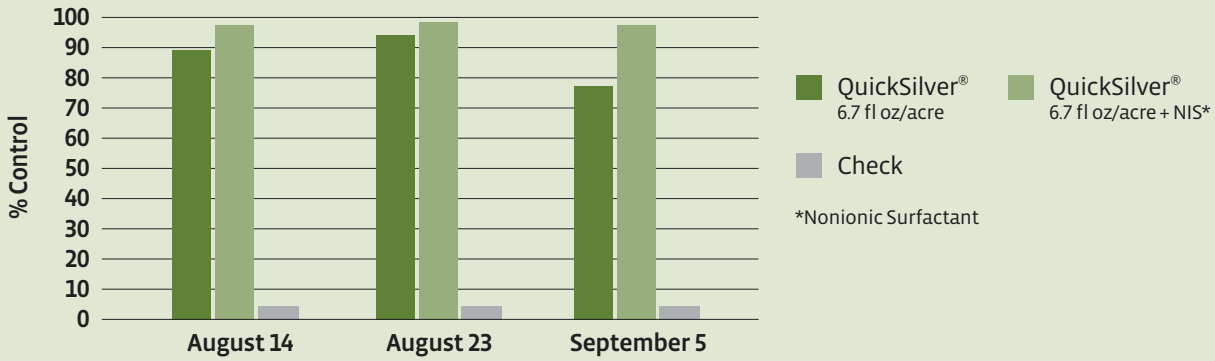
Some turf professionals have tried commercial solutions not labeled for moss control, which can cause turf damage. Others have even resorted to using home remedies to control moss, including hydrogen peroxide, dish soaps, baking soda and lime. These treatments are often ineffective and can severely damage turf due to their non-selective properties.

Using home remedies to fight moss can lead to even bigger problems.

The Proven Solution

QuickSilver® herbicide contains carfentrazone-ethyl, which has been thoroughly evaluated by turf researchers in several states, and works by inhibiting a key enzyme in moss chlorophyll production. It's so effective, in fact, that research has shown that QuickSilver reduces up to 90% of moss when applied twice at a 14-day interval of 6.7 oz/acre.

QuickSilver® Herbicide
SILVERY THREAD MOSS CONTROL



Fred Yelverton, Ph.D., North Carolina State University

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QuickSilver® HERBICIDE

The Experts Agree: QuickSilver Works

In independent studies, turfgrass researchers found QuickSilver herbicide provides optimal control of silvery thread moss on golf course creeping bentgrass and Bermudagrass greens and tees.

> *"Based on our research here at North Carolina State, which spans 11 years of testing, when one considers both control of moss and turfgrass tolerance, QuickSilver appears to be the most consistent for controlling silvery thread moss over a broad range of environmental conditions."*
>
> Fred Yelverton, Ph.D., NORTH CAROLINA STATE UNIVERSITY

> *"QuickSilver provided the best control with the fewest applications."*
>
> Mike Richardson, Ph.D., UNIVERSITY OF ARKANSAS

> *"QuickSilver is highly effective for moss control on bentgrass greens."*
>
> Scott McElroy, Ph.D., AUBURN UNIVERSITY

Green infested with silvery thread moss, untreated.

Green treated with two applications of QuickSilver at 6.7 oz/acre, 42 days after initial treatment.

QuickSilver Herbicide: A Real Solution

Keep your home remedies at home. When it comes to your course, you need a scientifically proven answer for eliminating silvery thread moss. Keep your tees and greens beautiful and moss-free with QuickSilver herbicide.

- Effective in reducing up to 90% of silvery thread moss
- Controls moss in just two applications when applied at a rate of 6.7 fluid ounces of product per acre (0.154 fluid ounces of product per 1,000 square feet) two weeks apart*
- Extremely gentle on turf, including most creeping bentgrass and Bermudagrass varieties
- Works in both cool and warm temperatures for year-round control as needed
- Leaves minimal soil residue, allowing for quick reseeding and fast reestablishment of turf
- Quickly and easily applied through typical spray equipment, keeping chemical, equipment and labor costs within any budget

* A third application at lower rates may be applied if needed in two or more weeks after the second application to control moss that may have reestablished. Up to four applications are permitted per year, if needed.

For more information on silvery thread moss control with QuickSilver herbicide, contact your FMC Market Specialist or your local FMC Distributor.

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QuickSilver® HERBICIDE

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Golfdom Gallery

8 **Putt for dough** We liked the read on this putt but they forgot one thing: at the convention center, everything breaks toward the bar after 4 p.m. on Thursday!

9 **A three-hour tour** On the Valent cruise of the San Diego Bay, we decided to cast a turf version of "Gilligan's Island." Let's see, Ted Ellis, CGCS at Wanumetonomy G&CC in Rhode Island... the Skipper. Mike Iacono, CGCS at Pine Brook CC in Rhode Island... the Professor. And *Golfdom* EIC Seth Jones? Gilligan.

10 **Every Joe Schmo loves *Golfdom*** Chase Rogan of Pure Turf Consulting and Spike TV's "Joe Schmo Show" stopped by the booth and gave the mag's new look the thumb's-up. We give his reality TV score of $100,000 an even bigger thumb's up.

11 **The Big Unit** At the John Deere VIP event at Petco Park, home of the San Diego Padres, Seth ponders how he'd do on the mound in a big game. Hey Seth, here's a hint: to batters, the baseball would look even fatter than that Miller Lite tall boy in your hand.

12 **Pay up!** Mark Jordan, natural resource leader at Westfield CC in Westfield Center, Ohio, who was profiled in our January '19th Hole' interview, shows that he makes good on a lost bet. He hand delivered this Kansas blue Westfield golf shirt to Seth, just in time for March Madness.

13 **Orange everywhere** Jacobsen celebrated this year's GIS with a guerilla marketing campaign that boasted there was "orange everywhere." But at their packed VIP party in the Gaslamp, there were superintendents everywhere, with sitting room nowhere.

"Walking around the field, seeing the turf up close, grabbing a ballpark hot dog on a brisk San Diego night... where else do you get something like that?"

SETH JONES, *Editor-in-Chief*

Seth's top 5 GIS moments

I hit the ground running at the Golf Industry Show this year. I might need to start booking my flights to big events like the GIS a day earlier than I'm expected, just so I have time to unpack and take a breath before the craziness starts.

Next month I plan on opening up my reporter's notebook to you all so you can see and hear some of the things I learned in my 30-plus meetings at the GIS. For now, I'll keep it short and just give you my top five moments of the 2013 GIS:

5 BASF's 'Superintendent Pyramid' — Every year BASF hosts a game show at their booth and gives away cash to superintendents (this year they gave away a total of $8,350 to 14 superintendents.) They also host a media version of the game, and donate money to charities of our choice. (For more on this, check out page 34.)

In all honesty, this year me and my partner fell on our faces in front of a small crowd (you could probably see the steam coming out of my ears.) But I look at the big picture and realize that the first BASF game show I played was their Jeopardy! game in 2009... so that's five straight years, and $5,000 (at a minimum) that BASF has donated to charities of my choice (this year's was Disabled American Veterans.) And that's just very cool.

4 Valent cruise — Remember me saying I hit the ground running? Because of a scheduling conflict, I had to add this three-hour cruise of the San Diego Bay to my schedule at the last minute (tough gig, I know.) My flight landed, a quick cab ride, throw my bags in the room, run out the door... I made it to the boat about two minutes before it left the dock. Whew!

And what a good time. Saw some old friends and colleagues on the boat, caught up with the good folks at Valent, saw some cool scenery and saw a bunch of military helicopters up close as they flew overhead.

3 Waiting for my flight — I was tired. Hungry. Possibly a little hungover. I was three hours early for my flight. ...And I was almost as busy as I was at the show.

First it was my friends from the Carolinas, then some old colleagues from the GCSAA. Then I saw some participants in the turf bowl, then I ran into Luke Cella from the Wee One Foundation. I even saw a guy reading the new *Golfdom* as he waited for his flight.

By the time I boarded my plane I had probably shaken 15 different hands and was invited to two events. It just goes to show that things happen at the GIS... even after it's over.

2 Petco Park tour — Hat's off to John Deere for what was easily the coolest event of GIS 2013 (see more on the Petco Park event in our GIS review story.) Walking around the Major League Baseball field, seeing the turf up close, looking up into the stands, grabbing a ballpark hot dog on a brisk San Diego night... where else do you get something like that? And Deere utilized a great spokesperson/host in Luke Yoder, director of field operations for the Padres. He was genuinely thrilled to have so many turf pros roaming the infield.

1 Redesign reaction — You never know for sure what kind of reaction you're going to get until you're getting it. The reaction to the new look of *Golfdom*, which unofficially debuted at the GIS, couldn't have been better. It's nice to know that people are reading, that they notice these things and that they care.

So thanks to everyone who came by the *Golfdom* booth, to everyone who said hello at the after-hours events, and to the GCSAA for hosting a great show. For those of you we missed, we'll see you there next year, where we'll make a new top 5 list.

Email Jones at:
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My Second Office

BECAUSE THE COURSE IS YOUR FIRST

About our host

With his erudite demeanor and vast knowledge of golf history, **SEAN TULLY**, superintendent at Meadow Club in Fairfax, Calif., is often called "The Professor." And it's an apt nickname. Tully serves on the USGA Architecture Archives Committee, and given the chance he can opine at length on everything from the game's past to one of his hobbies — finding vintage clubs.

Tully has been with Meadow Club since 2000, making the move a year and a half after graduating from Colorado State University. "It's been good," he says. "I really like it here. I like the history of it."

