

FEBRUARY 2015  
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# GOLF COURSE<sup>®</sup> INDUSTRY

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IRON

**TERRY BUCHEN** EXPLAINS *HOW TO*  
GET THE RIGHT EQUIPMENT **AT THE**  
**TIME YOU NEED IT MOST.**

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More State of the Industry / **P 9**

Redneck bunkers / **P 49**

Moraghan: Delete the cleat / **P 52**





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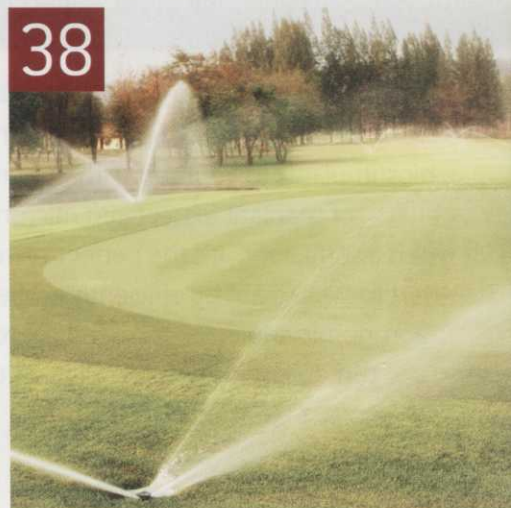
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TEERING OFF

## SOCIAL IN SAN ANTONIO

In the four years we've been doing our Super Social Media Awards, we've never had harder choices to make. So much has changed in the past 1000+ days with the number of supers engaged and the quality of what's being done.

We'll honor our winners at the 2015 TweetUp, which we do in partnership with Aquatrols. Everyone is welcome, so join us at 3 p.m., Wednesday, Feb. 25 at Aquatrols booth #9063 to enjoy actual face-to-face contact with your virtual friends.

Just a couple of notes. First, nominations — dozens of them — came in from you guys as well as partners and previous winners. Many of the very deserving winners from past years were nominated again this year. Our policy is to try to select as many new winners as possible each year to highlight even more great examples that you can follow as you begin or refine your efforts. Previous winners like Darren Davis, Jason Haines and others are still the gold standard, but we wanted to expand the horizons of the program to include other leaders, as well.

We took those nominations and compared notes. We then narrowed that down and chose our recipients. Eventually, I made the final call. There were MANY deserving nominees who didn't quite fit this year. Keep trying, please!

March will feature an article detailing this year's winners and what you can learn from them. See you at TweetUp. GCI



**Pat Jones**

Editorial director and publisher

## #GCITWEETUP15

### BEST OVERALL USE OF SOCIAL MEDIA

**Pat O'Brien,**  
Hyde Park Golf and  
Country Club  
Cincinnati, Ohio

**Matthew Wharton**  
Carolina Golf Club  
Charlotte, N.C.

### BEST TWITTER FEED

**Scot Dey**  
Mission Viejo Country Club  
Mission Viejo, Calif.

**Kevin Hicks**  
The Coeur d'Alene Resort  
Golf Course  
Coeur d'Alene, Idaho

**Jason Hooper**  
Quilchena Golf & Country Club  
Richmond, B.C.

### BEST BLOG

**Joey Franco**  
Brookstone Golf & Country Club  
Acworth, Ga.

**Adam Garr**  
Plum Hollow Country Club  
Southfield, Mich.

### BEST USE OF VIDEO

**Georgia Golf Course  
Superintendents  
Association**  
"Stewards of the Land"

### JOHN KAMINSKI LEADERSHIP AWARD

**Steve Cook**  
Oakland Hills Country Club  
Bloomfield Hills, Mich.



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18-0-18 69% Meth-Ex 2% Fe SOP

21-0-15 90% Meth-Ex 3% Fe SOP

24-0-8 94% Meth-Ex 3% Fe 2% Mg .5% Mn SOP

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## Enhancing the experience

**Indiana course adding educational component to tournament volunteering.**



Work in the morning. Work in the evening. Learn in the afternoon.

Victoria National Golf Club is experimenting with a way to make a tournament week even more fulfilling for golf course maintenance volunteers. The southern Indiana course is hosting the United Leasing Championships April 30-May 3. The Web.com Tour event attracts more than 20 volunteers seeking tournament preparation knowledge and camaraderie, according to assistant superintendent Gerald Smith. This year, Victoria National is attaching educational opportunities to the volunteer experience.

Speakers will address crew member and volunteers about topics beneficial to their careers. The sessions will begin after sponsored breakfasts and last between an hour and an hour-and-a-half. Veterans from industry companies are among the first group of speakers to commit to presentations.

"We have got it to be mostly focused on just education," Smith says. "Obviously, they are going to promote their products at some point, but we want to keep it as educational and as little promotional as possible." Victoria National also has reached out to researchers from local universities about presenting.

Practice rounds for the United Leasing Championships begin Monday, April 27, the day after the Big Ten Championships conclude at Victoria National. Obtaining five speakers is a goal for the week of the United Leasing Championships, and Smith says superintendent Kyle Callahan has inquired about volunteers receiving GCSAA credit for attending the sessions.

"Everybody we have talked to is pretty excited," Smith says. "Usually you have four to six hours of just downtime, where, yeah, you go watch golf for a little bit, but you're not really getting anything out of that. This is one more chance to learn something and help out with networking because you will be in a room with all of these assistants and AITs dealing with the salesmen and the speakers, which is huge in this industry."



From

## THE FEED

Bunker opinions are inescapable. We profiled the rebuilding of the hazards in our January issue ([bit.ly/1yDg50L](http://bit.ly/1yDg50L)), and they are a major topic wherever we travel. We started our travels this month by attending the Ohio Turfgrass Foundation Spring Tee Off event in Columbus, Ohio, where Dr. Norm Hummel of Hummel Co. & Inc. gave a presentation on sand selection for top-dressing and bunkers. Hummel urged superintendents to leave sand selection decisions to golf professionals because of the ensuing controversy that might follow. We posted Hummel's advice on our feed. As expected, multiple opinions surfaced. We even received feedback from the pro shop.



**John Gordon**

@gordongolf

I would love to hear the rationale behind that comment



**Steven Chernosky**

@AggieTurfman

Best advice ever



**Phil Eyre PGA**

@hbgcproshop

I will leave that for the super. But will always support his decision.  
#cantmakeeveryonehappy



**Guy Gurney**

@GuyGurney

@hbgcproshop I will leave that for the owners  
#notgonnabeme



**Phil Eyre**

@GuyGurney fair enough

#betterthanlettingmedecide



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on Twitter

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# No Boundaries

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# THREE KINDS OF PEOPLE



**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.

**T**here are three kinds of people who will lead their private clubs and daily-fee golf courses to new heights in 2015: planners, seekers and doers.

## PLANNERS

Whether you're a club manager, golf professional, superintendent or owner, you need a plan to know where you're going. Dwight Eisenhower, the U.S. Supreme Commander on D-Day, once said, "Plans are nothing; planning is everything." Ike knew the power of ongoing consideration, study and preparation.

If you own or operate a golf course or country club, your plan should take into account key factors that have emerged in the new normal.

- Prices for dues and fees in most golf-related clubs have corrected from 2007 highs. Market corrections for prices and access rights have increased demand at clubs that consider themselves financially secure.
- Price corrections that lower access costs tend to accelerate demand.
- Increased demand will create opportunities for real revenue growth for the clubs that monitor and manage utilization of tee and court times.
- Corrected pricing for club memberships is causing positive net growth after several years of net decline in memberships at most clubs.

Whether a private club or a daily-fee course, strategic and tactical plans are essential to success. If you're a manager, study your market for opportunity and demand. Market knowledge is competitive advantage.

If you're a superintendent, get your course in the best shape possible. Market demand favors the best-conditioned course over the lowest-priced. Develop an agronomic plan that keeps you and your crew focused on priorities: smooth and consistent putting surfaces, firm playing surfaces, and environmental stewardship. But you can't overlook the details because even amateur agronomists recognize a mud-hole, a dead tree and weeds.

## SEEKERS

Be a seeker of knowledge and current best-management practices. It's the seekers who are a step faster and more agile in a highly competitive market. Jim James, the terrific club manager at Augusta National Golf Club, keeps his team on a constant quest for excellence. Jim describes his management approach saying, "We look at every single day as an opportunity to improve. When we find we are not the best, we are relentless and incredibly focused to make sure that we improve." That gives seekers an advantage. The 2015 economy will reward those who are relentless and focused.

The collective knowledge in club management and golf operations is considerable. Tap into that knowledge resource.

## DOERS

There's been plenty of talk in golf; the recovering market will reward those who take action. Taking initiative is a competitive advantage and dependable strategy for golf facilities because few clubs and courses do so.

Three steps to take:

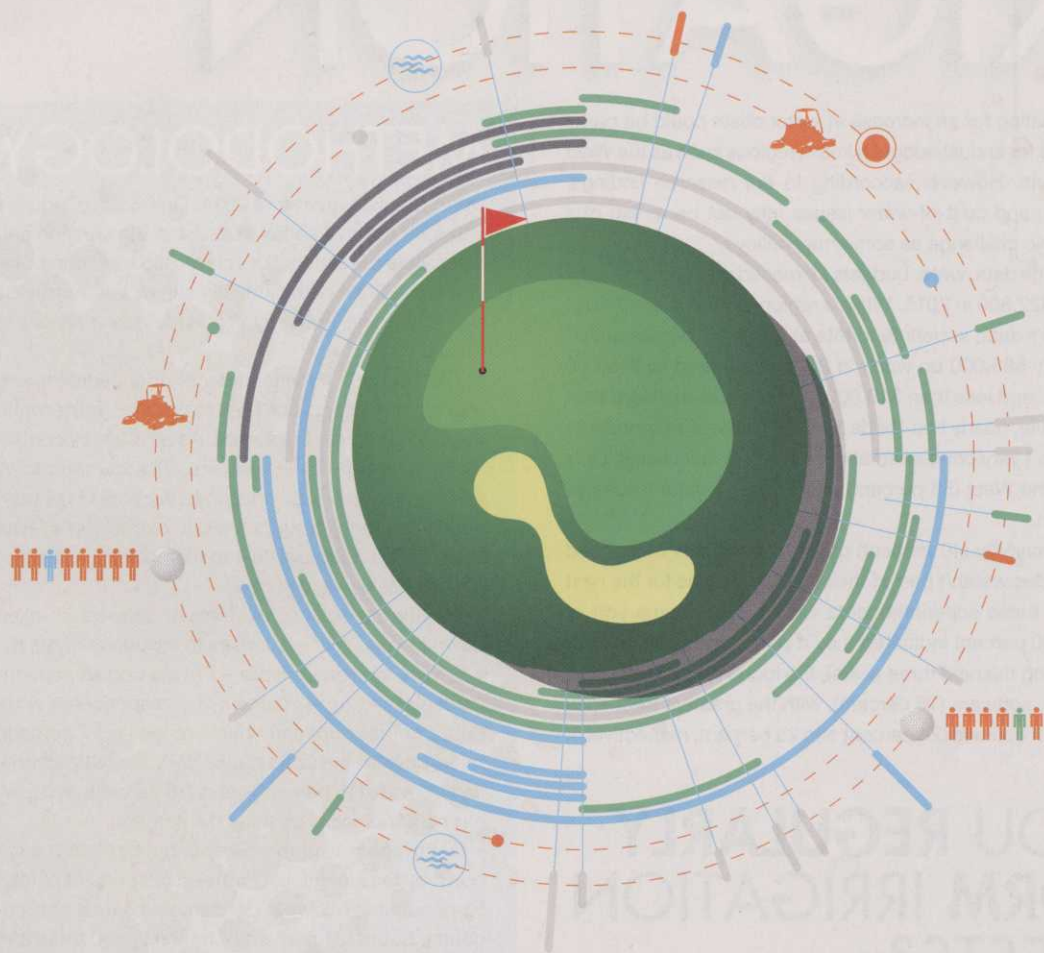
- *Expand your market reach.* Make sure those who use your facility know you, and make your business be "known." Each market segment has media channels it prefers, from traditional to contemporary. Align your communications and messaging with the ways your members and prospects prefer to hear from you, which may mean customizing more than one approach.
- *Communicate...communicate...communicate.* To stay top-of-mind with members and customers, communicate consistently. Talk with your members and customers. There's no substitute for one-on-one access to the club manager, professional or course owner. Make yourself accessible to the people who are paying the bills – members and customers.
- *Be generous toward children and families.* They are every club's future. Encourage children to come to the club. Speak at career days. Invite Scouts to use your club when earning badges in environmental stewardship and community service. Win the children, and you'll win their mothers. Win the mothers, and you'll win the game.

Winston Churchill, the bulldog of a Prime Minister, exhorted his fellow Englishmen, saying, "If you're going through hell...keep going." Many golf-related businesses have soldiered through a tough economic cycle that shows favorable signs for 2015. Now is the time to find your own momentum by planning, seeking and doing. **GCI**



# 2015 STATE OF THE INDUSTRY

## PART TWO



THE **INDUSTRY IS GROWING** IN WAYS  
THAT MAY **SHOCK AND SURPRISE YOU.**

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# WATER & IRRIGATION

**C**ompensating for an increase in water costs could be partly to blame for annual budget hikes in regions such as the West and South. However, according to the research findings, irrigation and cost-of-water issues may not be as big of a concern or agronomic challenge as some may believe.

