MAY 2010
golfcourseindustry.com

GOLF COURSE INDUSTRY

SERVING THE BUSINESS
OF GOLF COURSE MANAGEMENT

In Munis We Trust

Is government-owned golf good for the game? p. 20

INSIDE

LESS FERTILIZER.

LESS WATER.

LESS FUNGICIDE.

TEE 2 GREEN

OVER TEN YEARS OF REDUCING INPUTS

It's been over 10 years since Tee-2-Green introduced the Penn A's & G's — the high performance bentgrasses that look and putt great, need less maintenance and save money. We were ahead of the curve then, and today the A's and G's remain superior. They are specified by architects and used by superintendents more than any other bentgrass.

Do the Math.

TEE 2 GREEN **Why Use Anything Else?**

800-547-0255 • www.tee-2-green.com • bentinfo@tee-2-green.com

IN THIS ISSUE

FEATURES

DEPARTMENTS

COLUMNS

48

56

42

GOLF COURSE INDUSTRY (ISN 1054-0644) is published monthly. One-year subscription rate, $33 in the United States, $42 in Canada and Mexico, and $88 in other foreign countries. One year foreign airmail rate: $102. Two year subscription rate: $65. Single issue rate, $10. Subscriptions and classified advertising should be addressed to the Richfield office. Periodicals postage paid at Richfield, Ohio, and additional mailing offices. Postmaster: Send address changes to *GOLF COURSE INDUSTRY* 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286. Canada Post: Publications Mail Agreement #40612608 Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2

THE WHITEBOARD

I've visited waaaay too many maintenance facilities over a quarter-century in this crazy business and it seems like every one of them falls into four basic categories.

Some are called "barns" because they are…er…barns. Sure, most of these rustic structures are located at modestly-budgeted facilities where it's the best they can afford. But it's not unusual to find a barn at a fancy newer daily fee where the superintendent will sheepishly explain that the barn was supposed to be temporary and he has the plans all drawn up for a great shop but the owner ran out of dough thanks to endless construction change orders or crappy housing sales. He will then insist on showing you the plans in detail even though both of you know full well the fancy new facility will never get built.

Others are your basic 40-year-old Morton buildings with dead equipment scattered around, an infinite number of broken pallets stacked up out back and five-gallon seed buckets being used as chairs around the lunch table. The incessant buzzing noise coming from the ancient florescent lights overhead has driven good men crazy. And there's usually one bay door that doesn't quite close right since some summer-help kid smashed a Cushman into it after he lied about being able to drive a stick shift.

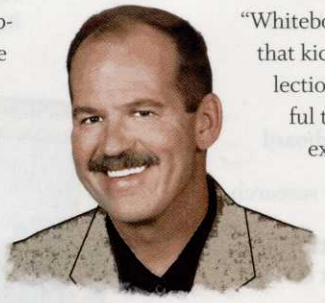
The majority of maintenance facilities are probably like yours: cramped but well-organized places that are busy, noisy and constantly exuding that wonderful aromatic blend of urea, exhaust and backlapping compound. There's a course dog or two wandering around, messy piles of topdressing sand and pea gravel around the side, and at least one rusty 7-gang that's become yard art. Oh, and there's almost always a basketball goal nailed up to a utility pole in the parking lot…but it *never* has a net.

Finally, there are those fabulous few maintenance structures that are truly spectacular, multi-million-dollar complexes – turf Taj Mahals, as it were – with floors so clean you could eat off them and tool racks that would make a NASCAR crew chief drool. These gleaming edifices are often called the "Course Care Center" or the "Department of Agronomy & Environmental Management" or – as members at the club refer to it – "The Really, Really Fancy Barn."

Yet, whether it's a leaky lean-to or a brand-spanking-new "Holistic Horticultural Health Headquarters," all facilities have one thing in common: The Whiteboard.

You know what I'm talking about – the ubiquitous dry-erase board that is information central for announcements, the day's assignments, warnings to not mow down Mrs. McGillicuddy's rose bushes again, etc. Aside from radios, whiteboards are the centerpiece of communications within nearly every maintenance team.

That's why we thought it made sense to have a whiteboard of our own. So, beginning this month, you'll find GCI's new "Whiteboard" section (p. 12-13) that kicks each issue off with a collection of strange and wonderful things. We'll have short, exclusive feature items, summaries of news you may have missed on our Web site, weird pictures, ear-catching quotes and other items of interest from around the golf course business. We hope you find it as useful and informative as your whiteboard at work.