1. **VINTAGE SET** I have two sets of clubs. One is a more modern set — modern for me, at least. They're from the late '80s, early '90s. I have another set from the '20s, '30s and before. I try to collect clubs that are historically significant. I'm still trying to find one for Meadow Club.

2. **THE TULLY LIBRARY** I don't have enough room at my house, so it's kind of moved over to my work. I've got a bunch of club history books and books on noted architects. I'm also on a USGA committee with the architecture archives committee, so it's a working library.

3. **AFTERNOON READING** I really enjoy *Golfdom* — the timeliness of it. I like the fact that they do a good job of reaching out to different superintendents as well. You get to know different people that way. I've been reading *Golfdom* — I think I've gone through 1927 to 1948 online with all their old magazines. Yeah, I do a lot of research.

4. **THE DOG** That's Bodie. We got him at a local shelter a couple years ago. He'll run himself into the ground, so I bring him out to the course. He drives my wife, Anie, crazy. Here, he's got it made. He runs and runs.

5. **TEST TUBES** Right now we're just trying to figure out what our bentgrass to *Poa* ratio is. We took some plugs out of our greens, so we're also using them as a control against our seed head suppression and to monitor for when our greens start seed head production.

6. **HOOK 'EM** I'll go out with my girls, Lucy and Maisy, on the weekend. They like to come up to the course. I mentioned to them one day that there are antlers all over the place, so we go on these little nature walks. We found a couple antlers and other items, what we believe is a coyote skull and other bones. My wife and I are going to cut [the antlers] up. You can give them to your dog as a chew toy or make buttons out of them.

7. **BIRD'S EYE** That's the course. We use that as a reference for how many trees we've cut down. That one is from '99. Every 10 years we get a new picture. The new one is up in the hallway right now.

BY KATY IBSEN // PHOTO BY SETH JONES

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"It's more efficient and cost effective to have the work done by a company that specializes in golf course renovation, rather than do it in-house."

MARK WOODWARD, *Contributing Editor*

Makes perfect sense

Eventually, all successful clubs are faced with the decision to renovate their most important asset — the golf course. Golf courses are living entities that require more than just ongoing maintenance. As the golf course ages, things begin to change. And not all of those changes improve playability or lead to the course's long-term success.

Tees settle, greens bind, irrigation systems wear. It's all part of a golf course's natural aging process. Add to that the impact of cart traffic compaction, weather issues, divots and pitch marks and it's easy to see that for golf courses to remain competitive in their local markets and maintain their share of rounds, renovation becomes a necessary part of managing a golf facility.

Renovation requires planning and, depending on the scope of work, it should be budgeted for well in advance.

One thing I've learned in my short time as an owner of a golf course renovation and construction company is, in the vast majority of cases it's more efficient and cost effective to have the work done by a company that specializes in golf course renovation, rather than do it in-house.

Many superintendents I've spoken with over the last couple of years have said that with recent budget and staff cuts it makes total sense to let companies that do renovation work every day get in, get the job done and get out. This allows the superintendent to have maintenance staff focus on the job it does best — maintaining the golf course.

This requires planning, budgeting wisely and many times, convincing club officials that this truly is the best way to handle renovation work. Most superintendents I know have the knowledge and expertise to complete renovation work up to a certain point. Renovating a bunker or two here and there generally doesn't create too much of a burden on the superintendent or maintenance staff.

But if the club plans to do more extensive renovations, often their scope conflicts with the regular maintenance of the golf course. Something has to give, considering that the regular maintenance practices don't get done as often during a renovation project if crews have to try to accomplish both.

Therefore, the condition of the golf course suffers, golfers begin to notice things aren't getting done and complaints begin. How many times have you heard a club official say something along the lines of "Why can't you just do this renovation project 'in house' with your existing staff?"

I've even seen this approach work quite well on a relatively small project, such as leveling irrigation heads. Most superintendents would think that is naturally a job a maintenance staff would do, because it's generally considered an ongoing maintenance project.

On the flip side, if you budgeted for a project to be completed by a golf course renovation company, it would get done much more quickly. Not only that, all the irrigation heads would be leveled at about the same time. The superintendent wouldn't have to try to fit head leveling into slower maintenance times, and the project would be completed much faster.

I recently spoke with a superintendent whose club was renovating bunkers in-house as time allowed. He told me they have been doing approximately 14 bunkers per year. That may sound pretty good, except he went on to tell me he has 140 bunkers on his course. At his current rate of in-house renovation it will take him 10 years to get through all the bunkers.

Guess what? By the time he's done, it will be time to start over again. A golf course renovation company could come in and get this job done in a couple of months and all 140 bunkers would be on the same renovation cycle and look and play the same. Additionally, over those many years, getting bunker sand to match would be virtually impossible.

So, if you really think about it and do a cost/benefit analysis, in many cases this approach makes perfect sense.

Mark Woodward is president of Mark Woodward and Associates, principal of DaMarCo Golf, CEO of MasterStep Golf Group and a contributing editor for *Golfdom*.

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"You might have to get off your duff and get involved."

JOEL JACKSON, *Contributing Editor*

The ABCs of advocacy

If you are not an active advocate for the golf industry in general and of your own golf course as a small business and community asset, you are giving regulators, politicians and activists an open door to trample all over your livelihood.

You don't have to storm City Hall with signs and chanting mobs, but you do need to have a plan of action. The easiest way is to participate with your local superintendent chapter, so you might have to get off your duff and and get involved. That is, if you think it's important to have the water, chemicals and fertilizers needed to keep your course competitive and yourself employed.

And I've got the ABCs to get you started.

A is for awareness. You have to know what's going on. On the GCSAA website you can go to the Government Relations link and find out what's hot or on the horizon in your state and local regions. Regardless of the issue, the first step is to make your club management and members aware of the possible effects.

Next, talk to city, county or state environmental department staff; they are the fact finders and make recommendations to the politicians for legislation. Make sure they have the latest scientific research data from your land grant universities. Hopefully your chapter is already supporting turf research.

B is for best management practices. A steady growth of proactive best management or environmental monitoring and planning programs are coming along, from Florida to Oregon and up around the Chesapeake Bay area. That includes the GCSAA's Environmental Institute for Golf, another resource that will bring you up to speed on what's being done for Golf's Drive Toward Sustainability. A toolkit of information is being developed to help all members become better advocates and environmental stewards in general.

C is for communication. Perhaps this is the most important tool of all. Communication starts with your crew, then club management, right down to members. If you are walking the talk, the talking will be easy, no matter whom your audience may be.

It would also be good to form a state alliance of golf associations (PGA, CMAA, GCSAA members) to unite and advocate for golf on all issues facing the industry. A lot of chapters are beginning to have "Golf Days" in state capitals, like the national We Are Golf effort.

Conduct an annual maintenance facility tour for members so they get what you're doing and why. Also lead several member tours of the course. Point out the wildlife and show hands-on examples of what and why you do things that are environmentally responsible and beneficial to your turf, the course's physical and financial health and your watershed's viability. You can also host school tours and Audubon bird counts.

In conjunction with your local or state chapter, host regulator tours as well to show them what you are doing. We do this annually in Florida every March, partnering with the Florida Fruit and Vegetable Association's weeklong spring regulator tour for EPA, state and local DEPs, and state water management district personnel. The Old Collier GC is the first stop on their tour. They want to know about pesticide use, safety, storage and water quality protection.

Tours provide regulators and other groups a real-world view of what's going on and how careful and professional you are. Folks get to see the areas you treat are not as vast as imagined when they see your green, tee, fairway and naturalized areas. You often get to showcase the wildlife on the course during these outings.

Won't you personally resolve to communicate, educate and advocate for golf — and therefore yourself?

Joel Jackson, CGCS-Ret., is director of communications for the Florida GCSA.

Take a good look.
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{fig. w-42}
Digitaria sanguinalis

{fig. w-76}
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"Like those who work in every other facet of the business, mechanics are being asked to do more with less. In many cases, they are maintaining aging fleets on dwindling budgets."

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

Getting technical

Hell hath no fury like an equipment technician the week after topdressing. Of course, I'm totally joking. Well, maybe not totally. I might be a little bit serious (If emoticons weren't ridiculous I'd drop the always adorable colon/parenthesis thing here.) But can you really blame them? If there's one thing mechanics obsess over, it's quality of cut. And we all know how much running sand through the reels helps with that (semi-colon/parenthesis).

In all seriousness, there are many other things that also demand mechanics' attention and expertise. Like those who work in every other facet of the business, mechanics are being asked to do more with less. In many cases, due to several years of reduced or non-existent capital expenditures, they are maintaining aging fleets on dwindling budgets with little or no help from an assistant technician. Many are also asked to assist on the course to varying degrees, be it through training equipment operators or actual course maintenance tasks.

Good equipment technicians have at least a fundamental knowledge of the agronomic aspects of golf course maintenance and understand the need for the more invasive practices that can, at times, wear down equipment. Those who do not yet posses some basic agronomic knowledge should be willing to obtain it, and we should help educate them.

Likewise, it's important that we have at least a fundamental understanding of a mechanic's side. Understanding each other's work will lead to the effective communication essential to running an efficient operation.

I've heard mechanics mention challenges such as not being informed of mechanical issues when they arise or being given inadequate descriptions of a problem. Informing the mechanic of a minor problem in a timely manner can save considerable time and money when it comes to the repair. More importantly, the repair can then be scheduled, instead of becoming a roadblock that ruins everybody's day.

A proper diagnosis (or at least a competent description) may allow the technician to make a quick repair in the field instead of having to do it in the shop. Using terms like "the plastic thingy," or "it's just really jacked-up" aren't helpful.