When examining the data, water budgets increased overall from nearly \$16,500 in 2011 to \$22,800 in 2015. While a regional breakdown wasn't available for the 2011 data, superintendents at western courses anticipate spending nearly \$83,000 on water in 2015, compared to \$15,000 at southern courses, and less than \$10,000 at courses in the Northeast and Midwest. However, nearly two-thirds (62 percent) of all respondents indicated they weren't very concerned about cost-of-water issues. Only superintendents in the West (55 percent) cited cost-of-water issues as a budgetary concern.

Additionally, the majority (40 percent) of superintendents responded that irrigation upgrades weren't part of their spending plans for the next three years. And of those superintendents who planned some sort of irrigation upgrade (60 percent indicated they'd perform at least one improvement task during the next three years), the focus was on replacing nozzles (17 percent), software (16 percent), with the greatest frequency happening at western courses (24 percent and 25 percent, respectively).

## DO YOU REGULARLY PERFORM IRRIGATION CUP TESTS?



## METHODOLOGY

During the last quarter of 2014, Golf Course Industry contracted with Readex to assist in the creation and to facilitate the distribution, completion and computation of the State of the Industry survey that examined superintendent trends and attitudes on a variety of topics.

GCI had 569 superintendents or superintendent-equivalent personnel of 18-hole facilities from around the U.S. complete the survey. As an added incentive to complete the questionnaire, GCI committed to making a substantial donation to the Wee One Foundation, a charity group started in memory of Wayne Otto, CGCS, that assists superintendents and other turf professionalism in need.

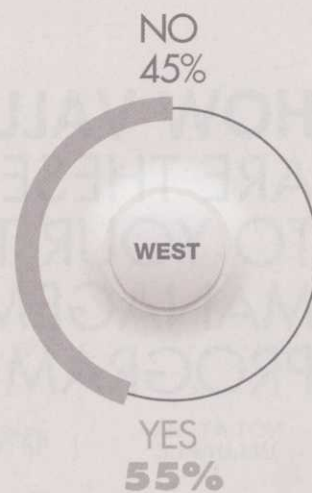
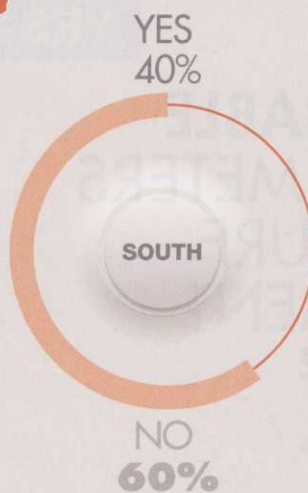
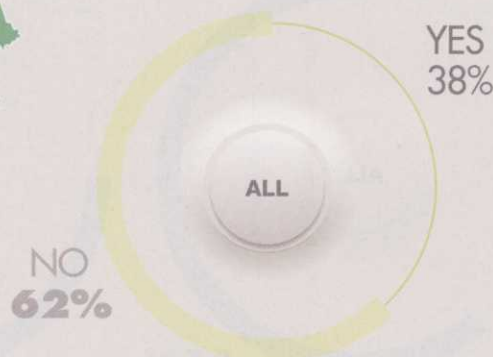
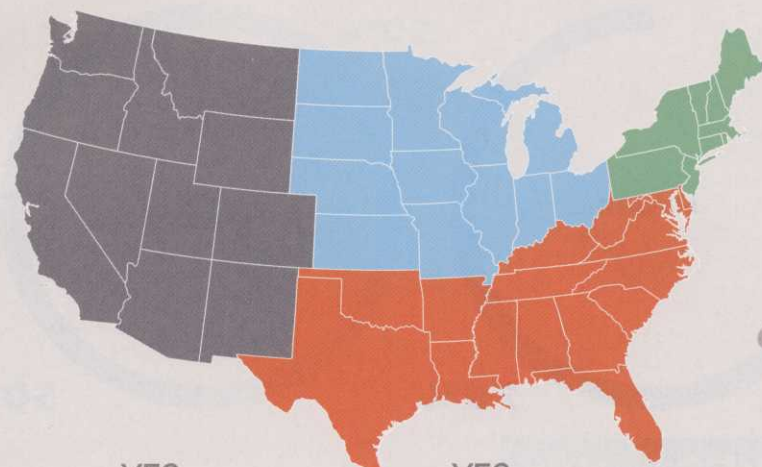
For the purpose of this report, data was broken down beyond "all" responses to include analysis by:

- **Private vs. Non-private** – Private course superintendents made up 43 percent of all respondents, while public course superintendents made up 57 percent. "Non-private" included public/daily fee (23 percent), semi-private (15 percent), resort (5 percent) and government/municipal courses (14 percent).
- **Geographic region** – Respondents were broken down by their location: Northeast (19 percent of total respondents); Midwest (33 percent of total respondents); South (31 percent of total respondents); and West (17 percent of total respondents. See the map for which state belongs to which region.
- **Non-capital ops budget** – Respondents were also categorized by how their 2015 non-capital operations budgets compared to the average (\$697,000). This included "below the average" (58 percent of total respondents); "at average plus" (42 percent of total respondents) and "\$1 million plus" (23 percent). It should be noted that "\$1 million plus" was also represented in "at average plus."

Finally, when applicable, the 2015 data was compared against data from the 2012 State of the Industry report, which analyzed trend and attitude data compiled during the fourth quarter of 2011.

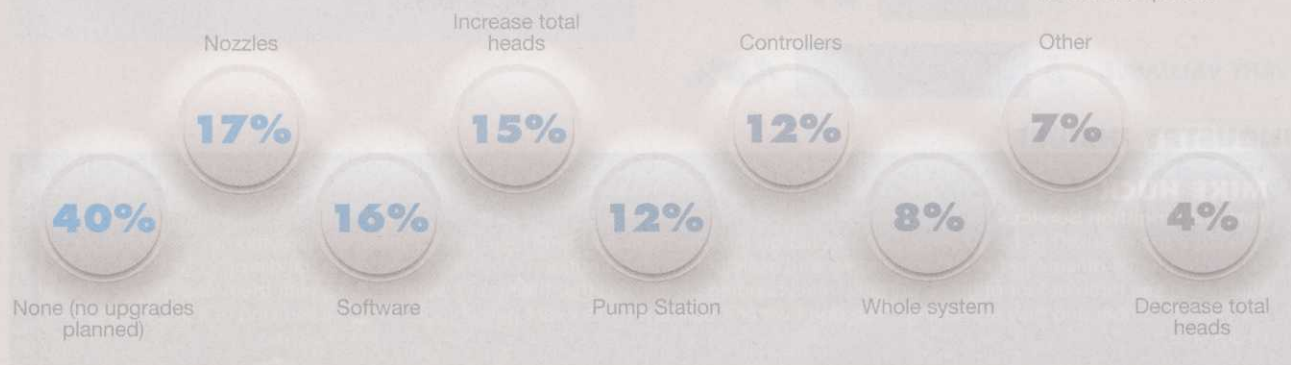


# ARE YOU WORRIED ABOUT HOW THE FUTURE COST-OF-WATER ISSUES COULD IMPACT YOUR BUDGET?



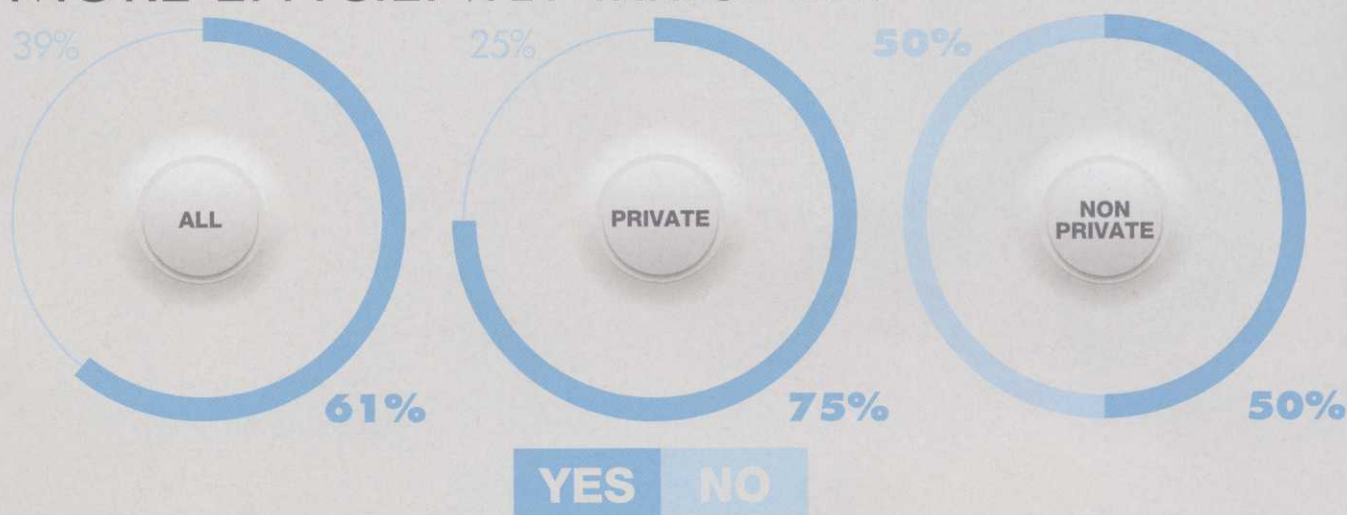
## PLANNED IRRIGATION UPGRADES FOR THE NEXT THREE YEARS

Editor's Note: "Other" responses include: upgrade main and lateral lines; replace valves; upgrade heads; and improvements to retention ponds.

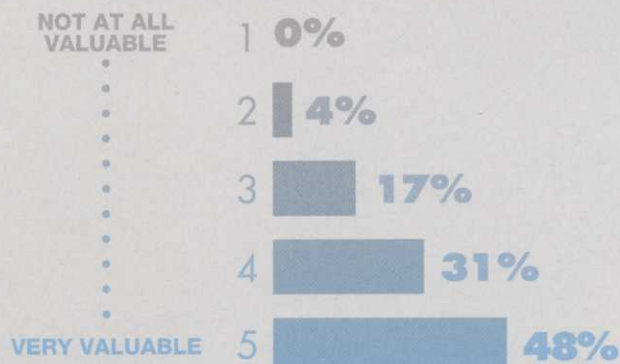




## DO YOU UTILIZE HANDHELD SOIL MOISTURE METERS OR OTHER PROBES TO MORE EFFICIENTLY IRRIGATE?



## HOW VALUABLE ARE THESE METERS TO YOUR TURF MANAGEMENT PROGRAM?



## STAYING AFLOAT

We asked superintendents what steps their course was taking or planning to address future cost-of-water issues. Here are some of their responses.

- Incorporate better management practices
- Build additional ponds, wells, reservoirs to become less reliant on potable water
- Grass conversion to reduce water use, including non-playing areas to native beds
- Install more efficient heads, fine tuning nozzles
- Experimenting with wetting agents
- Getting members more used to seeing "brown"
- Identify areas that can be managed with little to no supplemental water
- Increased hand and spot watering
- Conduct irrigation audits
- Investigate new technology, including software and moisture meters

### INDUSTRY INSIDER

#### MIKE HUCK

Turf and Irrigation Services

"Moisture meters used to be a novelty. You would go into the shop and they have one of these things sitting in the corner of the superintendent's office and the superintendent and assistant might go out and play with it and get a handle on it. Now you go into shops and see three or four of those portable ones hanging on the wall that their hand waterers take with them and they are giving it an exact number and they are saying, 'You don't water it unless it's this exact percentage.' That's been kind of a fascinating thing to observe."



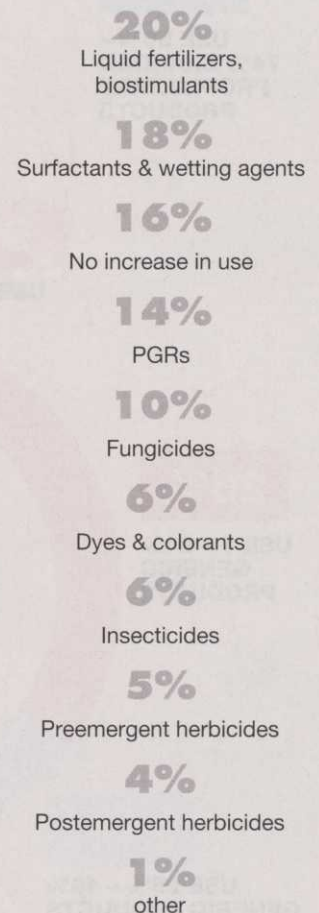
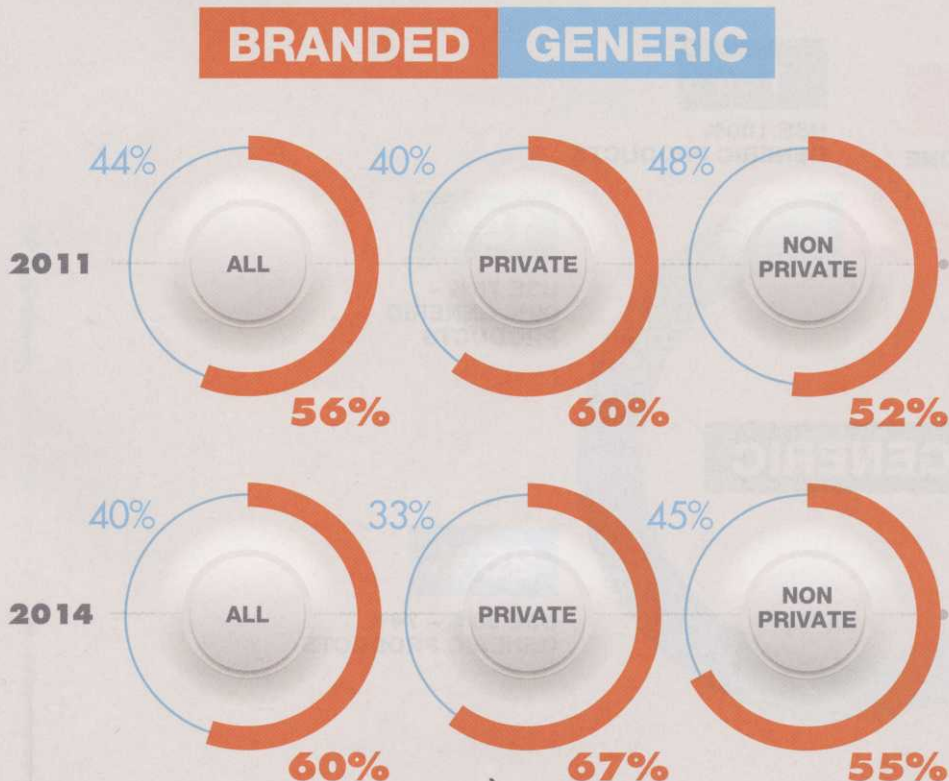
# CHEMICAL BREAKDOWN

**S**uperintendents are using more liquid fertilizers and biostimulant products as part of their turf maintenance program than they were three years ago, according to 2015 State of the Industry data. Superintendents out West (24 percent) are using more of this product than in any other areas of the U.S.

