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The 2013 U.S. Open throws Merion Golf Club into the national spotlight. GCI's Bruce Williams shadows Matt Shaffer for a behind-the-scenes look at prepping for golf's big event.





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SPECIAL REPORT



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**SPECIAL REPORT**





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## GOING LIVE

**A**nother day, another media event. That's kind of what I was thinking as I drove through the sunny South Carolina morning to Greenville Country Club for Turf Science Live.

The event is new...but the concept is not. Jacobsen and Syngenta had previously partnered on similar events in the U.K. and they decided to try it here along with two other iron companies, Smithco and Turfco. The idea is to provide short technical updates on products and practices to small groups of superintendents who rotated through various stations. It's speed dating for turf products, basically.

Syngenta showed off new nozzle technology plus disease updates. Jacobsen had a very cool frequency-of-clip demo set up. Turfco has a new seeder unit that maximizes germination and Smithco has a must-see precision sprayer/application system in the works.

About 60 invited supers from the Carolinas and even Georgia participated, including high-profile guys like Mark Esoda from Atlanta Country Club. Here's a guy who basically just needs to snap his fingers and any supplier will instantly deliver a demo unit or test product, yet he drove a couple of hours to Greenville because he liked the format and wanted to interact with colleagues and the technical people from the companies. And, he said, it was the right thing to do to support companies that have supported him. Mr. Esoda is a class act.

Most of the usual suspects from the golf/turf media also attended. We tend to gather at these things because it's interesting, sometimes newsworthy and often subsidized by the companies. (It's not unusual for companies to pay some portion of media travel expenses to get face time with editors.)

And, yes, we are somewhat obliged to attend because companies that host events like this also tend to be the same companies that

advertise in our magazines, underwrite the cost of education, trade shows, research and much more. There are 300+ active supplier/manufacturers in our industry but, historically, about 25 companies account for 75 percent of all the marketing dollars invested in media, shows and sponsorships. All four hosts of Turf Science Live are members of that elite group so boycotting it would be unthinkable dumb.

But that wasn't why I attended. (One of GCI's real editors could have gone and done a much better job covering it since my reporting skills pretty much suck these days.) The official reason I attended Turf Science Live was because I was asked to give a talk to attendees. But I would have come anyway whether I was asked to speak, or it was a free trip, or even if none of the sponsors were among the Top 25 advertisers.

I would have attended because it's a good new idea and we need to support good new ideas.

As national trade shows become harder to justify for suppliers and customers, events like this may emerge as the best way to share new technology, build relationships and continue the camaraderie the big events provided in the past. Successful regional shows like the Carolinas GCSA conference will always have a place, but the intimacy of these small-group demonstrations is something you just can't get in a convention center.

Is this the future of buyer/seller interactions in our market? It's too early to tell, but it's promising. It's kind of expensive but the costs are shared among multiple business partners and attendees are invited because they're strong prospects for pretty much all of the sponsors. Like everything, it's a cost/benefit balancing act.

We constantly try new stuff. Podcasts on iTunes, apps, integrating video into stories, TweetUp, etc. It's awesome to see our partners doing the same. **GCI**



**Pat Jones**  
Editorial director and publisher

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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

**Bruce Williams**

Senior contributing editor

**Katie Tuttle**

Assistant Editor  
ktuttle@gie.net

## SALES

**Russell Warner**

National account  
manager  
216-236-5802

**Martha Corfman**

Manager, books  
330-523-5366

**Ted Schuld**

Account manager  
216-236-5937

**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

**Jamie Winebrenner**, Graphic Designer

**Helen Duerr**, Production director

**Heidi Clevinger**, Production coordinator

## CORPORATE STAFF

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## Not your typical course supervisor

**A**t Kauri Cliffs Golf Club, located on the North Island of New Zealand, golfers might spot an unusual sight when they approach the right side of the range. If they approach the steep hillside, they may catch a glimpse of Tiger, the resident goat and daredevil mower.

Because the hillside is too steep to mow by machine, the staff at Kari Cliffs wasn't sure how to keep the area groomed.

"The right side of our range is very difficult to maintain; it's just too steep to mow traditionally," says Ryan Brandeburg,

director of golf. "There's a natural wetland at the bottom, and with the wind coming off the ocean – combined with the fact that most golfers slice – we lose thousands of golf balls over there."

Enter Tiger. Named after the club owner Julian Robertson's successful Tiger Fund, Tiger arrived at the course in 2011 to address the maintenance issue.

"She's done a great job but we've realized we would honestly need 30 goats to tackle that job," says Brandeburg. "We've also learned how expensive it is to keep a goat, even one as hard working and genial as Tiger. She drinks only clean water; we must hand-feed her these pellets to supplement her diet; we have to clean her goat house daily... I don't think we could afford 30 more goats."

Tiger isn't kept enclosed on the hillside though. The goat has become a mascot of the club and can often be found in the pro shop or even driving a cart around the course. She is also very active on social media, and the staff at the club is considering the idea of putting a wireless camera on her, so people can see firsthand what she does on a normal day at the club.



## 2013 weather not golf-favorable

**A**ccording to Weather Trends International, the forecast for 2013 is not on the sunny side, and definitely not as golf-friendly as 2012. At the National Golf Foundation's recent Golf Business Symposium, WTI, an organization that provides global, 11-month weather forecasts, was asked two questions about the 2013 season. The first question was "Can we expect a repeat of 2012's golf-favorable conditions this year?" The answer was a firm "no." The first four months of 2013 had the coldest weather in 17 years, and 2013 also experienced the greatest one-year drop in temperature in over 125 years. Snow played a large factor this year as well. In March, 50 percent of the US was still covered in snow, as opposed to seven percent in 2012. All of these combined conditions have caused a delay in the golf season, whereas last year the dry, warm weather caused an early start.

The second question was "Is there anything that golf-related businesses can do ahead of time to mitigate the effects of bad weather, and take advantage of good weather?" WTI said there are several things the industry can do to improve their bottom lines:

- Accurate forecasts facilitate the strategic planning process.
- Knowledge of season-start timing on a local and regional basis can improve revenue forecasting.
- Inventory allocation and management can be adjusted based on expected regional differences in weather.
- Outings and events (e.g., club demo days) can be scheduled for days/weeks when weather is likely to be most favorable.
- Advertising and promotions can be timed and allocated properly to increase campaign ROI.
- Superintendents can save money, resources and effort by effectively timing watering schedules, fertilizer application, overseeding, etc.





## From THE FEED



We're all about making friends at GCI, which is part of why we're glad to work with Bill Brown, the man behind Turf Republic and incidentally, our newest columnist. Another reason is Bill's undying dedication to technology and social media for superintendents. Bill and our own Pat Jones attended this year's Turf Science Live event in South Carolina – and Bill found plenty of opportunities to flex his tech muscles to show off the new industry innovations.



**Turf Republic @TurfRepublic**



@gcmagazine talking with Tim Kreger.



Changing FOC to obtain better putting surface.



Checking nozzle calibration.



GPS tech on Smithco sprayer.



Lane Tredway discusses some @syngentaUS programs



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Bert McCarty, Bruce Martin and Jim Kerns  
Clemson University and NC State University

## Investigating 'Mini Ring' Disease Biology, Ecology, and Control

Since its first report in 1999, 'Mini Ring' disease has become a major problem for many golf courses in the SEUSA, and in many parts of the world where bermudagrass is grown on greens. On bermudagrass, mini ring consists of frog-eye (centers still green) circular patches 4 to 18 inches (10 to 46 cm) roughly in diameter that typically develop during hot, humid days of late summer and early fall when bermudagrass growth has slowed. Reasons for its increase are unknown, however, its occurrence has coincided with industry trends such as switching from Tifdwarf and Tifgreen cultivars on golf greens to shallow-rooted and thatch-producing 'ultra-dwarf' cultivars such as TifEagle, Mini Verde, and Champion bermudagrasses. Little prior agronomic research has been performed on this disease, leaving superintendents and scientists baffled on ecological and environmental parameters favoring its occurrence and spread, and with a very sparse database on which to base recommendations for management.

Recently, through its Round4Research fund raising efforts, the Carolinas Golf Course Superintendents' Association has announced a three-year funding for this project.

The researchers are much appreciated to the CGCSA and its members for providing this funding and look forward to performing the research.

## Plug and save

The Bear Trace at Harrison Bay has recently become the first public golf course in America to start using all electric mowing equipment. Located in Tennessee, Bear Trace purchased the Jacobsen mowers for \$414,000.

The cost is more than worth it however. The course started using the electric mowers on March 3, and in the first 60 days they cut 317 gallons of gas. In the same time, the electric bill for the course only rose \$47.

The equipment is much quieter than gas mowers, also cutting down on sound pollution on the course.

"For years, the golf course industry had been labeled as a polluter," course superintendent Paul Carter says. "Having the ability to use this equipment is going to make a world of difference. It's going to make a difference for us as a crew, for the golfers who play here and for the wildlife."





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# 2012 GREENS INSTALLATIONS PERFORMED BY CHAMPION TURF FARMS

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-No-Till conversion from Bentgrass to CHAMPION

**Atlantis Country Club – Atlantis, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Barefoot Resort - Dye Course – North Myrtle Beach, SC**

-No-Till conversion from Bentgrass to CHAMPION

**Barefoot Resort - Love Course – North Myrtle Beach, SC**

-No-Till conversion from Bentgrass to CHAMPION

**Barnsley Gardens Resort - The General – Adairsville, GA**

-No-Till conversion from Bentgrass to CHAMPION

**Birchwood Country Club – Nashville, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Bonita Fairways Golf Course – Bonita Springs, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Breckenridge Country Club – Breckenridge, TX**

-Course renovation, greens planted with EMERALD

**Brier Creek Country Club – Raleigh, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Buckhorn Springs Golf and Country Club – Valrico, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Charleston Country Club – Charleston, MO**

-No-Till conversion from Bentgrass to CHAMPION

**Colonial Country Club North Course – Cordova, TN**

-Course renovation, greens planted with EMERALD

**Country Club of North Carolina – Pinehurst, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Cypress Woods Golf & Country Club – Naples, FL**

-Course renovation, greens planted with CHAMPION

**Desert Pines Golf Course – Fort Stockton, TX**

-Greens renovation from Bentgrass to CHAMPION

**Emerald Greens Golf Resort & Country Club – Tampa, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Fields Ferry Golf Club – Calhoun, GA**

-No-Till conversion from Bentgrass to CHAMPION

**First Tee of Central Arkansas – Little Rock, AR**

-No-Till conversion from Bentgrass to CHAMPION

**Fort Bend Country Club – Richmond, TX**

-Greens renovation from Tifdwarf to CHAMPION

**Goldsboro Municipal Golf Course – Goldsboro, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Grande Dunes Resort Club – Myrtle Beach, SC**

-No-Till conversion from Bentgrass to CHAMPION

**Greenville Country Club – Greenville, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Griffin Bell Golf Course – Americus, GA**

-Greens renovation from Tifgreen to CHAMPION

**Griffin Golf Course – Griffin, GA**

-No-Till conversion from Tifgreen to CHAMPION

**High Point Country Club - Willow Creek – High Point, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Hillandale Golf Club – Durham, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Inverrary Country Club - West Course – Lauderhill, FL**

-Greens renovation from Tifdwarf to CHAMPION

**Lady Bird Johnson Golf Course – Fredericksburg, TX**

-Greens renovation from Tifdwarf to CHAMPION

**Lake Hickory Town Club Executive Course – Hickory, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Lansbrook Golf Club – Palm Harbor, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Lely Resort - Classics Course – Naples, FL**

-Greens renovation using CHAMPION

**Lely Resort - Flamingo Course – Naples, FL**

-Greens renovation using CHAMPION

**Magellan Golf Course – Hot Springs Village, AR**

-No-Till conversion from Bentgrass to CHAMPION

**MBN - King's North Course – Myrtle Beach, SC**

-No-Till conversion from Bentgrass to CHAMPION

**Moss Creek Golf Club - Devil's Elbow South – HHI, SC**

-Course renovation, greens planted with CHAMPION

**Mystic Creek Golf Course - El Dorado, AR**

-Newly constructed course using CHAMPION greens

**North Shore Country Club – Sneads Ferry, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Occoneechee Golf Club – Hillsborough, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Orange County National Crooked Cat – Wintergarden, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Old Chatham Golf Club – Durham, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Olde Liberty Golf Course – Youngsville, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Page Belcher - Stone Creek – Tulsa, OK**

-No-Till conversion from Bentgrass to CHAMPION

**Palm Beach Country Club – Palm Beach, FL**

-No-Till conversion from Miniverde to CHAMPION

**Paul Walker Golf Course – Bowling Green, KY**

-No-Till conversion from Bentgrass to CHAMPION

**Pine Forest CC Green & Gold Courses – Houston, TX**

-No-Till conversion from Tifdwarf to CHAMPION

**River Hills Country Club – Lake Wylie, SC**

-Greens renovation using CHAMPION

**River Run Country Club – Davidson, NC**

-No-Till conversion from Bentgrass to CHAMPION

**RTJ Trail Hampton Cove Short Course - Owens Crossroads, AL**

-No-Till conversion from Bentgrass to CHAMPION

**Sedgefield Country Club – Greensboro, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Sherbrooke Golf & Country Club – Lake Worth, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**The Challenge at Oak Forest – Longview, TX**

-Greens renovation from Tifdwarf to CHAMPION

**The Club at Olde Cypress – Naples, FL**

-Course renovation, greens planted with CHAMPION

**The Club at The Strand – Naples, FL**

-Course renovation, greens planted with CHAMPION

**The Country Club of Coral Springs – Coral Springs, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**The Course at Eagle Mountain – Batesville, AR**

-No-Till conversion from Bentgrass to CHAMPION

**The Golden Bear Club – Windermere, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Golf Club at Bradshaw Farm Red & White – Woodstock, GA**

-No-Till conversion from Bentgrass to CHAMPION

**The Peninsula Club – Cornelius, NC**

-No-Till conversion from Bentgrass to CHAMPION

**The Rustic Golf Course – Rockport, IN**

-No-Till conversion from Bentgrass to CHAMPION

**Ventura Country Club – Orlando, FL**

-No-Till conversion from Tifdwarf to CHAMPION

**Verdict Ridge Golf & Country Club – Denver, NC**

-No-Till conversion from Bentgrass to CHAMPION

**Wekiva Golf Club – Longwood, FL**

-No-Till conversion from Tifeagle to CHAMPION

**Wilshire Golf Club – Winston Salem, NC**

-No-Till conversion from Bentgrass to CHAMPION

3606 Ave F Bay City, TX 77414

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# THE TIME IS NOW

The 2013 U.S. Open throws Merion Golf Club into the national spotlight. GCI's Bruce Williams shadows Matt Shaffer for a behind-the-scenes look at prepping for golf's big event.

by Bruce Williams, photos by John Kaminski

**T**he 113th US Open is upon us.

While the early years of the competition drew few spectators, it has since become one of golf's most watched events and is considered to be a major along with The Masters and The PGA championship. A lot has changed since the turn of the last century, and today it takes years to build the infrastructure, let alone the course, that becomes the venue for each year's venue.

Planning begins years in advance. The USGA dispatches its staff members to work with clubs like Merion Golf Club in Ardmore, Pa., just outside of Philadelphia, to help prepare for what must ensue. While the course is the venue's most important feature, there are so many more things that comprise this city of sorts, which is built from the ground up.

Recently I spent some time with Matt Shaffer, director of grounds at Merion Golf Club. He made it quite apparent to me that his people have been quite busy building the city that will host this event.

Every city needs someone to take charge and drive the logistics to make things happen. The mayor of that city is none other than Matt Shaffer, and he has built quite a nice team and infrastructure around him to make things run smoothly leading up to and throughout the duration of the event.

Despite a busy schedule, Matt was gracious in the time he spent with me and the thoughts he shared about a variety of topics, including his challenges leading up to the big show, The U.S. Open at Merion Golf Club.

**THE LIST.** I asked Matt about the real-world lessons learned from preparing for and hosting the U.S. Open at Merion. His responses are exactly what I expected from an individual who excels at leadership. Here's his Top 10 list.

**1. Blue prints.** The USGA has a lot of challenges and works hard to coordinate and build a small town in a very short period of time. Aside from the golf course

that is played upon, there are dozens of tents, pavilions and hospitality suites that must go up in the months before the tournament. Add bleachers, food venues, restroom facilities and the miles of TV cables, power cables, etc., and you are literally building a city from the ground up that will begin to be dismantled the day after the event is over.

**2. Safety.** Visitor and player safety is paramount and there are many in-depth meetings with Homeland Security to ensure everyone's safety. These groups are extremely well organized and passionate about making sure the event is conducted with any problems.

**3. Game plan.** While many superintendents are accustomed to doing things in a set way (their way), The U.S. Open has encouraged the team at Merion GC to think quite differently and change their thinking and processes significantly to meet the many goals of the event.





**“Tournament time is tough on staff.** Lots of hours are logged and everyone experiences their fair share of exhausting weeks leading up to the event.”



**4. Timing is everything.** Similar to a conditioned athlete, there is a ramping up in the preparation period. And just like with an athlete, if things are not managed properly then both the turfgrass and the team can peak too early. Patience and proper timing are imperative for success.

**5. Belief system.** Matt shared with me how important it is to stay convicted to your beliefs even though they are inherently different from the majority. Anyone who knows Matt knows he is a man of conviction and does an excellent job of communicating his message to the club, to his own team and also to the USGA officials to reach the desired event goals.

**6. Tick tock.** Time management is paramount due to the enormous demands on your professional and personal schedules. Every day brings a series of meetings with any and all involved in the tournament. Matt is required to manage up, manage down and manage laterally while all the time being cognizant of not burning the candle at both ends.

**7. No “I” in “Team.”** Matt is proud, and rightfully so, of the team he’s assembled around him. More importantly, Matt is very proud when he witnesses his team go further and achieve more than he thought was possible. The greater the challenges, the more his

team has impressed him each and every day.

**8. Expect the unexpected.** Some things are within your control while others are not. Therefore, validate your suspicions about others’ professional performance outside your department with regard to how they handle the spotlight and stress. It is best to learn early who is dependable and who might leave slack to pick up as H-hour approaches.

**9. Be humble.** Matt feels blessed to be in such a privileged position to be coordinating the showcase of golf for a week in June. He recognizes the responsibility he has to the game, as well as to his profession, to make the event a success. Shouldering all of that responsibility and pressure doesn’t leave room to take anything for granted.

**10. Support system.** Last, but not least, is building a foundation of support for the tournament – not only from the club and its members, but from manufacturers, distributors, volunteers, colleagues and peers.

**TEAM MERION.** I’m not surprised to learn that those turfheads who spend a few years under Matt’s tutelage are sought after prospects as professional turf managers. Merion Golf Club has one of the finest training programs for rising superstars. The club and the management team at Merion GC are committed to training

young men and women to be future industry leaders. Spend time with Team Merion and it’s easy to see there is no shortage of passion, intelligence and solid work ethics among its constituents – both young and old.

Interns and apprentices anticipate a pressure-packed education. They have the opportunity to do just about every job there is in this profession, and to work hand in hand with the supervisor who chips in and gets his hands dirty on a regular basis. A lot is expected of young people on a golf course superintendent career track. Matt estimates the expectation he has for his trainees is exceeded over 90 percent of the time.

**THE FINAL WEEKS.** While many would expect the weeks leading up to hosting a U.S. Open would be hectic and crazy... even chaotic. That’s not necessarily the case at Merion GC.

Nearly every hour of every day is planned out strategically and logistically. Every action serves a distinct purpose. Yes, weather throws a few curves, but contingencies are built into the Matt’s system deal with the intangibles. To keep things on schedule, multiple mowings – as many as four times per day – take place. Lots of rolling accompanies the mowing to ensure optimal green speeds and firmness are in place the week before the





**The Big Push:** Nearly every hour of every day is planned out strategically and logistically to prepare for the enormity of the 2013 U.S. Open. For example, multiple mowings are scheduled, as many as four times per day. Lots of rolling accompanies the mowing so optimal green speeds and firmness are established and in place the week before the event.



event. Merion keeps its greens quite dry and uses moisture sensors and TDR 300 probes to push the greens to their max.

Prior to the event Matt plans on working on plant health with proper moisture to allow the turf to last during the event.

Tournament time is tough on staff. Lots of hours are logged and everyone experiences their fair share of exhausting weeks leading up to the event. Matt cautions his staff to pace themselves properly, and does everything in his power to make sure they are fresh and on top of their game for tournament week. The addition of volunteers more than doubles the normal, routine staffing levels. As such, all of those volunteers need to be organized for each day of the tournament.

Likewise, any event of this magnitude requires forethought about crisis management. The management team runs through a variety of scenarios for potential disasters that could occur during the event – including weather – and how each is to be handled.

**TECHNOLOGY.** If you know Matt, then you know he believes in the benefits of innovation and is often an early adopter of new technology. He's a data guy, too, and a big believer in "You can't manage what you can't measure." If you can chart it or measure it, then Matt likely has the stats. Matt is grateful to Walt Norley for introducing

"There are **miles of drip irrigation** around the bunkers so that the grass can survive while not having sprinklers moisten the sand."

him to UGMO for moisture sensing technology and being able to track moisture levels in greens along with salinity buildup. Merion Golf Club uses Toro sensors and the readouts show trends in moisture and allow for staff to hand water only the areas that are absolutely necessary. There is little guessing about greens moisture at Merion.

Green firmness is measured daily to monitor the direction of the playing surfaces. Eric Psolla and Jake Straub provide written reports regarding soil chemistry. Using these reports as a base, a sound fertility program is developed. Matt's skill with interpreting data affords him the ability to run out on the edge of the cliff on a daily basis.

**FULLY EQUIPPED.** Matt was highlighted in a previous GCI article (On a roll, October 2012) that outlined his use of fairway rollers. He continues to reap rolling's agronomic benefits and is grateful to be





working with Salsco's Sal Rizzo on these machines. The rollers reduce disease incidence and the need for fungicides. John Deere provides the majority of the equipment on the championship course. Several pieces of additional equipment will come in right before the tournament due to Matt's great working relationship with the people at John Deere.

**OLD GREENS, NEW TECHNOLOGY.** The greens at Merion are quite old, but the addition of newer technology has them performing quite well. One such technology is the use of Precision Air units that help to pull water down through the soil profile. The Philadelphia area is known for some extreme weather conditions, with high heat and humidity in the summer. Precision Air machines keep the air and moisture in balance in the soil profile without putting the turfgrass at risk. Matt's assistant, superintendent Aaron McCurdy is a believer and uses the technology whenever appropriate.

**BUNKERS.** A big part of Merion's teeth are its bunkers. Matt calls the bunkers edgy, and his philosophy for maintenance is very unique. Matt realizes a tremendous amount of money can go into bunker maintenance, so he tries to utilize a minimalistic approach to hazards.