Take advantage of opportunities to assist the equipment technician, and ask questions whenever you can. Even if you're just providing an extra set of hands or grabbing wrenches, you'll probably learn something you can use down the road. And he'll probably appreciate the help.

Assisting him may also enable you to eventually handle some repairs yourself when he is tied up with more serious or difficult issues. Equipment maintenance and repair is a large part of any golf course budget, so the importance of at least being mechanically conversant is pretty obvious.

The International Golf Course Equipment Managers Association (IGCEMA) is another great resource for learning more about the mechanical side of things. Membership is free for all four classifications, and it grants access to webcasts, an online forum, a quarterly newsletter, free job postings and discounts in the IGCEMA Pro Shop. Superintendents and assistant superintendents qualify for the Class D membership.

Maintaining a golf course to current expectations is impossible without reliable and precisely functioning equipment. Making an effort to educate one another and keep each other in the proverbial loop as to what's going on in our respective areas will go a long way in helping us reach the conditioning standards that we strive for each day. And who knows? Maybe it'll keep the mechanic's fury in check the week after topdressing (colon/parenthesis).

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

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BY STACIE ZINN ROBERTS

Mechanic Ken Mullin is one of a dying breed in today's industry.

PHOTO COURTESY STACIE ZINN ROBERTS; ISTOCK (PEGBOARD); THINKSTOCK (TOOLS)

Ken Mullin launched his career at Skagit Golf & Country Club in Burlington, Wash., 37 years ago, working on the grounds crew. But he was a talented mechanic, and it wasn't long before he moved into that role at the club.

Now, all these years later, the 66-year-old Mullin figures he'll retire in a couple years. That leaves Skagit superintendent Steve Link two years to find and train a suitable replacement.

And it won't be easy. Throughout the country, superintendents are faced with an aging work force of trained mechanics, technicians and equipment managers who are nearing retirement. Filling their positions may be difficult, but it also creates an opportunity to bring new, skilled talent into the golf industry.

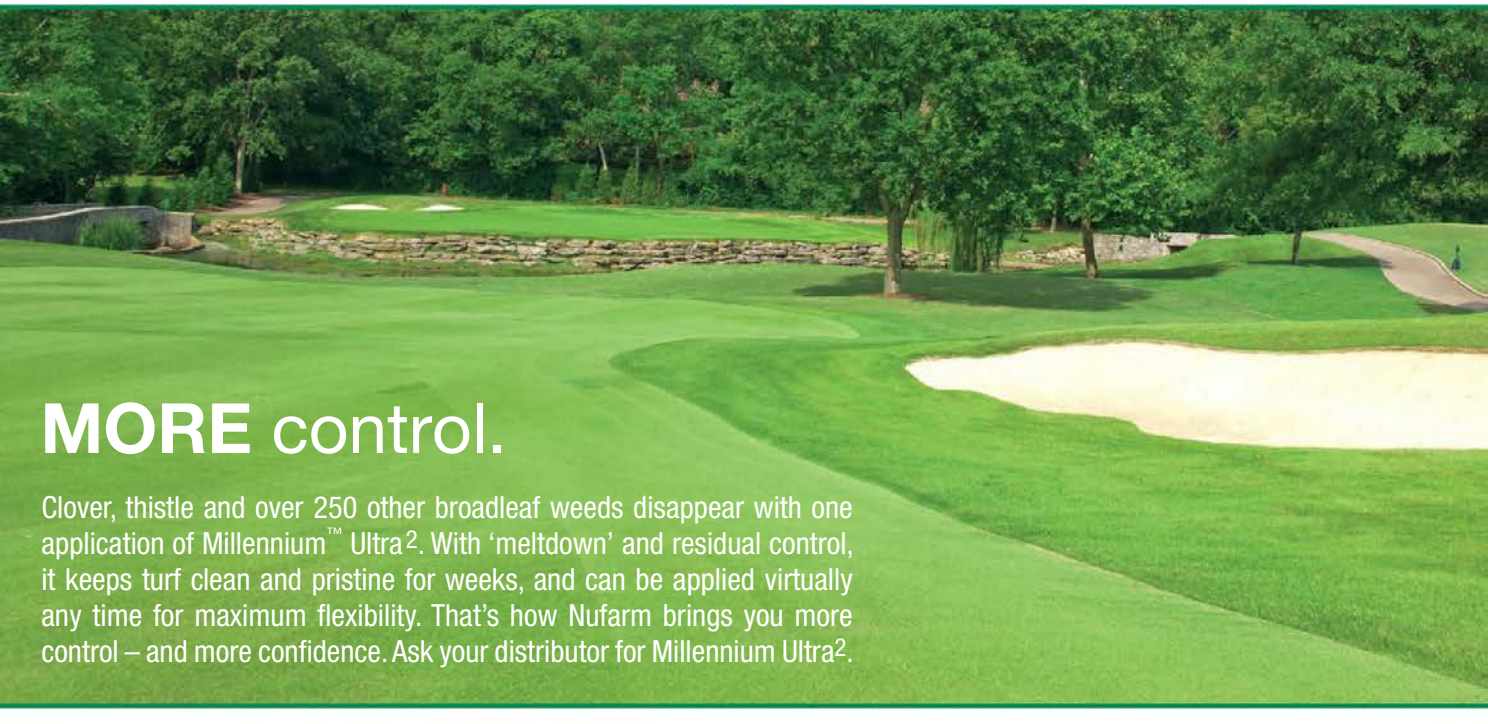
The ideal candidate

"We value Ken's work and want him here as long as he wants to be here," Link says. "We're trying to plan for his eventual replacement so there's not a lapse in quality for our members."

Link plans to hire an apprentice who can work under Mullin and learn from him before taking over. The ideal candidate will understand mechanical skills and small engine repair, even if he doesn't understand the golf course maintenance world.

"Between myself, the assistant superintendent and Ken, we could cultivate this person and train him to the standards we want involving golf course equipment as it differs from just regular automotive repair," Link says.

Link's plan is for the apprentice to start on the grounds crew while acquiring the technical skills needed to service and maintain equipment. "I want some-



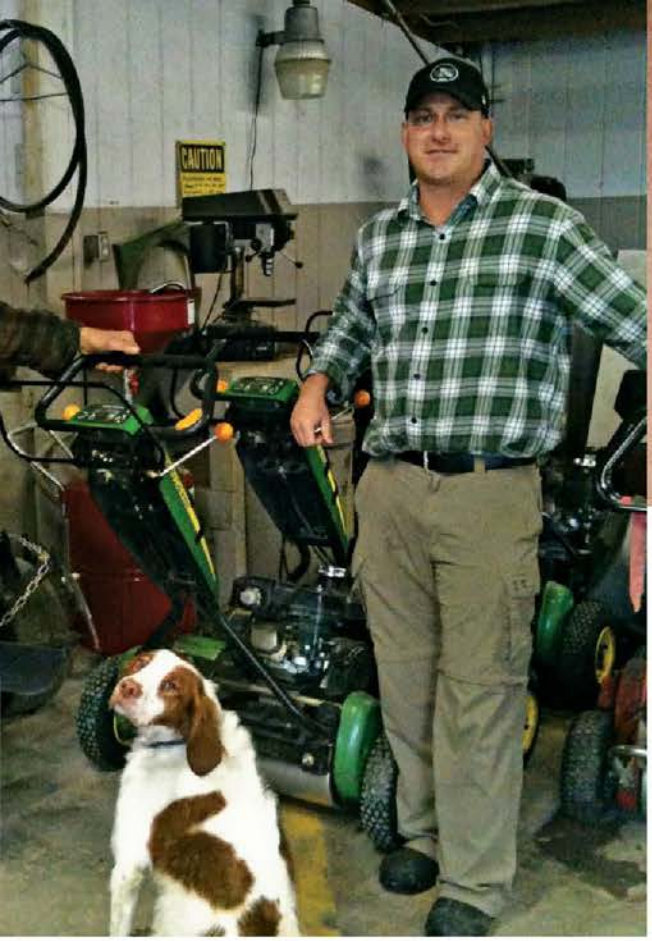


PHOTO BY: STACIE ZINN ROBERTS

Mechanic Ken Mullin (left) with Skagit superintendent Steve Link and Link's dog, Argus.

one to have the knowledge of what each job is like so they know how the equipment is used, and how it can be abused, or what kind of quality concerns we're looking for," he says.

Rising through the ranks

While in training, the apprentice will be paid $13 an hour for three months, $14 an hour for three months and $15 an hour for another three months. Ideally, Link says, the apprentice will eventually become an equipment manager who will not only maintain equipment but also organize schedules and track usage, earning about $45,000 a year.

Class A members of the International Golf Course Equipment Managers Association (IGCEMA) make an average salary of $50,000 a year, says IGCEMA President John Patterson. And according to the job website SimplyHired.com, the annual salary for a golf course equipment manager ranges from $30,000 to more than $100,000 a year, depending on skill and budget.

The challenge for Link is finding the right person to replace Mullin. He thought he'd found someone — a guy who worked for a local tractor maintenance company — but that fell through. Now Link plans to reach out to his members, some of whom are local business owners who can help with the search. Still, it could take a year to find

Continued on page 26

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Continued from page 25

someone who has the right personality and ability for the position.

Coming up short

If Link is having a hard time finding a replacement for Mullin, it may be due to the shortage of turf equipment managers out there. Many mechanics don't even know working at a golf course is an option for someone with their skills. The game's tranquility is to blame for that, says George Klein, an instructor at Walla Walla Community College in Walla Walla, Wash.