Pat Jones
Editorial director and publisher

You may also notice that we've separated our world-class collection of columnists. No, they were not cheating off each other in class or passing notes – we just wanted to spread their yummy goodness throughout the magazine and, we believe, give them the individual attention they deserve. Tim Moraghan is now hitting leadoff (page 18) and the rest of the batting order comes to the plate in between our fantastic feature stories. Since I do not work and play well with others, my column remains isolated on the last page.

So, enjoy the new and improved GCI, and for god's sakes put a net up on that basketball hoop. **GCI**

Pat Jones

GOLF COURSE INDUSTRY
Serving the Business of Golf Course Management

Vol. 22 No. 5

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

SALES
Kevin Gilbride
Group publisher
330-523-5368

Amee Robbins
Account manager, West Coast
310-546-6060

Bonnie Velikonya
Classified sales
330-523-5322

Dave Szy
Account manager, Northeast
330-523-5338

Martha Corfman
Manager, books
330-523-5366

Russell Warner
Account manager, Southeast
330-523-5385

Maria Miller
Conferences manager
330-523-5373

Jodi Shipley
Marketing coordinator
330-523-5368

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

CORPORATE STAFF
Richard Foster, Chairman and CEO
Chris Foster, President and COO
Dan Moreland, Executive vice president
Kelly Roop, Manager, accounting department
Melody Berendt, Circulation director

Golf Course Industry is a member of:
Golf Course Superintendents Association of America
National Golf Foundation
Golf Course Builders Association of America
The Irrigation Association
Responsible Industry for a Sound Environment

AMERICAN BUSINESS MEDIA · BPA · ASBPE

Cutless* 50W. The Turf Growth Regulation Standard for *Poa* Conversion.

- Selectivity suppresses the growth of *Poa annua* to a greater degree than desirable perennial turfgrasses.
- Greater "regrowth" potential vs. other growth regulators leading to faster conversion.
- *Poa annua* conversion with no disruption to the playability of the turfgrass.
- Improved turfgrass quality.
- Less impact on bentgrass and bluegrass than paclobutrazol.

Whether it's for *Poa* conversion or turf enhancement, SePRO has the right TGR for your desired objective.

- Enhanced growth suppression.
- Improved turfgrass color and quality.
- Extended spray intervals.
- Reduced "bronzing."
- Elimination of the "rebound" effect.
- More uniform growth regulation on mixed turfgrass varieties.
- Stops the encroachment of *Poa annua*.

Upgrade Your TGR Program to Legacy.*

For more information about SePRO turf growth regulators, contact your SePRO Technical Specialist or call **1-800-419-7779.** Visit our web site at **www.sepro.com.**

SePRO **SePRO Corporation** Carmel, IN 46032

We'd like to hear from you.

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

Chick?

While reading your article on Michelle Feher ("The Call Me Ms. Turfhead," page 18), I was shocked to see you refer to her as a "chick." She has obviously proven to be a successful and professional superintendent. I hope they never print an article about my daughter someday to promote her success, and call her a "chick."

Jeff Kadlec,
Director of agronomy
LaCantera
San Anonio, Texas


They call me
Ms. Turfhead

Pat Jones responds:
Jeff: I understand that the word is not for everyone, but in Michelle's case, it's how she describes herself. I would have never used it unless she was comfortable with it.

Hits the nail

Jeff Brauer's article in your March issue, "In Praise of Contractors" (page 8), hits the nail right on the head. During these difficult business conditions it is more important than ever to make sure your selection of a builder for your golf construction work whether a new course or renovation work be dedicated to the profession of golf course construction, provide the highest ethical practices and standards, have the experience and knowledge of golf course construction as well as the skills based upon work history and references. There are lots of builders chasing less projects today. Too many of those chasing golf projects lack some or all of the above requirements and if selected could cause serious problems once the project is started or after completion with subpar quality. Use those builders dedicated to the industry. Golf Course Builders Association of America has a list of excellent builder members and can be viewed on the GCBAA Web site (www.gcbaa.org). Thanks Jeff for a very timely article supporting the golf industry.

Paul Foley, executive director
Golf Course Builders Association of America (GCBAA)
Lincoln, Neb.