While Matt likes bunkers raked a couple of times a week, applying roundup every few months to eradicate weeds, he has

instituted a more in-depth program to meet USGA needs of the event. Edges around bunkers are seldom trimmed and feature a rough-perimeter look. A lot of sand has been added prior to the tournament and that will need to be compacted accordingly. There are miles of drip irrigation around the bunkers so the grass can survive while not having sprinklers moisten the sand. Matt credits Rain Bird and Jim Barrett for his success with sub-surface irrigation.

**THERE ARE LOTS OF MOVING PARTS THAT MAKE A CITY WORK.** Matt has the turf care and golf course on the right pace to peak by early June. I don't doubt the course will be in fantastic shape. But prepping Merion's golf course is only a part of building the city. Truckloads of bleachers, tents and platforms are being moved into place as I write, just to accommodate the magnitude of this event. After it's over and the crowds have left, it all comes down and life slowly returns to normal.

It takes strong leadership to develop and execute the complex logistics of an event like the U.S. Open, and the time is now for Matt Shaffer and his team at Merion GC to make it happen. **GCI**

*Bruce Williams, CGCS, is the principal of both Bruce Williams Golf Consulting and Executive Golf Search. He's also GCI's senior contributing editor.*







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

## DON'T PANIC...PLAN!

**"C**all the fire department ... your building is on fire!"

A panicked voice and urgent directive was the club manager's first indication that the golf cart storage building was in flames. In less than an hour, the building was gutted and its contents destroyed.

Thankfully, no one was hurt. But that elation soon turned to depression as the arduous job of rebuilding began.

As the young club manager began the job of restarting club operations, one question never left his mind: "Why wasn't I better prepared?"

If a club manager, golf professional or superintendent hasn't faced a similar situation after a crisis brought about by severe weather, natural disaster or impropriety turning his or her world upside down, that person may be living on borrowed time. Regardless of the emergency, the question of preparation and what could have been done differently comes front and center.

Here are seven suggestions to consider to prepare for a crisis.

**CONSIDER THE CLOUD.** In these times, when so many of the club's books and records are stored in electronic formats, clubs have a great advantage in being able to reconstruct critical information. If the club does not use a formal and redundant offsite resource for information and records back-up, this should be your first priority.

A by-product of the Information Age is the expectation that club leaders will maintain and manage information professionally and thoroughly. Assuring members and customers that they can feel confident about private or confidential information in your care is the first step in building trust.

**KNOW WHO TO CALL.** Identify and prioritize your list of notification calls.

First, contact the board of directors, executive committee and ownership group. Make sure they hear from you first – not from the media or another source. Confirm who speaks for the club when responding to inquiries from media, law enforcement and other jurisdictions.

**CONTACT YOUR INSURANCE PROFESSIONAL.** Now is when you discover how remarkable these professionals can be. Bear in mind that this may be your first catastrophe, but crisis is commonplace to them. Be prepared to explain clearly the events that have transpired and what help you need. Ask for their guidance and coaching; use your best judgment in sorting through the potential solutions.

**CONTACT YOUR KEY MANAGERS AND TRUSTED EMPLOYEES.** Many top-performing clubs have organized their personnel into task-force teams in advance of a possible crisis. Then make sure club members and other stakeholders are informed.

**REFER TO YOUR CRISIS MANAGEMENT PLAN.** Hopefully you have one and that it hasn't been on a shelf gathering dust since it was developed. Your plan is where you'll find:

- Key contact information.
- Primary message points and expressions of sympathy and empathy.
- The reference library in which blueprints, facility information and descriptions are stored. (The new Club Solutions program at the Club Managers Association of America offers valuable guidance and resources on this point.)
- Primary vendor and support services to address specific operational needs and shorten facility downtime. Golf cars, support vehicles, temporary storage, new supplies and temporary

**"I learned a hard lesson that day. Never again did I want to be the one asking him, 'Why wasn't I better prepared?'"**

help are just a few of the things you may need quickly.

**BE ACCESSIBLE.** Staff, members, customers and suppliers will all want to contact you. See that everyone receives a composed and consistent answer to the question: "What happened?"

**BE HONEST, TRANSPARENT AND OPTIMISTIC.** Your calm and confident demeanor will translate to others. As soon as practical, begin to share the plan to restore operations. Coordinate with the board and club leaders to make sure they know the process that is now in place.

**STAY ON MESSAGE.** Don't speculate. Don't misrepresent. There's nothing wrong in responding simply, "It's too soon to comment on that." Or "We don't know the answer to that question yet, but we're working on it."

**CARE FOR YOUR PEOPLE AND YOURSELF.** Hydrate. Rest when you can. Call your family to assure them you're OK. In times of crisis, one is always humbled and inspired by the generous acts of friends and fellow professionals.

By the way, the young club manager whose life was turned upside down by a fire in the golf car storage facility was me. I learned a hard lesson that day. Never again did I want to be the one asking him, "Why wasn't I better prepared?" **GCI**



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# Ring around the collar

Three case studies to keep you from tearing up your green collars.

By Katie Tuttle

**G**reens collars and edges easily get banged up from turning, loading and unloading machinery, and just everyday operation. Once they're damaged, it can be difficult to get them back in solid shape. Whether you're fixing the problem, or just preventing it, here are a few case studies featuring tips and tricks from industry pros to help you make sure your greens look as perfect as possible.

## No room for error

### Muirfield Village Golf Club

Dublin, Ohio

Paul B. Latshaw – director of grounds operations

18-hole, regulation-length course

Private Non-Equity golf course

72 par – 7,221 yards – 145 slope

**B**y design, the bunkers at Muirfield Village Golf Club in Dublin, Ohio are very close to the putting surfaces. This is done for both strategy and difficulty. Because of this, there is not a lot of room to maneuver a push mower and make turns, thus causing significant damage to the greens. When Superintendent Paul Latshaw arrived at Muirfield, the collars were in pretty bad shape.

"The program started from day one," he says. The first thing they tried was carpets for the mowers to turn on. The next thing they tried was using a very thin sheet of luan plywood, but it deteriorated quickly when wet, making it not ideal. Now they use a mat similar to the mats now produced by Precision. The mats are 1/8 of an inch and can be stored on racks they built onto their mowers. This allows for easy transportation and saves the time it would take to load and unload the mats every day. The mats help reduce the amount of abrasion that happens on the surfaces when the large machinery is turned and, as of now, it seems to be working.

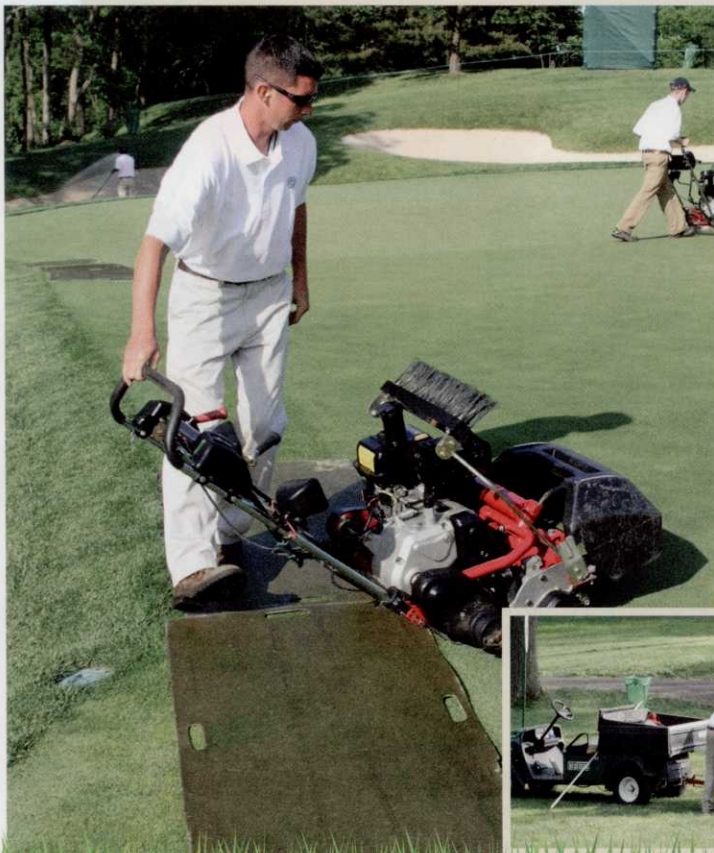
"The program's working," Latshaw says, although it does add extra time to the maintenance crew's daily routine. "It probably adds 45 minutes to the greens routes," he adds. However, the time it saves by preventing the damage makes up for it. "If we didn't use the [mats], our collars would be dead."

Along with the mats, Muirfield's staff also hand rolls their greens so they're able to stop just short of the collars and avoid more mechanical damage.

"During a tournament you might be triple cutting in the morning and turning on the collar even with mats down, but then with mowing two times at night and rolling, collars get beat to death," Latshaw says.

A third technique Muirfield uses to prevent greens damage is to overseed with a little perennial ryegrass.

"It doesn't look as great but it's able to withstand the mechanical stresses more," Latshaw says.





# Sandy Solution



## Cedar Ridge Country Club

Broken Arrow, Okla.

Mike Wooten, superintendent

18-hole, regulation-length course

Private equity golf course

71 par – 7,290 yards – 138 slope

In the heat of the Oklahoma summer, Cedar Ridge Country Club, located in the city of Broken Arrow, sees wear and tear from the mowers on the edges of the greens. Because the course greens are bentgrass with Bermuda grass collars, the collars don't see as much damage as other courses might see, but the edges still cause a problem. To deal with this, the club uses a 3-foot drop fertilizer spreader and fills it with sand. After putting down a heavy cover of sand on the edges of the greens, they broom it weekly to keep the edges and the paths around the area looking tidy. They also try to keep the mowers from bumping the sand when they mow around the edges to avoid any further damage.

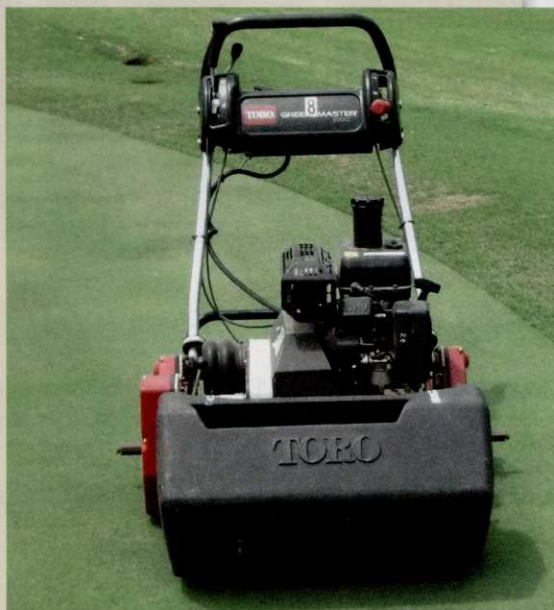
The idea of using the sand came from seeing the damage to the greens from mowing. When they would mow, it would destroy the edges, and they knew they had to firm them up to prevent that from continuously happening. The sand was a good way to do so.

Before deciding on the sand, Cedar Ridge tried to move the cleanup grass one width of a walking greens mower, and then mow at a different height to have a little bentgrass collar. It worked reasonably well, but Mike Wooten, the superintendent at Cedar Ridge, believes the sand works better. And while he knows there are probably better ways to prevent damage than laying down the sand, those ways would be too disruptive to play during the summer months when the course is the busiest.

"Aerification and filling holes with sand would be exceptional, but too disruptive on bentgrass," he says.

Another thing they do to prevent damage is use a dull side-walk edger to edge the interface between the Bermudagrass green and bentgrass collar. The reason for the dull blade is that it does a cleaner job and doesn't destroy the Bermudagrass like a sharpened blade would.

"We had used a sharp [edger] before," Wooten says. "It was a little bit of tearing and we just went with it. We found that the dull one doesn't do the tearing. It just cuts the Bermuda runners off."



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## Close to perfect

Collar damage at Maryland's Four Stream Golf Club wasn't a prominent problem until 2009, when the staff used a turbine blower to blow excess topdressing sand onto the collars after aeration. The problem occurred when a heavy rain worked the sand into the canopy and it couldn't be removed. When it hit early June and the temperature started rising, the damage appeared.

"[The] damage started showing up once it got hot in early June," says Tom Harshberger, Four Stream's superintendent.

Because the collars had such large, thinned out areas, they decided to

overseed with P. Ryegrass and bentgrass, as well as spray extra plant growth supplements such as Gibberellic acid. This solved the problem until they decided they wanted to remove the P. Ryegrass. Four Stream decided to deal with the problem until fall of 2011 and spring of 2012. The club sodded the worst areas and then selectively killed the ryegrass with Corsair.

Since then, the collars have improved. To keep them high quality, the club now makes the crew turn the mowers on plastic mats from mid-May through early September.

"The collar region around a green is the area that receives the most traffic on any golf course," says Harshberger. "Also this is one part of the golf course where, if it's not close to perfect, it can affect playability."

Harshberger links the damage of the club's collars directly



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to the use of the turbine blowers, and he says there are probably other superintendents out there doing the same thing. Then, when they notice the damage, they are misdiagnosing it.



"I think other courses have run into collar damage that has been self made but blame it on other factors," he says. "And this may only be a problem in areas that experience intense summer heat and stress. If it's not hot, the sand should not create much of a problem. But when it gets hot the sand is very abrasive on the leaf blades and helps create more unwanted stress on the plants."

What Four Stream found to work best with preventing collar damage was mowing higher. Ever since they have increased the height of the mowers when going around the collars, they have looked great. They also keep any triplexes away from the greens so they have their collar/approach mower mow six passes around each green. This keeps the larger mowers away from the collars. **GCI**

### Four Stream Golf Club

Beallsville, Maryland

Tom Harshberger – Superintendent

18-hole, regulation-length course

Private non-equity golf course

71 par – 7,100 yards – 138 slope

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**Jeffrey D. Brauer** is a veteran golf course architect responsible for more than 50 new courses and more than 100 renovations. A member and past president of the American Society of Golf Course Architects, he is president of Jeffrey D. Brauer/GolfScapes in Arlington, Texas. Reach him at [jeff@jeffreymbrauer.com](mailto:jeff@jeffreymbrauer.com).

## CREATIVITY IN MEETING BUDGETS

**B**ack in January 2009, I wrote a column called “Noninvasive procedures,” which focused on the importance of retaining a contractor who “works clean” in renovations to reduce cost. These days, it’s just as important to retain an architect who understands the concept of minimally invasive design to get the lowest cost project, while not sacrificing design quality that golfers see as the final result.

There are design benefits to comprehensive master planning/renovation approach and starting with a clean slate. If you replace everything, you gain design, construction and maintenance consistency, which is always a goal in renovation.

However, the reality since the re-

to do a \$4-\$8 million renovation project for about \$2.5-\$3.6 million.

One strategy lies in specifying “second level” components, like buying last year’s hot driver at a discount. Regretfully, seeing how well superintendents work around, shall we say “vintage” infrastructure, often defeats the arguments for updating everything to the most modern standards.

Another tack is straddling the delicate balance of keeping recent, but somewhat questionable improvements in place, while making them work with the new design, rather than wantonly “blowing it up” for a better design. You can do more and better changes by starting with a clean slate, but every square foot of disturbed area requires earthwork, drainage, irriga-

good-as-built plans, a lot of detailed design work and a careful contractor, we can grade slightly for drainage without hitting irrigation lines. Not ideal, but it’s possible.

Last year we minimized turfing and costs by only re-grassing the fairways and rough where grades changed. However, the dramatic change to new turf is noticeable, at least initially, but it will heal and we made budget.

There is an old saying that it’s easy to build a hard course, but hard to build an easy one. It’s also easy to build a great course with an unlimited budget, but hard to build a great renovation on a limited budget. Some see minimalism as a style, but true minimalism is doing as little as possible to the course, while making it look as if it was all you needed to do.

That requires the architect’s secret weapon – creativity – which is severely tested when the need exceeds the budget. Creativity isn’t just about artistry. It’s also in selecting, designing and blending features just the right way for a successful project. Very few have the creativity or vision to pull it off, while the best architects regularly “make it look easy.” An architect isn’t an unnecessary expense, but rather, the main driver of effective cost savings that don’t sacrifice budget, function, or good design.

Good architects accept low budgets, without accepting limited quality and results. Believing “necessity is the mother of invention,” they don’t just eliminate to control cost, they integrate, and gladly take the challenge of doing more with less to make it even better. Find “that guy” and you should have a successful renovation. **GC**

**Creativity isn’t all about artistry. Creativity is also in selecting, designing and blending features in just the right way for a successful project.**

cent recession is that when courses do renovate, their budgets are squeezed. The price for “blow-up” renovations continues to rise, with a total redo cost in the \$4-\$8 million range.

At the same time, bankers have gotten far more conservative/realistic in the business projections. While most renovations will still garner increased revenues as before, the increases are much lower than a decade ago. Now, based on recent real experience, it is hard for any reasonably attentive banker to project large revenue increases if neighboring courses are still discounting – or closed altogether. It’s all about the payback, and most studies don’t justify a \$4-\$8 million expenditure as easily as they might have a decade ago. Something around \$2-\$3 million is more typical. So, clubs, owners and golf course architects are back to the familiar territory of trying

tion replacement and re-seeding or sodding, increasing costs.

Some recent challenges have included working around a 3-year-old cart path system that is in good shape, but in bad locations, too near fairways and containing hairpin turns. My preferred option was to start over, and install 30,000 L.F. of cart path where it made more sense. But, at \$24 per L.F., and \$720,000, replacing much of that perfectly good path seemed wasteful, so we tweaked the plans to save about  $\frac{2}{3}$  of the original path within the new design. I cringe at a few locations left over, and may eventually use the old architects trick of bribing a bulldozer operator to “accidentally” take out a few, using contingency funds to rebuild them.

On another project, we are trying to drain flat fairways without damaging the 5-year-old irrigation system. With

To read Jeff’s 2009 column “Noninvasive procedures,” enter [bit.ly/11FkTVp](http://bit.ly/11FkTVp) into your web browser.



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# Small ideas, **big changes**

By Bob Lohmann

If your aging greens need an upgrade, small changes can be an effective, cost-conscious alternative to a full-scale renovation project

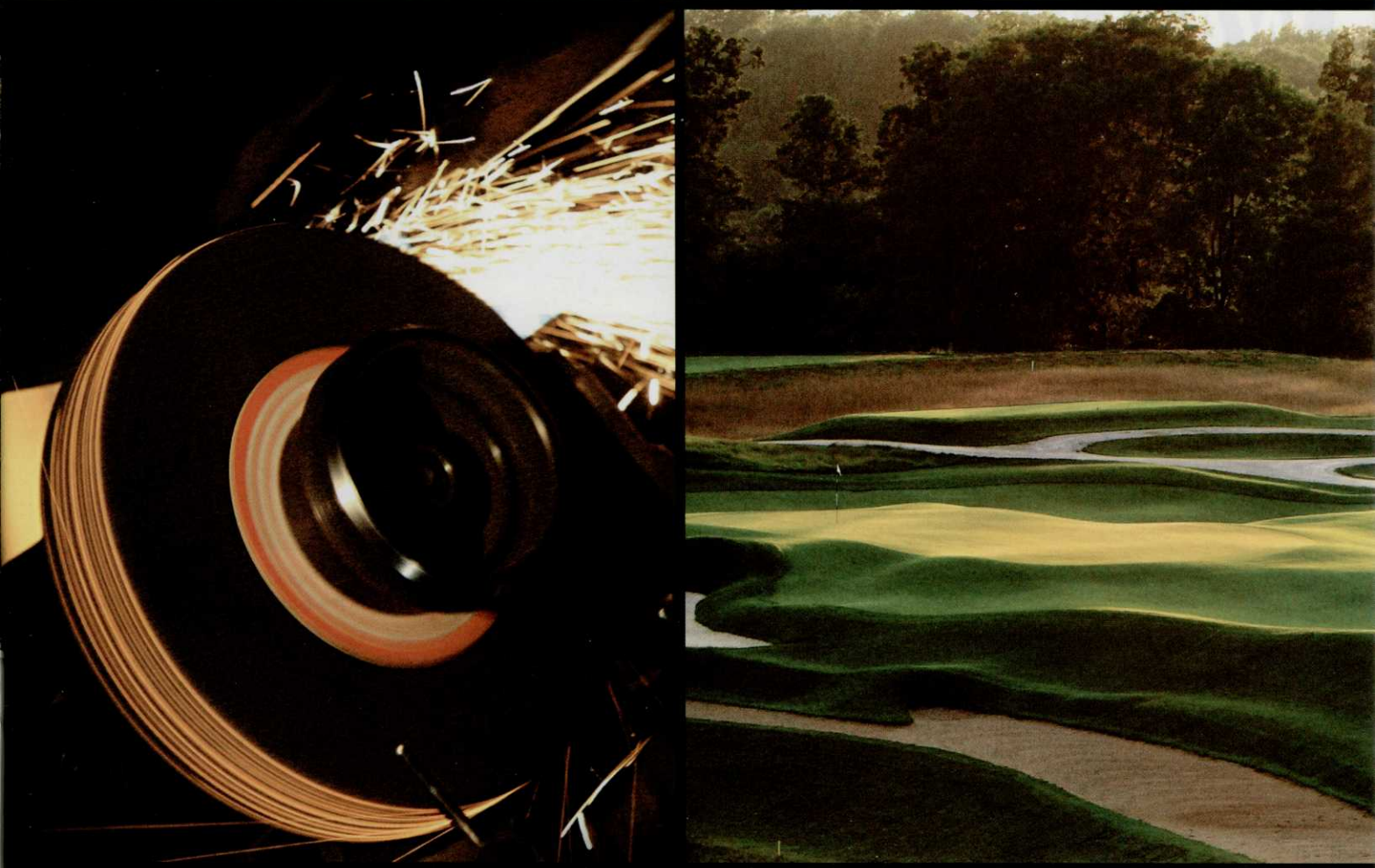
**W**e can all agree the prevailing economic climate has changed the way we do business. Rounds were back up in 2012, which is a great sign that things are beginning to recover, but the National Golf Foundation reported there were some 150 course closures in 2012, while only a handful of new courses opened for play. This is the new reality, and it has prevailed for almost a decade now. It's on all of us – superintendents, architects, contractors and golfers themselves – to continue the adjustments.

Much of those adjustments have been tough, as we struggle to maintain older golf courses with smaller maintenance budgets and shrunken capital expense allocations.

But there has been one overriding silver lining: When forced to do more with less, professionals get creative. They question the status quo and shed new light on practices we once considered “perfected.”



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Greens renovation, including the hauling off of rough sod on the course.

The best example of this dynamic is greens renovation. Ten years ago, we in the golf industry embraced greens renovation almost as a matter of course. When greens failed to meet expectations, we often rebuilt them because a) there was plenty of money around, b) we had to keep up with the Joneses, especially the new Joneses on the block, and c) renovation was simply something superintendents wanted, and architects delivered.