And with the ages-old debate between branded and generic products, superintendents report they are using slightly more branded products than they were three years ago (60 percent vs. 56 percent, respectively). Dialing down further, of those who use branded products, a third (33 percent) indicated these products make up 75 percent to 99 percent of their total product mix.

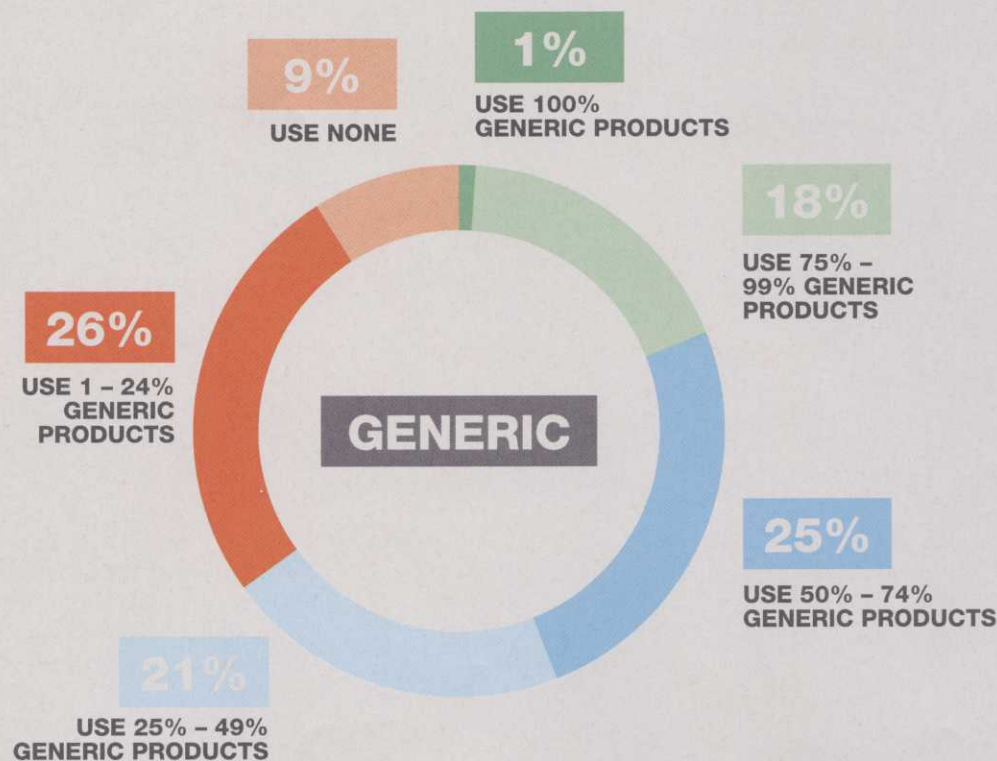
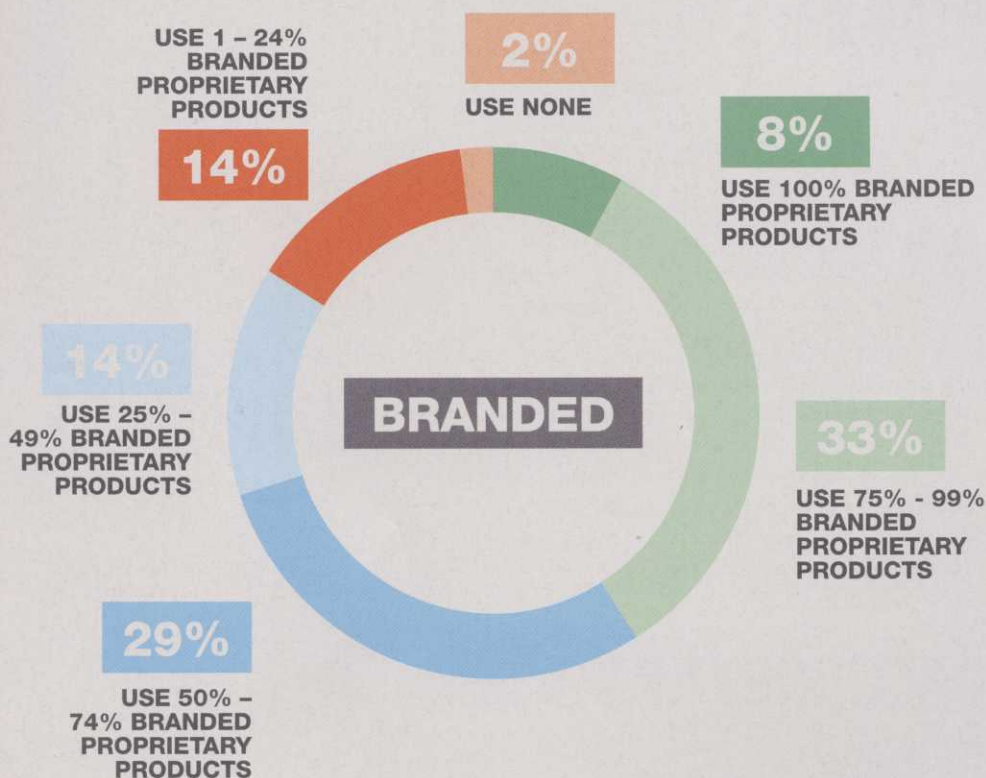
## AREA OF TURF MAINTENANCE PROGRAM WITH THE LARGEST INCREASE IN USE

## BRANDED PROPRIETARY VS. GENERIC PRODUCTS





## PERCENT OF USE



### INDUSTRY INSIDER

#### BRIAN BOYER

Superintendent  
Cinnabar Hills Golf Club,  
San Jose, Calif.

"We haven't gone to a lot of liquid fertilizers. We started during the fall of last year putting organics on our fairways and so far we are happy with what we are seeing. We're seeing slow growth and it's tough for things to grow real fast because of the drought."



# EQUIPMENT

**U**tility vehicles will be the hot commodity among superintendent equipment purchases in 2015, according to the data. A third of respondents (33 percent) said utility vehicles were on their shopping lists. Broken down further, 43 percent of respondents at private courses, 51 percent at western courses

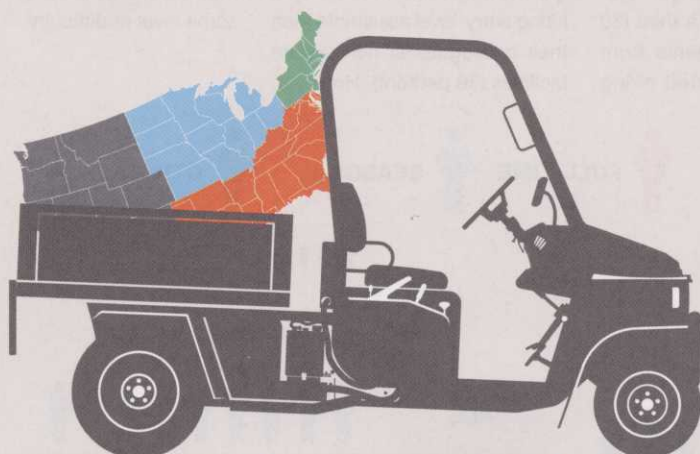
and 55 percent at courses operating with budgets in excess of \$1 million all indicated utility vehicles as their top purchases.

Regarding mowers, overall superintendents indicated more interest in acquiring greensmowers (24 percent) than fairway mowers (17 percent). Broken down further, greensmower purchasing was favored by

respondents at private courses (26 percent), courses in the South (27 percent) and courses operating with budgets in excess of \$1 million (35 percent).

Interestingly enough, when we asked about planned purchasing in 2011, 42 percent of superintendents indicated utility vehicles were on their agendas.

## PLANNED PURCHASES FOR 2015



### ALL

#### 33% Utility vehicle

- 24% Greensmower
- 17% Fairway mower
- 12% Sprayer
- 12% Tractor
- 11% Aerifier
- 11% Mechanical bunker rake
- 10% Vacuum/blower
- 6% Top dresser
- 2% Fan

### NORTHEAST

#### 33% Utility vehicle

- 21% Greensmower
- 17% Fairway mower
- 15% Sprayer
- 16% Tractor
- 11% Aerifier
- 8% Mechanical bunker rake
- 5% Vacuum/blower
- 4% Top dresser
- 1% Fan

### MIDWEST

#### 24% Utility vehicle

- 23% Greensmower
- 14% Fairway mower
- 10% Sprayer
- 7% Tractor
- 9% Aerifier
- 11% Mechanical bunker rake
- 11% Vacuum/blower
- 5% Top dresser
- 2% Fan

### SOUTH

#### 33% Utility vehicle

- 27% Greensmower
- 18% Fairway mower
- 13% Sprayer
- 13% Tractor
- 11% Aerifier
- 11% Mechanical bunker rake
- 12% Vacuum/blower
- 8% Top dresser
- 2% Fan

### WEST

#### 51% Utility vehicle

- 23% Greensmower
- 26% Fairway mower
- 15% Sprayer
- 15% Tractor
- 13% Aerifier
- 13% Mechanical bunker rake
- 13% Vacuum/blower
- 11% Top dresser
- 0% Fan

## INDUSTRY INSIDER

### DOUG MILLER

Senior vice president of golf course management  
ClubCorp

"We're not really replacing, but we are filling needs at every club. We have always done more of that than go in and buy a complete fleet. We have gone in and said, 'This club needs four pieces, five pieces, two pieces or whatever that is.' Our bucket is pretty large with the amount of the clubs that we have. We try to get everybody to a point where their fleet is in a good position, not necessarily new, but has some new pieces and some existing pieces where they can get done the work they need to do."



**JEFF WHITE**

Superintendent

Indian Hills Country Club, Mission Hills, Kan.

"Just finding bodies in general and having some bodies that want to work that you can coach along and train is becoming difficult. I think there are more full-time jobs out there. There are more construction jobs and those types of jobs that pay better. A lot of the stuff where we had these guys working three months or six months and then going someplace else has kind of dried up."

# LABOR

**L**abor and staffing is a management challenge, and finding skilled, reliable and dependable workers makes the hiring process a real chore for superintendents.

While the research points to a minor drop in staffing levels over the last three years for full-time and seasonal positions, more than half of superintendents across the spectrum (including

course type and geographic regions) report some level of difficulty in hiring workers. For example, private facilities had slightly more difficulty hiring than non-private courses (63 percent vs. 60 percent, respectively), and 66 percent of respondents from the Northeast and South reported hiring challenges. Additionally, more than a third (39 percent) of respondents from the Northeast reported hiring

troubles.

The problem also extends to attracting entry-level assistant superintendents, with nearly half (42 percent) of superintendent respondents citing difficulty, according to the data. Again, superintendents at private courses (48 percent) reported a much greater frequency of difficulty in hiring entry-level assistants than their colleagues at non-private facilities (36 percent). However,

it should be noted that, according to the research findings, a greater percentage of respondents at private courses (92 percent) were or are in the market for entry-level assistants than those at non-private courses (68 percent). Regionally, nearly half (49 percent) of respondents from southern courses reported some level of difficulty.

## STAFFING LEVELS



FULL-TIME



SEASONAL



OTHER

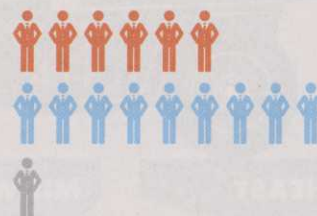
2011

2014

ALL



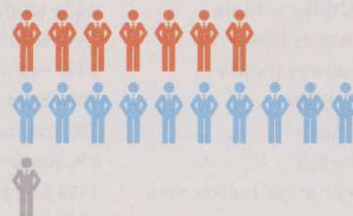
ALL



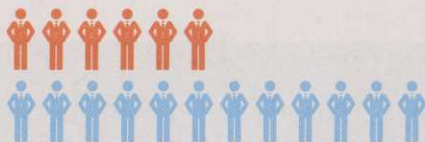
PRIVATE



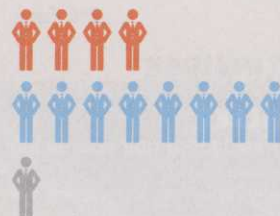
PRIVATE



NON PRIVATE



NON PRIVATE



Editor's Note: "Other" was not an option in the 2012 State of the Industry research.