Tinnitus info

Pat Jones' column ("Huh?" page 58, April issue) is one of the most candid accounts of tinnitus and how annoying it can be for those who have it. I enjoyed it alone for that reason. Do you know about the American Tinnitus Association (www.ata.org)? You can find helpful information and advice about sound enrichment that you can use to "soften" the noise in your ears/head. I also have tinnitus and attended a few loud rock concerts in my day, but nothing like the noise exposure to Peter Townsend's amps! I use a sound machine to help me sleep. The sound

Discover your turf's inner strength.

The best offense is a good defense when it comes to overall plant health.

That's why CIVITAS turns on the natural defenses of the plant to fight off fungus. Studies have shown that CIVITAS helps the plant develop a more structured root system and can decrease fertilizer requirements by up to 50%. Effective fungus control without any resistance issues. Embrace CIVITAS and change the game for the better.

For more information and to view a video of CIVITAS on "The Profiles Series"
visit www.civitasturf.com

of rain is particularly helpful. Also, there is research that looks promising, but as your doctor told you there is no cure for tinnitus. However, there is hope. Please visit ata.org and read some of the things you can do for yourself to get some relief.

Cecy Escarcega
San Diego, Calif.

The ring

Hearing loss ("Huh?" April, page 58) is a one-way street. I think mine is from being around golf course equipment all my life. I loved engines and equipment so I worked on them and was around engines a lot growing up on a golf course. Good news, I can hear some things pretty well still. Bad news, I can't hear voices well when there is background noise. One gets tired of saying "What?" and I have a hard time with new words/language because I can't hear detail too well. It can be worse – hang in there.

By the way, as past president of Chicagoland Association of Golf Course Superintendents, we talk frequently about how to get people to attend meetings. It's probably a lot like your business, how to get and keep readers. Lifestyles have changed as well as the resources available to get information. But, like you, the bottom line is to be proactive and have good information to share, and at times flirting with the edge in new things that interest people and are helpful in work. Most times the innovative information comes from peers as we openly share our thoughts and experiences.

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

Memory lane

That was a very nice article on Michelle and her career (March, "They call me Ms. Turfhead," page 18). The article brought back great memories of my childhood because my family grew up less than five miles from Boston Hills. My father taught my brother and I both how to play there, in fact back in the old days the field across the street was bring your own balls and hit for free! We spent hours practicing on that field during the summer months, and often played the course with my father and friends whenever time permitted. As a member of my high school's golf team it was our home course, therefore it served as a difficult track with its tiny greens and mature trees for visiting teams that weren't used to the course layout. When I had heard from my friends back home a few years ago it had been shut down, it saddened me to know a piece of my childhood was gone, unable to be recovered by playing one last round. That was over 25 years ago and since that time my family is still near to the game of golf that we learned at Boston Hills. My father has enjoyed the last 20 years of his retirement by playing 200-plus rounds a year at Pinehurst CC where he resides, and my brother Doug and I are both golf course superintendents. Thanks for the memories.

Dan Walter
Superintendent
City of Blue Ash Golf Course
Blue Ash, Ohio

An open letter

If read, this letter will have little impact on the GCSAA organization and philosophy, but I have decided to send it anyways.

I have been a member for 17-plus years and for some reason the GSCAA has become an elite club. As an organization we have locked out future enrollment. The reason for this was because times were good and we were selective, but somehow we lost our focus on our future goals.

I have owned my own course for 30 years and I took the rounds played from 12,000 rounds per year to over 40,000 rounds per year. I'm very proud of this accomplishment. I have put my middle son through four years of turf school at Purdue. He graduated in 1996 and has taken over all outside operations at the facility. He shares my feelings. What we do for our members and customers is still No. 1 and somehow this organization has lost that philosophy.

You are losing the members that moved from golf course turf to landscape, lawn care and many other industries related to turf management. You have decided to make it an elite club, not an organization we can all be proud of. The results of your poor planning and decisions have caused losses to the organization and the cutting of jobs.

As a 17-plus-year member of the GCSAA I was told to take the "owners program" by your staff if I wanted to complete my GCSAA requirements within the time restrictions.

My recommendation to the GCSAA is to change its policy and look at where the future of this organization is going. It's not the dollars that hold me back, it is the organization's policies, rules and regulations that have become obsolete in tough times.