Today, that situation has been turned on its head. I actually get the impression that some superintendents are afraid to call architects now, if the greens in their charge are failing or seriously underperforming. They're afraid we're going to come in there and recommend a full-on green reconstruction program they cannot afford!

Well, any architect with that sort of attitude – that full-blown renovation is the answer to everything – has lost touch with reality. And the fact is, several important alternatives to greens reconstruction have emerged in the last several years. Each one depends on an accurate diagnosis of the problem, of course. And that generally requires several sets of eyes, in addition to your own.

All obvious biases aside, I suggest you start with your course architect. If you don't have one, you can go to the American Society of Golf Course Architects web site to access a comprehensive list of those working in your region. Fact is, architects get around; they see dozens of courses each year with problem greens, and they're often a party to fixing those problems. Architects are a resource just like your fellow superintendents, Green Section agronomists and certain vendors are resources. Put them to work as your brain trust.

That said, let's look at a few ways traditional

greens renovation has been reconsidered in the recent past by superintendents and architects alike. If your greens aren't doing the job, you have more options than you may have thought.

**POOR PERFORMANCE.** A large percentage of problem putting surfaces are "underperforming" because they're not draining properly. Ten years ago, that would have meant a greens reconstruction project, but we've learned we don't necessarily have to go there.

### Key points

- Many superintendents are challenged with overseeing older courses with smaller maintenance budgets and shrunken capital expense allocations.
- The perception is superintendents may hesitate to consult with an architect about problems with their aging greens, fearing a recommendation for a costly, full-reconstruction project.
- Several important alternatives to greens reconstruction have emerged in the last several years.
- A number of options exist for superintendents to address greens problems.
- Ultimately, pricing will vary depending on location, material availability, and the results of testing, which will indicate material depths.





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## CONSTRUCTION



In this photo, green sod has been removed.

Every superintendent knows that deep-tine aerification can remediate drainage issues somewhat by breaking through layering problems, giving water and air an avenue to penetrate the rootzone. But this can often take years to make modest gains, and golfers will quickly tire of the continual punching of deep holes in their greens.

Really poor percolation caused by heavy soil profiles often requires a more radical step: We've recommended "slit draining" to many supers struggling with excess saturation, and we've been very impressed with the results.

There are several vendors who specialize in this sort of service, but here's the basic premise: First, the green sod is removed in 5-inch to 7-inch widths at about 6 to 8-foot intervals in a modified herringbone design. The sod is set aside in the order it is removed, so that it goes back in exactly the same spots (to avoid mixing up color patterns... usually of *Poa annua*). Then a 16-inch-deep drainage trench is cut into the stripped areas, a 2-inch drainage tile system is placed in the bottom of the trenches, and they are refilled with a heavy mix of sand, soil and peat such as a 6:3:1 – heavy enough to retain moisture so the drainage lines don't show up during dry times. The sod is then re-laid.

Golfers are usually back on these greens shortly after completion, and I can't think of an example where this didn't radically improve drainage. Think about it: You're not just creating a new drainage profile – you're actually adding a drainage system inside the green, and you're not rebuilding. It's rather brilliant, really.

**TURF TURNOVER.** Sometimes the problem isn't the drainage capability but the turf itself. It's either outdated or *Poa* infested and beyond repair. We're planning a greens re-grassing project this summer at a private course in Indiana where the superintendent told me he had finally had enough. He just didn't think his old *Poa* greens could compete anymore with the

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new courses in town that were maintaining A1 and A4 bentgrass putting surfaces. He's been pushing them hard for years to provide the performance his members expect, often edging on the brink of disaster. With the extremes in weather that seem to be the norm these days, he's finally convinced the club to invest in a re-grassing program, which they've embraced as a very worthy insurance policy.

As a firm, we have overseen the re-grassing of greens at dozens of golf courses across the upper Midwest, with nary a dissatisfied client. It's hard to argue the value of the new bents on the market these days and the benefits they provide in terms of drought and disease control, not to mention playing performance.

Of course, the re-grassing process is not all grins and giggles. While the actual expense



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of re-grassing is reasonable (roughly \$5,000 to \$6,000 per green), it's the downtime that makes clubs hesitate. But it pales in comparison to rebuilding those greens (and re-grassing them) or doing nothing as the old greens eat away at your budget, your nerves, and the patience of golfers.

One last note on re-grassing: we often recommend a slit-drainage and tree removal regimen in concert with re-grassing, to provide the best possible long-term growing environment. To be honest, I'm not sure which of the two is more important. Drainage and sunlight are always critical, no matter what type of grass you're trying to nurture.

**MATERIAL MATTERS.** Think back 10 years and consider how certain we all were about the materials you needed to effectively topdress a green. We knew just the type and size of sand to use, because the conventional wisdom (the USGA recommendations) seemed so strong and unimpeachable.

In short, the USGA published a study in their Green Section Record by turf specialist Dr. James Murphy of Rutgers University, who cites example after example where coarse





The stripping of the existing topsoil. Inset: A pile of existing mix salvage to be used later on.

sand shouldn't work but it does, where fine sand doesn't work – in situations where you'd have sworn it would.

The takeaway is this: The sand you deploy in your greens maintenance and/or construction is vital to maintaining good drainage conditions, and identifying that sand depends on half a dozen factors that are particular to your climate, your turf, the soil profile on that particular green, and wet/dry nature of the green's micro-climate. All of these angles should be fully explored and tested with a certified lab before you outline a renovation program of any sort.

Think about it: You're not just creating a new drainage profile – you're actually adding a drainage system inside the green, and you're not rebuilding. **It's rather brilliant, really.**

**ALTERNATIVE METHODS.** One of the big arguments that we've heard – and even used – in the past for implementing an 18-hole green reconstruction program was consistency. Any superintendent who has maintained a US-GA-profile green side by side with an old push-up green knows that each behaves, maintains and generally performs completely differently. The only way to have consistency, then, is to have all your greens the same.

So what do you do when you have a golf course with 18 push-up greens and only one or two greens are in dire need of renovation – or, more

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Syngenta Business Institute™

## ALUMNI UPDATE

**I** try to participate in every continuing educational event available to me; the Syngenta Business Institute was by far the best educational event that I have ever participated in. The meeting was knowledgeable and inspiring. The instructors from Wake Forest University at the Graylyn Conference Center were first-class. My favorite part was networking with fellow superintendents.

We learned about financial management, leadership, negotiating and bridging generation gaps. Particularly valuable was the session on the difference between the values of leadership and management. I learned that leadership deals with communication, setting a direction, motivating, and taking risk, while management deals with planning, budgeting, problem solving and reducing risk.

I have incorporated many principles that I have learned at the Syngenta Business Institute at my own course since then. I have used Blanchard's Four Leadership Styles to direct different behaviors of crew members: delegating, supporting, coaching and directing. The results have been good. I recommend this educational opportunity to any superintendent that wants to learn from the best in our industry.



**Mike McNamara**  
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## CONSTRUCTION



The re-grassing process is not all grins and giggles. While the cost of re-grassing is reasonable, it's the downtime that makes clubs hesitate.

apropos today, you can only afford to rebuild one or two?

In years past, many superintendents and architects would have chosen to build those two greens with USGA recommended profiles, despite the fact that they were destined to behave, maintain and perform differently from their other 16 – likely for many, many years. Why? Because the USGA-profile was and remains the standard, scientifically proven method, and very few decision-makers were willing to take the agronomic risk of an alternative approach.

Well, we've discovered that there are ways to rebuild greens and achieve consistency with those old push-up models. The method we prefer uses a profile we've dubbed the "modified push-up."

We begin by taking core samples of a few existing greens on the course, which we send to a testing lab for profile analysis. Often that analysis will indicate a layer of sand/organic mix on the upper several inches (from top-dressing accumulation) over some type of silty loam. The lab then gives recommendations for creating a rootzone/layering that closely matches those results.

We always recommend adding a slit-drainage regimen to the green profile to ensure adequate drainage (can't stress enough the importance of drainage)

**Architects are a resource** just like your fellow superintendents, Green Section agronomists and certain vendors are resources. Put them to work as your brain trust.



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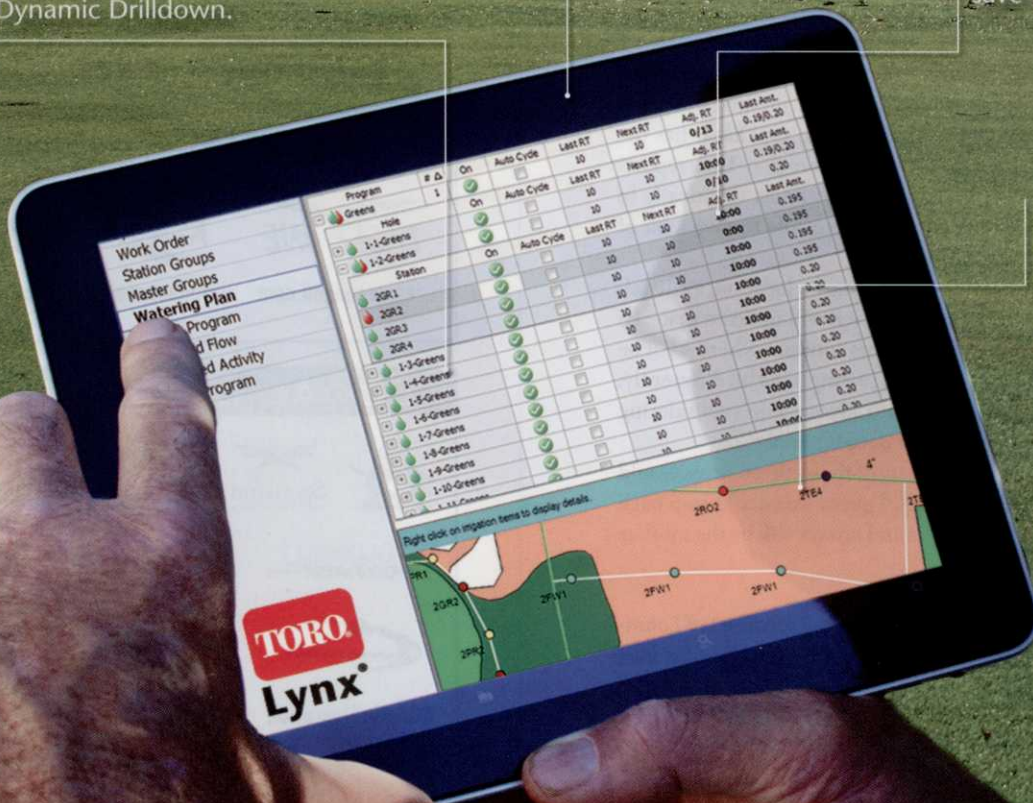
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Boards put down for sod replacement help protect the turf.

and then choose a bentgrass that will perform well under the super's existing cultural practices and performance standards. That may not always mean the latest and greatest bentgrass varieties, though we always strive to maximize disease-resistance and drought tolerance.

While the performance of the modified push-up method has yet to be validated by scientific testing, we are proud to say that it has the endorsement of numerous superintendents in our region. Each reports that their "new" greens perform and maintain almost identically to their old greens. As an added bonus, most were able to save a bit of money on their material budgets.

Of course, pricing will always vary depending on location, availability of material and the results of testing, which will indicate material depths. Indeed, we've got three projects this summer where we'll be deploying this method and each of them is pricing out a bit differently. Even so, we're always glad to share data with anyone who's considering a project or presenting a budget to their decision makers.

Big-picture take-away: I'm not sure any of these alternatives would have been developed in a boom market. I guess we should step back and appreciate the fact that necessity is and always will be the mother of invention. **GCI**

*Bob Lohmann is founder, president, and principal architect of Lohmann Golf Designs and a frequent GCI contributor. Check out his blog at [lohmanncompanies.blogspot.com](http://lohmanncompanies.blogspot.com)*



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## PREMIUM HOSE-END NOZZLES & ACCESSORIES

Step up to the most professional nozzle you can buy - MAGNUM™ UltraMax. Firefighter quality for professionals in any field, these variable flow, multi-function nozzles are virtually indestructible and leak proof. The innovative TURBO SHIFT models provide two distinct GPM ranges. And the outstanding distribution patterns of all MAGNUM UltraMAX nozzles make them excel in high demand areas like greens/tees, infield conditioning and equipment and stadium washdowns.



## features / specifications

- Multi-Pattern Spray: Fog, Jet Stream, Fan
- Built for 1" and ¾" Hose Flow Rates (range: 7-43 GPM)
- Materials: Aircraft Aluminum, Stainless Steel, TPR Rubber

## FULL THROTTLE

**Single Variable Flow:** Delivers steady, maximum volume fog, jet stream and fan patterns.

**Low Flow (Residential Use) Model:**  
12-19 GPM (45-72 L/min)

**High Flow Model:**  
15-40 GPM (57-151 L/min)

**Super High Flow Model:**  
39-100 GPM (148-379 L/min)



**NEW!**

**Super High Flow  
UP TO 100 GPM!**

## TURBO SHIFT

**Dual Variable Flow:** Delivers light fog and low volume jet stream patterns before shifting to high volume jet stream and fan patterns.

**Low Flow (Residential Use) Model:**  
Opens with 7-12 GPM (27-45 L/min)  
Turbo Shifts to 14-17 GPM (53-64 L/min)

**High Flow Model:**  
Opens with 12-17 GPM (45-64 L/min)  
Turbo Shifts to 20-43 GPM (76-163 L/min)

**Super High Flow Model:**  
34-104 GPM (129-394 L/min)



Pistol Grip

Firefighter Grip

## UltraMAX Valves

Heavy duty ball valve, push-pull on/off control handle and exceptional build quality for long life under demanding use. Available in Firefighter Grip for two-handed operation or ergonomic Pistol Grip for comfortable, extended use. **Nozzles sold separately.**

**NEW!**

**NEW!**

## ordering

All flow rates based on 80 psi (5,5 bar)

Part # NG550-DFH-75	Turbo Shift 12-43 GPM (45-163 L/min) - ¾" FHT inlet
Part # NG550-DFH-10	Turbo Shift 12-43 GPM (45-163 L/min) - 1" FHT inlet
<b>NEW! Part # NG550-DFSH-10</b>	<b>Turbo Shift 34-104 GPM (129-394 L/min) - 1" FHT inlet</b>
Part # NG550-DFL-75	Turbo Shift 7-17 GPM (27-64 L/min) - ¾" FHT inlet
Part # NG550-DFL-10	Turbo Shift 7-17 GPM (27-64 L/min) - 1" FHT inlet
Part # NG500-SFH-75	Full Throttle 15-40 GPM (57-151 L/min) - ¾" FHT inlet
Part # NG500-SFH-10	Full Throttle 15-40 GPM (57-151 L/min) - 1" FHT inlet
Part # NG500-SFL-75	Full Throttle 12-19 GPM (45-72 L/min) - ¾" FHT inlet
Part # NG500-SFL-10	Full Throttle 12-19 GPM (45-72 L/min) - 1" FHT inlet
<b>NEW! Part # NG500-SFSH-10</b>	<b>Full Throttle 39-100 GPM (148-379 L/min) - 1" FHT inlet</b>
Part # SVPG-75	Pistol Grip Valve - ¾" FHT inlet
Part # SVPG-10	Pistol Grip Valve - 1" FHT inlet
Part # SV-75	Firefighter Grip Valve - ¾" FHT inlet
Part # SV-10	Firefighter Grip Valve - 1" FHT inlet



# Magnum™

## SOLID METAL HOSE NOZZLE

Underhill® Magnum™ contains no plastic internal parts to break, stick or wear out. Our unique ratchet mechanism easily adjusts from gentle fan to powerful jet stream and prevents over-tightening damage. Precision-machined, incredibly smooth operation and outstanding distribution patterns make it ideal for high-demand areas like greens and tees. Magnum™ is also an excellent equipment wash-down nozzle.

## features

- Multi-pattern sprays - effortless control with hydraulic assist on/off
- Solid metal internal - no plastic parts to break or wear out
- Ratchet mechanism prevents over-tightening damage
- Ultra-durable construction withstands any abuse
- Fire hose quality nozzle feels great in your hands
- Beautiful, consistent spray patterns for life
- Built for 1" and ¾" flow rates

## specifications

Materials: stainless steel, aluminum, TPR rubber

Flow: 37 GPM at 80 psi

Inlet: ¾" hose thread (1" brass adapter available, see Page 4)



Magnum™ nozzle pictured with 1" brass adapter (sold separately on Page 4)



## solid metal internal body

Won't stick...won't break



fan



jet



soak



Perfect for tournament play, CoolPro™ puts down only enough water to cool the turf canopy. It prevents wilting while maintaining good ball speed. CoolPro is a great tool for protecting grass on hot days without damaging roots.

# CoolPro™

## COOL WITHOUT OVER WATERING - NO ROOT DAMAGE

A hot summer day can be murder on your greens. Use too much water and you risk damage to the roots. CoolPro™ is the first nozzle specifically designed for the single purpose of lightly misting the turf canopy to cool without over watering. And its 25 foot fogging pattern gets the job done quickly.

## features

- Precision™ nozzle fogs at 70 psi to deliver a 25 ft. pattern with only 4-6 GPM
- ¾" inlet (1" brass adapter available, see Page 4)
- Ergonomic handle/valve provides easy grip and variable on/off control.
- Durable solid metal design: zinc, aircraft aluminum and stainless steel.

## ordering

Part # NG450	MAGNUM™ Hose Nozzle
Part # HNC075	CoolPro™ Valve and Nozzle
Part # HN0600	CoolPro™ Nozzle only
Part # CV075L	CoolPro™ Valve only



# Precision™

## SOLID METAL, SPECIFIC TASK HOSE NOZZLES

Underhill® Precision™ nozzles deliver millions of soft, uniform droplets to provide rapid yet surprisingly gentle water application over a huge range of flow rates. From soft watering to powerful drenching, patented Precision nozzles are designed with ideal flow rates and droplet sizes to fully irrigate without disturbing turf, dirt, seeds, etc., providing a precise solution for every hand watering application.



### precision watering for specific tasks



**Rainbow™ TASKS:** Greens, tees, seed beds, transplants, delicate landscaping (15 GPM)



**Rainmaker™ TASKS:** Syringe and spot watering turf and hardy landscaping (23 GPM)



**Cloudburst™ TASKS:** Dry spots, drenching, and wetting agent application (35+ GPM)



**Cyclone™** Pre-game skins watering, heavy watering of large areas, ideal for hydroseeding (50+ GPM)

Note: GPM will vary with pressure at nozzle.



## high-flow valves



**COMPOSITE / STAINLESS STEEL:** ¾" hose thread inlet/outlet, oversized handle, up to 55 GPM

**SOLID BRASS:** ¾" hose thread inlet/outlet, up to 50 GPM



## hose adapters / quick-connectors



## ordering

Part # HN1500CV Precision™ **Rainbow™** Nozzle Kit  
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Part # HN4800CV Precision™ **Cloudburst™** Nozzle Kit  
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Nozzle Kits include brass High Flow Control Valve and ¾" MHT x 1" FHT Adapter.

To order nozzle only: remove "CV" from part number.



Part # CV075H High-Flow ¾" Valve - Brass  
Part # A-BV77FM High-Flow ¾" Valve - Composite/Steel  
Part # A-BA107FM 1" FHT x ¾" MHT Brass Hose Adapter  
Part # A-BA107MF 1" MHT x ¾" FHT Brass Hose Adapter  
Part # A-BQ7M ¾" Quick-Connect, male end  
Part # A-BQ7F ¾" Quick-Connect, female end  
Part # HN075W replacement washer, ¾" hose



## NEW! DrainBlaster™

### HIGH PRESSURE DRAIN CLEANING NOZZLE

This unique hose-end, high pressure nozzle guides itself in cleaning out drains, to remove debris with ease. Special feature includes a wire attachment connector for using wire locator to determine drain route.

#### features

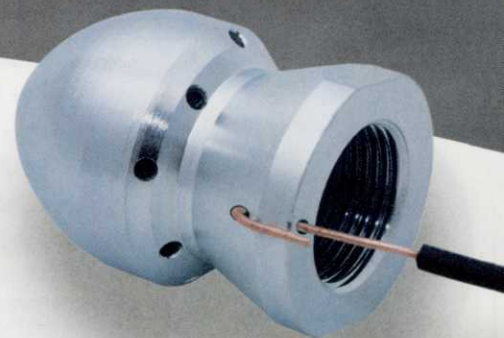
- Front jet cuts through blockage
- Rear jets propel nozzle upline
- Two stage flushing action
- Minimum water pressure: 70 PSI
- Heat treated grade 303 stainless steel for long life



Great for cleaning under sidewalks or cart paths



Ideal for 4"-6" drains and catch basins



Wire attachment connector for mapping drain location under greens, bunkers and other locations using a wire locator.

## NEW! RainPro™

### SOLID METAL SHOWER NOZZLE

A truly revolutionary shower nozzle for soaking turf or other landscapes... featuring an exclusive solid brass nozzle plate for outstanding pattern and special rubber bumper for nozzle protection.

#### features

- Ultra durable construction withstands any abuse
- Beautiful, consistent and uniform spray pattern
- Materials: zinc alloy, brass and TPR rubber
- Flow: 40 GPM @ 80psi (built for 1" and 3/4" hose flow rates)
- Nozzle assembly unscrews for easy cleaning



RainPro™ nozzle pictured with 1" brass adapter and 3/4" high-flow valve (sold separately on Page 4)



Tough TPR rubber bumper protects nozzle



Excellent for golf greens or other turf and landscape applications

#### ordering

Part # DN-75	DrainBlaster™ Drain Cleaner Nozzle – 3/4" FHT Inlet
Part # DN-10	DrainBlaster™ Drain Cleaner Nozzle – 1" FHT Inlet
Part # SHN-75	RainPro™ Shower Nozzle – 3/4" FHT Inlet
Part # SHN-10	RainPro™ Shower Nozzle – 1" FHT Inlet



# PelletPro™

## APPLICATOR GUN FOR SOLID WETTING AGENT TABLETS

Our heavy-duty surfactant applicator, high-flow valve and Precision™ Cloudburst™ nozzle combo comprises the finest wetting agent gun available. PelletPro™ accepts all wetting agent tablets and provides a high volume, yet soft spray for watering or applying surfactants to tight, hydrophobic soils.

### features

- 35+ GPM to get the job done faster!
- Ultra Heavy-Duty construction: brass fittings, aircraft aluminum, stainless steel, precision engineered glass
- Pellet rotation (1 RPS) evenly dissolves/applies tablets
- Patented Cloudburst™ nozzle delivers large droplets in an outstanding fan pattern



PelletPro™ rotates pellets at one revolution per second (RPS) to evenly dissolve/apply wetting agent



### IN-LINE APPLICATOR OPTION

Connect directly to a water source (quick coupler, HoseTap, etc.) to get the benefits of PelletPro with less handheld weight.