"Golf courses do a good job of making the game peaceful, and to be peaceful, you don't want to see or hear mowers," Klein explains. "You don't want to have unsightly things, so they hide the maintenance facility."

And because crews tend to mow at night or early in the morning, no one sees them working on the job. "We've done a spectacular job of hiding what it takes to manage a golf course from the public," Klein says. "Because you're neither seen nor heard, you don't exist. If you don't exist, you don't need technicians."

John Piersol, the executive director of Industrial and Agricultural Programs at Florida Gateway College (formerly known as Lake City Community College) in Lake City, Fla., agrees, saying students have never heard of the career.

"How many students come out of high school saying, 'I want to be a turf equipment technician?' he says. "It's difficult to describe or get somebody interested in a career they know nothing about. Most people don't understand why a golf course would have a need for a mechanic because they don't work on a golf course."

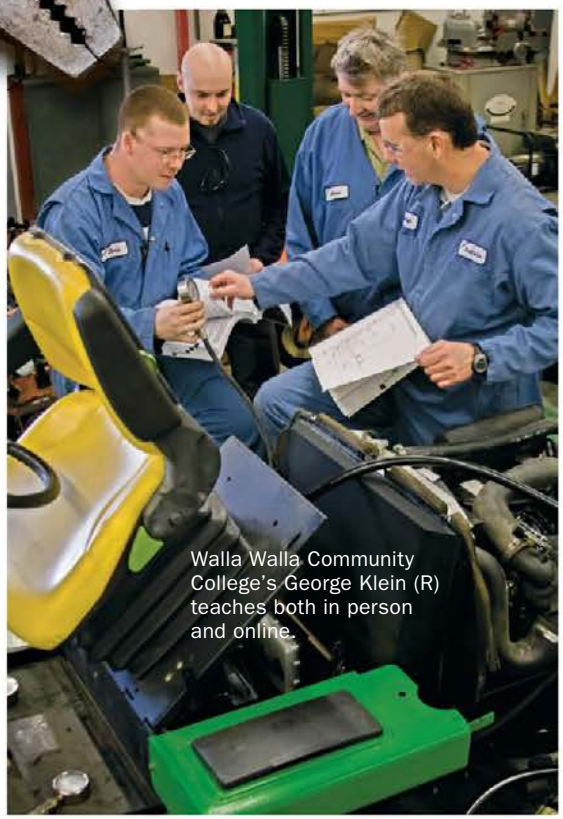
Florida Gateway College offers a one-year certificate in turf equipment technology, but due to low enrollment in the program, the college suspended operation of it in February to consider modifying it. The program had run continuously for 40 years, says Piersol.

"We need to develop new strategies to recruit for turf equipment, which might entail changing the program format," he says. Right now, he adds, "I cannot recruit enough students into the career of turf equipment technician to continue to run the program." It's substantial news for what Piersol says is the longest-running turf equipment program he knows of in the country.

"THE EQUIPMENT MANAGER IS THE TEAM PSYCHOLOGIST. DON'T WE ACT LIKE THE SPACE THAT WE'RE IN? IF IT'S A DIRTY, NASTY SPACE, THAT'S HOW THE CREW WILL FEEL."

—**JOHN PIERSOL**, EXECUTIVE DIRECTOR OF INDUSTRIAL AND AGRICULTURAL PROGRAMS AT FLORIDA GATEWAY COLLEGE

Former Florida Gateway College instructor Mark Yarick teaches students how hydraulics systems work.



Walla Walla Community College's George Klein (R) teaches both in person and online.

Still strong is the college's two-year program for an A.S. degree in golf course operations, with graduates entering the market as assistant superintendents.

The shortage of turf equipment technicians throughout the country may also be due to the scant number of programs in the U.S. that actually teach the trade. Several programs cover small equipment repair, but Florida Gateway College and Walla Walla Community College might be the only ones focusing specifically on golf course equipment repair — and now one of them's suspended.

Going online

To broaden the reach of its program outside Walla Walla, a city of fewer than 40,000, Klein thought of an innovative way to train more technicians — online.

While students may come to the campus to learn, they don't have to. Online students attend classes via computer. They have a textbook, watch videos and participate in message boards with classmates. To give them hands-on experience, students are required to have a mentor. This usually is accomplished when the student already works in a hands-on situation.

"They're employed someplace like a golf course, a dealership — somewhere they have access to a shop," Klein says. "You can't learn to be a technician without doing."

Continued on page 29

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Continued from page 27

Since Klein began the online program four years ago, the college has trained equipment technicians in Virginia, Idaho, Washington and Oregon. Klein even had two students take the course from Hong Kong. On average, Walla Walla graduates six students a year from the program.

Need to be heard

Piersol and Klein recommend the golf industry reach out to the public, particularly high school students, to educate them about equipment technician career opportunities. They suggest superintendents talk to kids in shop class and in Future Farmers America clubs and invite them to tour the golf course and the maintenance facility stocked with about $1 million-worth of precision equipment.

"If a local golf course invited them to the maintenance facility, let them see for themselves, especially someone with mechanical aptitude," Piersol says. "You wouldn't have to say a thing. They'd get it."

More than meets the eye

There's a lot more to the career than just making repairs, Piersol says.

"The equipment manager is the team psychologist," he explains. "Don't we act like the space that we're in? If it's a dirty, nasty space, that's how the crew will feel. You can change the whole psychology of the team. He sets the tone for how people feel when they come to work every day."

The job also offers autonomy not often found in other technical careers.

"It's almost like you're your own boss, because the superintendent will leave you alone," Piersol says. "At a lot of auto shops, or other kinds of jobs, you've got a sharp manager barking at you. (This is) a pretty nice job."

In fact, the technician's job is a crucial part of the game, Klein says.

"An operator can drive a straight line, but if the machine isn't adjusted properly, sharpened, or ground properly, the after-cut appearance won't look good," Klein says. "It's what the technician did in the shop to set up the machine properly that gives you the after-cut appearance."

After almost four decades on the job, Mullin knows that well.

"When the fairways, greens and tees are all looking good," he says, "you know the mechanic's accomplished something, because the mowers are cutting good. That's when you feel like you've accomplished something."

Stacie Zinn Roberts is president of What's Your Avocado?, a writing and marketing firm based in Mount Vernon, Wash.

One hot ticket

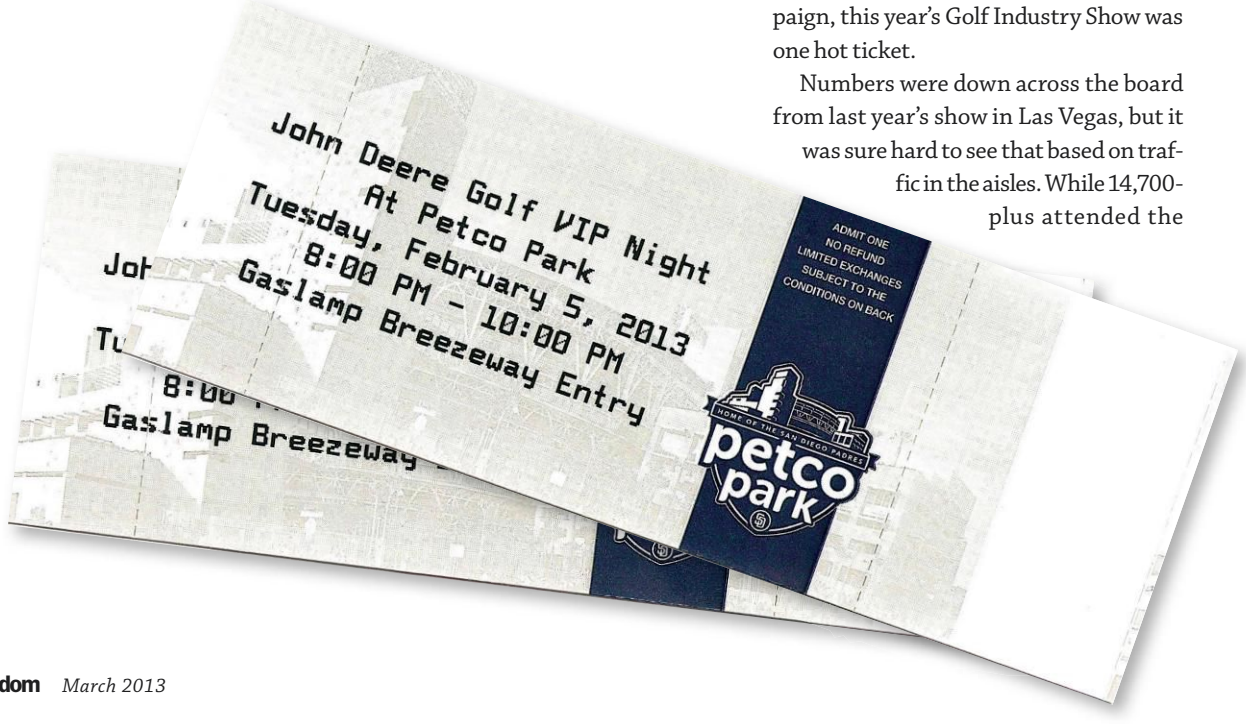
Though GIS attendance numbers dipped, there was still plenty to enjoy for those who made the trek West.