Jerry Reynolds, GCSAA#096495
Owner
Edwood Glen County Club
West Lafayette, Ind.

Assistant thoughts

I read your article on the do's and don'ts for assistant superintendents ("Assistant success guide," November 2009). I agree with most of the comments concerning what makes an assistant valuable to the overall structure of each facility. I do believe the job is quite different at private or public facilities because their demand is different.

Here are a few issues I discuss with our assistants to educate them to become superintendents:

- Set goals for each season with your superintendant both personal and work related for review at the end of each year.
- Manage your staff to your best potential.
- Maintain pesticide license and points.
- Become involved in local and national organizations to further education.
- Attend educational seminars pertaining to all aspects of golf management – irrigation, pesticides and equipment operations.

Don't be afraid to make decisions.

Jim Howell
Superintendent
The Ledges C.C.
Huntsville, Ala.

Valid only on the Jacobsen® Eclipse™ 322 Riding Greens Mower | Redeemable from Your Local Dealer

GOOD FOR ONE

LIFETIME FREE

OF HYDRAULIC LEAKS

Featuring an electric traction drive, electric steering and electric reels, the Eclipse 322 has no hydraulics and no leak points; resulting in lower labor costs, fewer parts to maintain and healthier turf.

JACOBSEN
A Textron Company
When Performance Matters.™

Introducing the industry's only hydraulic-free riding greens mower.

One look at the new Jacobsen® Eclipse™ 322 and you'll see a greens mower that's completely hydraulic free and can be customized to meet the specific requirements of your course. There are no oil leaks, valves or hoses to worry about. Instead, it features a programmable frequency of clip, individual reel control, Classic XP™ Reels with Advanced Relief Technology™ and an array of features designed to reduce your operating costs by up to 86%. Use the Cost Calculator at www.Eclipse322.com and see how the Eclipse 322 can help your bottom line.

Contact your Jacobsen dealer for a demo, or go to www.Eclipse322.com for more information.

JACOBSEN
A Textron Company
When Performance Matters.™

GCSAA PARTNER

PGA

The Official Turf Equipment Supplier to The PGA of America and The Exclusive Turf Equipment Supplier to PGA Golf Properties.

Would You Believe It?

"The car wouldn't budge. Mr. Westerkamp abandoned his car in the sand bunker, which filled with two feet of water around the car, to be discovered the next morning. Mr. Westerkamp also left two bags of marijuana inside the center console, which police found."

— Swiped from a March 26 report on eastbayri.com about the damage done when a reckless driver took a wrong turn and found himself on the 10th hole of the Montaup Country Club.

A HOLE IN ONE

It sounds like the stuff of tall tales but Cal Surgenor, GCI's eyes and ears in The Great White North, has the photo evidence to prove it.

According to Cal, the general manager at course accessories company Bayco Golf in Winnipeg, Manitoba, the incident in question took place about three years ago at Pinawa Golf Club in Pinawa, Manitoba, and involved a course club washer.

Apparently, this deer spied the green plastic club washer and went in for a drink of water. Only problem, she couldn't get the lid off from around her neck. "This lid "snaps on" very tight," Cal adds. "So she must have had to shake it very hard to get the bottom to release from the lid."

Never fear, Greg Love, CPGA head professional at Pinawa Golf Club says all is well.

As the picture attests, the deer is doing well and sightings of her and her "ring" are still quite common on the course.

Timber!

GCI's man in Minneapolis, Jeff Johnson, superintendent at The Minikahda Club, was out touring his course early one late-April morning when he came across this fallen Basswood at the entrance to the 6th tee.

As you can see from Johnson's photos, while the crown of the tree appeared to be healthy, the stem of the trunk was decayed quite badly. Johnson says it was only a matter of time before the tree would have fallen. The location of the tree is right where golfers enter the 6th tee complex as they walk back from the 5th green. Thankfully no one was in the area at the time. With virtually no wind the previous night, Johnson says this is an important lesson to note. While tree maintenance is an important aspect of any maintenance program, unfortunately this is one of those budget areas that gets scaled back when costs are being scrutinized.

"There's a time to save and maintain certain trees on the golf course and there comes a time when a decision needs to be made to remove what may even appear to be a perfectly healthy tree," Johnson says. "This is a prefect example of why when the inside of the tree is showing signs of decay the tree needs to be removed especially when the health and safety of the golfers and employees is at risk."