PelletPro's bowl works great as an in-line filter replacement for most spray rigs. Heavy-duty, transparent bowl shows fluid levels, won't crack during winter storage.

### Two products in 1!

PelletPro and LiquidPro's Precision™ Cloudburst™ nozzle and high-flow valve quickly assemble to create a powerful, 35+ GPM syringe nozzle.



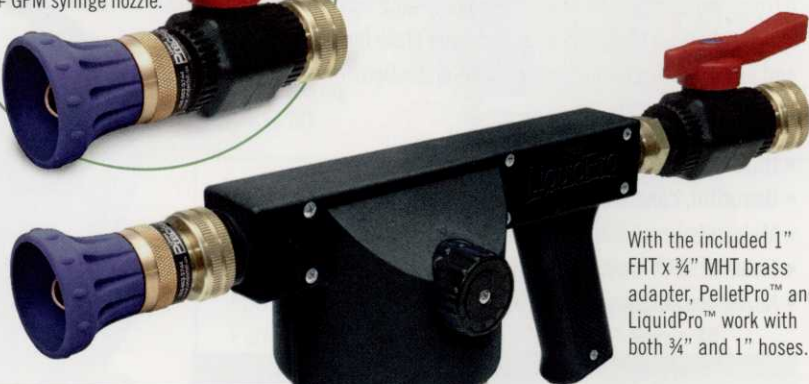
# LiquidPro™

## APPLICATOR GUN FOR LIQUID WETTING AGENT

LiquidPro's chemical-resistant, UV-protected, lightweight siphon/mixing system can cover 1000 square feet in less than a minute! With unmatched speed and uniformity, you can virtually "paint" your turf with liquid wetting agent, fertilizers, and micronutrients. Adjustable metering dial offers 10 additive settings including "Water Only."

### ordering

- |                    |  |
|--------------------|--|
| Part # A-PPWA50K   | PelletPro™ Applicator Gun (with 1" FHT x 3/4" MHT adapter)     |
| Part # A-PPWA50K-E | PelletPro™ Applicator Gun (with 3/4" quick-connect adapter)    |
| Part # A-PPQ-075   | PelletPro™ In-line Applicator: 3/4" FHT inlet, 3/4" MHT outlet |
| Part # A-PPQ-100   | PelletPro™ In-line Applicator: 1" FHT inlet, 1" MHT outlet     |
| Part # A-PPB       | In-line Filter Bowl  |
| Part # A-PPBG      | Gasket   |
| Part # A-LPWA50K   | LiquidPro™ Applicator Gun (with 1" FHT x 3/4" MHT adapter)     |
| Part # A-LPWA50K-E | LiquidPro™ Applicator Gun (with 3/4" quick-connect adapter)    |
| Part # A-LPWAB-6   | 6-Pack of 32 oz. Polybottles and Carrier                       |



With the included 1" FHT x 3/4" MHT brass adapter, PelletPro™ and LiquidPro™ work with both 3/4" and 1" hoses.

**MADE IN USA**







## NEW! ProLocker™

### THE MOST POPULAR ASSORTMENT ALL IN ONE COMPLETE KIT

Keep all of your Underhill® professional watering tools secure and safe in this handy kit. ProLocker attaches easily to any utility vehicle for easy access. Case is ultra-durable, made of high-strength composite material and is lockable.

### kit includes

- Entire Precision™ nozzle series and brass high-flow valve
- CoolPro™ fogging nozzle
- Magnum™ UltraMax nozzle
- PelletPro™ wetting agent applicator
- SuperKey XL™ golf sprinkler multi-tool
- Gulp™ UltraMax syringe pump
- Gulp™ UltraMax pump
- TurfSpy™ stress detection glasses
- HeadChecker™ nozzle discharge pressure gauge, flex hose and pitot tube



## NozzleLocker™

### THE VERY BEST NOZZLES - KEEP THEM SECURE (and handy)

### kit includes

- Entire Precision™ nozzle series (Rainbow™, Rainmaker™, Cloudburst™ and Cyclone™)
- Solid Brass High-Flow Valve
- CoolPro™ with Precision™ fogging nozzle
- Your choice of MAGNUM™ multi-pattern nozzle (original, UltraMAX Turbo Shift, or UltraMAX Full Throttle)
- Unbreakable, lockable, corrosion-proof case to keep these tools safe and secure

**STOP LOSING  
YOUR NOZZLES!**

### ordering

- |              |  |
|--------------|--|
| Part # PL-K2 | ProLocker™ with ¾" Magnum UltraMAX Full Throttle nozzle    |
| Part # PL-K3 | ProLocker™ with ¾" Magnum UltraMAX Turbo Shift nozzle      |
| Part # PL-K4 | ProLocker™ with 1" Magnum UltraMAX Full Throttle nozzle    |
| Part # PL-K5 | ProLocker™ with 1" Magnum UltraMAX Turbo Shift nozzle      |
| Part # HP-K1 | NozzleLocker™ with ¾" Magnum (yellow) nozzle               |
| Part # HP-K2 | NozzleLocker™ with ¾" Magnum UltraMAX Full Throttle nozzle |
| Part # HP-K3 | NozzleLocker™ with ¾" Magnum UltraMAX Turbo Shift nozzle   |
| Part # HP-K4 | NozzleLocker™ with 1" Magnum UltraMAX Full Throttle nozzle |
| Part # HP-K5 | NozzleLocker™ with 1" Magnum UltraMAX Turbo Shift nozzle   |

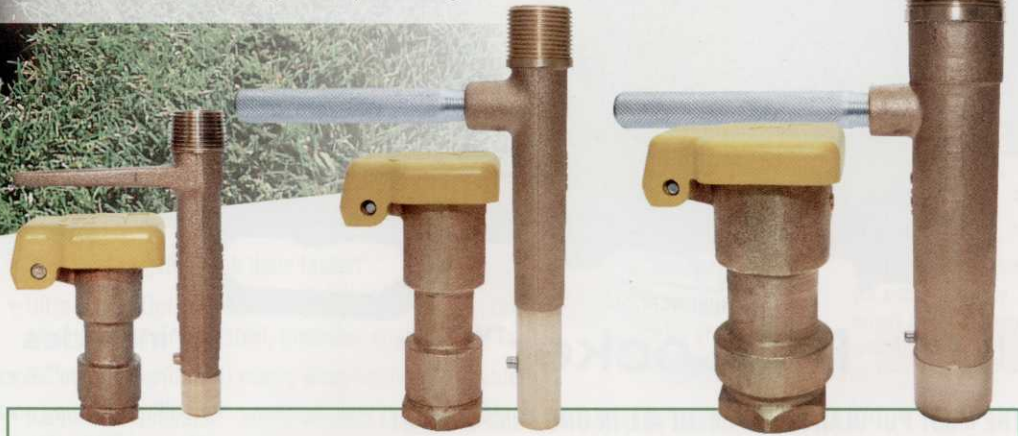




# Quick Coupler Valves & Keys

## SOLID BRASS, SINGLE SLOT/LUG ESSENTIALS

Built to last, Underhill® valves and keys are constructed of solid red brass and stainless steel. Valves incorporate rugged one-piece design.



Valve: Part # QV-075R  
(3/4" FPT inlet)

Key: Part # QK-075  
(3/4" MPT x 1/2" FPT outlet)

Valve: Part # QV-100R  
(1" FPT inlet)

Key: Part # QK-100  
(1" MPT x 3/4" FPT outlet)

Valve: Part # QV-150R  
(1 1/2" FPT inlet)

Key: Part # QK-150  
(1 1/2" MPT x 1 1/4" FPT outlet)

## hose swivels

Part # HS-075 3/4" FPT x 3/4" MHT outlet  
Part # HS-100 1" FPT x 3/4" MHT outlet  
Part # HS-101 1" FPT x 1" MHT outlet  
Part # HS-151 1 1/2" FPT x 1" MHT outlet

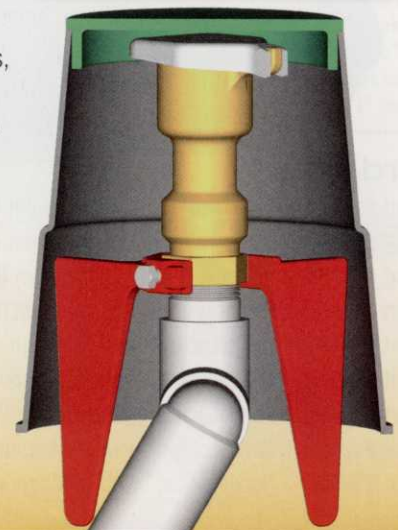


## The Claw™

### QUICK COUPLER MOTION RESTRAINT

When quick coupler valves become unscrewed from swing joints, it's more than just a hassle - it can be dangerous. The Claw™, new from Underhill®, offers a simple solution. Embedded in the soil below the quick coupler, and then securely attached to its base, The Claw provides significant resistance to rotational, vertical and horizontal motion, preventing the valve from moving. Made from high strength ductile iron, this compact anchor attaches easily with a single steel bolt.

**EASY RETROFIT!** Installs without removing valve or valve box!



The Claw™ pictured with 1" quick coupler, key and hose swivel.

### ordering

Part # QCA-075100 The Claw™ for 3/4" and 1" valves  
Part # QCA-150 The Claw™ for 1 1/2" valves



# Impact Sprinklers

## SOLID BRASS, ULTRA-RELIABLE WORKHORSES

For reliable, trouble-free, high-performance year after year, you just can't beat our brass impact sprinklers. Available in full circle and full/part circle, in inlet sizes of 3/4", 1" and 1 1/4".

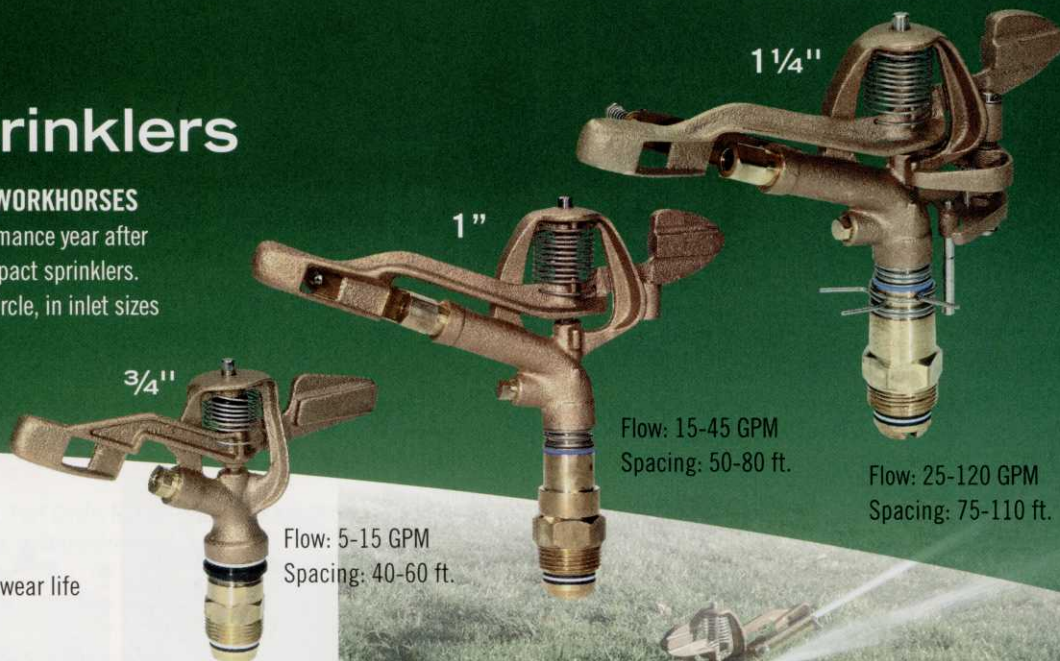
### features

- Solid brass construction
- Stainless steel drive spring
- Bearing assembly hood for longer wear life
- Chemical resistant bearing seals
- Solid brass nozzle

### ordering

		GPM	Radius (ft.)
Part # SI075F	3/4" MPT Full Circle	13	57
Part # SI075P	3/4" MPT Part/Full Circle	11	48
Part # SI100F	1" MPT Full Circle	23	71
Part # SI100P	1" MPT Part/Full Circle	23	71
Part # SI125F	1 1/4" MPT Full Circle	51	96
Part # SI125P	1 1/4" MPT Part/Full Circle	54	78

Performance data shown at 80 psi. GPM and radius will vary with pressure at sprinkler



Flow: 5-15 GPM  
Spacing: 40-60 ft.

Flow: 15-45 GPM  
Spacing: 50-80 ft.

Flow: 25-120 GPM  
Spacing: 75-110 ft.



Underhill® brass impacts atop the RollerPro™ portable base puts a powerful sprinkler anywhere you can run a hose. (See page 12.)

## HoseTap™

### SOLID METAL HOSE ADAPTER

HoseTap™ gives you a hose connection anywhere you have a Toro® or Rain Bird® electric, valve-in-head sprinkler... a fast connection when quick-couplers or hose bibs are not available. Includes aircraft aluminum body (won't break or wear out like plastic) anodized with sprinkler manufacturer color, o-ring, riser, 1" brass swivel and 3/4" adapter. Also available without brass swivel/adapter.



### ordering

- Part # HN-T100S HoseTap™ for Toro® 1" inlet golf sprinklers  
 Part # HN-T150S HoseTap™ for Toro® 1 1/2" inlet golf sprinklers  
 Part # HN-R125S HoseTap™ for Rain Bird® Eagle 700 Series sprinklers  
**NEW!** Part # HN-R150S HoseTap™ for Rain Bird® Eagle 900 Series sprinklers  
 Includes 1" brass swivel and 3/4" adapter. Add "B" for BSP thread.  
 To order without brass swivel: Remove "S" from part number.

### REPLACEMENT O-RINGS

- Part # OR-100 Fits Toro® 1" inlet and Rain Bird® Eagle 700 Series golf sprinklers / HoseTap  
 Part # OR-150 Fits Toro® 1 1/2" inlet golf sprinklers / HoseTap  
 Part # OR-150R Fits Rain Bird® 1 1/2" inlet golf sprinklers / HoseTap





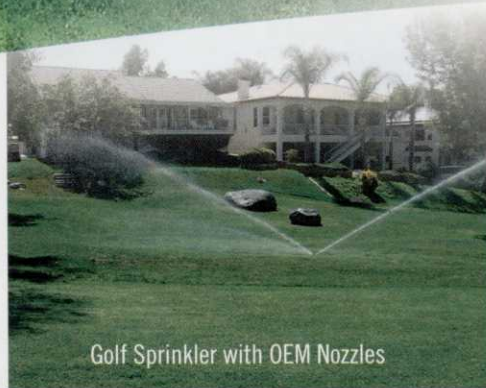
# Serious about saving water?

## Profile™

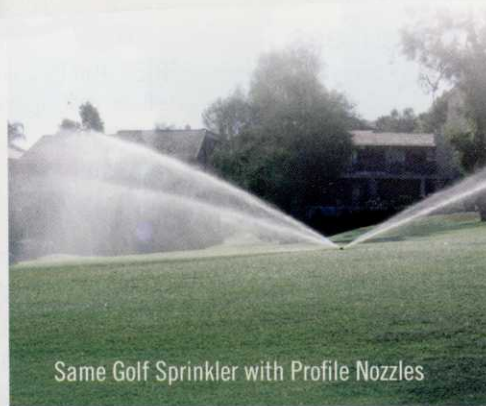


### SOLID METAL GOLF SPRINKLER NOZZLES

Upgrade your sprinklers with Profile™, the ultra-high uniformity, water conserving, solid metal nozzles from Underhill®. You will see improved results immediately, save millions of gallons of water every year and improve the playability of your course at the same time... guaranteed.



Golf Sprinkler with OEM Nozzles

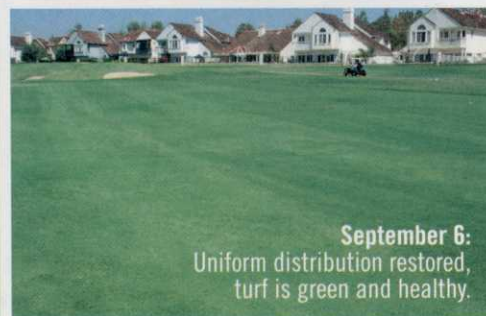


Same Golf Sprinkler with Profile Nozzles

Use less water, less energy and less manpower and get better course playability.



August 14:  
Profile nozzles installed  
in problem area.



September 6:  
Uniform distribution restored,  
turf is green and healthy.

*"Profile nozzles lived up to our expectations and eliminated patchy dry spots and donuts. We retrofitted all our fairways and now run a more efficient irrigation program."*

**Logan Spurlock**

Superintendent, Sherwood Country Club

*"It was like putting in a new irrigation system. I became a believer overnight."*

**Mike Huck**

Irrigation & Turfgrass Services  
Former USGA Staff Agronomist  
Former Superintendent,  
Murrieta Hot Springs Resort

See how Superintendents are upgrading their entire golf courses! Video online now at [www.underhill.us](http://www.underhill.us)

*"The real power is knowing that retrofitting sprinklers with Profile nozzles can be phased in to work within a course's operating budget."*

**Kurt Thompson**

K. Thompson and Associates,  
Irrigation Consultant and Trainer  
Huntersville, North Carolina and Pace, Florida

*"The Profile retrofit program has also extended the life of our Toro system while improving course appearance and playability."*

**Dennis Eichner**

Assistant Superintendent,  
Silverado Resort - Napa, California







## Profile nozzles for Toro®

730 SERIES Full Circle: Front/Rear Nozzle Set		
Part #	Nozzle Color # range/spreader	Toro Noz #
T730-3313	Brown 33 / Gray 13	33
T730-3413	Blue 34 / Gray 13	34
T730-3515	Violet 35 / Red 15	---
T730-3515L (50 psi)	Green 35 / Red 15*	35
T730-3615	Red 36 / Red 15*	36
T730-3617	Red 36 / Lavender 17	

\* For square spacing, specify #17 (lavender) nozzle with the #35 and #36 range nozzles



Profile nozzles are so consistent, with distribution patterns so uniform... it's like rain on demand.™



## 760 and 860 SERIES Part Circle: Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange/close-in
T760-GY	Gray / Yellow
T860-GY	Gray / Yellow



## 830, 834S, DT SERIES Full Circle: Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange / close-in	Toro Series
T830-GY	Gray / Yellow	830
T834-GY	Gray / Yellow	834S
TDT100-GY	Gray / Yellow	DT 34/35



## 835S SERIES Full Circle: Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange / close-in
T835S-WP	White / Plug

630 SERIES CALL FOR AVAILABILITY



## 670 SERIES Full Circle: Rear Nozzles

Part #	Nozzle Color: midrange / close-in
T670-BY	Black / Yellow



## 690 SERIES Full Circle: Rear Nozzle

Part #	Nozzle Color: spreader
T690-G	Gray



## 750 SERIES Full Circle: Front/Rear Nozzle Set

Part #	Nozzle Color #range / spreader	Toro Nozzle #s
T750-5617	Red 56 / Lavender 17	56
T750-5717	Gray 57 / Lavender 17	57



## 780, 854S, DT SERIES Midrange/Close-in Nozzle Set

Part Circle (780), Full Circle (854S), Part/Full Circle (DT 54/55)		
Part #	Nozzle Color: midrange / close-in	Toro Series
T780-BY	Black / Yellow	780
T854-BY	Black / Yellow	854S
TDT150-BY	Black / Yellow	DT 54/55



## 855S SERIES Full Circle: Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange / close-in
T855S-PP	Pink / Plug

650 SERIES CALL FOR AVAILABILITY



## Profile nozzles for Rain Bird®

### EAGLE 700 SERIES

Full Circle: Midrange/Close-in Nozzles

Part #	Nozzle Color midrange / close-in	Rain Bird Nozzle #s
R70028-RG	Blue / Gray	28
R70032-RG	Red / Gray	32
R7003640-GG	Blue / Gray	36/40 and larger



**Look familiar?** Poor performing Eagle 700 sprinklers are often the result of clogged and worn nozzles. Profile nozzles' solid metal construction and nozzle shape were scientifically designed to solve this exact problem. They simply don't wear out. And they don't clog. Upgrade your old golf sprinklers to better than OEM with Profile!



### 900 EAGLE SERIES

Full Circle: Close-in Nozzle

Part #	Nozzle Color
R900-M	Maroon



### 91 SERIES BRASS IMPACTS

Full Circle: Close-in Nozzle

Part #	Nozzle Color
R91-G	Gray



### 51 SERIES BRASS IMPACTS

Full Circle: Front/Rear Nozzles

Part #	Nozzle Color # range / spreader	Rain Bird Nozzle #s
R51-1411.5	White 14 / Gray 11.5	14 / 11.5
R51-1611.5	Blue 16 / Gray 11.5	16 / 11.5
R51-1811.5	Yellow 18 / Gray 11.5	18 / 11.5
R51-2011.5	Red 20 / Gray 11.5	20 / 11.5
R51-2213	Green 22 / Black 13	22 / 13
R51-2413	Black 24 / Black 13	24 / 13

All original equipment manufacturers, names and products presented in this publication are used for identification purposes only, and we are in no way implying that any of our products are original equipment parts. Toro® is a registered trademark of the Toro Company, Rain Bird® is a registered trademark of the Rain Bird Sprinkler Manufacturing Corporation.



# SpotShot™ MADE IN USA

## LOW VOLUME PORTABLE SPRINKLER KIT

SpotShot™ is an expandable sprinkler system kit ideal for turf areas requiring low volume watering for extended periods. Connect the Starter Kit to a quick coupler (or golf sprinkler with the HoseTap™ on page 9) and connect Add-On Kits for larger area needs.



### ideal for

- Leaching salts on greens
- Targeting hot spots on fairways, roughs, etc.
- Mound watering
- New seed grown in
- Other low volume watering



**Starter Kit** includes 20' of ½" flexible PVC tubing with connection fittings, pressure regulator, sprinkler base and low volume rotating sprinkler (20 ft. radius / 0.65 GPM - 0.16 in./hr.)



**Add-On Kit** includes 20' of ½" flexible PVC tubing with connection fittings, sprinkler base and low volume rotating sprinkler (20 ft. radius / 0.65 GPM - 0.16 in./hr.)



### Micro-Sprinkler Options

- 20 ft. radius / 0.65 GPM (0.16 in./hr.)
- 20 ft. radius / 1.2 GPM - (0.26 in./hr.)



## RollerPro™

### PORTABLE SPRINKLER BASE

The 22" wide stainless steel roller of RollerPro™ provides a stable field position for supplemental watering. Designed for years of hard use, it is ideal for watering dry spots and newly seeded areas.

### features

- 22" wide stainless steel roller is weighted to prevent movement during use.
- ¾" inlet and outlet adapters included
- Standard 1" FHT inlet x 1" female NPT outlet



RollerPro™ works with both 1" and ¾" hoses and sprinklers using the included adapters. Sprinklers sold separately on page 9.