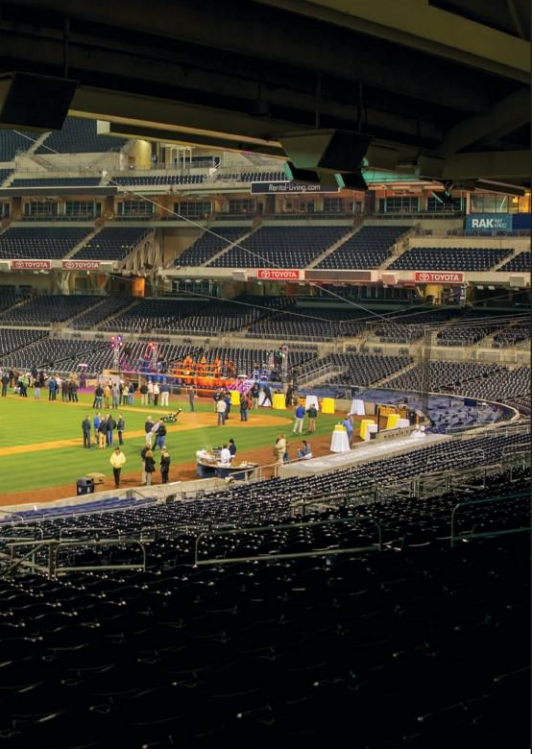
BY *GOLFDOM* STAFF

Ask any of the 13,000-plus who attended the Golf Industry Show in San Diego. This was a show not to be missed.

From John Deere's VIP tour of Petco Park, home of the San Diego Padres, to Valent's three-hour cruise and Jacobsen's "orange everywhere" campaign, this year's Golf Industry Show was one hot ticket.

Numbers were down across the board from last year's show in Las Vegas, but it was sure hard to see that based on traffic in the aisles. While 14,700-plus attended the





At the 2013 GIS, John Deere Golf took just about everyone out to the ballgame. OK, so the San Diego Padres were still a few weeks away from Spring Training, but GIS attendees got to 'touch 'em all' just like the big leaguers at this special event.

PHOTO COURTESY JOHN DEERE

last two shows, this year's show saw 13,192 attendees. Qualified buyers were down from 7,068 in 2012 to 6,018 this year. Exhibitors and the size of the show itself were fairly constant — 517 exhibitors and 172,900 square feet in San Diego compared to 540 exhibitors and 177,300 square feet last year in Las Vegas.

Count Turfco's Scott Kinkead in that group of people who liked what they saw at the show despite the final numbers.

"We've been slammed with people the entire show. There have been tons of guys here to see our new topdresser and new seeder," Kinkead, executive vice president, Turfco, said. "This has been a really good show. There's a different level of energy and excitement."

Here's some quick-hit coverage of what we saw this year. We'll have a thorough report on products we saw in next month's issue.

The Golf Industry Show returns to its most heavily attended location in 2014 when it heads back to Orlando on Feb. 5th and 6th. We'll see you there.

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Deere donates $1 million

John Deere will donate $1 million over five years to The First Tee, further emphasizing Deere's active commitment to the game of golf and the career development of professionals in the golf maintenance industry.

Besides supporting The First Tee network, funds will be used to create and launch a golf maintenance career-oriented youth development program, in conjunction with the PGA TOUR. Local chapters of The First Tee will partner with the Tour's Tournament Player Courses to provide the opportunity for high school-aged participants to learn about topics in agronomy and golf course maintenance careers.

"This donation will continue to help those kids enrich their lives throughout the U.S. in the game of golf and enlighten them on the opportunities within our industry," Steve Vincent, John Deere Golf's North American sales manager, said. "The intent of this is to reach out to over 10 million youth and help them learn the lesson of life."

"We're going beyond the game of golf to behind-the-scenes," Mark Ford, John Deere's strategic marketing manager, told *Golfdom*.

"At The First Tee, we rely on strong partners like John Deere Golf to help us carry out our ambitious efforts to reach 10 million additional young people between 2011 and 2017," said Joe Louis Barrow, chief executive, The First Tee.

PHOTO COURTESY JOHN DEERE; BY BETH GERACI

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On the water front

One USGA agronomist puts reclaimed water debate front and center.

Brian Whitlark, agronomist with the USGA Green Section Southwest Region, took the stage at the 2013 USGA Education Conference in San Diego, Calif., to talk about alternative water sources for golf course irrigation. And he shined the spotlight most on recycled water.

"Recycled water is a seriously underutilized resource in the golf industry," Whitlark said, citing a 2009 GCSAA survey that found 12 percent of U.S. golf courses are using recycled water for irrigation. "Clearly, there's a huge potential for us to embrace the use of recycled water and reduce our demand on potable water sources."

Formerly known as effluent water, recycled water is treated and cleaned at a sewage treatment plant then pumped through a pipeline to a golf course, where it's used for irrigation.

There are a few reasons why courses don't use recycled water, some of which are viable and some of which aren't, Whitlark said. He rebuffed those who don't use it just because they already have an available water source.

"I'm afraid that doesn't fly," he said. "That's too short-term thinking. We need to be forward thinking. We have to assume that 10, 20, 30 years from now that drinking water source is not going to be available at our golf course."

Even the saline content of reclaimed water is a surmountable hurdle, Whitlark said, and one he's seen courses in his Southwest territory overcome.

But that doesn't mean reclaimed water isn't problematic. It can be expensive, Whitlark acknowledged, and some courses — especially older ones — simply don't have access to a recycled water source.

"In many cases it may cost millions of dollars to get that plumbing to their golf course," Whitlark said. "This is a significant hurdle and one I think state legislators need to address if they really want golf courses to reduce their demand on potable water sources."

Whatever the challenges, it's quite possible for courses to have green, firm conditions while reducing their water use, Whitlark asserted. "I'm of the mindset that we can have our cake and eat it too."

Brian Whitlark says act now to save water for the future.

Golfdom.com

Toro and Rounds 4 Research get exclusive

The Toro Company presented the Environmental Institute for Golf with a check for $50,000 at the GIS, creating an exclusive partnership with the program. Rounds 4 Research is an industry initiative specifically aimed at increasing funding for turfgrass research.

"Research is the lifeblood of both environmental and economic advancements in turf management," says Darren Redetzke, vice president for Toro's Commercial Business. "Toro's commitment to Rounds 4 Research will complement our past and current support for the EIFG and GCSAA, and aligns with our philosophy that investing in research ultimately improves the customer experience. This is a vital program for all sectors of the golf industry."

Rounds 4 Research allows GCSAA chapters to participate as fundraising partners on a national level. Golf facilities can support the effort by donating rounds of golf that will be auctioned online to generate funds.

As the exclusive partner for Rounds 4 Research, Toro's commitment will allow the EIFG to bolster its research efforts. Since 1988, Toro has invested well over $1 million to support scientific research, advancement in education, and scholarships for future turfgrass professionals.

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Orange everywhere

On pedi-cabs. On muscle cars parked in a line across from the convention center. On T-shirts being handed out to passers-by.

There was "orange everywhere" at the GIS, thanks to a guerilla marketing effort made by Jacobsen. The company, debuting six new or enhanced products, including the LF510 fairway mower, was visible all over the Gaslamp Quarter of San Diego.

"Our goal for this year's Golf Industry Show was to blanket San Diego in Jacobsen orange," said Chris Vernon, vice president of product management and marketing for Jacobsen. "Based on the increased booth traffic, heightened interest and level of engagement with customers, our efforts exceeded all expectations."

There were orange Dodge Chargers all over the Gaslamp in San Diego. But we didn't see Bo or Luke Duke anywhere.

Petco Park VIP tour

Though it was off-season for the San Diego Padres, GIS attendees streamed steadily into the ballpark.

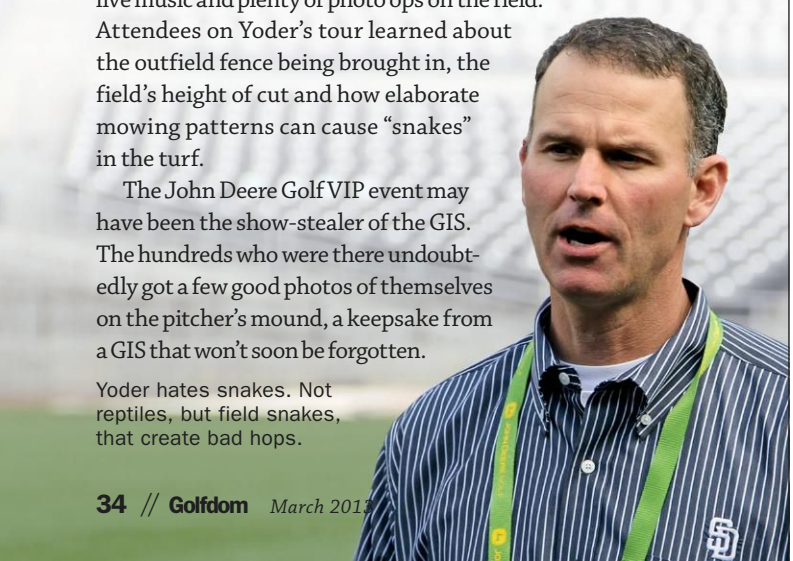
They didn't have club seats, or even bleacher seats. They had something better — field access. As in, all access.

John Deere Golf hosted a VIP night on Feb. 5. And two days later, Luke Yoder, director, field operations, opened the gates for GCSAA members who wanted to learn more about how Yoder and his crew maintained the field.

"For the GCSAA we did a couple things, we timed a calcium nitrate application with the rain we had a week ago," Yoder told visitors to the field. "It's been fun to get it ready for the big show."

During the Deere event, visitors were treated to ballpark snacks, live music and plenty of photo ops on the field. Attendees on Yoder's tour learned about the outfield fence being brought in, the field's height of cut and how elaborate mowing patterns can cause "snakes" in the turf.