Johnson says this serves as a good example as to why, even though it may be a difficult or emotional decision to remove even a hazardous tree, the best decision a club can make is to have the tree safely removed before Mother Nature decides to have it removed.

ROLL CALL

John Deere Golf announced a number of personnel moves in its irrigation product offering, including naming **Jeff Kiewel** and Kevin Johnson as division sales managers, and Dave Maholic and Nick Minas, area managers, product support.

Dataw Island Club, Dataw Island, S.C., has promoted **Dustin Nemenz** superintendent of its Cotton Dike course and **Anthony Robertson** superintendent of its Morgan River course.

Peter Hill, Chairman and CEO of Billy Casper Golf, was appointed to the National Golf Foundation's Board of Directors.

Callawassie Island, Okatie, S.C., promoted assistant **Billy Bagwell** to superintendent.

Concord, N.C.-based Rocky River Golf Club named **Ryan Brickley** director of golf and **Joel White** golf course superintendent.

Valent Professional Products hired **John Johnson** as its national sales manager for its non-crop business, which includes turf, LCO, ornamental and aquatics.

Newark Country Club, Newark, Del., named **James C. Nietubicz** as its new golf course superintendent.

Nolichucky View Golf Club, Greeneville, Tenn., named **Shannon Shelton** as its new superintendent.

The Northern Ohio Golf Charities named **Tom Watson** its 2010 Ambassador of Golf.

The Nation Golf Course Owners Association elected to its board of directors **Bill Casper** Golf Chairman and CEO **Peter Hill**.

Arnold Palmer Design Co.'s executive vp and senior golf course architect **Erik Larsen**, ASGCA, was elected president of the American Society of Golf Course Architects.

The State of Kentucky's Environmental Quality Commission selected **Christopher S. Gray, Sr.**, superintendent at the Marvel Golf Club in Benton, to receive its Earth Day Award.

Valve and Filter Corp. appointed **Steve Springer** vice president of sales and marketing.

Sandtrapper announced the addition of **Chuck Hutton** to its sales team.

Clearly Chemical promoted vp of operations **Bill Bewlay** to the position of chief operating officer.

Jacobsen promoted program manager **Paul Drain** to director of product management.

PimeraTurf hired **Dana Wilson** to serve as manager of business development.

The Environmental Institute for Golf appointed Club Car President & CEO **Gary Michel** to its Golf Advisory Council.

Lap of luxury

Try working this into next year's maintenance budget.

For the luxury course that has… well… just about everything.

For a mere $52,000, the Garia Edition Soleil de Minuit is purported to be the most expensive golf car ever made. The Garia exudes European luxury:

- Rolls out of the same factory that produces the Porsche Cayman and Boxster;
- Two-colored, hand-stitched luxury seats; Alcantara roof lining;
- Numerous hand-made details;
- Double wishbone front suspension inspired by Formula 1 cars;
- An Italian-built drive train; and
- An aluminum frame profile by the same company that supplies Aston Martin, Jaguar and Volvo.

While the base price for this ride is an affordable $17,499, it's the upgrades that will get you, including options for a built-in refrigerator and an exclusive personalization program that includes painting the car to match your "other" car.

What? No diamond-encrusted cup holders. Forget it!

Extreme No. 19

GCI's Africa correspondent has come across the longest and most dramatic par 3 in the world.

Legend Golf and Safari Resort's No. 19 is high up on Hanglip Mountain, situated within Entabeni Safari Conservancy in the malaria-free Waterberg Region of the Limpopo Province of South Africa. After a short helicopter flight, gofers can tee off from one of three tee boxes high up a 430-meter escarpment. According to the resort, four separate cameras and tracking equipment gives the golfer the ability to follow and capture the tee shot and the flight of the ball.

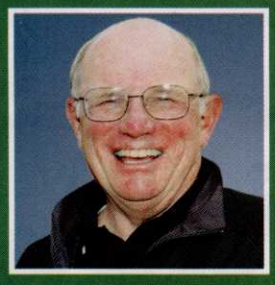
The fairway is seeded with cynodongrass and contoured to funnel the ball to the green below. And in celebration of the African Renaissance, the green has been shaped like the map of Africa and is protected by a large bunker.

Golfers can opt to play No. 19 in addition to their round of 18 holes, or as an experience on its own. And as an added bonus, anyone who shoots a hole-in-one gets $1 million U.S.!