### ordering

Part # A-RP221	RollerPro™
Part # SS-SK	SpotShot™ Starter Kit (20 ft. rad, 0.65 GPM)
Part # SS-AOK	SpotShot™ Add-on Kit (20 ft. rad, 0.65 GPM)
Part # SS-SK26	SpotShot™ Starter Kit (20 ft. rad, 1.2 GPM)
Part # SS-AOK26	SpotShot™ Add-on Kit (20 ft. rad, 1.2 GPM)
Part # SS-SB	SpotShot™ Sprinkler Base

Part # R75-HFM-40	Pressure Regulator (40 psi)
Part # TP-050-20	20' Coil of ½" PVC, SuperFlex Pipe
Part # S40-050-HFS	¾" Hose Thread Female x Male, Slip Fitting
Part # S40-050-HMS	¾" Hose Thread Male x Female, Slip Fitting
Part # SS-S16	Micro-sprinkler (20 ft. rad, 0.65 GPM - 0.16 in/hr)
Part # SS-S26	Micro-sprinkler (20 ft. rad, 1.2 GPM - 0.26 in/hr)



# Tracker™

## PORTABLE IRRIGATION MACHINE

The Tracker™ offers an economical solution for supplementing seasonal watering needs of ¼ acre to 2 acre areas. It's also ideal for irrigating athletic fields, cemeteries, golf course roughs, or other large areas where an underground system is impractical. Built to last with precision German engineering and high quality materials, this portable powerhouse can irrigate an entire football field in just two passes.

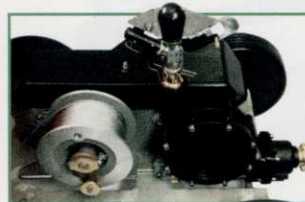
Tracker™ requires minimal labor to operate. Powered by water, it pulls itself along a nylon cable, dragging up to 360 ft. of 1" reinforced heavy-duty hose (sold separately). Each pass irrigates about 2/3 acre per 8 hours of operations.

## specifications

- Weight: 58 lbs.
- Size: Length 33", Width 22", Height 22"
- Materials: Aluminum, Brass, ABS
- Minimum Water Pressure: 50 psi
- Hose Required: 1"

## features

- Adjustable Speed Control: 20-70 ft./hr.
- Standard full or part circle sprinkler (8-15 GPM)
- 360 ft. nylon cable provides irrigated length of 400 ft.
- 70-85 ft. pass width
- Automatic shut-off at end of pass
- Water turbine drive and gear box
- Galvanized anchor stake
- Includes 1" brass quick-connect adapter



Precision German engineering, high quality components built to last!



# DeepDrip™

## TREE WATERING STAKES

Water and fertilize your trees at the roots, encouraging deeper roots and healthier trees with DeepDrip™ stakes. Water gets underground fast, so you can irrigate for shorter periods and save water.

They also help aerate the soil, and you can add fertilizer into the shaft to direct nutrients to the root zone.

**Three Lengths For All Tree Sizes:** Use the 14.5" stake for shallow root trees and shrubs, like rose bushes and ornamental trees (or boxed trees). The 24.5" stake is best for most other tree varieties except for palms and similarly deeper rooted trees, which will benefit from the longer 36" stakes.

**Built Smart - And Easy To Use:** The DeepDrip's reinforced tip and cap are made from ABS and the upper shaft is made from Schedule 40 PVC. Multiple holes in the bottom half of the spike, internally covered by a mesh filter, allow water to flow out but keep dirt from getting in and clogging the tube. The UV-protected cap acts as a reinforced cover when pounding the stake into the ground, keeps debris from entering the shaft and holds a 1/4" drip line/emitter securely in place. By inserting a screwdriver through the two holes at the top of the upper shaft, stakes can be easily pulled up to remove/reposition, or rotated to deter root invasion.

**ADD TO EXISTING TREES!** Install DeepDrip™ stakes during or after tree planting for instant access to the root system for fertilizer delivery or to set up deep automatic drip watering.



## ordering

Part # T-400	Tracker™ Portable Irrigation Machine
Part # A-DD14	DeepDrip™ 14.5" watering stake
Part # A-DD24	DeepDrip™ 24.5" watering stake
Part # A-DD36	DeepDrip™ 36" watering stake



## NEW! SuperKey XL™

### MULTI-PURPOSE TOOL FOR TORO, RAINBIRD GOLF SPRINKLERS

The ultimate **all-in-one** tool for your golf sprinklers...think of it as a Swiss army knife, a must have companion. Made of stainless steel and composite material, it effortlessly turns electric valve-in-heads on and off, removes internal snap rings and performs many other sprinkler maintenance chores. Great for John Deere®/Signature® sprinklers, too!

Snap Ring Removal  
(Bottom Valve or Internal  
Rotor Assembly)

Screwdriver Tip for  
Cap Disassembly or Pressure  
Regulator Adjustment

Filter  
Screen  
Removal

Hardened  
Bend Resistant  
Metal

High Strength  
Engineered  
Material

On/Off  
Control  
Pointer

On/Off Control  
Debris  
Removal

On/Off Control  
Assembly  
Removal

Solenoid  
Plunger  
Removal

On/Off  
Control

## NEW!

## EasyReach™ Key

### EXTRA-LONG SHAFT ON/OFF KEY

Extra long and extra heavy duty metal key designed for easy on/off operation for **TORO**, **Rain Bird** and John Deere/Signature electric valve-in-head golf sprinklers. Made of high grade metal, EasyReach offers years of effortless on/off operation.

## VersaLid™

### VALVE BOX UNIVERSAL REPLACEMENT LID

VersaLid™ is the easy solution for broken or missing valve box lids. No need to guess what brand a buried box is or even worse - dig it up to find out - VersaLid's locking system fits all 6"-7" round valve boxes.

### features

- Fits all 6"-7" round boxes
- Universal fit
- Greater top-load strength and more UV-resistant than structural foam lids
- Purple Lid available for non-potable/reclaimed water

**STRONGER! BETTER FIT!**  
than original equipment lids

## Splice Kit

### 3M DIRECT BURY SPLICE KIT

Each kit includes one wire connector which accommodates wire sizes from 18-10 gauge and a waterproof gel case. Excellent for golf, commercial and residential applications.

### ordering

Part # A-SKTRB	SuperKey™ XL for <b>Toro</b> ®, <b>Rain Bird</b> ® and John Deere® golf sprinklers
Part # A-ERT	EasyReach™ for <b>Toro</b> ® and John Deere®/Signature golf sprinklers
Part # A-ERR	EasyReach™ for <b>Rain Bird</b> ® golf sprinklers
Part # VL-6	Green VersaLid™ 6"-7" valve box lid
Part # VL-6P	Purple VersaLid™ 6"-7" valve box lid
Part # DBRY-4	Direct Bury Splice Kit - 4 Pack
Part # DBRY	Direct Bury Splice Kit - single unit



# Gulp™ UltraMAX

## SUPER HIGH-CAPACITY WATER REMOVAL SUCTION PUMPS

Whether you need to remove water from sprinklers and valve boxes or other areas or devices, UltraMax Series Pumps are the ideal tools for the job...huge capacities and the smoothest pumps you will ever use as well.

### special features

- Super Smooth Pumping Action
- High Volume Capacity
- Strong Aluminum Pump Shaft
- Contour Grip Handle
- No Leak Seals
- Self Priming

### GULP SYRINGE ULTRA

- 12 oz./stroke
- 12" pump chamber

### BIG GULP ULTRAMAX

- 35 oz./stroke!
- 36" pump chamber
- 72" or 36" outlet hose

### GULP ULTRAMAX

- 18 oz./stroke!
- 14" clear pump chamber
- 18" outlet hose

### also great for



Easy, push-button cleaning system



Gulp UltraMAX and BigGulp UltraMAX include debris filter attachment for very dirty water.

### ordering

Part # A-G12-C	Gulp™ UltraMax
Part # A-G3636CK	BigGulp™ UltraMax w/ 36" outlet hose
Part # A-G3672CK	BigGulp™ UltraMax w/ 72" outlet hose
Part # A-G12S-C	Gulp™ Syringe Ultra
Part # A-GTUB-C	100 ft. outlet hose



# AuditMaster™

## EXPERT SPRINKLER PERFORMANCE TESTING KITS

Increasing watering times to compensate for poorly performing sprinklers wastes a lot of water. Accurately measuring sprinkler application rates with Underhill® AuditMaster™ helps maximize water savings.



4"x 5" Marking flags on 21" wire (50-pack) are available in 6 colors.

**AuditMaster Combo ST/LT Kit** (pictured), includes large CatchCanPro cups (blue) and CatchCanPro Mini cups (30 each).

**AuditMaster ST Kit** excludes the large CatchCanPro cups. This kit is ideal for **SMALL TURF** audits.

**AuditMaster LT Kit** excludes the CatchCanPro Mini cups. This kit is optimized for golf courses, sports fields and other **LARGE TURF** audits.



## CatchCan Pro™

### features

- Self standing - easily anchors into turf, even on slopes
- Measures sprinkler application in inches or centimeters
- Unique design allows for shorter duration test
- Made of durable polypropylene engineered plastic
- Can be stacked for easy storage
- Each 10 pack kit comes with instructions



CatchCan Pro (CCPK-10) for **LARGE TURF** audits. Measures ml, cm, inches.

CatchCan Pro Mini (CCPMK-10) for **SMALL TURF** audits. Measures inches.

### ordering

Part # AUD-ST	AuditMaster ST Kit
Part # AUD-LT	AuditMaster LT Kit
Part # AUD-STLT	AuditMaster Combo ST/LT Kit
Part # SALESPRO4	AuditMaster Wheeled Carry Case
Part # A-STW	Stop Watch
Part # A-WIND	Anemometer (Wind Gauge)
Part # CCPK-10	CatchCan Pro (Blue) - 10 Pack
Part # CCPMK-10	CatchCan Pro Mini - 10 Pack

Part # MT-100	Fiberglass Measuring Tape: 100'
Part # A-FLAG	Marking Flags: Yellow - 50 Pack
Part # A-FLAG-B	Marking Flags: Blue - 50 Pack
Part # A-FLAG-O	Marking Flags: Orange - 50 Pack
Part # A-FLAG-P	Marking Flags: Pink - 50 Pack
Part # A-FLAG-R	Marking Flags: Red - 50 Pack
Part # A-FLAG-W	Marking Flags: White - 50 Pack





# TurfSpy™

## EARLY STRESS DETECTION GLASSES

Disease, drought and weed invasion are plant and turf killers. But by the time you see them it can be too late. TurfSpy™ glasses, with stress detection technology developed by NASA, lets you “see into the future” to identify problems 2-10 days before they are visible to your naked eye. Keep your turf and vegetation healthy BEFORE serious problems arise.



**fusarium patch**

**pythium blight**

**yellow patch**  
(rhizoctonia)

**brown patch**

**anthracnose**

get a jump on **broken**  
**or poor-performing**  
**sprinklers**

highly efficient **spot**  
**watering** saves time  
and labor costs

superior **weed location**  
and spraying saves  
time and money

## features

- Shatterproof/polycarbonate stress detection lens (ANSI approved safety lens)
- Wrap-around lens limits ambient light for optimal detection
- Sports frame with adjustable ear piece
- Lightweight case included

## HOW IT WORKS

Dying vegetation absorbs and reflects sunlight differently than when it's healthy. The earliest signals occur at the outer limits of the human visual spectrum, and are rendered invisible compared to the predominant middle wavelengths. TurfSpy™ filters the light in the center so that fringe spectra, which show early plant stress, become visible.



## ordering

Part # NG655-01 TurfSpy™ Glasses and Deluxe Case

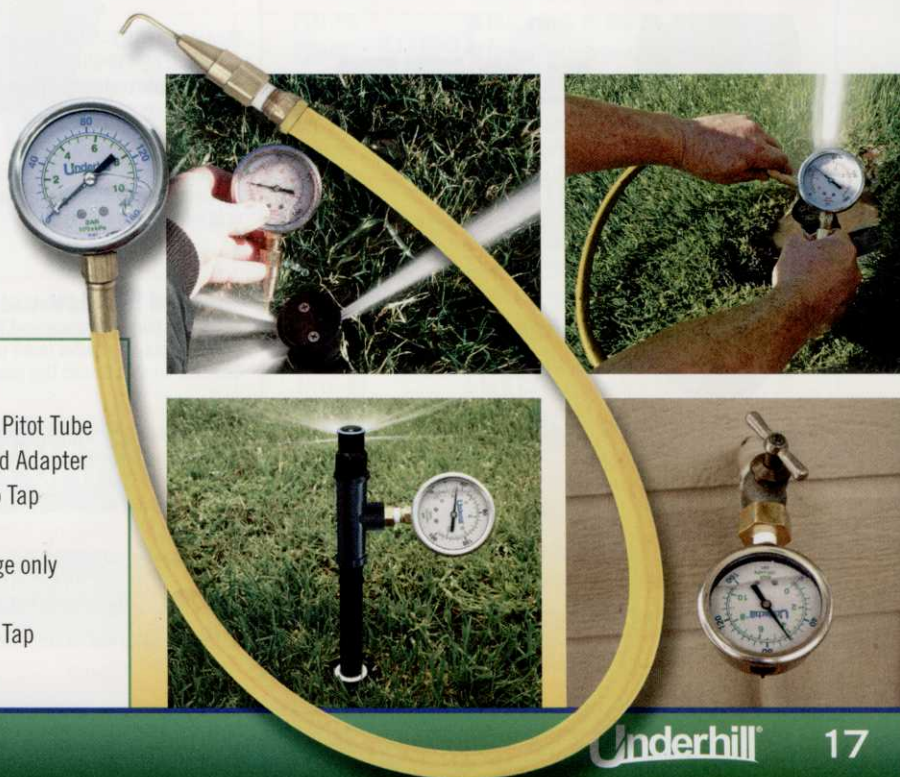
# HeadChecker™

## NOZZLE DISCHARGE PRESSURE GAUGE

Use this liquid-filled 160 psi gauge with 30" flex hose and solid brass Pitot tube, hose bib, or spray head adapter to measure water pressure at discharge points.

## ordering

Part # A-PHG-160K	HeadChecker™ gauge, 30" Flex Hose, Pitot Tube
Part # A-SHG-160K	HeadChecker™ gauge with Spray Head Adapter
Part # A-HBG-160K	HeadChecker™ with ¾" POC Hose Bib Tap
Part # A-HCGPK	HeadChecker™ gauge and Pitot tube
Part # A-PG160L	HeadChecker™ 160 psi pressure gauge only
Part # A-HCP	Pitot tube only
Part # A-HBT	¾" Hose Thread x ¼" Brass Hose Bib Tap
Part # A-SHA	Spray Head Adapter







# GRUND GUIDE by Underhill® Marking Systems



**SPEED AND QUALITY OF PLAY... GOLF AS IT SHOULD BE.**

You know Grund Guide for making premier yardage marking solutions. Now backed with the strength of Underhill® distribution and product development, you can have the highest quality and most complete yardage marking systems available today and into the future. We offer durable and high-visibility customized markers for all popular golf sprinklers along with unique fairway, tee box, and driving range markers. Speed up and improve the quality of play with Grund Guide Marking Systems.

## Sprinkler Head Yardage Markers

	<b>Model SPM 106 - TORO Engraved Caps:</b> Perfect-fit caps engraved and color filled for high visibility. Multiple number locations vary for lids with holes.	<b>FITS:</b> Toro 730, 750, 760, 780, 830/850S, 834S, 835S, DT34/35S, 854S, DT54/55, 860S, 880S <b>COLORS:</b> Caps - ●/○/●/●/●/●/● <b>Numbers:</b> - ○/●/●/●/●/●/●
	<b>Model SPM 107 - Rain Bird Engraved Caps:</b> Perfect fit caps engraved and color filled for high visibility number identification.	<b>FITS:</b> Rain Bird E900, E950, E700, E750, E500, E550, 700, 751, 51DR <b>COLORS:</b> Caps - ●/○/●/●/●/●/● <b>Numbers:</b> - ○/●/●/●/●/●/●
	<b>Model SPM 110 - Hunter Engraved Caps/Covers:</b> Perfect-fit flange covers (G800, G900) and caps (G90), engraved and color filled for high visibility.	<b>FITS:</b> Hunter G800, G900, G90 <b>COLORS:</b> Flange cover / caps - ● <b>Numbers:</b> - ○/●/●/●/●/●/●
	<b>Model SPM 101 - Fit Over Discs:</b> Anodized aluminum (no paint!), these markers are engraved and custom fit to each sprinkler. Multiple number locations vary for lids with holes.	<b>FITS:</b> Toro 630, 650, 660, 670, 680, 690, 830/850S, 834S, 835S, DT34/35, 854S, 855S, DT54/55, 860S, 880S, Rain Bird 47/51 DR, 71/91/95, E900, E950, E700, E750, E500, E550, 1100, Hunter G-70/75, G-90/95, G-990, G-995, John Deere/Signature – Call <b>COLORS:</b> Discs - ●/●/●, Numbers - ●
	<b>Model SPM 105 - Universal Tags:</b> Anodized aluminum (no paint!), these markers are engraved and designed for most universal fit applications. Tags are installed using 1/8" rivets.	<b>FITS:</b> Universal - Options: Crescent 2-7/8"W x 1"H, Round Edge 3"W x 1"H, Square Edge 2"W x 3/4"H <b>COLORS:</b> Tags - ●/●/● <b>Numbers:</b> - ●
	<b>Model SPM 103 - TORO Snap-In Markers:</b> OEM UPGRADE to high quality polycarbonate custom fit. One complete, high-visibility marker snaps into OEM plug.	<b>FITS:</b> Toro 730, 750, 760, 780, 830/850S, 834S, DT34/35, 854S, DT54/55, 860S, 880S <b>COLORS:</b> Snap in - ○/●/●, Numbers - ○/● (Reclaimed water option - ● no number - available)
	<b>Model SPM 108 - TORO &amp; Hunter:</b> Special engraved plastic material designed to fit into OEM lid recess	<b>FITS:</b> Toro 730, 750, 760, 780, 834S, DT34/35, 854S, DT54/55, 860S, 880S and Hunter G800, G70/75B, G870, G875, G880, G885, G990, G995 <b>COLORS:</b> Markers - ○/●, Numbers - ●
	<b>Model SPM 104 - Lid/Molded Recess Markers:</b> Durable replacement lid, with reverse engraved number insert process. Excellent number ID with this model	<b>FITS:</b> Rain Bird 47, 51 <b>COLORS:</b> Lid - ●/○/● Insert - ○/●/● Numbers - ○/●
	<b>Model SPM 102 - Rain Bird Yardage Highlighter Snap-Ring:</b> Replaces OEM snap ring with perfect fit bright yardage and reclaimed color identification.	<b>FITS:</b> Rain Bird E900, E950, E700, E750, E500, E550, 700, 751 <b>COLORS:</b> ○/●/● (Reclaimed Water)

### ordering example

**View/download complete ordering guide at [www.underhill.us](http://www.underhill.us)**

Marker Model	Sprinkler Mfg	Series	Marker Color	# Color	Qty. of #s on Marker	Total QM on Order
SPM-106	Toro	730	Black	Yellow	1	76



## Fairway / Tee / Range Disc Markers

Large 7 1/2" cap with big bold 3 1/2" standard yardage numbers. Ideal for fairway, tee and driving range marking. Optional 8" mounting pipe attachment available for secure installation.

### FAIRWAY STANDARD DISC SYSTEM

Color-coded markers with bold 3 1/2" yardage number. Several system options available.



### FAIRWAY CUSTOM OPTIONS

Markers can be customized to display specific yardage numbers, include logos, or custom design.



### TEE BOX / DRIVING RANGE CUSTOM OPTIONS

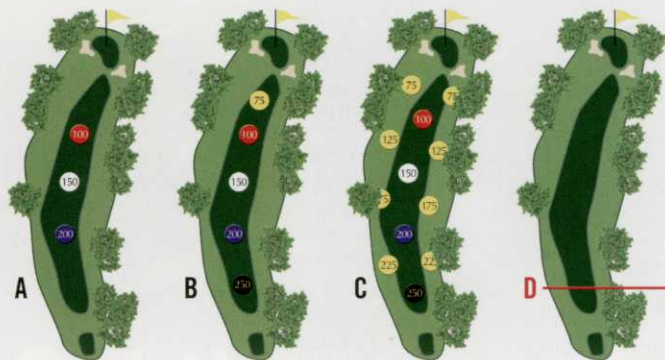
Markers can be customized to display specific multiple numbers, include logos, or custom design.



Disc Marker pictured with optional 8" mounting pipe (installs easily with standard cup cutter)

### SYSTEM EXAMPLES

- A: 3 markers placed down the center of the fairway at 50 yard intervals
- B: 5 markers placed down the center of the fairway for greater coverage
- C: Markers placed on sides and center ("diamond" layout) for highest visibility
- D: Create a custom system with your choice of color and numbers/markings



## Valve Box / Universal Markers

These engraved, anodized aluminum (no paint!) markers are ideal for isolation or control valves, satellites or other applications.