The John Deere Golf VIP event may have been the show-stealer of the GIS. The hundreds who were there undoubtedly got a few good photos of themselves on the pitcher's mound, a keepsake from a GIS that won't soon be forgotten.



Yoder hates snakes. Not reptiles, but field snakes, that create bad hops.

Seth seems to be saying, "Not following" as Craig MacGregor struggles to give clues.

Pyramid schemed

We're both thrilled and ashamed at the same time.

Golfdom EIC Seth Jones, along with sales manager Craig MacGregor, took the stage at the BASF booth in San Diego to play "Superintendent Pyramid" — based on the TV game show "$100,000 Pyramid" — to win some money for Disabled American Veterans.

The train derailed when MacGregor failed to get Jones to guess "Taylor Made." As the clock wound down to zero, Jones suggested MacGregor pass to a new word. "Dude, I already passed to a new word," MacGregor groaned. Talk about not being on the same page, these guys weren't even in the same book.

Their grand total of one — *one*! — correct answer got them $100. But, thanks to BASF's generosity, an additional $1,000 was thrown in and the team still got to say they won $1,100 for charity. Not bad for a parting gift!

PHOTO CREDIT: RYAN BOCKMULLER

Identifying insects and plant diseases was just part of the Turf Bowl challenge, which covered everything from business skills to practical knowledge.

UMass tops in Turf Bowl

Students from the University of Massachusetts-Amherst were the grand champs at the 19th Annual GCSAA Collegiate Turf Bowl. The team was awarded $4,000 cash and the opportunity to volunteer at The Players Championship this May, courtesy of John Deere Golf.

UMass topped nearly 70 other teams from 35 universities across the country, scoring highest in a written and hands-on competition covering every aspect of turf management.

The Turf Bowl is more than a test of knowledge, however. It also builds teamwork, inspires school spirit, and in the words of test preparer Leah Brilman, "drives what students are doing and where they're going."

//COOL PRODUCTS//

Toro partners with GreensPerfection

The Toro Company has entered into an agreement with GreensPerfection to manufacture and market greensmower brushes developed by Rod Lingle, CGCS, for Toro's complete lineup of Greensmaster walk and riding greensmowers. Under this agreement, Toro is the only original equipment manufacturer to offer Lingle's GreensPerfection brushes on its equipment.

The Toro/GreensPerfection brush offerings combine mowing and brushing into one single step. The brushes work in concert with the rotating design, which causes less damage to the turf and provides more lift to the grass blades than traditional groomers, the companys say. In addition to lifting leaf blades to a vertical position for a superior cut, it also throws sand and debris to the front of the mower instead of into the reel to help maintain reel sharpness. The brushes leave a dramatic striping pattern for enhanced aesthetics.

"Partnering with Toro just makes sense," Lingle says. "Our brushes have been used with great success on greens, tees, fairways and approaches. Now, with Toro's manufacturing expertise and market reach, they will be available to many more golf courses that could benefit from the technology."

A Rain Bird's eye view

A long-trusted provider of efficient irrigation products, Rain Bird is now offering golf courses yet another environmentally-conscious solution: the WT-M 50 kW wind turbine.

"We know that courses using significant amounts of power to operate irrigation pumps and other electrical fixtures and appliances need a way to reduce their energy costs. By offering irrigation products and wind turbines, Rain Bird will be able to help these golf courses save both water and energy," says Mason Sorenson, Rain Bird's wind turbine senior sales manager.

Specifically designed for golf course environments, these turbines help courses decrease both their energy costs and their dependence on local utilities. The smallest turbine is similar in size to a mature oak tree, standing approximately 100 feet tall with blades that spin in a 63-foot diameter.

"This is a totally new direction for Rain Bird, but it makes sense from a sustainability standpoint," says Dave Johnson, Rain Bird's director of corporate marketing.

PHOTO CREDIT: BETH GERACI

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// GOLFDOM EDITORIAL

The beauty is a BEAST

What does a *Playboy* bunny have in common with golf on TV? Far too much, argues one superintendent.

Televised golf is to the game what *Playboy* magazine is to women. Hear me out.

The connection to *Playboy* and TV golf may not seem obvious at first, but the similarities are scary. Let's reflect for a minute on what the core of *Playboy's* business plan is. It takes a natural beauty, puts her through hair and makeup, augments parts of her body, spray-tans her, then snaps countless pictures of her.

But even with her natural beauty and all of that work, the photos still aren't good enough to be published. *Playboy* asks its Photoshop experts to clean up the images and make this beauty somehow sparkle even more.

Is that process all that different from what the professional tours do to a golf course for a tournament? They take a nice golf course, spend months (if not years) preparing it for a tournament, bring in dozens of volunteers to help maintain it, haul in plenty of equipment to mow it, and spend thousands of dollars to make it perfect for a five-day event.

But that level of beauty still isn't good enough, so the TV cameras install green filters to make it look even better!

A golf course — just like a 5'10" 23-year-old who enjoys long walks on the beach and likes a good sense of humor — is a living, breathing organism. Living things are subject to weaknesses and illnesses. Golf courses get diseased, are subject to environmental stress, deteriorate from lack of care, and age. They're also each remarkably different from one another, just like people. When golfers compare their

course to the one down the street, it's about as fair a comparison as sizing up Tiger Woods to Seth Jones!

This quest for perfection doesn't end following the *Playboy* photo shoot, nor does it end when the final putt is dropped. Young women all over America strive to be as "perfect" as women in magazines. Likewise, the "perfect" conditions that golfers see on TV spark questions about the condition of their home clubs, but without the benefit of an unlimited budget, volunteer force and handy camera filters.

We might like to admire what we see on TV and what we see in the magazine. But let's be clear: What we're seeing isn't perfect and it's far from real.

Keep it real

Don't get me wrong, I understand that professional golf (and golfers) drive interest in our business, generate funds and are a critical piece of our industry. I also understand that competing for a prize in the hundreds of thousands of dollars is much different than partaking in the Friday pot game at the local course.

But there are countless examples of how TV golf has unnecessarily, and often negatively, affected everyday golf. Where did the concept of painting edges on cups come from? It was done so that viewers could better see the hole on TV while the player is putting. Now painting cups has become an everyday standard on clubs all over the country. Why?

Green divot sand was used so divots wouldn't stand out as much in aerial shots on TV. Laying green divot sand is expensive, time consuming and has no impact on playing conditions. Yet how common is green divot sand on courses that don't ever see a single TV camera?

I'm not saying that a desire to improve is a bad thing. My point is, we need to show Mr. Smith that Tiger gets a bad lie in the fairway every now and then. If the course is dried out to make it firmer and faster for the golfers, don't alter the picture on the TV to hide that from the viewers. Here's another suggestion: Within reason, keep the rounds to 4.5 hours. How do we as an industry convince golfers to play in 4 hours when the guys on TV take 6?

There are more questions than answers at this point, but unless we commit to re-educating golfers about expectations, clubs will continue to experience the same self-esteem problems that women do when sizing themselves up to the "perfect female body" in magazines. We don't need to convince our customers that playing on dirt fairways is acceptable, but can we convince them that bunkers don't have to be "consistent" every day?

Let's keep golf real. Let's put the focus back on what the game's all about — having fun. G

Our author, a superintendent on the West Coast, asked to remain anonymous. He said it was because he didn't want to damage his career, but we also think part of it was because he didn't want his wife to know he never cancelled that subscription to *Playboy*.

Love it? Hate it? Let us know! Send your feedback to **sjones@northcoastmedia.net**. If you're OK with us publishing your reaction, state "OK to print" in the email.

THINKSTOCK

Hosted by Clark Throssell, Ph.D. | *clarkthrossell@bresnan.net*

Super Science

The experimental site to examine annual bluegrass reduction using flurprimidol, nitrogen regime and a soil surfactant

PURDUE STUDIES ANNUAL BLUEGRASS CONTROL

By William Tudor

Creeping bentgrass greens often are invaded by annual bluegrass. Management tools have potential to minimize annual bluegrass encroachment, but their interactions are not well understood. These include root-absorbed plant growth regulators such as flurprimidol (Cutless), fertility source (46-0-0 vs. 20-20-20), nitrogen application rate (0.15 vs. 0.30 lbs. N/1000 ft^2) and soil surfactants.

This three-year field study evaluated the effects of twice monthly applications of the aforementioned products and treatment combinations. Treatments were applied during active growth to a native-soil research green with approximately 30 percent annual bluegrass. The most effective annual bluegrass reductions occurred wherever flurprimidol was applied. When it wasn't applied, a fertilizer source and rate effect were measured. Annual bluegrass decreased roughly 25 percent when 46-0-0 was applied at either rate. By contrast, applying 20-20-20 fertilizer increased annual bluegrass 84 percent at the high application rate.

This study demonstrates the potential for flurprimidol to reduce amounts of annual bluegrass and the potential influence of fertilizer source and rate on annual bluegrass invasion.

William Tudor, an M.S. candidate at Purdue University, can be contacted at wtudor@purdue.edu.

ON THE MOVE

JOSEPH YOUNG, PH.D., JOINS TEXAS TECH FACULTY

Joseph "Joey" Young has joined the faculty at Texas Tech University as an assistant professor of turfgrass science. Young earned his bachelor of science in Golf Course and Sports Turf Management in 2006 and his master of science in Turfgrass Pathology in 2009, both from Mississippi State University. He received his doctorate from the University of Arkansas this past December.