We have one question: How do you think they get the greensmower up there?

Tim **MORAGHAN**

Insightful knowledge of major tournament set-up and operation.



Monroe **MILLER**

Perspectives from a legendary superintendent.

Terry **BUCHEN**

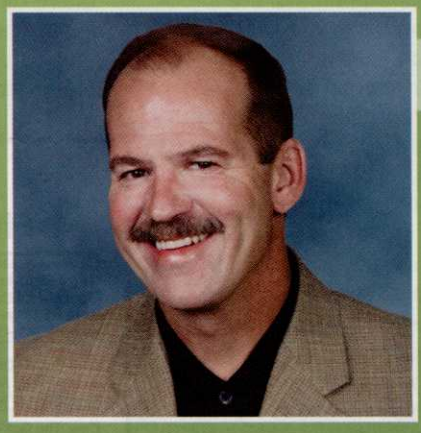
Creative and helpful ideas about equipment modification.

Jeff **BRAUER**

Connecting superindentents to the design world.

Golf Course Industry . . . Driving the business of golf.

Golf Course Industry:
Led by the industry's most influential voices.



Pat **JONES**

Witty perceptions from the most well-read industry veteran.

To discuss how you can use our voice to influence your prospects, call your advertising representative at 800-456-0707 or visit mediakit.golfcourseindustry.com.

GOLF COURSE INDUSTRY

CONSUMER RESEARCH

A glimpse of how golfers' behavior affects the business of golf facility maintenance and management.