**VB-31 SAT**

**VB-31 SAT**

### ordering

#### Standard Disks with Markings

FTM-Y-75	Yellow Disk with 75
FTM-R-100	Red Disk with 100
FTM-W-150	White Disk with 150
FTM-BL-200	Blue Disk with 200
FTM-BK-250	Black Disk with 250
FTM-RWB-KIT	3 Disks with Yardages (Red/White/Blue)
FTM-YRWBB-KIT	5 Disks with Yardages (Yellow/Red/White/Blue/Black)

#### Custom Disks for Fairway, Tee Box and Driving Range

FTM-Y	Yellow Disk no markings
FTM-O	Orange Disk no markings
FTM-R	Red Disk no markings
FTM-W	White Disk no markings
FTM-BL	Blue Disk no markings
FTM-BK	Black Disk no markings
FTM-G	Green Disk no markings
FTM-L	Lavender Disk no markings

#### Tee Box / Fairway / Driving Range Custom Markings

To order, add to end of custom disk part numbers above.	
Example: FTM-Y-#1	(Yellow Disk with One custom number)
XXXX-#1	One custom number to disk
XXXX-#2	Two custom numbers to disk
XXXX-#3	Three custom numbers to disk
XXXX-CUST	Custom Design; Script
XXXX-LOGO	Logo added to disk
XXXX-#4	up to 4 flags / targets / yardages
XXXX-#8	5 to 8 flags / targets / yardages
XXXX-#12	9 to 12 flags / targets / yardages

#### Accessories

FTM-PL	8" Mounting Pipe for all disks
--------	--------------------------------

#### Valve Box / Universal Markers

SPM-105-B	Black anodized marker
SPM-105-M	Maroon anodized marker

For detailed ordering information of custom markers, visit [www.underhill.us](http://www.underhill.us)

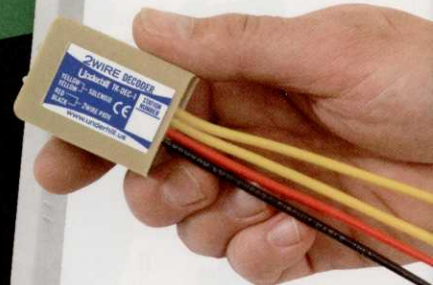




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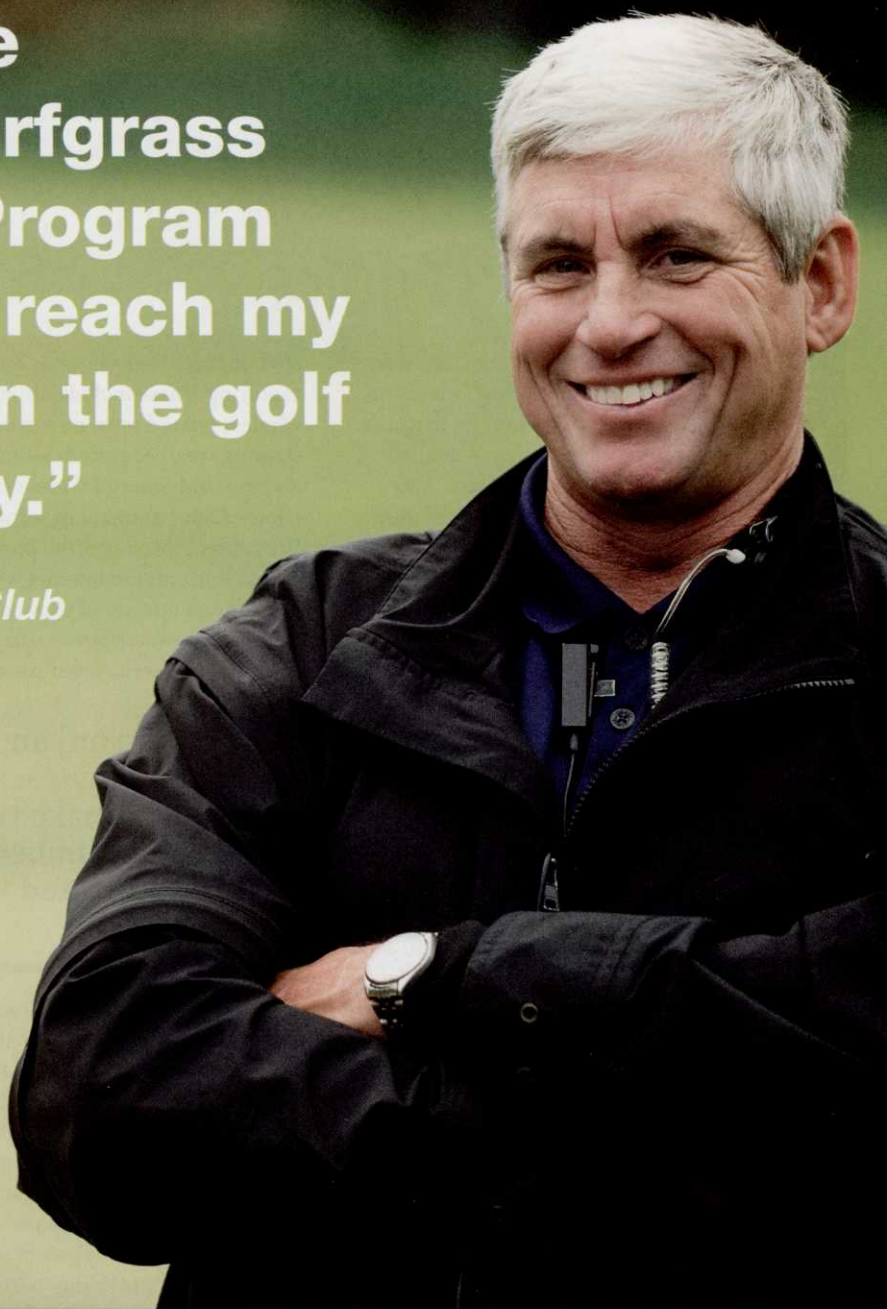
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*Matt Shaffer, Merion Golf Club*



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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](mailto:bvinchesi@irrigationconsulting.com) or 978/433-8972.

## GETTING IT DONE

I recently attended the American Society of Irrigation Consultants (ASIC) – yes, there's an irrigation consultants association – annual meeting in Scottsdale, Ariz. And since ASIC was in Scottsdale, they invited Sean Emerson and Jeff Plotts to talk about how they irrigate their courses from both a water-quality and a water-quantity standpoint.

Sean, director of agronomy at Desert Mountain Club, oversees six 18-hole courses using some 2-million gallons per acre annually on a combination of warm- and cool-season turf. Jeff has the same position at TPC Scottsdale, overseeing 400 acres at a 36-hole resort/public facility utilizing warm-season turf. The 400 acres consists of 185 acres of turf, 200 acres of desert landscape and 15 acres of surface water. He also hosts a PGA Tour event every January.

Sean is an opinionated individual who is also a great speaker. His presentation centered on the efforts his staff has taken to decrease not only their water use, but their energy use, too, while providing excellent playing conditions on green turf. At Desert Mountain they are concerned with the usual irrigation parameters: precipitation rate, cycle time, uniformity and part circle arcs. However, they have gone one step further observing gallons per kilowatt (gal/kw). The gallons-per-kilowatt measurement allows Desert Mountain to determine not just how efficient they are with water or energy, but how one influences and impacts the other.

To be more energy and water efficient, Desert Mountain has cre-

ated or purchased solutions for data capturing. These include utilizing wireless ground sensors, weather stations, weather pattern monitoring and the IBM Smarter Cities system to allow existing equipment software's (irrigation central control, pump station monitoring) to interact with each other for an integrated view and feedback of their water/power usage. They monitor lake levels, water use and

to salt accumulations and turf health. Using the data, Jeff created Water Quality Management Zones (WQMZ) to manage irrigation applications and Na<sup>+</sup> accumulation. The WQMZ's are also designed to manage salt loads during different times of the year based on turf stands. In the future, each sprinkler is assigned to a WQMZ zone and will be programmed accordingly and will utilize soil-moisture

Sean [Emerson] and Jeff [Plotts] were quick to point out that **to accomplish what they have to date**, and to make their programs successful, they have used a number of different consultants to help structure and implement their water, soil and energy plans.

energy use for trends. For all aspects of their water and energy use they plan, implement, record, evaluate, and revise. The result is significant water and energy savings, as well as improved conditions and lots of data to further refine their procedures.

Jeff has a more subdued personality, but he still gets his points across. His passion for providing tournament conditions is evident. TPC Scottsdale has a number of operational issues including: being a flood basin, difficult water quality, fine textured clay soils, lack of positive drainage and an arid environment. Each is a difficult problem on their own, but combined they present a challenge. He studies and measures data on salinity areas, distribution uniformity, and turf vigor. This allows TPC Scottsdale to correlate irrigation and drainage patterns

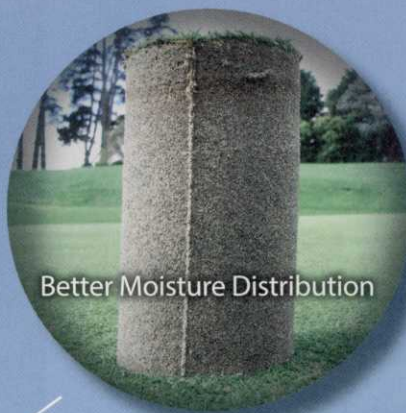
sensors to substantiate and fine tune their process. With this data, TPC Scottsdale will make correlations between salinity and moisture. Jeff also uses micro-irrigation (above ground micro sprays) to decrease salt and transitional stresses.

The results of Jeff's initiatives have resulted in an average of 138.75 less acre feet (45.21 million gallons) of water used annually over the last five years. Not only has that saved considerable dollars, but also reduced salt inputs by 189.45 tons annually.

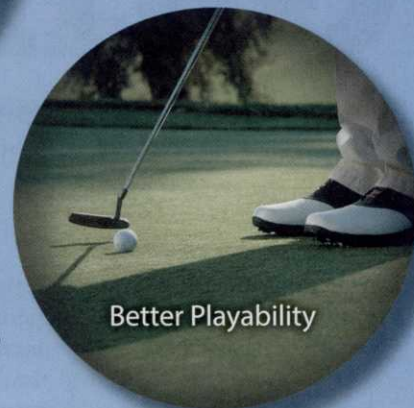
Both Desert Mountain and TPC Scottsdale are examples of how poor water quality can be managed and at the same time save water and energy. They provide a superior golf product in spite of these challenges and are happy to share their approaches, experiences and results with others. **GCI**

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# Back to the GRIND

In exclusive research, superintendents and equipment techs offer their insights on reel and blade maintenance.

**W**hile quality of cut is the primary motivator for reel and blade maintenance, superintendents and equipment technicians seem to subscribe to a philosophy that is more gut instinct than regimented planning.

For example, three quarters (75 percent) of turfheads and equipment technicians asked told GCI they grind "whenever it needs it," and not based on a set number of hours (3 percent), days in operation (2 percent) or weeks of use (3 percent).

When they do the majority spin and relief grind (63 percent), with only 38 percent solely spin grinding. In addition, according to the survey, 68 percent of respondents indicated they lap.

And while nearly everyone you ask has a particular opinion regarding their unique approach to grinding and sharpening, more than three quarters (77 percent) indicated they were open to hearing other opinions and philosophies on the subject.

This is the first of a two-part analysis examining this research. The first provides a wider view of the findings, examining the data as a whole as well as a broader outlook of reel and blade maintenance philosophies.

In the August issue, we'll dial down on this data, providing a breakdown of some of the key findings based on operating budget, private vs. nonprivate facility, as well as geography.

It's important to note that GCI, in partnership with Foley United, developed a reel and blade maintenance questionnaire that was distributed to GCI's readership in the United States via the online survey portal, SurveyMonkey. In addition, GCI editors conducted follow up interviews for insight and views on the following data.

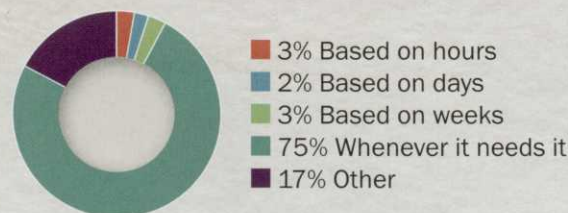
Among those who participated in the research, nearly three quarters (73 percent) were golf course superintendents and 15 percent were equipment technicians. More than half (62 percent) of respondents worked at non-private courses and reported an annual operating budget of less than \$500,000 (48 percent). According to the data, respondents used a variety of brands for reel and bedknife grinding, the majority of which included Foley, Neary, Bernhard, and Peerless (in no particular order). — *The editors*

The following research project examining reel and blade maintenance trends was sponsored by Foley United.



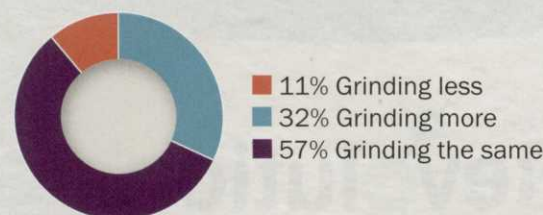
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## How do you determine when to grind?

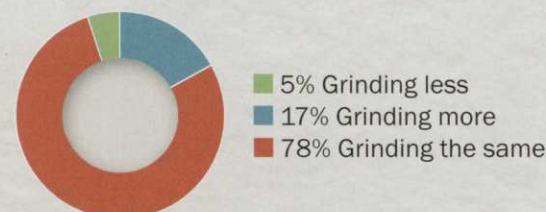


Editor's note: "Other" responses included end of season, annual, and winter, as well as when the labor is available to perform the task.

## Are you grinding more, the same or less today than you were five years ago?



## Five years from now, do you anticipate grinding more, the same, or less than you are today?



## Grind time

Very few superintendents and technicians follow a regimented schedule to grind their reels. The majority (75 percent) take an educated guess about when it's time to grind. So what determines this? Many say it's a noticeable decline in the quality of cut (typically tearing of the grass blade), and/or course conditions (recent topdressing), as well as basing it on regular visual inspections. Nearly a fifth (17 percent) subscribe to an end-of-season or during-winter regimen for grinding and sharpening.

Likewise, respondents didn't see much of a deviation in the frequency of their reel maintenance activities. For example, more than half (57 percent) said they grind the same amount today as they were five years ago, and more than three quarters (78 percent) believed they'd maintain this same frequency in five years.



## What really matters

The cut is king, according to survey respondents. Nearly all ranked quality of cut as the most important aspect associated with reel maintenance. Next to quality of cut, importance was placed on frequency of service (time between grinding, adjusting, lapping) and overall cost of the machine.

Superintendents and technicians placed the least amount of importance on manufacturer established cutting unit maintenance methods, which was closely followed by the amount of time it takes to grind a reel.

Regarding reel maintenance, rate the following in order of importance.

	Most important			Least important	
SCALE	1	2	3	4	5
Quality of cut	97%	2%	1%	0%	0%
Amount of time it takes to grind a reel	9%	32%	31%	14%	14%
Ease of changing reels	9%	41%	33%	11%	6%
Amount of time between service, grinding, adjusting, lapping, overhaul, etc.	21%	47%	25%	5%	2%
Cost of replacement parts	20%	28%	36%	11%	5%
Frequency of grinding	16%	35%	33%	11%	5%
Manufacturer established cutting unit maintenance methods	9%	23%	36%	20%	12%
Overall cost of the machine	18%	35%	31%	12%	4%



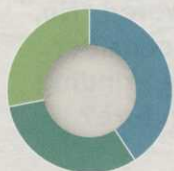
### Quality of cut

1% Neutral  
99% Most important  
0% Least important



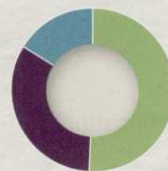
### Cost of replacement parts

48% Most important  
36% Neutral  
16% Least important



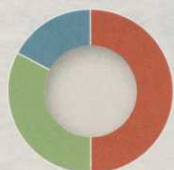
### Amount of time it takes to grind a reel

41% Most important  
31% Neutral  
28% Least important



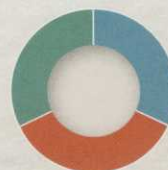
### Frequency of grinding

51% Most important  
33% Neutral  
16% Least important



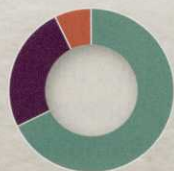
### Ease of changing reels

50% Most important  
33% Neutral  
17% Least important



### Manufacturer established cutting unit maintenance methods

32% Most important  
36% Neutral  
32% Least important



### Amount of time between service, grinding, adjusting, lapping, overhaul, etc.

68% Most important  
25% Neutral  
7% Least important



### Overall cost of the machine

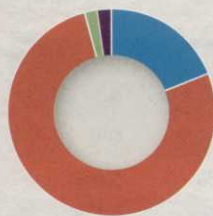
53% Most important  
31% Neutral  
16% Least important



## Philosophies

Surprisingly, superintendents and technicians aren't married to how they maintain their reel cutting units. In fact, more than three quarters says they're open to other options or definitely need to change or update their grinding practices. However, nearly a fifth (19 percent) of respondents have no intentions of changing their routines in the foreseeable future.

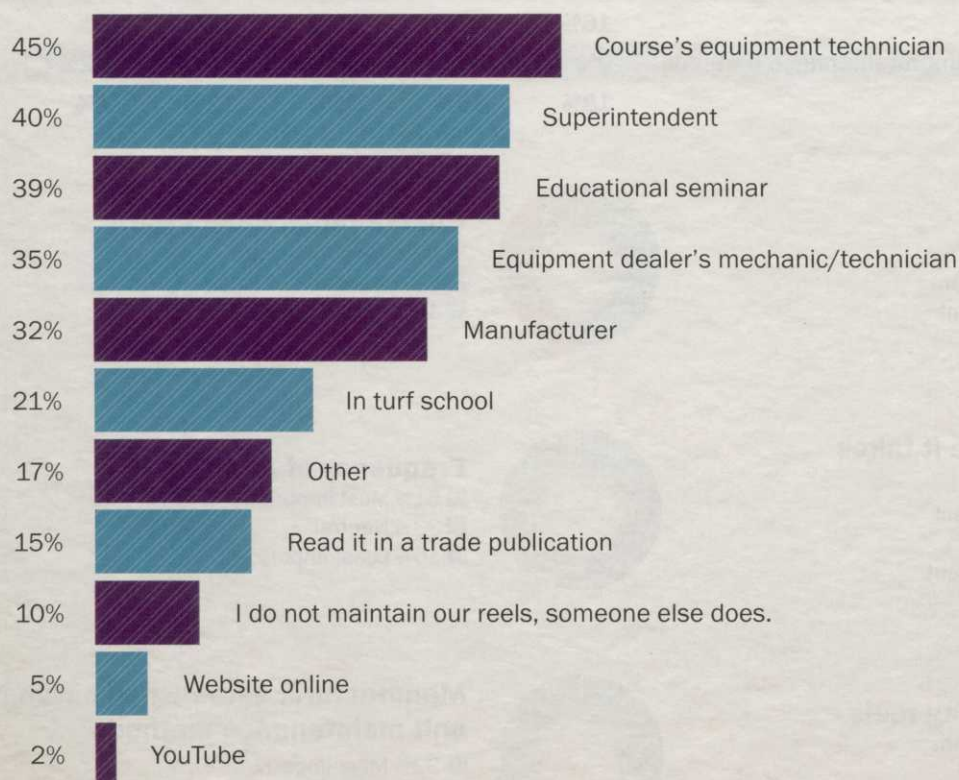
So where did respondents learn these reel maintenance practices? The majority point to on-the-job training, with 45 percent learning from the course's equipment technician and 40 percent from the course superintendent (presumably while they were an up-and-coming assistant). Very few, though, relied on online training resources (websites or YouTube).



### How committed are you to your current grinding practice, regimen or philosophy?

- 2% I don't know
- 2% Definitely need to change my practices
- 19% Would not change
- 77% Open to hearing other opinions

## Who taught you, or where did you learn, how to maintain reel cutting units?



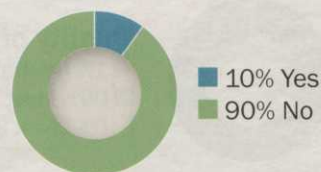
Editor's note: "Other" responses included self-taught, a friend or family member, and trial-and-error.

## Keep it in-house

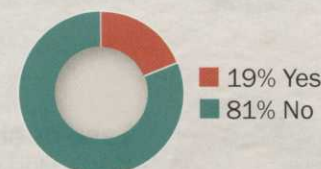
Superintendents and equipment technicians aren't keen on the idea of contracting out their reel maintenance duties. An overwhelming majority of respondents (90 percent) indicated they keep these duties strictly in-house. Likewise, 81 percent said they would not consider contracting this out in the future.

When asked why, respondents primarily cited the cost and waste of facility resources in contracting out reel maintenance duties. In addition, some respondents touted their technicians' and/or mechanics' grinding and sharpening prowess.

### Are you contracting out your grinding needs?



### If you answered "No," would you consider contracting grinding out in the future?



# 48%

## Grinding away

Nearly half of superintendents and technicians (48%) believe the average life expectancy on reel and bedknife grinding equipment is between 10 and 15 years. Likewise, 35% of survey respondents believe this equipment should last more than 15 years.

– GCI/Foley United research





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# Do You...?



**...subscribe to the “no contact/no relief” or “light contact with light relief” grinding philosophy?**

- 22% No contact/no relief philosophy
- 69% Light contact with relief philosophy
- 2% Don't know
- 7% Other



**...spin grind only?**

- 38% Yes
- 62% No



**...spin and relief grind?**

- 63% Yes
- 37% No



**... lap?**

- 68% Yes
- 32% No



**... believe automation of the spin grind process will help reduce labor and increase productivity in the workshop?**

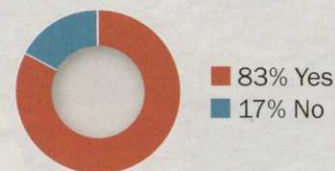
- 73% Yes
- 8% No
- 19% Don't know

## Specs

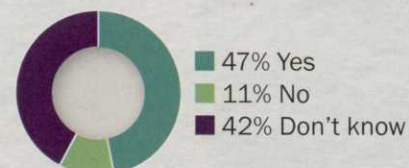
Nearly all of the respondents (83 percent) said they grind new bedknives.

However, the jury is out on whether following the manufacturer's specifications had an impact on maintaining and/or extending reel life in between service.

**Do you grind new bedknives?**



**Do reels stay on/cut longer when maintained to the manufacturer specifications?**



# #1

When asked to describe their No. 1 frustration with reel maintenance, the majority of superintendents and technicians cited the time required – including grinding, sharpening, set up and adjustments – to complete the process.



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

## THE CASE FOR FACE-TO-FACE

**W**hen you're my age, attention has to be paid to the generation gap. Slacking off leads to a slide into isolation and even ignorance. It isn't always easy for my generation who are more at home with paper, print and books than iPhones, iPads and touch screens. But I will also be the first to recognize the importance of change.

Last year we planned our annual Wisconsin Turfgrass Association Winter Turf Conference. We are past the time when we held our meeting in a large hotel for two days, offering a full-blown equipment show, concurrent educational sessions with speakers, and a great social event the first evening. Now we're down to one day, eliminated even tabletop displays for vendors, and offered educational lectures by our own faculty, grad students and maybe one out-of-state speaker. I believe our experience is mirrored across the country.

Our winter conference has always been a dicey proposition, primarily due to snow. The lawn care/landscape guys plow snow and really need the off-season revenue. For others, just getting to the conference is dangerous if the roads are slippery. So this year, for the first time, we offered a simultaneous webinar. The meeting was held at a university auditorium that was equipped to broadcast the conference live. Thirty-two responded to the webinar, about a third of the number who attended in person. We followed up with a survey, and the response was overwhelmingly positive.

Clearly, we'll do it again, with a few changes. It is cheaper (our webinar was only \$20), eliminates travel time, takes out the weather factor, and it can be watched later if work interferes. It is also a concept familiar to younger superintendents.

However, I still prefer the face-to-

face conferences, and probably always will. To me, there's something refreshing about the personal connections made during a conference. I like the interaction that occurs when a group of turfies gather, and they often have a real dollar value to the organization that paid your way to attend. I think I have learned as much from other superintendents at these meetings as I have from the lecturers. There is

I think I have learned as much from other superintendents at these meetings as I have from the lecturers. There is always someone who has **successfully dealt with the same issue** you are now working through and may have some alternatives for you to think about. You cannot do this at a webinar!

always someone who has successfully dealt with the same issue you are now working through and may have some alternatives for you to think about. You cannot do this at a webinar!