Young's research background is unique, ranging from fungicide resistance evaluations to turfgrass physiology under different mowing, rolling and foot traffic treatments. He plans to focus his research efforts on reducing water use and determining species, cultivars and management practices to maintain quality turfgrass in western Texas.

"DEMAND FROM GOLFERS FOR A MORE COMPETITIVE PLAYING SURFACE, COUPLED WITH MERCURY-BASED PESTICIDE RESTRICTIONS, HAS MADE BENTGRASS PUTTING GREENS IDEAL HABITATS FOR MOSS."

J. Scott McElroy, Ph.D., and Steven Borst, Ph.D.

(see full story on page 39)

PHOTO COURTESY: CLARK THROSSELL

//MOSS ON GREENS

Moss control in creeping bentgrass greens

By J. Scott McElroy, Ph.D., and Steven Borst, Ph.D.

Moss infestations on creeping bentgrass (*Agrostis stolonifera L.*) putting greens have become an increasing problem. Demand from golfers for a more competitive playing surface, coupled with the restriction of mercury-based pesticides, has made bentgrass putting greens ideal habitats for moss (Burnell et al., 2004; Hummel 1994). *Bryum argenteum* (Hedw.) (Silvery-thread moss) is a common moss species found on creeping bentgrass putting greens, however, other species such as *Byrum lisae, Amblystegium trichopodium* and *Brachythecium* spp. have also been identified on bentgrass putting greens (Happ 1998). Mosses are a member of the Phylum Bryophyta. They are able to reproduce sexually via spores or from displaced fragments (Nelson 2007; Boesch and Mitkowski 2005; Yelverton 2005). They lack vascular systems and can absorb water and minerals throughout the entire plant (Boesch and Mitkowski 2005). This lack of a vascular system prevents systemic herbicides from translocating throughout the plant, making them useless for control (Yelverton 2005).

Quicksilver (carfentrazone) is a member of the aryl triazolinone family of herbicides and is labeled for the control of *Bryum argenteum* (Hedw.) on creeping bentgrass putting greens (Senseman 2007). It was labeled for moss control on creeping bentgrass putting greens in July 2005, and research indicates that carfentrazone provides good to excellent control of silvery-thread moss over a broad temperature spectrum (Anonymous 2005; Boesch and Mitkowski 2005; Nelson 2007; Settle et al. 2006). Junction (mancozeb + copper hydroxide), a bactericide/fungicide, is also labeled for moss control on bentgrass putting greens (Anonymous 2006). Landschoot et al. (2004) investigated Junction and concluded that summer treatments did not control *Bryum argenteum*, however, fall applications of 5.0 oz. /1,000 square feet applied biweekly with 5 applications provided 100 percent moss control. Cook et al. (2002) concluded that five applications of Junction applied at 0.1 to 0.15 lbs. copper/1,000 square feet biweekly controlled *Bryum argenteum* for up to two years. However, copper accumulation in the soil medium could potentially induce iron deficiency in turfgrass plants. (Boesch and Mitkowski 2005; Landschoot et al. 2004) Landschoot et al. (2004) observed creeping bentgrass injury with multiple applications of Junction and attributed it to copper-induced iron chlorosis. *Bryum argenteum* control has also been observed with other chemistries, such as ferrous and ferric sulfates and sodium carbonates. However, control is erratic and appears to be dependent on

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Moss growing in the greenhouse as part of the control experiments

PHOTO COURTESY: SCOTT MCELROY

Topdress, topdress, topdress. A light, frequent topdressing program will help reduce moss populations.

TABLE

Percent visual control of three moss species following treatment with Quicksilver and Junction

			Amblystegium serpens		*Bryum argenteum*		*Entodon seductrix*	
Treatment	**Rate†**	**Timing‡**	**14 DAIT§**	**28 DAIT**	**14 DAIT**	**28 DAIT**	**14 DAIT**	**28 DAIT**
			%					
Quicksilver	0.05	0	4	7	21	18	6	14
Quicksilver	0.09	0	11	1	22	19	4	8
Quicksilver	0.05	0 fb 14	13	9	19	33	3	14
Quicksilver	0.09	0 fb 14	13	14	24	39	2	15
Junction	0.8	0	3	1	4	8	2	2
Junction	1.6	0	4	1	2	8	4	1
Junction	0.8	0 fb 14	1	0	1	11	1	4
Junction	1.6	0 fb 14	4	1	2	4	1	7
LSD (*P*= 0.05)			12	8	8	25	5	11

† Rate of application is lbs. ai/acre.
‡ Timing of applications with 0 being the initial application and 14 being 14 days after the initial application.
§ Days after initial treatment (DAIT)

Continued from page 39

environment (Boesch and Mitkowski 2005; Landschoot et al. 2004; Turgeon and Vargas 2006).

With this wide range of control observed with moss control products, more superintendents have been utilizing Quicksilver for moss control on creeping bentgrass putting greens. Therefore, research was conducted to evaluate Quicksilver efficacy in comparison to Junction on three different moss species that are commonly found on creeping bentgrass putting greens.

EXPERIMENTAL INFORMATION

A replicated greenhouse study was conducted to evaluate Quicksilver and Junction control of *Bryum argenteum, Amblystegium serpens* and *Entodon seductrix* in spring and summer. Moss species were collected from Gettysview CC in Knoxville, Tenn., and Gatlinburg CC in Pigeon Forge, Tenn. Moss samples were taxonomically identified and separated. Separate species were vegetatively propagated in 4-inch diameter pots and grown in 80:20 sand to reed sedge peat mix. Plants were overhead irrigated twice daily and temperatures were maintained at an average of 77 degrees F.

Treatments were applied with a CO_2 pressurized backpack sprayer calibrated at 30 gals./acre. Moss species were evaluated on a 0 (no control) to 100 percent (complete control) scale 3, 7, 14, 21 and 28 days after initial treatment. All herbicide treatments are listed in Table 1. Sequential applications of treatments were made 14 days after initial treatment. The experiment started February 27th and was repeated April 30th.

Treatments included four Quicksilver treatments (0.05, 0.09 and 0.05 followed by (fb) 0.05, 0.9 fb 0.9 lbs. ai/acre) and four Junction treatments (0.8, 1.6, 0.8 fb 0.8, 1.6 fb 1.6 lbs. ai/acre). All sequential applications were made 14 days after the initial application.

Digital images were taken on each moss evaluation date (0, 3, 7, 14, 21 and 28 days after initial treatment) of each pot. Digital images were downloaded to a personal computer and analyzed to determine percent moss cover.

All data were subject to analysis of variance (P = 0.05). Data were analyzed according to the factorial arrangement. Each moss species was analyzed separately by date of observation. There was no interaction between the two studies, so data from both studies were combined and presented by observation date.

RESULTS

Visual Moss Control Quicksilver did not provide greater than 39 percent control of any moss species throughout this study (See table). Sequential applications of Quicksilver provided better control than single applications, especially with *Amblystegium serpens.* Junction provided poor control of all moss species for the duration of the experiment. The greatest control observed with Junction was 11 percent with *Bryum argenteum,* which was not statistically different from the untreated pots. Landschoot et al. (2004) observed minimal control of *Bryum argenteum* with Junction. This similar result was observed with Junction when applied sequentially and at two different rates with all three species of moss.

Quicksilver is an effective means of *Bryum argenteum* control, however moss regrowth can occur if multiple

applications are not made. A decrease in moss control was observed with single applications of Quicksilver when applied to *Amblystegium serpens* and *Bryum argenteum*. The decrease in moss control was attributed to moss regrowth. Quicksilver applied at the highest rate with a sequential application controlled *Bryum argenteum* 39 percent 28 days after initial treatment. This was the greatest visual control observed with any moss species.

All Quicksilver treatments reduced cover of *Entodon seductrix,* however control never exceeded >15 percent. Both Quicksilver and Junction provided minimal visual control of both *Amblystegeum serpens* and *Entodon seductrix.*

Digital Analysis Data Digital analysis data and visual control ratings had similar trends with chemical control of all three moss species. The digital analysis confirmed the visual control ratings. Therefore, the digital analysis data are not presented.

CONCLUSIONS

When reviewing the data presented in this article, please keep in mind growing conditions were favorable for moss and there was no competition present from creeping bentgrass. Also, no cultural practices were implemented that would hinder growth of the moss or favor competiveness and growth of creeping bentgrass.

In short, conditions were nearly ideal for moss growth and regrowth. On a golf course, more than two applications of Quicksilver or Junction, together with cultural practices, would most likely provide greater moss control than reported in this article.

Quicksilver provided greater control with all three moss species than Junction. Control of all three moss species with Junction was minimal — less than 15 percent. Sequential applications of Quicksilver are required to reduce moss regrowth. Single applications of Quicksilver can increase growth rates of *Bryum argenteum.*

Quicksilver applications made to the other moss species stabilized growth rates but did not decrease populations. Erratic Quicksilver efficacy could potentially be attributed to diversity in moss species. Variation in moss control on putting greens among golf courses could potentially be attributed to differences in moss species.

Silvery thread moss growing on a putting green

PHOTO COURTESY: SCOTT MCELROY

MOSS CONTROL PROGRAM

Below is a moss control program that Scott McElroy, Ph.D., has developed through research and observations of successful moss control programs on golf courses that he suggests to superintendents.

- Two applications of Quicksilver at 6.7 fl. oz. per acre applied two weeks apart.
- Topdress, topdress, topdress. A light, frequent topdressing program will help reduce moss populations.
- Aerifcation will help.
- Apply sufficient nitrogen to maintain reasonable growth of creeping bentgrass.
- Quicksilver applied after a bensulide application can induce injury in creeping bentgrass.
- Junction is best used preventively rather than as a curative for moss.