Coming Soon...



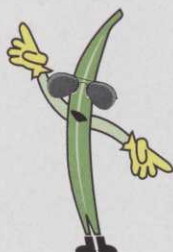
DAYS

HRS

MINS

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# FRESH IRON

## THE ULTIMATE EQUIPMENT REPLACEMENT GUIDE

**TERRY BUCHEN** EXPLAINS *HOW TO*  
GET THE RIGHT EQUIPMENT **AT THE**  
**TIME YOU NEED IT MOST.**

**G**olf course superintendents should be proactive in providing a complete maintenance equipment inventory, five-year equipment replacement program – updated annually – and a comprehensive preventative equipment maintenance program.

As a result, long-term cash-flow projections to course and club officials for equipment replacement can be made accurately regardless of whether the equipment is purchased or leased. With thorough documentation procedures in place, a superintendent can accurately determine if each piece of

equipment costs too much for repairs or if it's best to be replaced. These programs are worthwhile so that capital and leased operating cost funding is available annually to replace worn-out equipment and to acquire new technology on a regular basis.

In addition, a comprehensive equipment-replacement chart is a helpful guide for projecting when to replace equipment.

### **MAINTENANCE EQUIPMENT INVENTORY**

Efficient, routine maintenance equipment inventories, updated annually, include extensive line items such as: date of purchase; equipment description; where it will be used; original prices and sales taxes; replacement costs; model number;

serial number; model and serial number of all attachments such as engine, transmission, cutting units and verticut reels; original expected life; current expected life; when the warranty expires; equipment shop number; and depreciation (if purchased).

The original expected life and current life expectancy should be updated annually, showing where some equipment may last longer than projected, or that equipment may not last nearly as long as originally projected. Also, the trend to lease equipment that normally does not last as long, such as all mowers, turf vehicles, and bunker rakes, and purchasing longer-lasting equipment, such as tractors, loader/backhoes,



dump trucks, and trenchers, has gained in popularity.

There should be two pieces of motorized equipment, minimum, for each specific area that is being maintained. The equipment includes rough mowers, intermediate rough mowers, fairway mowers, riding bunker rakes and sprayers. This provides one backup piece while servicing and repairs are being done. This helps improve productivity and to get jobs done ahead of golfers. The two motorized equipment minimum rule is also useful in case there are breakdowns during tournaments.

Instead of trading in or selling equipment that normally would be replaced, superintendents will keep, depending on local conditions, the old equipment for other tasks. Old mowing equipment can be used after topdressing greens, collars, tees, fairways and approaches. Likewise, greens mowers can be used to mow tees, collars and approaches.

## FIVE-YEAR EQUIPMENT REPLACEMENT PROGRAM

This program should be updated annually so capital and leasing forecasting and budgeting are thorough and complete.

There are two basic golf industry standards for equipment replacement: to allocate 10 to 15 percent minimum of the total replacement equipment inventory value each year, or approximately 15 or 25 percent of the annual maintenance operating budget. Leasing is more popular with facilities that require their frequently used equipment to be replaced more often, such as walk-behind and riding reel and rotary mowers for all of the maintained

## WHEN SHOULD IT BE REPLACED?

Area/Type	Cool Season Climate	Transition Zone Climate	Warm Season Climate
<b>Greens</b>			
Walk-behind greens mowers Groomer Attachments, Front Rollers Turf Utility Vehicles, Trailers	5-7 years	5-6 years	4-5 years
Triplex greens mowers Groomer Attachments, Verticut Attachments, Speed Rollers (3), Spikers, Spare Cutting Units	5-7 years	5-6 years	4-5 years
Dew whippers	3-4 years	2-3 years	1-2 years
Walk-behind aerifiers	10-12 years	8-10 years	6-8 years
Deep-tine aerifier	8-10 years	7-8 years	5-7 years
Core harvesters	7-8 years	6-7 years	5-6 years
Sweepers/vacuums	8-10 years	7-8 years	5-7 years
Plug pushers	8-10 years	7-8 years	5-7 years
Water inject aerifiers	8-10 years	7-8 years	5-7 years
Deep verticut with topdressers	10-12 years	8-10 years	7-8 years
Slit/spike seeders	10-12 years	8-10 years	7-8 years
Topdressing machines	8-10 years	7-8 years	5-7 years
Drag brushes/mats	7-8 years	6-7 years	5-6 years
Sprayers Hooded booms, Walk-behind boom	5-7 years	5-6 years	4-5 years
Spreaders - rotary/drop	5-7 years	5-6 years	4-5 years
Tournament speed rollers	5-7 years	5-6 years	4-5 years
Soil profile blower/vacuum	8-10 years	7-8 years	5-7 years
Oscillating fans	7-8 years	6-7 years	N/A
Roller squeegees	7-8 years	6-7 years	5-6 years
<b>Collars</b>			
Walk-behind collar mowers Utility vehicles, Trailers	6-7 years	5-6 years	4-5 years
Triplex collar mowers	6-7 years	5-6 years	4-5 years
<b>Tees</b>			
Walk-behind tee mowers Utility vehicles, Trailers	6-7 years	5-6 years	4-5 years
Triplex tee mowers Spare Cutting Units	6-7 years	5-6 years	4-5 years
<b>Fairways</b>			
Fairway Mowers Verticut attachments, Groomer attachments, Spare cutting units	5-7 years	5-6 years	4-5 years
Clipping dispersal machine	15-20 years	12-16 years	10-12 years
Large fairway aerifiers	8-10 years	7-8 years	6-7 years
Deep tine aerifiers Sweepers/vacuums, Plug pulverizers	8-10 years	7-8 years	6-7 years
Large fairway topdressers Drag brushes/mats, Material handling	7-8 years	6-7 years	5-6 years
Large fertilizer spreaders	10-12 years	9-11 years	8-10 years
Deep verticut machines	8-10 years	7-8 years	6-7 years
Drill/verticut seeders	8-10 years	7-8 years	6-7 years
Drop seeders	10-12 years	9-11 years	8-10 years
Large sprayers Hooded booms, Foamer attachment	7-8 years	6-7 years	5-6 years
Fairway pull-type rollers	15-20 years	15-20 years	15-18 years
Fairway self-propelled rollers	9-10 years	8-9 years	7-8 years
Blowers-pull type	7-8 years	6-7 years	5-6 years
Blowers - PTO	10-12 years	9-11 years	8-10 years
<b>Approaches</b>			
Walk-behind tee mowers Utility vehicles, Trailers	6-7 years	5-6 years	4-5 years
Triplex tee mowers Spare cutting units	6-7 years	5-6 years	4-5 years
<b>Intermediate roughs/walk paths</b>			
Utility triplex mowers Spare cutting units	6-7 years	5-6 years	5-6 years



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areas, turf vehicles, riding bunker rakes and sprayers. When the lease expires, the course has the option of turning the equipment in and acquiring new equipment, or with a one-dollar buyout where the course

owns the equipment. The former is more popular because it makes the most sense to keep replacing equipment when it's worn out and not cost effective to keep repairing it.

There is also an added side benefit to replacing leased or capital equipment, where more modern, state-of-the-art equipment technology is acquired. This replacement program also allows for additional new technology equipment to be acquired that is not being replaced – but added to the inventory so that additional improved agronomic and playing conditioning standards are achieved as dictated by golfer demands.

Leased equipment typically has a separate line item on the maintenance operating budget. And when this occurs, the total operating budget amount can be very deceiving, as it usually appears that this budget is much higher than normal because lease payments are included. Purchased equipment is placed on a separate capital expense budget.

The purchasing of longer-lasting equipment, such as tractors, loader/backhoes, skid-steer loaders and attachments, dump trucks, dump trailers, fairway aerifiers, and fairway topdressers with material handling systems, is more the rule than the exception for courses nationwide. The life expectancy on this equipment is usually longer, which makes purchasing more cost effective. An added side benefit is it is usually depreciated on the course's financial statements because it is a capital expense.

#### PREVENTATIVE MAINTENANCE, REPAIRS AND EQUIPMENT MODIFICATION

A solid equipment manager is paramount to not only keep maintenance equipment up and running, but for it to meet its life expectancy.

Maintenance equipment gets more sophisticated each year, with more and more diesel, hybrid and electric variants designed and built by multiple domestic and international manufacturers. The total amount of equipment in the inventory has rapidly expanded over recent years, mostly because of player demands for better conditioning standards. Because of the sophistication and larger amounts of equipment, many 18-hole courses employ two equipment technicians: the equipment manager, who performs repairs, sharpening and equipment modifications; and an assistant mechanic/technician, who per-

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## COVER STORY

### TERRY'S TIPS

- A five-year equipment replacement program — updated annually — will provide accurate budget cost projections of when owned and leased equipment should be replaced.
- The maintenance equipment replacement chart, broken down in all three climatic zones, provides guidelines of when equipment should normally be replaced.
- With increased golfer demands for improved conditioning standards as seen on televised tournaments and championships, maintenance equipment inventories have significantly expanded with increased annual capital expenditures and lease payments on the maintenance operating budget.
- Frequently used maintenance equipment, such as all reel and rotary mowers, turf vehicles, riding bunker rakes, sprayers, etc., is now leased, and longer lasting equipment, such as tractors, loader/backhoes, skid steer loaders, dump trucks, etc., is purchased. The former is now the rule rather than the exception.
- With all of today's sophisticated maintenance equipment to provide a comprehensive preventative maintenance program, repairs and modifications, an equipment manager and assistant mechanic/technician is required for each 18-hole golf course. Having only one equipment manager for 18 holes in today's world, in most cases, is entirely too much work for one individual.
- All maintenance equipment should be stored in an enclosed or covered storage area to keep sunlight and moisture from damaging it and shortening its life expectancy.
- A photo/video journal is added proof that every piece of equipment was currently in inventory during a loss submitted to an insurance company.

forms routine preventative maintenance programs and lapping/sharpening. Only one equipment manager for 18 holes, in most cases, is too much work for an individual.

### MAINTENANCE EQUIPMENT REPLACEMENT CHART

The chart on page 18 has a complete listing of everything an 18-hole golf course and practice areas require to be maintained. Since the equipment usage differs noticeably in different areas of the country, the chart highlights

the three climatic zones: the cool-season, transition zone and warm-season climates. The range in years for each climatic zone is a good estimate and projection for when equipment typically should be replaced, especially before it becomes too costly to continue to repair. How long equipment will last is based on frequency of use, climatic conditions, employee's care when operating the equipment, preventative maintenance programs, whether it's stored inside or outside in the damaging sunlight



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# EQUIPMENT LIFE CYCLES



**Paul F. Grayson** is the Equipment Manager for the Crown Golf Club in Traverse City, Mich., a position he's held for the past decade. Previously, he spent 8½ years as the equipment manager at Grand Traverse Resort & Spa. Prior to that, he worked as a licensed ships engine officer sailing the Great Lakes and the oceans of the world.

**T**he mowing season ended with 2,407 hours on my Jacobsen Eclipse 322 gas hybrid greens mower. This is nearly midway through the traditional 5,000-hour life of small engines, like the air-cooled 14-hp Briggs & Stratton Vanguard V-Twin.

When I asked Jacobsen what the design life for the mower is, they would only say, "as long as it is properly maintained, it will keep going." Of course, while this statement in essence is true, it is not practical to keep replacing parts on a mower forever.

Let's face it, greens mowers make money for golf courses. These workhorses do the work that is essential to keep the money flowing into the golf course, and they should do this work economically.

Most machines have been designed with a practical five-year service life. Once past this point, the maintenance costs rise suddenly. In any pair of parts designed to rub together, one part is designed to be the wear part. These wear parts are meant to be replaced on a regular schedule. The other part of the pair is meant to last the service life of the machine. When this part is worn to the point that it needs repaired or replaced, the cost of those parts and the labor to install them on is much greater than it was to replace the wear parts.

Replacing worn-out equipment should be a continuous process rather than a single event. Because of the five-year service life, to minimize cost and breakdowns, you should plan to replace 20 percent of your fleet of machinery each year. When the machinery is being replaced in this scheduled rotation, the cost of replacing the entire fleet of equipment is spread out over five years, rather than having to incur the monumental cost of replacing all of the machinery at one time.

Here are some useful rules of thumb about machinery that you may – or may not – have considered:

- Whenever you repair an old one, you end up with a repaired old one.
- If it costs more than half the price of a new one to repair, you should buy a new one instead.
- When you replace something, you should get rid of the old one.
- Designs evolve, new ones have improvements and useful features that the old ones don't.
- Electric motors are quieter than engines.
- When the monthly cost of maintaining a machine is more than the monthly payments on a new machine, wouldn't you rather be driving a new one that has a warranty? **GCI**

**“Most machines have been designed with a practical five-year service life. Once past this point the maintenance costs rise suddenly.”**

and moisture, operating budget equipment maintenance line items, etc.

This chart is based on years when the equipment should normally be replaced instead of hour meter readings, because all maintenance equipment does not normally come equipped with them. Typically one hour equals about 60 miles on average on an automobile, meaning 3,000 hours equals approximately 180,000 auto miles equivalent. Newer equipment models are being installed with hour meters, especially on engines that do not have electric starters.