It has always been an advantage to learn directly from the presenter – the individual who did the research or developed the practice. Not only can you ask a question after the lecture, you can engage that person eye-to-eye in a conversation during the day. I've done that hundreds of times in my career.

Attendance allows for networking, a contemporary term with real meaning these days. For some, networking is as big a draw as the speaker roster. Networking is a face-to-face activity. I have to add, somewhat selfishly, that I have made some wonderful friendships at conferences throughout my career. It may be an indirect benefit, but it is real nonetheless.

I've heard it can actually be hard to focus during a webinar – phone calls, visitors and employee interruptions disrupt the lecture's flow. The stop/start is distracting. Granted, you can

archive a webinar to watch later, but that is another compromise. Although obvious, you cannot host an equipment show – tabletop or otherwise – at a webinar. That is a limitation.

I'm no Johnny-come-lately to distance learning. Wisconsin kids who attended a rural, one-room school, like I did were students of the University of Wisconsin Extension's "School of the Air." We learned music from the

radio program "Let's Sing," taught by a music professor and broadcast from Madison. Even in the 1950s, face-to-face was important enough that regional gatherings and a state festival on campus were highlights we looked forward to attending – in person.

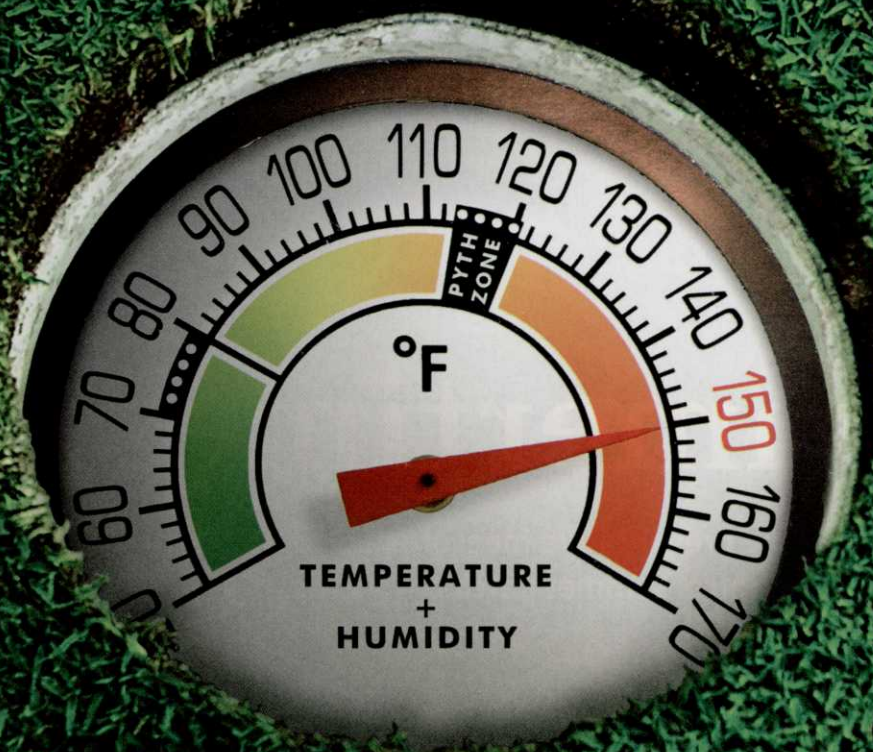
In the final analysis, we're lucky to be able to tailor our educational programs to fit our circumstances, whether from a distance or in person. We get to choose.

**ADDENDUM.** A medical issue prevented me to attend this year's GIS, my first absence in 40 years. What one misses is far more than you'd guess and I hope to attend next year. My successor, Chad Grimm, and his assistant Jacob Schneider, again proved that the cost to attend can be reasonable. They attended from Monday through Friday, and the cost to the club was \$1,164 for registration, airlines, food and housing. They rented a condo with two others and through the use of credit card points and company gift cards. That comes to \$582 per man. **GCI**



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## Key points

- Summer patch prefers hot, wet soils. Weather conditions will exacerbate activity.
- Spring is the best time to begin preventative applications for summer patch.
- Summer patch is found anywhere annual bluegrass or Kentucky bluegrass grows, but is severe on putting greens because the damage is more obvious.
- Good agronomic practices can assist in summer patch damaged turf recovery.
- Once spotted, it is suggested to raise mowing heights and water deeply and infrequently, which encourages root growth.

# Summertime blues

**If your springtime preventative measures failed, there are ways to successfully control summer patch outbreaks.** By Rob Thomas

**T**hough the name implies troubles during warmer weather, summer patch is a disease that is best fought in the spring. If prevention fails and it rears its ugly head, however, there are ways to not end up on the losing side of this battle.

According to Nathaniel Mitkowski, associate professor in the department of Plant Sciences & Entomology at the University of Rhode Island, summer patch is caused by *Magnaporthe poae* and has been observed in the United States since the 1960's, but the pathogen wasn't actually named until 1989 by Peter Landschoot and Noel Jackson at the

University of Rhode Island.

While Mitkowski says summer patch is very difficult to diagnose until it is causing significant harm, Turf Diagnostic's Jennifer McMorow says the disease is difficult to spot, unfortunately.

"It is difficult to identify summer patch disease visually, but look for yellow, somewhat circular patches with a 'shepherd's crook' bent look at the tip of the leaf tissue," McMorow says. "Summer patch may eventually coalesce and appear to snake through a green. Summer patch can easily be confused with *Poa annua* that is yellow from poor

environmental conditions or yellowing from growth regulators."

Beware: Once spotted, summer patch is well on its way to destruction.

"If you are diagnosing it in the field from visual symptoms, substantial damage has already been done," Mitkowski warned. "The pathogen attacks plant roots and moves relatively slowly, gaining speed as soil temperatures rise above 65-70 F. Because it is attacking roots, foliar symptoms may not be observed until the plants go into collapse. At this point, the damage is already done.

"Superintendents who have had the dis-



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Mitkowski: "I often examine many samples during May, looking to see if the pathogen is present and trying to gauge its activity and spread."

ease in the past will generally go about treating it preventatively, but an early diagnosis requires laboratory analysis," he adds. "I often examine many samples during May, looking to see if the pathogen is present and trying to gauge its activity and spread."

Dr. Frank Wong, green solu-

Summer patch can be very difficult to diagnose, he reiterated, and the disease being present doesn't necessarily mean it's the cause of the turf trouble.

"It's very frustrating for superintendents," Wong says. "They can send in a [turf] sample and there's a high probability of

For example, Wong says to consider two courses that may both be 20 percent infected. The one with a low height of cut and minimal irrigation can see more symptoms than the other with a higher height of cut and more water used. Avoiding fast-and-firm conditions is important in minimizing damage and encouraging recovery.

Dr. Jill Calabro, regional field development manager and plant pathologist for Valent Professional Products, echoed Wong's suggestion to focus on plant health – raise mowing heights and water deeply and infrequently, which encourages root growth – once summer patch has been spotted. She doesn't paint a pretty picture of the turf bouncing back in season, though.

"You can't reverse the damage," Calabro says. "Once it's done, the damage is done."

Calabro recommends investing in soil tests once or twice a year. An early test will provide a starting base, while assessing again later in the season will bookend the battle and provide valuable information for future seasons.

"They're inexpensive, but can tell you so much about what's

going on," she says. "And most university labs will provide recommendations with the test results."

If you seek help from a lab, Wong says it's "buyer beware" with the information you get back.

"Diagnostic labs can vary in quality," he warns. "At the bare minimum, they should be able to identify if you have the pathogen. The good labs can help you put two and two together."

Stressing that avoiding summer patch requires regular treatments throughout the season. Lane Tredway, technical manager for Syngenta for the southeastern United States, leaves room for hope if the disease shows up. "It's not too late, but very difficult to manage summer patch on a curative basis," he says. "A preventative strategy is absolutely necessary."

McMorrow receives samples of summer patch from any places that *Poa annua* is grown – mostly in the northern and western states and sometimes in the transition zone.

The disease is driven by heat and high soil water content, Mitkowski says. If these two factors are present, summer patch can

**"The pathogen attacks plant roots and moves relatively slowly, gaining speed as soil temperatures rise above 65-70 F."**

– Nathaniel Mitkowski, University of Rhode Island

tions specialist for Bayer's professional turf and ornamentals business, says golf courses are at risk of summer patch when soil pH is higher than 7.5, with the highest risk coming when levels reach 8-8.5. He recommends maintaining a range of 6-6.5, which admittedly is easier said than done.

While a preventative practice of DMI or strobilurin – targeting the crown and upper root area – every 28 days offers the most "bang for the buck," according to Wong, if pH gets too high, a shot of ammonium sulfate may lower the levels.

finding summer patch. [But] it's not always the presence of the pathogen that's causing the primary damage."

Once another disease has been ruled out, Wong suggests putting a curative application down, which can arrest the pathogen and stop the spread of summer patch. Note, it's not back to business as usual, however.

"You still have to use good agronomic practices to allow for recovery," Wong says. "It's unrealistic to spray the fungicide and then go back to the same agronomic practices and expect recovery."



## When to watch for summer patch

Spring is the best time to begin preventative applications for summer patch

"I find that summer patch can become active even when soil temperatures hover around 55 degrees Fahrenheit," says Turf Diagnostic's Jennifer McMorow. "This is much earlier than we used to treat for summer patch. Ten to 15 years ago, it was common to treat for summer patch in June, July and August. However, most of my samples with active summer patch were coming in to the lab in May and September. We were missing the beginning and the end of the window. Superintendents in California may even have a larger window than these five months."

Referring to spring core aeration as "absolutely vital," Dr. Frank Wong, green solutions specialist for Bayer's professional turf and ornamentals business, says the battle is maintaining the root once soil temperatures reach the high 70s or low 80s – a time when the roots stop growing. "You're behind the eight ball if you have shallow root growth in the summer," he says.

Once a summer patch outbreak is under control, it would be nice to know there's something that can be done late in the season to get a jump start on the next season. According to McMorow, she is unaware of that magic bullet, but all hope isn't lost.

"I have not found a fall application of fungicide to be helpful in deterring the disease the next year," she says. "However, this is assuming that the plants going into the winter months are not infected with summer patch. In addition, many of the systemic fungicides we use for snow mold control will also clean up summer patch in the fall as long as the fungicide is watered in and has upward mobility."

Prevention is paramount, but superintendents need to look at the bigger picture when ensuring their course does not fall victim to summer patch.

"Preventative fungicide applications are critical to keeping this disease in check, however, manipulation of the turfgrass environment will provide the best results in minimizing disease pressure," says Nathaniel Mitkowski, University of Rhode Island associate professor, plant sciences and entomology. "Summer patch prefers hot, wet soils.

Improving drainage, increasing air movement and increasing soil oxygen can all slow disease activity. Anything that can increase rooting depth will also slow summer patch damage.

"In addition, keeping a lookout for other diseases that may also kill plant roots and exacerbate summer patch symptoms is also important," he adds. "Cool-season root pythium is very common on annual bluegrass and often results in an early season root rot. If this disease is controlled early, plant roots will have a better ability to resist summer patch. Nematodes can also cause shallow rooting and reducing their populations will improve plant rooting. No matter what you do, starting early and focusing on root health can significantly improve your chances of withstanding a summer patch infection."



be very aggressive.

"The most aggressive cases of the disease I have seen usually come from an area that covers Illinois to southern New England, with the Midwest having particularly severe problems with the disease over the past few years," he says. "As with any disease, weather conditions can exacerbate activity. The Midwest has seen some very hot, very wet summers recently and this will increase disease incidence and aggressiveness."

On the course, specifically, Mitkowski says summer patch can be found anywhere annual bluegrass or Kentucky bluegrass grow, but is most severe on putting greens because the damage it causes is more obvious.

"There are a variety of reasons for this, but specifically, any blemish at putting green height is more noticeable than on higher heights, and the diversity of grasses on Northern putting greens is low (creeping bentgrass and annual bluegrass) compared to a wide variety of grasses on other surfaces that may have moderate to complete resistance," he says. "If a putting green is a 50/50 annual bluegrass/creeping bentgrass mix, 50 percent of the green is susceptible to the disease." **GCI**

*Rob Thomas is a Cleveland-based freelance writer and frequent GCI contributor.*

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## SAY CHEESE!

**W**hen it comes to your golf course, a picture truly is worth a thousand words. Quality photography is an essential tool for the smart superintendent who wants to document how a maintenance project is progressing, keep track of seasonal changes, show before-and-after situations and make important presentations to committees and ownership.

Despite advances in technology, taking good course photos is more than snapping away with your iPhone. It takes skill and some tricks of the trade to take photos that effectively show members what needs to be done, what's not working (disease, poor root systems, architectural and design issues), and where the club needs to be spending its money (trees, traffic patterns, wear and tear).

So I asked two of the world's best golf course photographers – Joann Dost ([joanndost.com](http://joanndost.com)) and Larry Lambrecht ([golfstock.net](http://golfstock.net)) who take those spectacular pictures you see in magazines, advertising, and calendars – for some tips to help us amateur shutterbugs.

### WHAT'S THE BEST TIME OF DAY TO PHOTOGRAPH A COURSE?

**JD:** In early-morning or evening light; approximately the first 2-3 hours of the morning and the last 2-3 hours of the evening. If your course is heavily wooded, you may have to wait for the sun to get higher in the sky for good results.

If possible, shoot a course during the edges of storms: You're blessed with the most dramatic light, which can turn even the most nondescript hole into a visual gem.

### WHAT FEATURES DO YOU LIKE TO PHOTOGRAPH?

**JD:** I always try to show the hole

with the flag in the green, but it's not always possible, say I'm shooting from the tee box and the hole is a dogleg. A golf course looks best from a few feet up, so I travel with a special ladder that attaches to a cart and allows me to position the camera 12 to 14 feet above the ground. At this height, I'm able to see most of the subtleties in the design. And I always try to have a point of interest in the foreground: It leads the eye into the image and allows the viewer to travel through the design of the hole.

I shoot holes from different angles, not necessarily the way it's played. For instance, the 18th at Pebble Beach looks spectacular from behind the green and slightly elevated. Be creative to make the image stand out. **LL:** I try to shoot from the golfer's perspective. However, the needs of the club and the superintendent don't always fit this view. The superintendent has to review the purpose of the vision he is trying to project, whether it's irrigation, tree clearing, bunker removal, or cut lines in the fairways. If you're taking the photos, spend some time on the site first and pick the best time of the day to enhance your project.

### WHEN AT A COURSE, WHAT DO YOU NEED FROM THE SUPERINTENDENT TO DO YOUR JOB?

**JD:** I need to know the maintenance schedule so I don't arrive when something major is happening, such as green aerification or top dressing. Then I keep the superintendent informed on what I'm doing so I can get out in front of the crew in the morning and keep working into the evening without the sprinklers going off or other maintenance issues in my shots.

The real balancing act is working between maintenance and normal



play. When I'm on site for a photo shoot, over three or four days I'll go around a course at least 10 times a day learning the maintenance short cuts and subtle nuances. In shooting mode I need to be able to get to the correct position as quickly as possible, depending on the light. Time is of the essence, so when you are well prepared and understand the layout you can be so much more productive.

I try to take shots with the superintendent and owner in mind. It is their course and I want to make it look the best I can for them, consequently it helps to be able to go around the course with the superintendent and/or owner to see what he wants to show or not show. I don't like to rely on PhotoShop to correct problems in the field. I try and correct things before I shoot. If a bunker is not raked, I have a leaf rake with me so I can rake it.

**LL:** In this age of computers, there isn't anything that gets in the way of taking a good shot with the right light. Software today in the right hands can fix ground under repair, divots, remove golfers, rakes, signs, and power lines. But remember, the most important features of a good photo are the composition and the lighting of Mother Nature. Those are things a computer cannot accomplish. **GCI**

For more great photography tips from Joann Dost and Larry Lambrecht, check out the app version of this issue.



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# AFTER SANDY

Left in ruin, Long Island courses struggle to recover after the most devastating storm in modern memory.

by John Torsiello

**O**n the eve of her arrival, Kevin Stanya watched the weather forecasts about a hurricane developing off the East Coast and he knew it was going to be bad.

In fact, the late-October event we simply refer today as Superstorm Sandy turned out much worse for Stanya, superintendent at Inwood Country Club in Inwood, N.Y., on Long Island, and other area golf course facilities as they absorbed the brunt of the freakish late-autumn storm.

While Sandy's overall fallout was far worse elsewhere along the New York, New Jersey and Connecticut coastlines, as the storm devastated low-lying areas, ruined neighborhoods and businesses and claimed lives, it left several golf courses in ruins on Long Island. Many are still recovering. In fact, Middle Bay Country Club in Oceanside declared bankruptcy in January and closed. At the time, the storm's damage to the course and its members' personal lives was a cost too much to bear.

"The day after the storm, when I arrived at the club, our entire equipment fleet was under five feet of water and was completely ruined," says Stanya. The damage and cleanup, he estimates, may eventually top \$3 million. "My entire office, including my central control for my irrigation

system and all of my field controllers, were wiped out, totaling over \$135,000. The club's quarters, which houses the staff, was completely underwater and had to be rebuilt. We also had more than 100 trees down and salt water lying in the course's low areas. The club's beach club and main clubhouse also sustained significant damage."

Tim Benedict experienced a similar scenario from Sandy's wrath.

"Every building on the club's grounds was affected and we are still trying to get everything up and running," says the superintendent at The Woodmere Club in Woodmere. The entire bottom floor of the clubhouse that houses the men's and ladies locker room, men's card room, bridal site, 19th-hole bar, nautilus room, weight room, boiler room, electric room and building superintendent's office all took six feet of water. Benedict's maintenance shop, which includes an office, took a whopping six and a half feet of water, along with the pool building, tennis facility, golf course bathroom and a halfway house. "The golf course was almost completely submerged but most of it drained off quickly," he says. "Our irrigation controllers were lost and one of two pump houses were compromised."





A Woodmere Club's foreman powerwashes the silt off of No. 11 and No. 16.



A boat washed up on the course at Seawane.



Damage to Seawane's No. 13 fairway. As it dried out a salt layer formed on top.

"The day after the storm, when I arrived at the club, our entire equipment fleet was under five feet of water and was completely ruined."

— Kevin Stanya,  
Inwood Country Club

Brian Benedict, superintendent at The Seawane Club in Hewlett, estimates Sandy inflicted around \$1 million in damage and clean-up costs.

"We lost a 500-gallon pump station that took six feet of water, 10 Toro VP satellites, and our shop took 18 inches of salt water, damaging or destroying \$600,000 in equipment," he says.

Sandy storm caused 60 acres of salt water flooding at The Seawane Club with six greens under water for two tidal phases. Treelines around the property were all uprooted, necessitating six months of in-house clean up that was still not complete in early May. Nine docks ran aground and had to be cut up and carted away, four boats got free and ran aground on Seawane's 13th hole and had to be hauled away, and 175 trees were lost to wind damage and uprooting.

Other clubs hard hit by Superstorm Sandy included Rockaway Hunting Club, located in Cedarhurst, only a few miles from some of the areas hardest hit by the massive and powerful storm that packed hurricane force winds and torrential rain. The pro shop and clubhouse were spared by flood waters and wind, but sections of the course were under water and a boat was reported floating in the middle of the club's 15th fairway at the height of the storm.

Middle Bay Country Club suffered a reported \$3.5 million in damage and about a third of the club's approximately 230 members left after the storm because of damage to their homes and businesses. The club estimated it was about \$1.2 million short of what it needed to rebuild its devastated property and the club's board and members decided that was more than they could financially handle. There have been reports that the club will be purchased and reopened but its future is unclear at this point.

It took superintendents and their staffs several weeks to assess and then start tackling the massive cleanup efforts following the storm.

"It took about two weeks to really get working since we had no equipment and had to wait until we could borrow some stuff," says Stanya, who added he "was in a funk" after losing everything he owned when a house he was renting in Long



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Left: Woodmere's Timothy J. Benedict, CGCS, standing in his office door with all the storm debris outside. Right: No 2 green at Seawane a few days after Sandy.



Beach, N.Y. was attacked by the storm.

"Prioritized lists were made and we have been knocking items off the list for months. It will be probably a year until we get back to some sense of normalcy," says Brian Benedict. "We took so much salt water the damage was incredible. Between the flooding to the grass, pump station flooding, equipment damage and building structures it's going to be a long, long summer. The organizing of contractors, tree crews, and our greens crew has been an overwhelming task to say the least."

Tim Benedict is "preaching patience" to Woodmere's membership.

"We sustained compromising salt damage to four greens (which were still closed in early May). Damage is two-fold from this event," he says. "Strangely, it's the turf where the drainage is that suffered the most. One would think the salt would immediately flush and the turf would recover. This is not the case. It's almost like those plants had the salt water more available, which shocked them and then the winter desiccation finally had its way with the plants. The same happened with my backyard, the only thing that lived was the compacted turf where the ride-on machine operator enters and exits the yard. I also have two fairways that are slow to recover but I see them starting to push growth."

Stanya, now mostly out of his personal funk, reports "a lot of

dead turf in the low lying areas and very high salt levels at Inwood.

"It has taken a while for the turf to begin shooting new roots but I am beginning to see signs of growth," he says. "I am very positive and believe I can make everyone forget about the storm by Memorial Day weekend."

The response from club management and members has been admirable. "The membership has been great," he says. "A few days after the storm the president of the club, Peter Davidson, came to me and asked what we needed to be open in the spring. We sat down and discussed it and he told me to do whatever it takes to get it done. Repairs were obviously costly and about 15 members laid money out to get the work done until the insurance company reimbursed us. I am very lucky to have a fantastic membership."

Brian Benedict says Seawane's membership has also been understanding of the unique situation.

"The members have been very good with the limited holes available," he says. "We had 11 holes open for play (in the spring) and the members will be playing a composite course for awhile. They have been very supportive and understanding as many of their homes were affected by the superstorm, as well."

Courses near the ocean on Long Island have been through this before, but nothing that compared to the damage unleashed by Sandy.





No 16 fairway at Seawane under salt water.

"We did have damage the previous year from tropical storm Irene, which I believe was worse on the turf because of the time of the year but I did not lose any equipment then," says Stanya.

Seawane floods on a regular basis as the high-tide full-moon phase compromises the course's bulkheads. "The water in our canals and bay is more brackish than the pure Atlantic current water, so when we flood it isn't as severe," Brian Benedict says. "When we took Irene in 2011 it was about a 35-acre flood but we didn't lose power, so we were able to dilute the salt water with our irrigation water right away. When Sandy hit we lost power for eight days and were unable to dilute the salt toxicity, which has created the issues we face now."

Seawane's salt base saturation levels were substantial, to say the least. Normal acceptable levels should be three percent and lower, Brian Benedict says, and "we are testing out at 16 to 24 percent, depending on where you test." He worries about long-term issues. "I am really worried about when the weather changes and we get hot. How is the grass going to react when the soil temps get to 70-plus degrees and up? Is it going to bake out? Our gypsum applications continue and we are seeding greens on a bi-weekly basis trying to get 007 and Seaside II Bentgrass to establish in them."