Scott McElroy, Ph. D., is an associate professor at Auburn University. Steven Borst, Ph.D., is a former M.S. student with Dr. McElroy and a recent Ph.D. graduate of Louisiana State University. The research presented herein is a compilation of Dr. Borst's M.S. research on moss biology and control in golf course putting greens. Contact Scott McElroy at jsm0010@auburn.edu.

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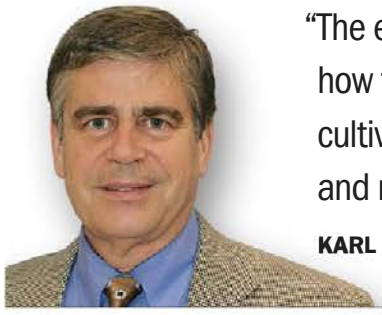

"The edge of failure is determined by how the green was constructed, the cultivar, the budget, the equipment, and most importantly, your talent."

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

The edge of failure

Several years ago, Dr. Joseph DiPaola and I led a seminar about turfgrass stress. Dr. DiPaola started the seminar off by sharing our philosophy of turfgrass management, which basically stated that we manage to the "edge of failure." Given a starting point of healthy turfgrass, we begin to move our turf — in this case a putting green — toward a more functional surface.

The benchmark we used for putting green functionality was green speed. From a management perspective, as we push our healthy turf to be more functional we move along the continuum of healthy turf toward the "edge of failure." It's analogous to the "fiscal cliff." Considerable anxiety existed about whether we would go over the cliff, wreaking havoc on our economy.

On putting greens, we face the same anxiety as we push toward the edge of failure. Visually, for me, the edge of failure was similar to the cliff on a plateau. If we push our putting green over the cliff, it crashes to the bottom of the basin. There goes our healthy turf.

Unlike the fiscal cliff, where we knew exactly when and what conditions would trigger the fall, knowing when a putting green is approaching the edge of failure is not clearly defined. The edge of failure is determined by numerous factors, including how the green was constructed, the cultivar or variety used, the maintenance budget, the equipment used and how it is maintained, and most importantly, your talents as a superintendent in achieving the goals you've set.

As we move toward the edge of failure, what makes us back away from the edge? Unfavorable environmental conditions such as temperature, moisture, light or water quality can make us slow down or back off. In practical terms this may mean switching from grooved roller to solid, raising the height of cut, or reducing the frequency of mowing, just to name a few.

Given stressful environmental conditions, it's still difficult to know precisely how much we can move forward toward the edge and how far we should move back. That's because biological systems are complex and unpredictable.

To show just how unpredictable they are, I use the example of a sparrow. I can take a dead sparrow, throw it up in the air and calculate its flight pattern. But if I take a live sparrow and throw it up in the air, I have no clue what its flight pattern will be. Non-living objects are fairly easy to predict. Living organisms, not so much.

We, however, live in a world of metrics. Government, business and yes, universities, run on metrics. Often metrics quantify information but don't speak as clearly to quality. In golf, the Stimpmeter quantifies green speed and provides us with a number, regardless of conditions. Thus, we have a quantified Stimpmeter number such as 11 then argue for or against what that number means based on qualitative biological factors such as cultivar, green construction and more.

Given that putting green management is highly variable relative to the Stimpmeter, what do I go off and do? I asked the Greater Cincinnati Golf Course Superintendents Association "At what green speed do you see turf injury?"

The survey was done anonymously during the summer stress period through a middle person, so I did not know the courses or the superintendents. The survey was not scientific and serves only as a point of discussion, but I found that at Stimpmeter readings of 9 feet 6 inches there was 20 percent turf injury; 10 feet 6 inches there was 60 percent turf injury; 11 feet there was 90 percent turf injury; and 12 feet there was 100 percent turf injury.

What's interesting about this small amount of data is how it provides a probability of success or failure given a certain green speed. As we get questioned about how fast or firm we can go with our putting greens, given all the variables that need to be accounted for I am afraid that we're going to have to define the edge of failure based on probabilities — whether I like it or not.

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

The art of brushing

Chip Howard, Ph.D., (turfsci@cox.net) owns the consulting business TurfScience, Inc., and manages several golf courses in the Southwest.

Q Brushing means something a little different to everyone. Describe brushing as you use it on the golf course.

The brushing equipment that I manufacture is not a "one brush accomplishes all." The brushes are designed to provide appropriate and fruitful brushing options for every day of the year that greens are mowed. It is then the art of the superintendent to determine what degree of aggressiveness they desire to achieve the best results at any given time.

For example, on creeping bentgrass in the North, an extremely mild brush would be appropriate for the first mowings in spring or during mid-summer stress. However, an extremely aggressive brush would be appropriate for the May and September growth surges. In contrast, on bermudagrass, we use a mild brush in the winter, a medium brush through transition and switch to a very aggressive brush in mid-summer to counter the thatch accumulation.

Q What are the major improvements to putting quality and putting green health you have seen by routine brushing?

Whether creeping bentgrass or bermudagrass, the concept is the same, although the things happen at different months of the year. What I have seen over the last 20 years of brushing is identical to virtually all the feedback I have received from superintendents. If brushing is begun during the growth seasons, after two weeks, the coarse-texture horizontal leaf blades will be gone and the remaining tissue will have a finer texture and be oriented vertically. After week three, the plants will have responded by making new plants in-between the existing plants. The result is increased density and finer texture. This greatly enhances the physics of ball roll.

Q If greens are brushed daily, do you think mowing heights can be raised slightly without sacrificing green speed?

So many superintendents have reported this to me that it must be real. I certainly agree with whatever works for the individual who is responsible for the product. But I take a different approach. Once your leaf tissue is oriented vertically, it can tolerate unbelievably low mowing heights with no detectable ill effect. So, a consequence of brushing will be that a superintendent will have greater latitude for green speed. If they desire an extra foot of speed for a tournament, just lower the height 0.010 – 0.015 inches.

Q What are the advantages of brushing over grooming or light verticutting?

As a superintendent, I gave up on grooming long ago, for many reasons. In order to get out of corners that I shouldn't have gotten into, I found myself verticutting greens but holding my nose while doing so. The mechanical action of verticutting is damaging to the crown of the plants, and the after-effects seem to last a long time.

The extremely aggressive brushes are reported to be more effective at grooming than groomers but without the negative consequences. Though brushes can't be as invasive as a piece of steel spinning at high speed as with verticutters, I am noticing that repeated use of aggressive brushes produces the same effect but without the negatives. That said, if your goal is to shred thatch for instant removal, verticutters get the job done that day.

Q What brushing strategy do you recommend for season-long use and why?

My goal was to design a system by which a superintendent could brush every day they mow. As I mentioned, that can be done by having a spectrum of brush aggressiveness options available that can be matched to the agronomic needs of the day. To fulfill that need, I currently have six brush options available. I am also playing with some other brush devices that are clearly outside the box of current thinking, some of which may take us in new directions.

"The extremely aggressive brushes are reported to be more effective than groomers but without the negative consequences."

CHIP HOWARD, PH.D.

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

The 19th Hole with...

Scott Ramsay

CGCS // Yale Golf Club, New Haven, Conn.

"IT SEEMS LIKE THE WEATHER PATTERNS ARE VERY INTENSE NOWADAYS. WHETHER IT IS CLIMATE CHANGE OR HOW THE NORTH ATLANTIC OSCILLATION IS SET UP, THE NORTHEAST IS GETTING WHACKED."

What's your drink of choice after a round at a new course? I usually ask if there is a house cocktail. Lots of clubs have signature sandwiches and drinks. But my standard is a tall Absolut and tonic, plenty of ice.

You're at Yale Golf Club. Is it safe to say that some of the smartest college kids on any golf course crew can be found working for you? I'm continually amazed with the Yale students. Each year I hire a dozen students for the summer, but I usually only have four to six at any one time since they're so busy with other opportunities. One month they're hover-mowing bunker banks, the next they could be in Washington D.C., on Wall Street or at an NHL training camp.

You're always taking great photos with your iPhone. Can you give us a tip? I use a macro lens made by Olloclip (www.olloclip.com), which slips onto my iPhone for close-ups of turf for disease diagnosis. It's a fish-eye lens, a wide-angle lens and a macro lens all in one body. Anytime we get a disease, they want a picture… it's hard to get a macro photo. The macro (lens) is what I use the most.

You guys have had some crazy weather lately. This past year we were on the very eastern edge of Hurricane Sandy. We lost 264 trees on the golf course and we are still cleaning them up. Connecticut didn't get the news coverage that New York and New Jersey did, but golf here took a hit.

But spring is here! Ready for March madness? Go Yale! Currently ranked No. 13. Hope they make the regional in Providence, R.I., and ultimately the Frozen Four. You meant hockey, right?

Uh, no. Tell me about your family? I married Meg, a superintendent's daughter, 26 years ago. Our son Bennett is at the University of South Carolina. Meg is a registered nurse and manages two Ambulatory Medical Centers.

Wait, you married a superintendent's daughter? My father-in-law (Roger Turcotte, Montaup CC, Portsmouth, R.I.) is a longtime superintendent, nearly 50 years at the same golf course. My wife and I were both in college — her roommate was my roommate's girlfriend. I had no idea I was going to be in the business. I didn't know of him until our fourth date. She pulled out a *Golf Course Management* magazine from my 1972 Volkswagen Beetle, and she goes, "Golf course management? That's what my father does!"

So she must have sympathy for the hours you keep, then? It's probably why I'm still married.

As interviewed by Seth Jones on February 19th, 2013.

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