Typically motorized equipment costs more to maintain between the second and third year of the acquisition – or typically between 3,000-4,000 hours (180,000-240,000 miles equivalent). Monitoring the annual equipment repairs and maintenance costs for each piece of equipment provides insight on when it is more cost effective to replace instead of repair.

## PHOTO/VIDEO JOURNAL

One final note: To be complete in keeping good, up-to-date efficient records, superintendents must take individual photographs/videos of each respective piece of maintenance equipment as proof that it was in inventory during an insurance company loss. Duplicate digital copies of each photo/video should be kept on a flash drive or CD Rom disc and stored in a safe place, such as in a fireproof file cabinet or even off site. **GCI**

*Terry Buchen, CGCS, MG, is president of Golf Agronomy International and regular GCI columnist.*



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# Walk this way

Improved technology gives superintendents plenty to think about when determining the best methodology of greens mowing for their courses.

**A**s golf course superintendents in many parts of the country yank the throttle on purchasing decisions, they are contemplating a question many never pondered a decade ago: Is it time to swap their walking greensmowers for a few triplexes?

This isn't a trick question,

and there's no right or wrong answer. Like most industry questions, solutions are concocted on a course-by-course basis.

All decisions require thorough analysis, especially ones involving greens, the most valuable square footage on a golf course. Plenty of superintendents will be making decisions regarding greens mowing this





# ride that way

year. Twenty-four percent of the 569 superintendents who participated in GCI's State of the Industry survey indicated they are planning to purchase a greensmower in 2015.

Some are weighing the decision Jeff Clemmons faced in 2011. Following a shakeup that resulted in Clemmons holding the top agronomic post at Lake Hickory Country Club in

Hickory, N.C., he approached the private club's decision-makers about hiring more full-time help because of increasing struggles to complete routine maintenance tasks before workers encountered daily play.

Clemmons made his request in the middle of a steep economic downturn. When the club cited budgetary reasons for not hiring more help, he inten-

sified his search for alternative solutions. The search led him to explore – and eventually adopt – using riding instead walking mowers at the 36-hole facility. “If you have to do more with less and if you have to do what I have done and nothing goes down, and if anything quality and appearance has increased, it was just a no-brainer for our greens committee to give us the

By Guy Cipriano





## Buying time

You received a bright greenlight to upgrade a fleet of greens mowers. So where does the walk or ride mowing evaluation begin?

A spreadsheet represents a popular starting point.

"I think most superintendents when they look at a riding greens mower and walking greens mower, the big thing is your budget and how much time and how many people and resources are you going to be allocated to mowing greens," John Deere Golf product manager Tracy Lanier says. "Of course, with a walking greensmower, your labor is going to be a little bit higher because you're walking vs. riding on the greens. So that's one of the first things you need to decide."

Jacobsen product manager Chris Fox also says budget and crew must be initial considerations in any decisions involving greens mowers. "With a smaller crew or a smaller budget, you end up being moved into that triplexing arena just because the costs to operate those are less," he says. "You end up being able to do the job with a smaller crew."

Toro senior marketing manager for greens mowers Helmut Ullrich says a facility's financial goals and where greens fit into achieving those goals are important factors when making purchasing decisions. "You want to look at the product you want to produce for your clientele and your golfers," he says. "If you don't have good greens, you are saving on the wrong end. It could cost somebody quite a bit of revenue if they don't choose the right product."

OK to go with that," he says.

A private course unleashing triplexes on its greens once seemed like an unlikely scenario.

Jacobsen released the first riding greens mower in 1968, the Greens King, a venerable innovation with principles still implemented in today's triplexes. "You can take a reel off one of the original units and the geometry and the cutting unit has remained very, very stable," Jacobsen product manager Chris Fox says.

Sonny Faust, the superintendent at Southern Hills Country Club in Tulsa, Okla., decided to use riding mowers to maintain the greens for the 1977 U.S. Open. A curious decision at the time, Faust explained the move in a 1979 USGA Green Section article co-authored with West Region director Donald D. Hoos. The USGA required green speeds of 8 feet, 6 inches for the Open, a mark Southern Hills exceeded by maintaining speeds of 9 feet. In a question-and-answer portion of the article with Hoos, Faust says greens were double mowed at  $\frac{5}{64}$ th of an inch the week prior to and during the tournament.

Big events like the U.S. Open raised the stakes for greens maintenance. Toro senior marketing manager for greens mowers Helmut Ullrich says achieving a "TV-type scenario" with smaller stripes led to numerous innovations and sparked a boom in walk mowing.

"Back in the '80s, walking started to come in," says Ullrich, who started working

with greens mowers exclusively in 1980. "There were some courses that walked, but not very many. But as tournaments on TV became more popular, customers wanted what they saw on TV and walkers came in. Labor wasn't a big issue and then the heights of cuts were dropped."

Customers still wanted what they saw on TV in 2008. Labor, though, was becoming an issue because of an economic downturn, which resulted in reductions in rounds played, club memberships and maintenance budgets. "I visited courses throughout the world and you would see a lot of courses that were walk mowing before move to the riding greensmowers because of budget concerns," John Deere Golf product manager Tracy Lanier says. "Staffs on some courses had been reduced to the point where they just couldn't afford to walk mow anymore."

Exceptions, of course, exist. Wayne Rath, the superintendent at Magna Golf Club in Aurora, Ontario, is responsible for maintaining a private 18-hole course with bentgrass greens measuring between 5,500 and 6,000 square feet each. The course receives between 13,000 and 16,000 rounds per year, with members spending their winters at upscale courses in warmer climates before returning to Ontario in late-spring. "They want the ultimate golf experience every day, so we have to manage our practices around that," Rath says.

Walk mowing greens is a practice Rath has never con-



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sidered changing. His crew can swell to as many as 50 workers during peak months. Six employees combine to walk mow all 18 greens in two hours. Design considerations also make Rath a walk-mowing stalwart. Magna's bunkers and greens are separated by small gaps.

"We don't use triplexes on the greens other than for cultural practices like verticutting or scarifying or whatever we are doing," Rath says. "We have the attachments for that. We are strictly walkers. We are trying to get the triplex on there as minimally as possible. We have bunkers that are tight to the front and sides, and that makes it difficult. There's only one



way to triplex and you would have to triplex it the same direction every day, so it's just not an option. We are looking for the look of the walkers as well."

Clemmons manages a small-

er staff at Lake Hickory, and he needed six workers to walk mow 36 greens. Devoting the majority of his labor resources to greens mowing placed Lake Hickory's crew into a precari-

ous spot.

"We were always behind," he says. "I would send six guys out to walk mow and two guys to change cups, and that was it. We were mowing grass until 9,

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10 o'clock. Now, when I went to ride mowing, I would send out two guys to mow, two guys changing cups, two guys mowing fairways, two guys mowing the tees and approach and collar areas. We were all going out first thing in the morning and staying ahead of the golfers. All that's completed before lunch."

Cleaning creek and pond banks, removing trees and fine-tuning bunker are among the jobs Lake Hickory has placed into regular maintenance schedules because of the time saved by using ride mowers. The frequency of rolling also has increased since the mowing transition, with the crew rolling greens three times per

week. Clemmons says he has saved time without sacrificing quality or making his greens susceptible to turf damage caused by hydraulic leaks.

The threat of hydraulic leaks ranks as a major concern among superintendents considering a switch from walking to riding greens mow. Hybrid technology reducing hydraulic lines has eased apprehension. "I think this promotes superintendents to choose riders on the greens," Toro's Ullrich says. "They always had that fear in the past. When a leak occurs, it's always on tournament day it seems like. That fear is eliminated to a great extent."

Fox says he envisions the

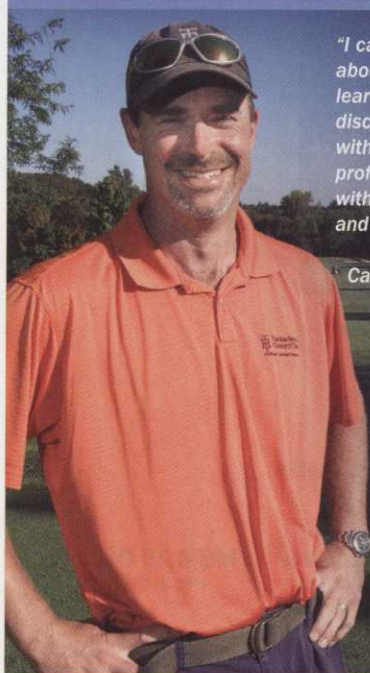
industry moving toward more electric offerings. "I see the industry going much more toward an ell-electric machine," he says. "You're starting to see things creeping in more and more. As we start to see more and more electrics and completely electric machines, we will continue to move forward because they eliminate risks environmentally and from a hydraulic leak standpoint. That's a major concern for a superintendent when he's using a triplex machine. A lot of the decision revolves around no hydraulic leaks."

Lanier, who started working with John Deere Golf products in 1995, has watched the num-

ber of blades on reels expand and heights of cut lower to a point where superintendents can maintain greens to a 1/100,000th-of-an-inch. He says one major factor will determine the future of greens mowing.

"It really depends on the turf," Lanier says. "You're only going to be able to get what the turf is able to give you. Right now with the heights we are at and the speeds we are getting, you can get some pretty fast green speeds and the cut quality is very good. I guess we just have to wait and see where our customers are going to push the greens as far as what's the next thing you need to achieve." GCI

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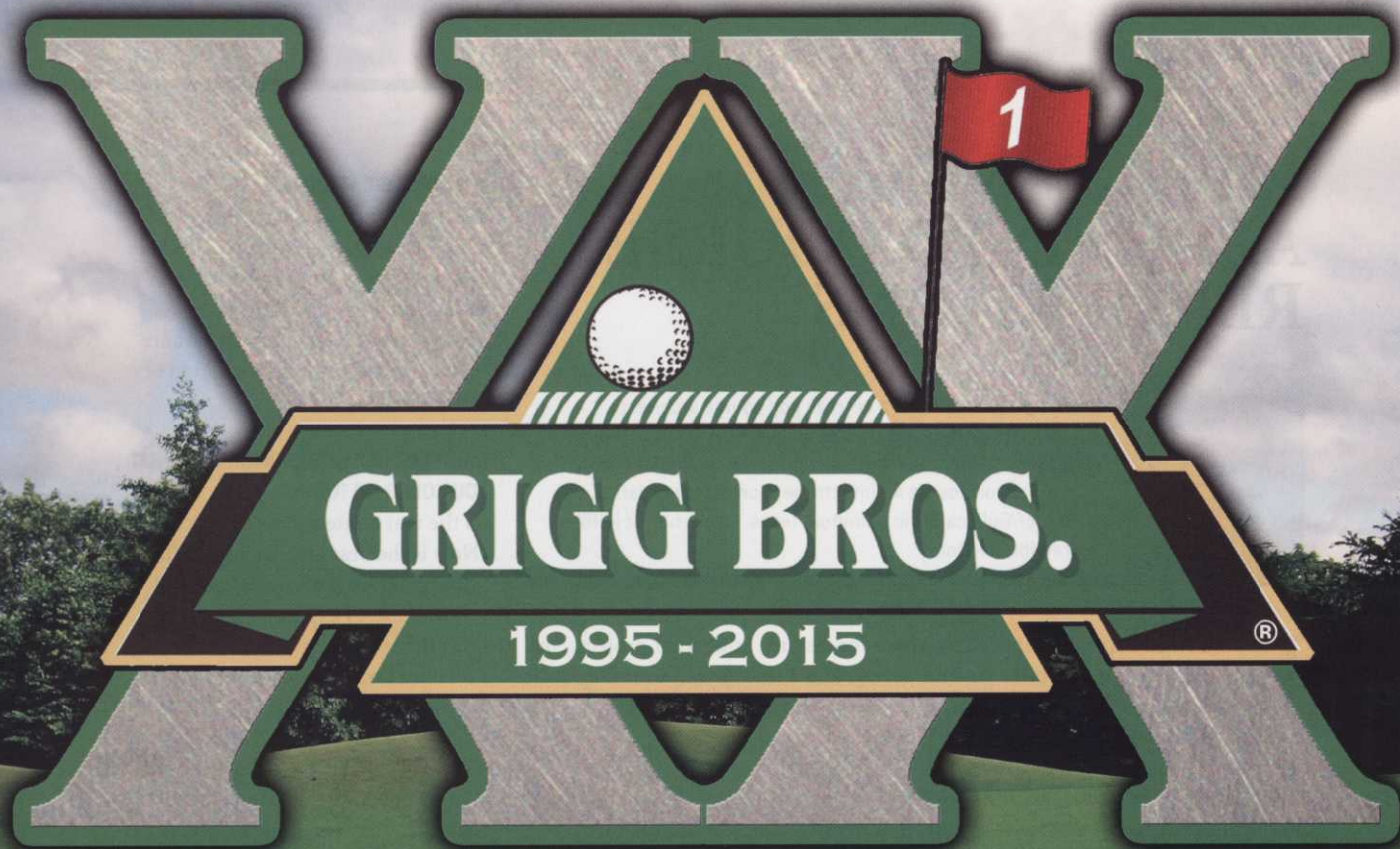
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# LIFE LESSONS APPLIED TO COURSE RENOVATIONS



**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).

**I**t's hard to give specific renovation advice for distant, unfamiliar projects, but I am always willing to offer general advice, and I find myself sounding a bit more like my father's long ago "Life Lessons." However, many of the classics apply to golf course renovation as much as life itself:

## TRUST YOUR MOTHER, BUT CUT THE CARDS

This was the focus of last month's column. In renovations, cutting the cards means following a thorough process both in hiring your superintendent and consultants, and in developing a plan. If you have done that, it's silly to distrust everything and everybody, ignore their advice, and doubt your conclusions.