Recovery has been assisted by influxes of insurance money, Tim Benedict says. "Only recently has the money started flowing, which has definitely delayed our recovery process," he says. "The clubhouse was the first facility to be restored. We must be able to do business and host parties. The rest of the buildings are still coming along. We are still re-wiring buildings and fixing walls. It is a long road. I have a new assistant and that should help things improve a bit."

"On top of everything else, my home was also hit with the flood waters. My family was displaced for five weeks while we got repairs organized," he adds. "Everything is back to normal now but that was a true life test."

One that Long Island golf course superintendents, managers and owners, and members hope they never have to face again. **GCI**

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

by Richard Skelly

## DOWN, BUT NOT OUT

After a throttling by Superstorm Sandy, Garden State golf courses recoup and regroup.

**S**uper Storm Sandy, which struck New Jersey Oct 28-29, delivered an unprecedented \$39 billion in damage to shore-area residences, businesses, beaches and boardwalks, but its effects were also widely felt a good ways inland from Monmouth, Ocean and Atlantic counties, and as far north as parts of Long Island and Connecticut.

Hundreds of golf courses throughout The Garden State suffered severe damage in this late-season hurricane. Most club managers and superintendents prepared for a rain event and instead got some of the most extreme winds the New York metro area has seen in 50 years, winds that carried over with just as much intensity to the rest of the storm-hit areas.

April 29 marked six months out from Super Storm Sandy, a two-day and night event that effectively shut down New York City's transit system, the New Jersey Turnpike and the Garden State Parkway, two major highways.

As well prepared as most superintendents around the state were, Lance Rogers, superintendent of greens at Colonia Country Club in Woodbridge, N.J., and president of the New Jersey Golf Course Superintendents' Association, says, "The storm was substantial, and up until yesterday, I was still cleaning up debris in the woods at Colonia."

"I thought we suffered pretty bad damage, but in reality, we lost far fewer trees than most other courses in New Jersey," Rogers remembers.

Colonia Country Club lost 28 big trees larger than 36 inches in circumference, and since they were fallen trees, not leaning into others, Rogers and his crew handled all of the work themselves.

"The storm ended late Monday night, but we couldn't get in to work on Tuesday, so we started Wednesday morning. Even with





10-hour days, it took a solid week to get the trees that had fallen into play cut up and then it took another two weeks to clean up the debris and then three weeks to chip all the stuff.”

Rogers says the average number he heard from other supers in most of the state “was more like 160 trees down for each golf course.”

The eye of Superstorm Sandy came in over Brigantine, home for many years to the Links at Brigantine, a place where PGA pros used to go in the 1930’s and 40’s to practice for the British Open. Known for its near-constant breezes, Brigantine is also home to a massive migratory bird sanctuary and preserve.

Nathan Robbins, general manager at the Links at Brigantine, said the 18-hole golf course suffered more from water damage than from wind.

“The eye of the storm literally crossed 17th Street in Brigantine, so in some ways it was a blessing,” Robbins says.

“If you look at damage to places twenty miles north of us, they really had sustained winds. Our damage was limited to flooding,



A view of the sky from the 11th tee at TCP Jasna Polana following Superstorm Sandy.

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## SPECIAL REPORT

Right: Damage to the 7th green at TPC Jasna Polana following the destruction of Superstorm Sandy. Far right: Debris cleanup at TPC Jasna Polana.

and we were fortunate not to have any water in our clubhouse or cart barn. But there were areas of the course under three and four feet of water, and that forced us to close for three weeks after the storm."

Links at Brigantine was back up and running by Thanksgiving.

The Links at Brigantine's 9th and 18th greens were the only ones underwater for any length of time, "but we had an 18-foot powerboat that was in the left rough of our second hole for a time, and the walking bridge on the third hole ended up in the left rough of the second hole." Robbins says the walking bridge must weigh at least a ton, and the force of the incoming water moved it more than 100 yards.

"We didn't have any fast moving current so it was more a matter of making sure we did everything we could to make sure the effects of salt water were limited," Robbins says. Absecon Bay is about 50 yards from the 1st tee at the Links, and the 15th hole sports a peninsula green, which also got submerged, but for much less time than the 9th and 18th greens.

The Links at Brigantine re-opened to those who enjoy winter golf Thanksgiving week.

"One of the biggest challenges has been combating the perception that this whole area was closed down and damaged beyond repair. There was no damage to Atlantic City casinos and no damage to the boardwalk there. Other area golf courses might have had a tree or two come down, but for the most part, they were back open within a week," Robbins says.

Matthew Morrow, the superintendent at Manasquan River Golf Club in Brielle, a private club nestled along the river of the same name and less than two miles from the ocean, says he, the GM and members at the course used Super Storm Sandy as a learning experience and found out ways to improve on infrastructure and drainage on the property.

"Hopefully this is a once-in-a-lifetime event. The good part about the whole experience was we learned a lot about the golf course and how we can improve drainage and create a better tree management program," Morrow says, adding Manasquan River lost about 100 trees.

"We had a 25-foot and a 38-foot boat that both ended up on the golf course," Morrow says. Needless to say, both boat owners im-

mediately came forward on Tuesday, Oct. 30th to make arrangements with their insurance companies to have their vessels removed from the 12th and 17th holes.

Morrow said he and his crew did as much as they could in-house but left big or overly dangerous jobs to a tree company in Pennsylvania that he'd worked with in the past.

"Losing power was pretty a much a foregone conclusion in my mind and knowing the golf course is so close to river and we were going to flood, we got all our pumps ready and our equipment fueled up and generators were all primed and ready to go," he says. Manasquan River leads to the Manasquan Inlet which leads out to the ocean, visible on clear days from the course's 7th, 10th and 11th holes.

One thing Morrow and other seaside superintendents may not have considered was the effects of salt-laden blown air and the damage that can do to trees and grasses.

"Salt blown air actually damaged trees several miles inland, including some of ours," he said, "we were prepared for flooding and wind damage, but then to have a secondary issue with trees that were saturated with salt air and subsequently falling down, the needles







“Even with ten hour days, it took a solid week to get the trees that had fallen into play cut up and then it took another two weeks to clean up the debris and then three weeks to chip all the stuff.”

– Lance Rogers, *Colonia Country Club in Woodbridge, N.J.*

falling off of them and turning brown and off color, was a whole other problem.”

Manasquan River lost power on Monday, Oct. 29 and it wasn't restored until Friday, Nov. 9th. “We had the ability to pump gas even though we didn't have electricity and so we were able to remove an immense amount of debris that needed clean up and we worked on that until we got power back on,” Morrow says.

At the TPC Jasna Polana Golf Club in the estate section of Princeton Township, more than 100 trees fell on the property. Fortunately, very few of them fell on fairways or roughs directly on the 18-hole tract designed by Gary Player. Tim Connolly started at TPC Jasna Polana in the spring of 2012. In general at the Tournament Players Club network of courses, maintenance is a top priority, and budgets for maintenance are very different than many other private courses.

“We were relatively lucky,” Connolly says, “it was more a wind event and less a flooding event. We only had three inches of rain but we did have 144 trees down on the property.”

“Of those, however, only a small percentage were in a place that would affect play.”

“The club has a good insurance policy, and most of the work was performed by outside tree experts, especially more of the high-risk work, because I didn't want my staff involved in that,” he says.

Over the winter, he estimated he and his crew spent about 800 hours doing storm repair damage, and of that was large branches and fallen trees in high visibility areas off the fairways and roughs.

“I think we were lucky in another way; we do have woodlands on the property but the aesthetic of the property hasn't really changed that much, we didn't lose a single tee or a single putting green,” he said, noting that power was out for four days in Princeton Township. “The week the storm was approaching, we needle-tined the greens, as a corrective measure, so that if we did have a large rain event, we'd be prepared.”

The club itself was closed until Saturday, Connolly says, “but we moved greens on Saturday morning, and considering all the debris that was around, that was a huge accomplishment.”

A meeting of the superintendents association was slated for just two weeks after

Superstorm Sandy hit. The meeting took place at Hominy Hill Golf Course in Monmouth County in mid-November. “We had our annual meeting and the National Golf Course Superintendents' Association offered assistance to New Jersey supers who may have needed it,” Rogers says. “Aside from that, the New Jersey chapter of the association offered assistance to superintendents personally, if there was dire need, people made themselves available to help other superintendents.”

The mid-November annual meeting was lightly attended, no doubt a reflection of how overwhelmed many superintendents were in dealing with post-Sandy cleanup. “It was a small turnout that day in mid-November, because people had other concerns. We had an assistants meeting ten days later at Jasna Polana, and I don't know what the turnout was, but it was also very low,” Rogers says.

“Most courses have insurance against bad weather events, but my understanding is a lot of the insurance companies have been slow in responding,” he says. **GCI**

*Richard Skelly is a Spotswood, N.J.-based writer and frequent GCI contributor.*





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BY: TOM REED AND PATRICK MCCULLOUGH, GRADUATE ASSISTANT AND ASSISTANT PROFESSOR, UNIVERSITY OF GEORGIA

## A New Tool For *Poa Annua* Control in Turf

*Poa annua* (annual bluegrass) is a problematic winter annual weed that reduces turf aesthetics and functionality. Annual bluegrass has a bunch-type growth habit, light green color and abundant seedhead production. Additionally, *Poa annua* has poor stress tolerances and decline of populations in late spring reduces turf quality (Beard 1970; Lush 1989).

Postemergence herbicides are used in late winter or spring to control *Poa annua*, but populations resistant to specific chemistries may limit potential for successful control. Herbicide resistance in annual bluegrass populations may result from repeated use of the same herbicide or mode of action in consecutive years. Sulfonylureas inhibit acetolactate synthase (ALS), an enzyme in the biosynthesis of the branched-chain amino acids (LaRossa and Schloss 1984). Products like flazasulfuron (Katana), foramsulfuron (Revolver), and trifloxysulfuron

(Monument) are popular sulfonylureas used for postemergence annual bluegrass control in warm-season turfgrasses, but significant resistance issues have been reported in turf and other

crops (McElroy et al. 2013). Triazines inhibit photosynthesis by binding to D-1 proteins that transfer electrons from photosynthesis and form highly reactive free radicals (Devine et

al. 1993). Free radicals oxidize and destroy membranes and pigments, resulting in cell death in susceptible species. Extensive use of triazines has led to prevalent annual bluegrass resistance







in turfgrass in Georgia and other states. Glyphosate is a nonselective herbicide that inhibits 5-enolpyruvylshikimate-3-phosphate (EPSP) synthase that produces EPSP in the shikimic acid pathway (Amrhein 1980). Glyphosate is used for controlling annual bluegrass in dormant Bermudagrass, but overuse has also resulted in the spread of resistant populations throughout the southern U.S. Turfgrass managers should have an appreciation for the fundamentals of resistance management by utilizing herbicides with different modes of action in spray programs.

Flumioxazin is the active ingredient in SureGuard, a product labeled in 2011 for use in dormant bermudagrass. Flumioxazin has been extensively used in ornamentals and row crops including cotton and peanuts for annual weed control. Flumioxazin is a chlorophyll synthesis inhibitor similar to carfentrazone, oxadiazon, and sulfentrazone. In susceptible plants these herbicides inhibit the enzyme protoporphyrinogen oxidase (Protox). The inhibition of Protox leads to a toxic level accumulation of protoporphyrinogen IX that reacts with oxygen and light to form singlet oxygen resulting in rapid lipid peroxidation, membrane destruction, and eventual cell death. Protox inhibitors are not systemic herbicides, but are mainly used for annual weed control in turf.

Unlike other Protox inhibitors, flumioxazin provides postemergence annual bluegrass control in dormant bermudagrass. In Georgia, flumioxazin applications are generally most effective in November and December, prior to annual bluegrass tillering. Applications at spring timings may also control *Poa annua* with residual control for summer annual weeds, including crabgrass and goosegrass (McCullough et al. 2012).

Currently, flumioxazin use is limited to dormant Bermudagrass since applications may cause injury to actively growing turf (Umeda 2012). Preliminary experiments at the University of Georgia show

Left: Flumioxazin (kept at 20 C) before and after 28 days of treatment. Above: Flumioxazin (kept at 10 C) before and after 28 days of treatment.

flumioxazin efficacy increases when temperatures are warmer in spring compared to winter timings. Flumioxazin also appears to be root absorbed and irrigation could maximize efficacy of applications. Our current research at the University of Georgia is evaluating the effectiveness of flumioxazin with adjuvants and tank-mixtures with other herbicides on mature annual bluegrass. We are also evaluating residual control of crabgrass and goosegrass following applications for postemergence annual bluegrass control and tolerance of five warm-season turfgrasses.

Overall, flumioxazin has potential as a new tool for annual blue-



# Real Science



'Tifway' Bermudagrass untreated (left) and flumioxazin applied 2/1/13 at 0.375 lb ai a<sup>-1</sup> or 0.42 kg ai ha<sup>-1</sup>, six weeks after treatment (3/14/13) (right) Shows *Poa* control on dormant Bermudagrass (green is annual bluegrass)

grass control in turf. Flumioxazin may provide a new mode of action for postemergence annual bluegrass control in turf, but end-users must understand that applications are limited to dormant Bermudagrass at this time and there are limitations on efficacy during winter months. For best results, read and follow label directions before use of any herbicide. GCI

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## Travels With Terry

Globetrotting consulting agronomist Terry Buchen visits many golf courses annually with his digital camera in hand. He will share 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.

## TRANSPORTING BLOWER AND GAS CAN EFFICIENTLY

**S**tephen Ehrbar, CGCS, director of golf course maintenance, Nick Sabatino, assistant director of golf course maintenance, and Scott Crisp, equipment manager, make up the team at the Jupiter Hills Club in Tequesta, Fla. They were concerned about the blowers and gas cans tipping over during transport.

The brackets, which are fitted onto a Toro Workman, are used to hold the Stihl BG-86 hand blower and the Blitz 1-gallon gas can. The material and tools needed are one 1/8-inch-by-1 1/4-inch-by-24-inch and one 1/8-inch-by-1 1/4-inch-by-19 1/2-inch steel or aluminum flat bar. A 1/4-inch drill bit and drill, four 1/4-inch-by-1-inch bolts and nuts and a bench vice are used. Measure out 7/8 inch from each end of the two flat bars and drill a 1/4-inch hole centered. On the 24-inch flat bar measure out 11 3/4 inches and make a 90-degree bend. On each end of the flat bar measure out 1 3/4 inch and make a 90-degree bend the opposite direction of the first bend. The bend on the ends provides the mounting tabs for the bracket. On the 19 1/2-inch flat bar measure out 11 3/4-inch and make a 90-degree bend. On each end of the flat bar measure out 1 3/4-inch and make a 90-degree bend the opposite way of the first



bend. This bend provides the mounting tabs for this bracket. The larger bracket is for the blower and mounts 5 inches off the floor of the bed. The smaller bracket is for the fuel container and mounts 3 inches off the floor of the bed. Use the holes in the brackets as a template to drill the holes in the utility bed's side walls. These brackets are meant to hold an 11-inch-by-9-inch blower and a 10-inch-by-6-inch fuel container, says Scott Crisp, who designed and built the brackets. It cost less than \$20 per vehicle for the materials and less than one hour total labor time.

## SOD CUTTER TRANSPORT TRAILER



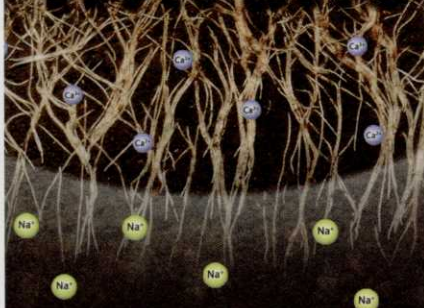
**S**cott Holman, equipment technician, and Robert Gamble, superintendent, at The Pearl Golf Links in Calabash, N.C., purchased a new Ryan Jr. Sod Cutter and they needed an efficient way to transport it. Holman conceived the idea of using a 1992 Toro TransPro 100 trailer, which was not being used any longer. The cross member bracket is two inches square tubing bolted to the front trailer frame. The two 14 1/4 inch tall, 2-inch square tubing uprights are welded to the cross member. The top member is 7 3/4-inch long, 2-inch square tubing with a 1 1/2-inch angle iron the same length welded to it. The 3-inch aluminum angle iron, measuring 20 inches long in the front, and two three inch aluminum angle iron side brackets, measuring 12 inches long and mounted with 2-inch-by-3/8-inch bolts, keep the sod cutter from moving forward or to either



side. The front bracket mounted on the sod cutter has a piece of scrap truck bed liner, which slips underneath the top member to lock the sod cutter in place along with the weight of the sod cutter. The sod cutter transport/cut clutch lever is also engaged for added safety during transport. The total cost for materials was about \$30 (including one spray can of John Deere green paint) and it took about 3 1/2 hours to modify the trailer.



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## WHY MATT MATTERS

Every year, every industry magazine does a major championship prep story. If you've been around a while, you've probably read dozens of them. The stories are usually about the same. The host super is a great guy. The club leadership values him. He has a terrific team. They've planned for years and worked closely with the governing body. He has great support from his family and a border collie named Bogie. Yada, yada, yada...

I'm not saying those stories are bad. They're awesome because they show some love to someone who's made it to one of the pinnacles of the profession. They get the splashy cover story they can frame for their office wall. It's something to celebrate (assuming the event goes well) and it commemorates an important achievement.

The problem is most of those stories don't teach you jack about how to run your operation more effectively.

Let's face it: hosting a major championship bears almost no resemblance to the day-to-day management of a typical golf facility. It's Disneyland. Millions are spent in advance. Volunteers and suppliers flock in to help. Every imaginable product, widget or potion is available should it be needed. Each contingency is studied and accounted for. There are plans, back-up plans and double-secret-just-in-case plans if those fail. Mother Nature can still screw you, but if money, people or products can fix it, it's fixed.

So, why are we once again lionizing a major tournament host in the pages of GCI given what I just wrote?

Because it's Matt Friggin' Shaffer.

Don't get me wrong. I've had many amazing friends in the spotlight hosting Opens, PGA Championships and

Ryder Cups in the past. Ken Mangum is right at the top of that list of world-class guys who have recently set a new standard of professionalism.

But Matt is more than just a friend. He's the poster boy for doing things the right way.

The first time I ever spent any real time with him – back when he was at The Country Club here in Cleveland – he gleefully explained to me how

**Matt was once a Consigliore in the Latshaw Mafia. Now he is the Godfather of his own mob.**

he was using almost no fungicides in a microclimate that screams disease pressure. Instead of just throwing money and chemicals at a problem, he deconstructed the cause of the malady and solved it literally from the soil up. He didn't do it the easy or accepted way. He did it the right way.

A few years ago, Matt built a \$4 million maintenance facility at Merion. Did he personally have to have it? Nope, but he knew that Merion should have it to continue to produce the type of conditions the members wanted and to be a model for other operations nationwide in the future. Thinking of building a maintenance facility at your place? Go visit Matt's operation (and maybe Darren Davis's place) and you'll get all the insights you need. That amazing compound isn't a monument to Matt...it's a statement about doing things the right way.

Like his mentor, Paul Latshaw (the elder), Matt teaches every day. He never directs. He never gives step-by-step instructions. Instead, he teaches

his assistants and crew to learn how to learn by leaving a trail of breadcrumbs that help them find solutions on their own. He never gives them a fish when he can teach them how to catch a hundred fish. He comes from a culture of apprenticeship and careful consideration, thanks to Mr. Latshaw. Matt was once a Consigliore in the Latshaw Mafia. Now he is the Godfather of his own mob. Why? Because he does things the right way.

He's never too busy to help others. In the run-up to an Open, most of us would be too distracted to remember our kids' names and certainly too frenzied to pay attention to larger industry issues. Yet just weeks before an event he's been working towards for a decade, Matt left the course and went to D.C. for National Golf Day. He was a leader on the team that did a remarkable job of spreading the word about the economic, social and environmental benefits golf courses bring to the nation. Sometimes doing things the right way means being confident enough to let your team run things for while you do something that benefits everyone.

And Matt wasn't too busy to note the recent passing of a mutual friend, Stan George of Prairie Dunes GC. Stan was a kindred spirit; a superintendent who valued the fundamentals and who passed along his knowledge and his philosophies to many, many others. Matt was among the first to express his shock and grief when we learned of Stan's death. He was genuinely sad for what we had all lost when Stan left us.

So, why does Matt matter more in the scheme of the 100+ majors that have been held in my 25 years in the industry? Because he does things the right way. And he values others who do the same.

Good luck my friend. GCI



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Our expanded ETQ™ fungicide portfolio delivers broad-spectrum disease control and enhanced turf quality all season long. These science-based solutions blend proven active ingredients with protective ETQ technology – in ratios to maximize turf health. The ETQ technology makes plants more efficient, thus improving fungicide effectiveness. The result is comprehensive disease protection, unparalleled stress management, remarkable turf quality . . . and peace of mind. Consider what our ETQ fungicides do:

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- ▶ Optimize turf color, strength, density and consistency
- ▶ Provide an economic solution for disease control and enhanced turf quality
- ▶ Deliver total protection for high-performance turf

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**E-Scape ETQ®**  
Turf Fungicide

(chlorothalonil/tebuconazole)

**Eclipse ETQ®**  
Turf Fungicide

(iprodione)

**Sipcam Clearscape® ETQ™**  
Turf Fungicide

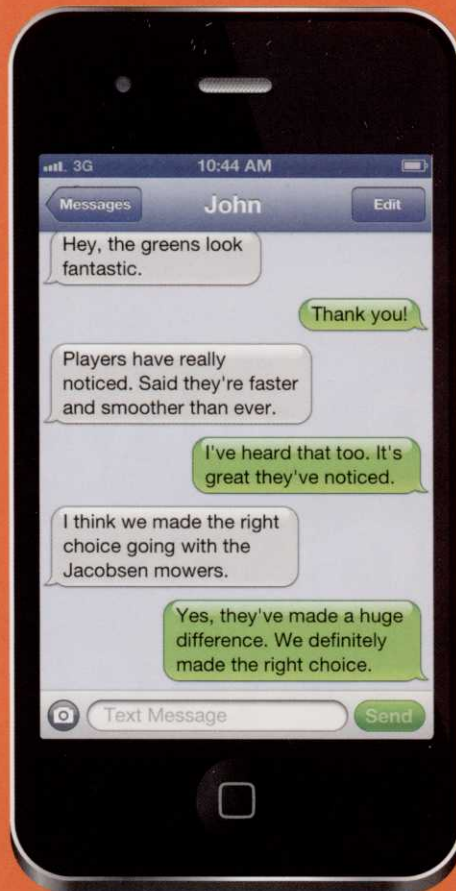
(tebuconazole)



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