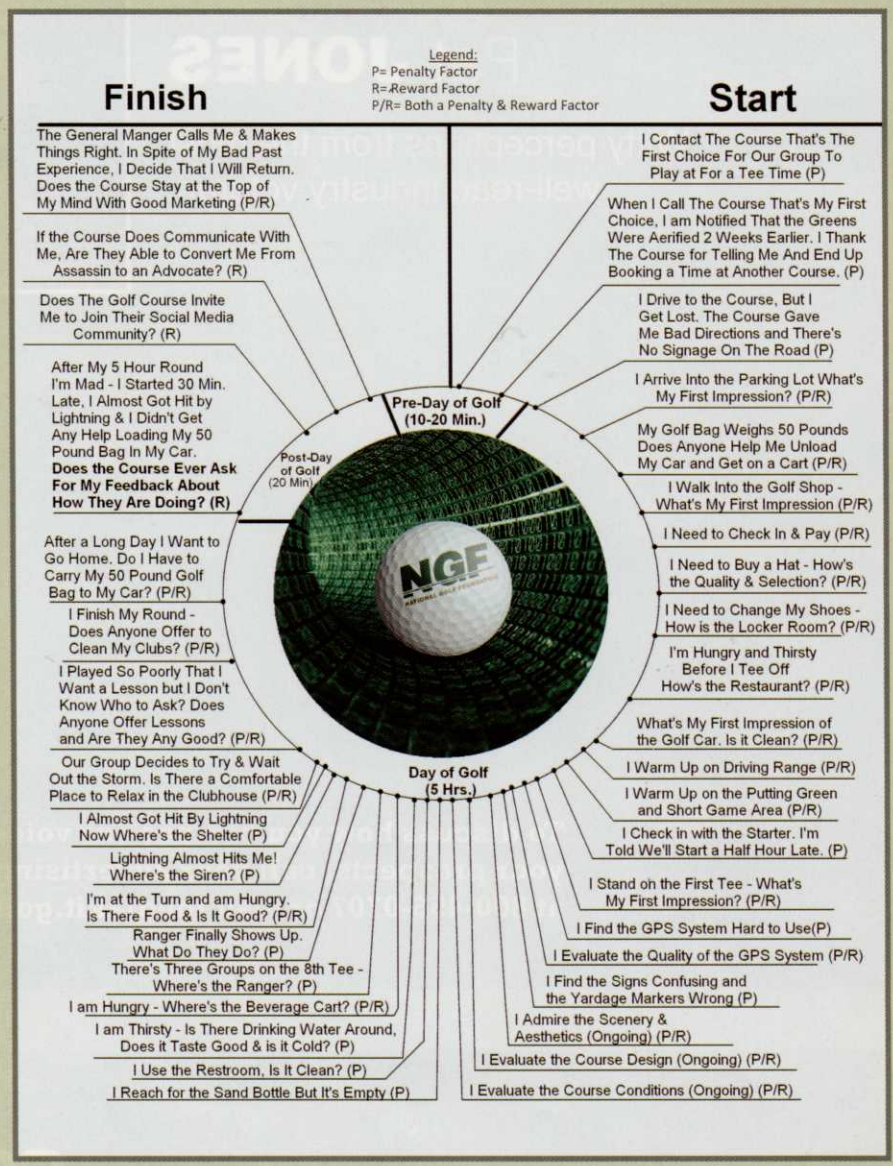
Customer Corridor Map

Many operators make the assumption that good greens are all they need at their courses. While good greens are important, there are many other moments of truth in the golf experience.

A key tool that can help companies understand the needs of the customer is a "Customer Corridor Map" developed by the National Golf Foundation. The goal of a customer corridor map is to help golf courses shift their focus on customer needs from an inside-out approach to an outside-in approach.

One of the touch points mapped out in this customer corridor map is the sand bottle on a golf car, says NGF's Ben Fowler. The customer expects it to be full, and when a course meets this expectation by providing a golf car with full sand bottles the course won't realize any additional reward in terms of customer loyalty, it's expected. But if the customer reaches for the sand bottle and it's empty, customer loyalty will likely take a hit.

"A mistake like this can be overcome by the customer experiencing satisfaction at other touch points," Fowler says. "But if the customer is left unsatisfied at other touch points, that empty sand bottle will be just one piece of ammunition in the customer's rifle when the customer attacks the course with negative word of mouth to their friends. Failed touch points like these, make up the fertile breeding ground of irate assassins. When the course provides the customer with the ammunition of unfulfilled expectations on key touch points, assassins will be determined to complete their hit by launching an all out assault on the course or business that failed them." GCI



Source: National Golf Foundation

Onetime®
HERBICIDE

You have enough things to worry about. But with **Onetime® herbicide**, tank-mixing hassles aren't one of them. **Onetime** combines our new patented formulation of quinclorac, MCPP-P and dicamba, enabling you to control more than 70 weeds, including crabgrass, clover and dandelion *without* tank-mixing. Plus, its liquid formulation, which includes the same active ingredient as in **Drive® XLR8 herbicide**, provides more rapid absorption into the plant in both warm- and cool-season turf. Nix the mix, with **Onetime**.

betterturf.basf.us | 800-545-9525

BASF
The Chemical Company

Always read and follow label directions.

Tim Moraghan is principal of Aspire Golf Consulting in Long Valley, N.J. He can be reached at tmoraghan11@comcast.net or 908-635-7978.

SETTING UP SEDGEFIELD COUNTRY CLUB

As he prepares for his third PGA Tour Wyndham Championship, Sedgefield Country Club's golf course superintendent Keith Wood is concerned after the intense and unpredictable winter weather patterns that have impacted the golf course this past season. Keith and his staff are replacing minor Bermudagrass loss on several shaded fairways. In addition, as he contemplates a game plan for their recovery, he is thinking ahead about how to strengthen his bentgrass putting surfaces for the hot, humid Carolina summer.

Q You appear to enjoy the chailenge of hosting this tournament. What prepared you for it?

A While serving as the superintendent at Florence Country Club in South Carolina, we prepared for five PGA Tour Qualifying Schools. Agronomic demands are similar, but in Florence our grounds staff totaled 10 people. The challenge was to prepare and set-up the golf course for all aspects of the event, with little input from the organizers as compared to the Wyndham Championship. There were few agronomic and course preparation visits so it was up to us to accomplish the tasks. And, we did not have a huge volunteer supply. Our work involved:

- Maintaining a green speed firmness for advance week, which was difficult with a small staff.
- Coping with the summer weather to maintain quality bentgrass surfaces.
- Determining the morning and afternoon agronomic practices from mowing to irrigating.
- Establishing course-wide cutting heights and mowing frequencies.
- Setting up the off-course amenities from a construction process.

The best part of accomplishing all this with a small staff was that each person was a valuable asset to the plan and felt important to the outcome.

Q Upon arriving at Sedgefield Country Club what were the challenges you encountered?

A The golf course had been recently renovated by architect Kris Spence. While the re-design of our Donald Ross course was excellent there was extensive clean up and conditioning to be handled, in addition to the pressure of hosting a PGA Tour event.