Opponents often believe projects are created unnecessarily, but I am of the opinion that the unnecessary ones are discovered and tossed out soon enough in a process driven plan.

It also means keeping good records and cost controls as the project goes along, treating the money spent like, well... your money.

## IF IT IS WORTH DOING, IT IS WORTH DOING RIGHT THE FIRST TIME

It's more cost and time efficient to fix something right the first time. It's also unpleasant to revisit a supposedly closed issue, as your critics will still be there, but louder, when you spend more of "their" money to fix the same problem again.

## THE BITTERNESS OF LOW QUALITY ALWAYS EXCEEDS THE SATISFACTION OF LOW COST

Use good architects, contractors and materials. In a competitive market, using inexperienced architects and contractors should be less tempting than ever.

Using new products (irrigation, bunker liners) for a lower price, may work, but more often than not, you regret not using tried and true products.

Also, the savings of "do it yourself projects" are usually insignificant. Architects and contractors both have many clients who tried "do it yourself" projects first, and they are gladly paying experts after failure.

## IF IT SEEMS TOO GOOD A PRICE TO BE TRUE, IT USUALLY IS

The corollary to the point above is still "buyer beware." You might find some super bargains, with so many unemployed architects and builders competing on fee. Why is the cost so low? Do the architects have proper insurance? Can the new contractor provide bonding and have the financial resources to carry the cost of the project?

Usually, large discounts in construction proposals come from omissions you will find out about later.

## IT'S NOT COST, IT'S VALUE!

Yes, some of these old sayings overlap a bit, but mom used to say \$100 shoes lasting three years were better than three \$30 shoes that lasted a year. Always think in terms of value more than cost to determine what kind of project to do.

## DON'T PUT OFF UNTIL TOMORROW WHAT YOU COULD DO TODAY

As the real estate agents always say, "Now is the best time to buy!" While self-serving, in both real estate and renovations, as expensive as they are now, they will be even more so later. Problems don't go away, but they do get more expensive.

## MEASURE TWICE, CUT ONCE

While I encourage moving ahead with necessary renovations, you can actually move too fast. Sometimes it's because you need to beat winter, and feel you "know what you need." But, don't underestimate the value of planning. It's more cost effective to make changes with a drafting pen and eraser than it is with bulldozers and hand labor.

## TREAT THE ILLNESS, NOT THE SYMPTOM

Fix the root cause of your problems, not some related symptom. It's like putting chewing gum on a radiator leak – sooner or later, you need a new radiator.

If that is poor greens soil, put in new soil, not some new amendment because it's cheaper.

If it is shade, cut down the trees rather than re-sod, etc.

If it is poor surface drainage, grade and add catch basins and pipe as required, not French drains because they are easier.

I see courses avoid necessary work to avoid closing or spending money, but cause severe problems in deferred infrastructure repair. Sometimes, you just have to bite the bullet. Sometimes, you need to take your medicine. Sometimes you... well, you get the idea. GCI



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# DETAILED ADJUSTMENTS

Complete and accurate irrigation records give superintendents the data to more efficiently use irrigation systems and water resources.

By Rob Thomas

Oscar Wilde once quipped, “It is a very sad thing that nowadays there is so little useless information.” Not sure today’s golf course superintendent would agree, choosing, instead, to take advantage of the massive quantity of extremely useful data available to keep their

courses in peak condition.

A great deal of that information is collected in, and dispensed from, the superintendent’s irrigation central control system. Tremendously helpful if the database is accurate and complete, but conversely disadvantageous if it is inaccurate and incomplete.

David Taylor, principal at Bryant Taylor Gordon Golf in Costa Mesa, Calif., says all of the central control systems available today are capable of incredible flexibility compared to their predecessors, which were essentially just timing mechanisms – some more



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complex than others. But taking full advantage of the system is often ignored.

"To get the most water savings from a control system, watering to ET is the most efficient method," Taylor says. "ET – or evapotranspiration – is a measure of the water required to be applied to the turf that is lost to either transpiration through the plant stomata, or to evaporation from the soil. ET's can be measured precisely using on-site weather stations and can be fairly accurately estimated by average temperature or from historical charts. Using ET information, the central computer can calculate exactly how long to run each sprinkler to put back all the water lost to transpiration and evaporation, but in order to do this, the database needs to be both accurate and complete."

Accurate in terms of the spacing between sprinklers and in terms of the gallons per minute the sprinkler puts out. "This information is used to calculate how much water is being applied to the turf, and is known as the precipitation rate (PR)," he says.

According to Taylor, another major factor used to calculate the run time is the arc of the sprinkler. Is it a full-circle sprinkler or a part-circle sprinkler?

"The difference in arc makes a significant contribution to the run time," he says. "A sprinkler set to 180 degrees, only needs to run half the time that a full circle sprinkler runs, and a sprinkler set to 90 degrees, only needs to run half as long as a sprinkler set to 180 degrees. Any portion of the database that is not complete or accurate leads to errors in the calculation of the required run time."



Tom Alex at Grand Cypress Resort in Orlando, Fla., uses the Integrated Sensor System to monitor soil moisture levels

Michael Kropf, superintendent at The Views Golf Club in Oro Valley, Ariz., has a Rain Bird Nimbus II Central Control System with an extensive database containing information for every head on the golf course. There's a single-wire control on every head so each sprinkler has its own identity in the program and each head is designated to an area – a green, tee, fairway, or rough.

An accurate database is critical to the performance of the whole system, which was installed the year before he became superintendent, Kropf says. Together with his assistant and irrigation manager, they spent months coordinating what the database on the computer says with what was happening on the golf course.

"Heads were not wired correctly so the computer thought Station 1 was coming up when, in fact, Station 5 was coming up," Kropf says. "We had issues

where the computer thought a fairway head was running when a rough head was actually running. Even after we thought we found all the mistakes it still took months to find all the issues. Areas would always be wet and we would find a head that was thought to be running once a night was actually running twice in two programs.

"Accuracy is critical to keep the golf course in good condition and prevent overwatering," he adds. "Our reclaimed water budget is over \$400,000 a year so wasting water is not an option. That performance is also critical because we have to transition back to Bermudagrass every summer and overwatering leads to excess salts in the soil from the reclaimed that kills the Bermudagrass, leaving very poor playing conditions in June."

While the initial database will include such items as sprinkler type, spacing, GPM

and arc, the superintendent or irrigator may occasionally make changes to a sprinkler or its nozzle set to address local conditions.

"Maybe the spacing is compressed and the standard nozzle in the sprinkler ends up throwing water too far, so they put in a smaller nozzle that doesn't throw as far ... or maybe the sprinkler is on a slope and is not throwing far enough, so they put in a larger nozzle," Taylor says. "This will generally affect the GPM of the sprinkler. If this change is not noted, and the database is not updated to reflect the change, the computer will be making its calculations based on flawed data. The old adage 'garbage in, garbage out' applies here."

"Run times will not be calculated correctly and you will either end up with a dry area or a wet spot because the sprinkler run times are not correct," he adds. "We recommend that the



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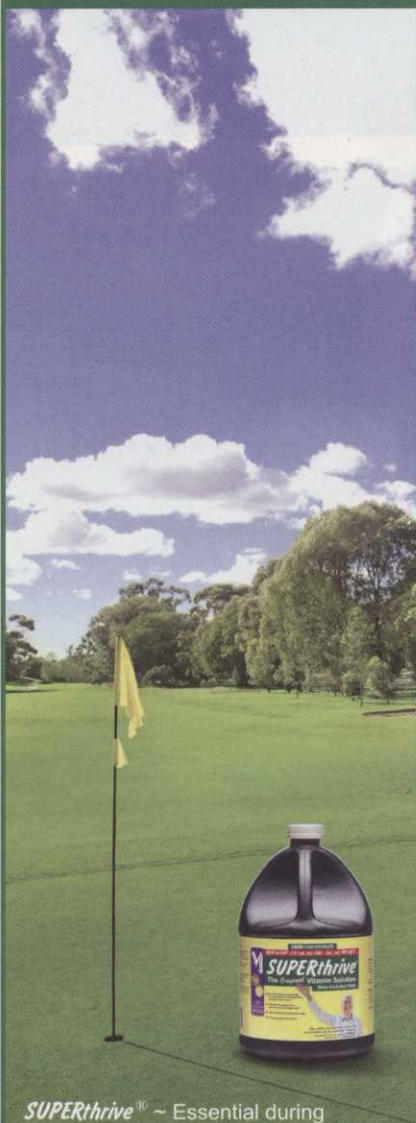


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## IRRIGATION



Using computer software to manage moisture levels and set irrigation run times increases system efficiency and saves water.

superintendent or the assigned irrigator audit the system at least once a year. In the audit, they need to confirm that the sprinkler nozzle is noted correctly in the database, that the sprinkler is rotating correctly, and for part-circle sprinklers, that the arc of the sprinkler is noted correctly, and that part-circle sprinklers are oriented correctly to water the turf and not houses, streets or sidewalks."

For Kropf, communication is key.

"We have a good communication between irrigators and management," he says. "If the irrigators find a problem they solved by changing a nozzle to a smaller throw to help dry an area out, or use a bigger nozzle to get a dry area, they communicate that change with me to keep the database in the computer accurate. The worst is when someone changes something, but the computer was never told and then more problems are created. We backup the database with Rain Bird GSP (Global Service Plan) on a regular basis to ensure our database is not compromised if the computer crashes."

According to Taylor, most central control system databases have information for the sprinkler type, the nozzle set installed

in the sprinkler, the base pressure of the sprinkler (which affects the GPM delivered from the sprinkler), the GPM of the sprinkler, the number of sprinklers on the station, the spacing between sprinklers and whether that spacing is square, equilateral triangular or something different.

"All of these factors are used to calculate the precipitation rate of the sprinkler and ultimately into the correct run time for the sprinkler," he says. "Some systems will calculate a run time to the nearest minute, while others can calculate a run time down to the second. Most databases also have the ability to enter the electrical draw for the station, as well, so that the computer can optimize the number of sprinklers operating at any given time and stay within the electrical limits of the system wiring and field controller electronics."

As for knowing the database is operating at peak accuracy, Taylor says there are several metrics that can be studied to see if the system is operating as intended. The simplest one is to drive the course and look for wet and dry spots.

"These are how most errors in the database manifest themselves," he says. "Strictly from a measurement standpoint,



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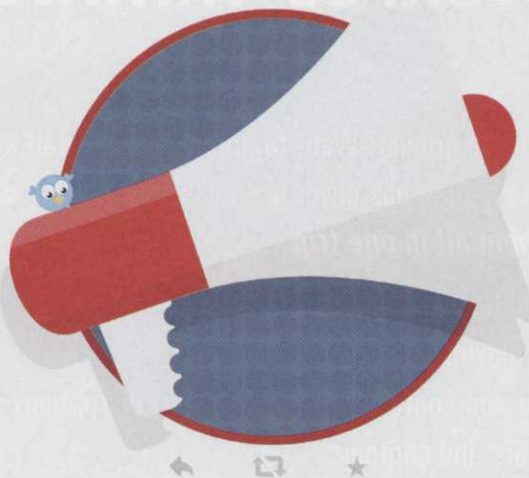
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## IRRIGATION

(superintendents) can check the run log on the computer after an irrigation cycle to see how many gallons the computer says were applied during the irrigation cycle. This can be compared to the gallons reported by the pump station flow meter or by readings from the water meter if they don't have a pump station. There will always be a difference between these two numbers since one is a theoretical value (the run-time log) and the other is a physical measurement of exactly what happened. As long as they are close, the database is probably in good condition. If the difference is significant or changes over time, then it is time to do a system audit to find where the errors are." Frequently reviewing the database for adjustments should also be done, Taylor adds.

For superintendents running stand-alone systems – meaning they operate just from the field satellite and there is no central computer – most manufacturers have the ability to retrofit radios for communication so that the satellites can be run from a central computer with a database, Taylor says. These systems have to be proprietary, however, matching the manufacturer of the central system to the satellites. If the field satellites are two or three generations back from the current offerings, this is not necessarily the case and can be an expensive proposition.

Bottom line: Properly maintaining the irrigation database comes down to responsibility – conserving water and money.

"In today's struggles with the availability of water, taking steps to conserve as much as you can is important, not only as being a good environmental steward, but directly affects the bottom line of the business, particularly in arid climates where water budgets can be in excess of \$1 million per year," Taylor says. "We should be well past the days where the superintendent sets everything to run for 10, 15, 20 or 30 minutes and makes adjustments simply by a percentage increase or decrease from that run time." GCI





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# SPRINKLER SPACINGS: DO THEY MATTER?



**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.

A few months back, I explored whether more sprinklers actually use less, not more, water. I used the example of 65-foot spacing versus 80-foot spacing. A golf course architect acquaintance took issue in how I'd characterized the water savings and implied I made it sound like large spacings were bad and only small spacings were acceptable. His point was that small spacings with lots of sprinklers may be efficient, but efficiencies can be obtained with larger spacings for substantially less cost. As much as I do not want to inflate his ego, he had a point.

There's nothing wrong with larger spacings on today's courses. Modern sprinklers are better designed than sprinklers from as little as 10 years ago. Newer sprinklers apply water with much higher uniformities when properly spaced during installation. This higher uniformity results in the use of less water as the sprinklers don't operate as long to cover up the weaker coverage areas. Just replacing old sprinklers with new sprinklers in the same location alone results in higher uniformities and less water use, no matter what the spacing is due to the uniformity improvements inherent in newer sprinklers.

Larger spacings of 75-85 feet are acceptable with higher uniformity sprinklers, but will still not apply water as efficiently as a smaller spacing because they are putting more water into the air to be subjected to evaporation and wind drift. The difference in efficiency, though, is much smaller than with sprinklers from the past. This argument, however, will not work with single-row fairway spacing as it is inefficient no matter what sprinkler is used or how it is spaced.

Many designers budget new irrigation systems on a per-sprinkler basis. The more sprinklers, the greater the cost. This number may vary slightly based on the quantity of sprinklers, but not much. However, it will vary based on a course's geographic location. Wage or union labor rates also influence the per-sprinkler number by as much as 30 percent. Using sprinkler numbers works well as more sprinklers equals more pipe, more wire, more swing joints and more control stations or decoders. It's an effective way of providing preliminary budgets used by irrigation designers for decades. For example, a system may cost \$1,300 per sprinkler. If there are 1,000 sprinklers, the cost would be \$1.3 million; 800 sprinklers, \$1.04 million; and 1,500 sprinklers, \$1.95 million.

Sprinkler spacings for greens and tees is never part of the discussion as the spacing is dictated by their size and shape. Spacings get manipulated in fairways and rough. The fairway/rough spacing is based on how much coverage you want

into the rough if you are not doing a wall-to-wall system. But even with wall-to-wall, an average spacing needs to be determined. Say you want to effectively irrigate a 60-yard width down your fairways. That will cover, depending on your fairway width, approximately 30-45 feet of rough on each side. To achieve the 180 feet of effective coverage, a double row would require a sprinkler spacing of 80 feet and a triple row a spacing of 60 feet. Remember, effective coverage is 60 percent of the sprinklers throw when there is no overlap. The double-row 80-foot sprinklers are going to use approximately 43.1 gpm and the triple-row 60-foot sprinklers 22.0 gpm. Precipitation rates are going to be 0.65 inches per hour and 0.59 inches per hour, respectively. So the time to irrigate will be close to the same. If an 18-hole course with double row has 282 fairway-rough sprinklers, the same course with triple row would have 422 sprinklers. At \$1,500 per sprinkler, the cost difference would be

about \$210,000 using the outlined budgeting method. In the approximate 1,000 sprinkler system, the difference is between \$1.3 and \$1.5 million – or a 14 percent savings. It may not sound like much, but it could be the

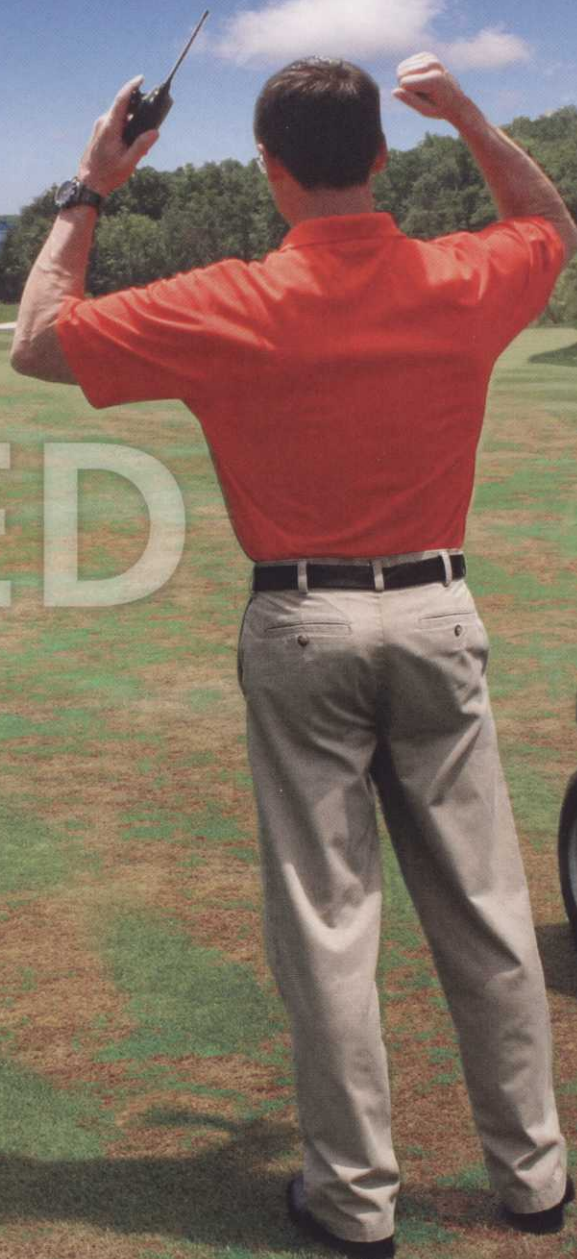
difference between project approval and being deemed unaffordable.

You can use larger spacings and achieve close to the same results in terms of water window, coverage, precipitation rate and water use with larger spacings that have high uniformities. An irrigation designer is best equipped to determine the best sprinkler spacing and count to fit into your available budget. Bottom line: Yes, sprinkler spacings matter. **GC**

“His point was that small spacings with lots of sprinklers may be efficient, but efficiencies can be obtained with larger spacings for substantially less cost. As much as I do not want to inflate his ego, he had a point.”



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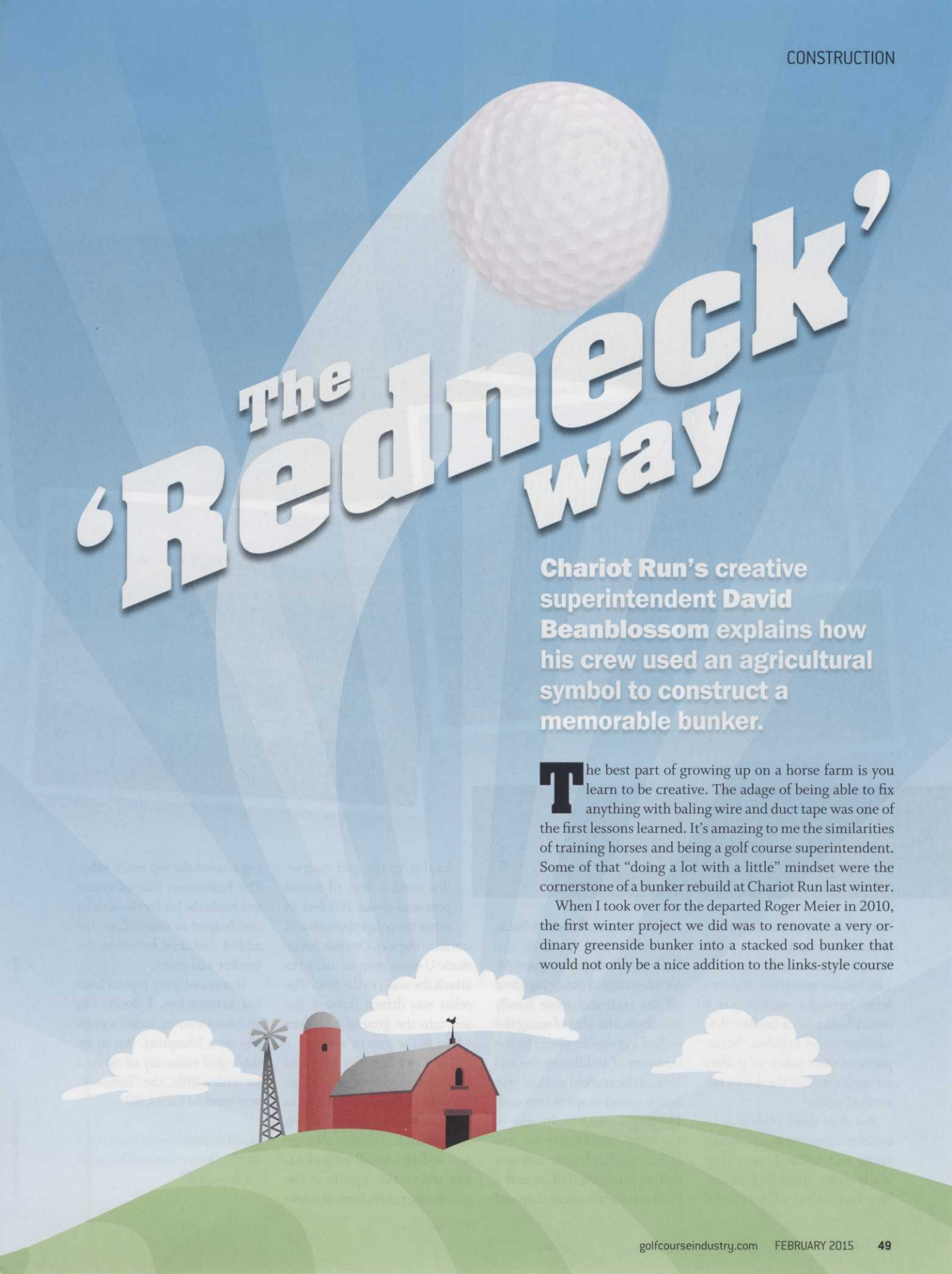
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# The 'Redneck' way

**Chariot Run's creative superintendent David Beanblossom explains how his crew used an agricultural symbol to construct a memorable bunker.**

**T**he best part of growing up on a horse farm is you learn to be creative. The adage of being able to fix anything with baling wire and duct tape was one of the first lessons learned. It's amazing to me the similarities of training horses and being a golf course superintendent. Some of that "doing a lot with a little" mindset were the cornerstone of a bunker rebuild at Chariot Run last winter.

When I took over for the departed Roger Meier in 2010, the first winter project we did was to renovate a very ordinary greenside bunker into a stacked sod bunker that would not only be a nice addition to the links-style course





The challenge at Chariot Run was to keep the steep bunker walls from again collapsing in on themselves. The wall of a grain silo – locally sourced for a couple hundred dollars and a few hours labor – was the best way to stabilize the soil behind the stacked sod.

but it also turned into a conversation piece and photo op for numerous Chariot Run golfers. The bunker everyone “loves to hate” turned a routine par 4 into a hole with a bunker that needed to be avoided. Many pictures were taken of golfers struggling to exit the 4-foot tall vertical walls.

But after three years of winter freezes, spring thaws, heavy rains and normal wear, the walls came tumbling down. Nothing short of a rebuild

would bring this bunker back. So how would we keep the walls from collapsing again? After a few days of bouncing ideas off the staff and some family members, the idea of using the wall of a grain silo would be the best way of stabilizing the soil behind the stacked sod and give us the round shape we needed. Finding a used grain silo in the rural community we live in was not hard, only cost us a couple hundred dollars and a few hours labor to cut it up and

haul it to the golf course. We used 6 feet of metal post and about 200 feet of rebar to anchor the wall and stabilize the sod. Our mechanic made U-bolts from all thread to attach the walls to the post. The rebar was driven through the sod into the ground and then wired to the post or walls.

I always felt the original bunker was too big around, so we were able to use the wall as a way of shrinking and shaping the rebuild. Another change was adding a small strip of native sod to the topside of the new bunker, which made mow-

ing around the top much safer. The half-moon shaped native sod made the bunker look taller and helped to camouflage the added distance between the bunker and green.

It was not your typical bunker renovation. I doubt any architect ever included a grain silo on a blueprint, but in today’s golf economy of doing a lot with a little, the “Redneck” way worked for us. **GCI**

*David Beanblossom is superintendent at Chariot Run Golf Course in Laxsonia, Ind.*

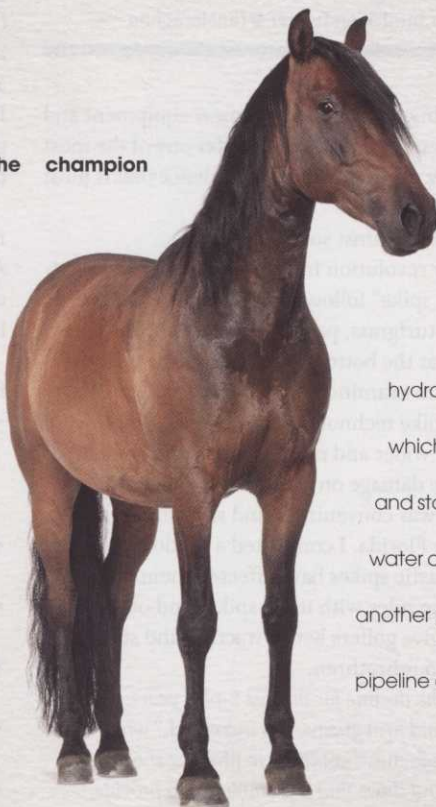




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# LET'S DELETE THE CLEAT



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

I'm usually a big proponent of technology, of adopting new equipment and ideas to make golf better. However, we need to reconsider one of the most significant changes of the past few decades in light of evidence that is most obvious to us, green superintendents.

It may be time to take a hard line against soft spikes.

About 20 years ago, there was a major revolution in golf. The 6- to 8-mm metal spike was replaced by the plastic "soft spike" following an uproar about the damage that metal spikes were doing to turfgrass, particularly putting greens.

Fast forward to today and take a look at the bottom of golf shoes. Actually, if you're a superintendent, you don't have to examine the shoes themselves: Walk on any green and you'll easily see how spike technology has changed. These "soft" spikes are getting longer, sharper, wider and more aggressive, so as a result, they are inflicting more and more damage on our courses.

The same week that the golf industry was convening – and showing off a host of new shoe styles – at the PGA Show in Florida, I conducted a random survey of superintendents, asking them how plastic spikes have affected them. While the shoe manufacturers were introducing soles with more spikes and other "points of contact" (POCs) designed to give golfers better traction and stability, I received these comments from some of our brethren.

*"It is no secret that golf has been on the decline for the last 5-plus years, yet the demand for conditioning, with fast and firm greens, has increased," wrote one superintendent. "Why do shoe manufacturers continue to produce shoes that do everything to frustrate other golfers and those that are employed to provide the conditions? The firmest, driest greens do not withstand a foursome of golfers wearing these types of spikes. The scuffing, unintentional scuffing, and twisting of turf, especially around the cup, ruins the putting surface for every golfer that follows."*

*"Some of the newer spikes are so aggressive – long, tall, robust – we are seeing scuff marks and scars on the greens," someone told me. "Rather than pressing into the turf, these new spikes seem to grab and hold onto the turf, causing more shearing and tearing of low-cut grass. When feet twist and turn, it's almost as if the spikes are 'reverse ball repair tools.'"*

You can quickly see the main themes in these comments, which were repeated in the many others I received: the new spikes are doing more damage at a time when golf is already in trouble, and that damage is at least as bad as what metal spikes used to do.

Shoes used to have eight or nine metal spikes. Now shoes have six to 12 "spikes" each with five or so prongs, plus dozens, sometimes hundreds more

points of contact of various sizes, depths, and sharpness. Adidas has a new shoe with 18 spikes, each of those spikes has five POCs, so that's 180 impressions from each golfer with every step.

This extra damage increases maintenance costs – chemicals, top-dressing sand and additional staff to maintain turf quality. Depending on the region and the weather, the damage can be exaggerated when it's wet (in the Northwest), hot (stressed turf in the Northeast and central states), and on dormant grass (Southeast, Florida). Early and late in the season, growth can be severely compromised by damage to the plant.

What can we do? The GCSAA needs to push the USGA and PGA of America, as well as the manufacturers, to evaluate the damage incurred by these "soft" spikes.

In the meantime, some suggestions for the individual superintendent:

- Watch your hole locations and course set up, especially when play volume is up, weather is bad or turf is not growing
- Avoid placing the hole in low spots when the green is wet
- Choose the correct cultivar for your region
- Monitor water volumes other than rain
- Grow the healthiest turfgrass you can
- Bring up this issue with the management at your club/course.

When soft spikes became the norm, courses were quick to tell golfers that they couldn't wear metal spikes. We need a new educational initiative – backed by shoe manufacturers and all the organizations responsible for growing, protecting and enhancing the game. The "soft" spike is making it "hard" for all of us to enjoy the game.

It's time to delete the cleat. 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 shares helpful ideas relating to maintenance equipment from the golf course superintendents he visits – as well as a few ideas of his own – with timely photos and captions that explore the changing world of golf course management.



**Terry Buchen**, CGCS, MG, is president of Golf Agronomy International. He's a 41-year, life member of the GCSAA. He can be reached at 757-561-7777 or [terrybuchen@earthlink.net](mailto:terrybuchen@earthlink.net).

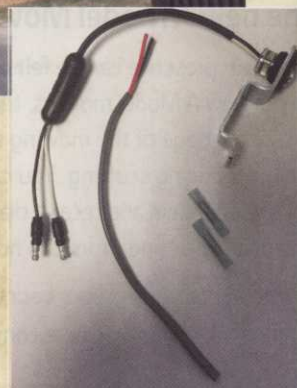
## BUNKER LINER ACCESSIBILITY

This easily accessible Johns Manville Spunbond Bunker Liner roll (400 feet by 15½ feet = 6,200 square feet) is approximately 7 feet off the ground, mounted to a recycled metal container that is used for storing rakes and shovels. This great idea eliminates clutter of the liner sitting on the ground. It is quick and easy to cut off the exact liner length needed. The 17-foot long, 1½-inch diameter galvanized pipe slides through the roll's 15½-foot long cardboard tubing and onto the metal brackets, which have two different 1¾-inch semicircle settings depending on how large of a diameter each roll is. Each bracket is made of 3-inch by ¼-inch thick angle iron that is 16 inches vertically and 20 inches horizontally, with a 1¼-inch by ¼-inch thick angled metal support strap that is all welded together and then bolted to the storage container. Bungee cords are used to keep the bunker liner from unrolling. It was designed and built in-house and took about one work day (on and off) to cut and assemble all of the scrap parts that were already (except for the pipe) in inventory. Mark Smith is the certified golf course superintendent at The Quarry at La Quinta in La Quinta, Calif.

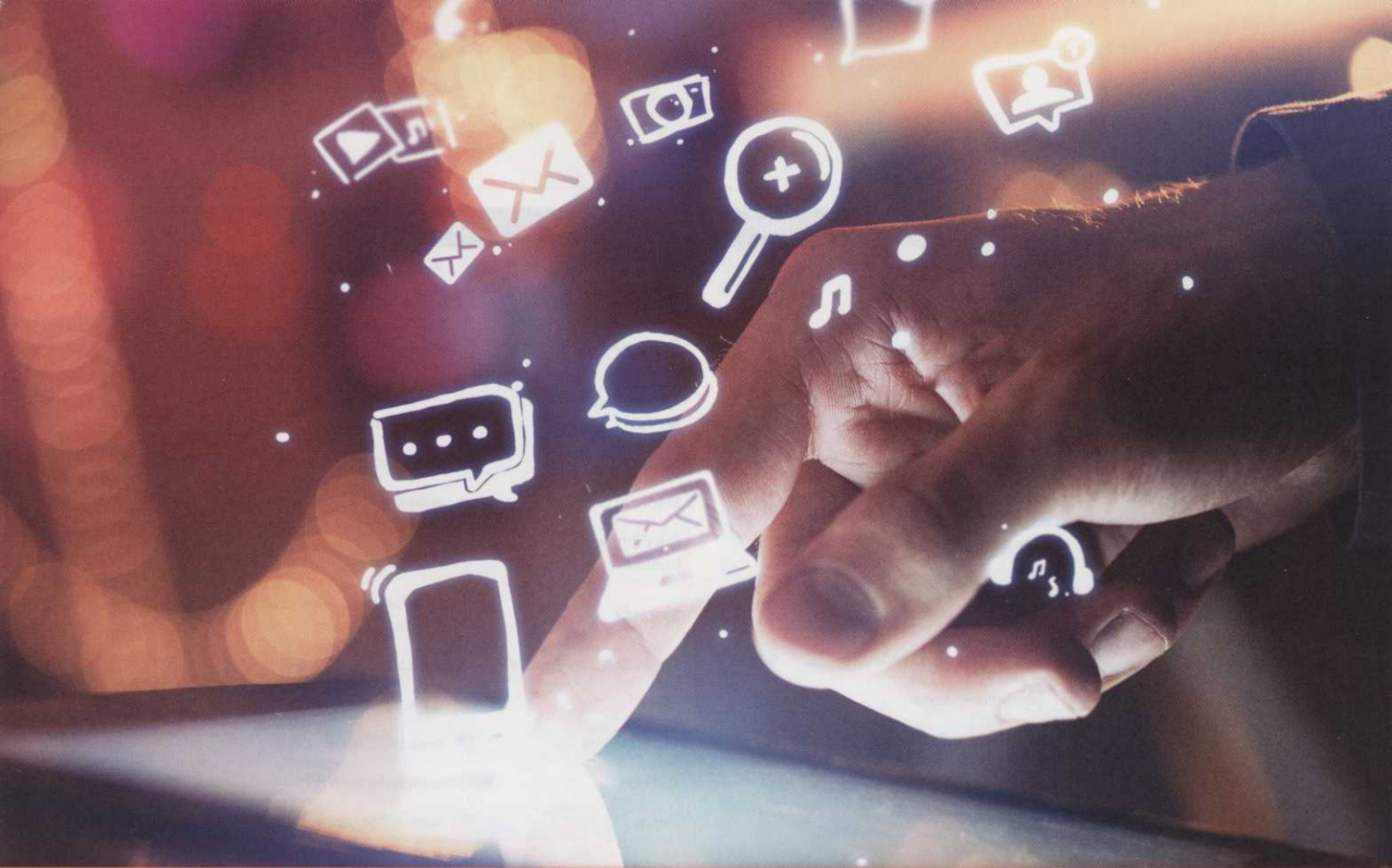


## NIGHTTIME SPRAYING

The staff at the Noyac Golf Club in Sag Harbor, Long Island, N.Y., likes to continue late afternoon spraying into darkness to avoid golfers during busy morning hours or during the heat of the day. Fully waterproof Hi-Aux LED Light Fixtures, with 8-inch long cords, purchased from Napa (Part #33060C) for \$25/each, were installed alongside each spray nozzle. Each light was attached to a TeeJet 1 ¼-inch square stock bracket at \$6/each. A 25/32-inch hole is drilled into each bracket for the light fixture with a ¼-inch hole used at the other end to mount it to the spray boom. Sixteen gauge doubt wire (approximately 40 feet total) and shrink tubing connects all of the wires to the one on/off toggle switch. All three spray rigs have been using the LED lights for the past five years without any breakage or replacement lights required. The lights clearly illuminate all of the sprayer's nozzles so the operator can see if they are operating properly. 25/32-inch (\$30) and ¼-inch (\$10) drill bits were purchased locally. Brian Goleski, superintendent, and JR. Wilson, equipment manager, devised this great idea.







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# A BEASTLY DEBUT



**Pat Jones** is editorial director and publisher of Golf Course Industry. He can be reached at [pjones@gie.net](mailto:pjones@gie.net) or 216-236-5854.

**A**mong the mixed blessings of life in my business are what we call “made-for-the-media events.” These fall into one of three categories:

**JUNKETS:** These are thinly veiled mini-vacation trips, usually to warm sunny places, meant to entice the press to absorb and (the host hopes) regurgitate some highly technical product information that most of us don’t understand. The media reps move about in a little herd, not asking any real questions (because you don’t want to tip your hand to competitors), and generally wondering when the next meal and/or cocktail reception takes place. Soft-sided briefcases with the host’s corporate logo are often given to media. I have 256 of these briefcases piled up in my basement yet I still use the same backpack my sons gave me for Father’s Day 15 years ago. Go figure.

**TOURS:** I’ve seen the innards of a bazillion manufacturing facilities. They are very cool but often completely incomprehensible to a schmuck like me. The host usually turns the factory tour over to an engineer who clearly despises having to explain “simple” processes to media idiots with English degrees. The best of these are “black box” tours where a new revolutionary product is in development and you have to sign a secrecy agreement. This is pointless since I never understand the technology and therefore could not blab about it even if I wanted to. I always try to steal the plastic safety glasses at the end of the tour but the damned engineers are ruthless about getting them back.

**RELATIONSHIP-BUILDERS:** These are usually small groups — or even individual visits — where the host spends time with media and attempts to get to know us. The PR folks who set the whole thing up step back and we get a chance to know the CEO or VP who’s running the business. These are a great way to build trust assuming the person in charge actually wants to do it. There is nothing more painful than a relationship-building meeting when the suits don’t want to be there, much less disclose anything substantive about their business. Super awkward.

Probably 99 percent of the media events I attend fall into one of those three buckets. But, I went to one recently that incorporated the best of all three.

The invitation came from Jacobsen Turf and the purpose was to get a secret sneak preview of their reinvented Truckster product. (It wasn’t that super-secret. I’d seen an earlier prototype which I’d nicknamed “The Beast” for reasons that are immediately apparent when you see it.) It was a small group — just the editors from the four national magazines — who came into Charlotte to meet the key folks bringing the vehicle to market, get the tour, take a crazy test drive on a prototype and adjourn to Sage Valley GC for some bonding and R&R. I was,

in a word, sold.

Upon arrival in Charlotte (which, although not truly a “junket” destination, definitely beat the hell out of Cleveland in January), the initial briefing came from the big cheese himself, Jacobsen’s ever-candid president, David Withers. He made it clear that the new Truckster HD wasn’t “your father’s Cushman” and launching the vehicle under the Jacobsen brand was part of the effort to grow their value to customers and dealers across the board. (Another recent example: their acquisition of Dixie Chopper.) Withers stated flatly that the Truckster is the biggest launch the company has made since the 322 hit the market in 2009.

And, most importantly, the XD had most definitely not been developed in a vacuum. “We talked to more than 400 customers in 20 countries to find out what they wanted,” said Withers.

The most impressive thing I heard was not the fact that the new XD has a much bigger payload (3550 lbs vs. 2850 for the old Cushman) and a steel gauge bed, lots more torque, a cab-forward design customers asked for and a driver friendly seat system and dash design. The most impressive thing is that Textron — notably CEO Scott Donnelly — are fully backing the Jacobsen team in this and all other aspects of their continued reinvention of the company. “He has been keenly interested,” says marketing manager Glenn King. That, to put it mildly, has not always been the case in the past.

The Beast made its initial debut at the STMA show in Denver last month but the big coming out party will be in San Antonio at GIS later this month. The timing of this introduction, along with new models from Toro and others, is good: GCI’s State of the Industry study showed utility vehicles at the top of the capital equipment shopping list for supers in 2015.

So, we toured, we schmoozed, we learned and we bonded. And Sage Valley? A little slice of junket heaven. **GCI**



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