- We upgraded the overall course conditioning after the renovation effort. This included the addition of drainage within landing zones – vital for accommodating the PGA Tour players.
- Because much of the finish work was sodded there were seam issues within the putting green surrounds. We has to smooth numerous areas to prevent any rules concerns. There was a lot of dry sand topdressing applied.
- Fairway turfgrass was behind in its development so we increased cultural practices such as fertility, core cultivation and routine topdressings.
- Hot weather bent grass management impacted my desire to push the limits of speed and firmness. Our first season we had favorable weather, the second season we did not. Rain, high temperatures and humidity impacted the putting greens resulting in pythium root dysfunction. We stayed true to our plan and t everyone maintained a positive attitude.

Q For 2010 what challenges are you addressing?

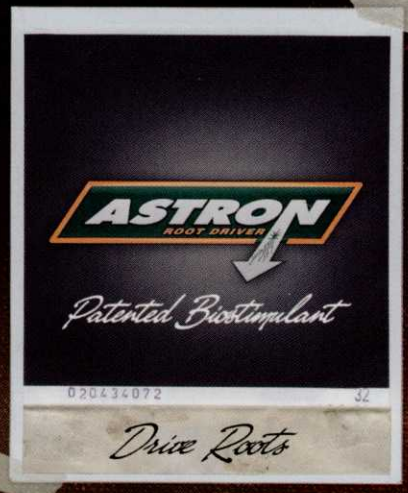
A As many here in the Carolinas understand we have a wide range of weather patterns which impact both the cool and warm season turfgrasses.

- For our putting greens to be successful in the late summer for the membership as well as the event, we are building a foliar fertility program to boost carbohydrate reserves, promote healthy root systems, and implementing a light and frequent sand topdressing program for firm and fast surfaces.
- We have increased the use of the groomer attachments for our green mowers to tighten the turf canopy in combination with a slight bump in height-of-cut.
- We lost Bermudagrass on east/west running golf holes in areas facing north and with the month-long snow cover we are sodding early to create a tight and firm playing surface. We decided against waiting for the Bermuda to grow out.
- Our Bermuda grass fairways are affected by shade and in low lying portions of the golf course, where moisture and temperatures impact spring recovery.
- Finally, we are trying to synthesize and respond to all the outside agronomic input from the PGA Tour staff, the Wyndham people and our golf course architect, while being cognizant of member playing demands and our management firm.

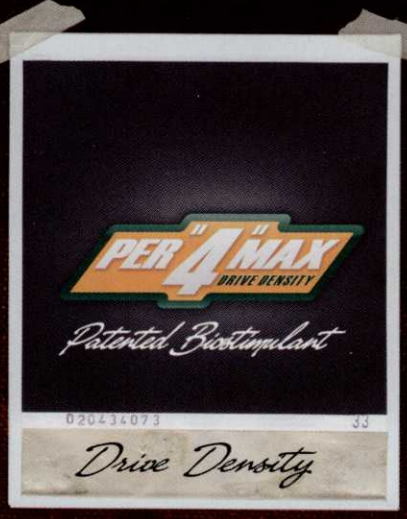
Q Any words of wisdom that have aided your efforts?

A I feel our tournament should be a learning experience for all involved, especially our assistants and interns. We like to involve our local association members and their assistants, as well. We host a tournament for the local chapters' assistants to provide an educational opportunity for assistants to see the course, learn more about our property prior to their assignments and to gain inside knowledge as to how the course will be played for the event.

This educational component allows participants to bring information back to their home golf courses. **GCI**

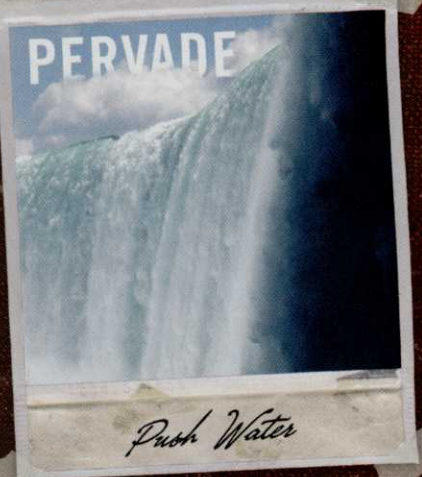


Drive Roots



Drive Density

Soil Catalyst

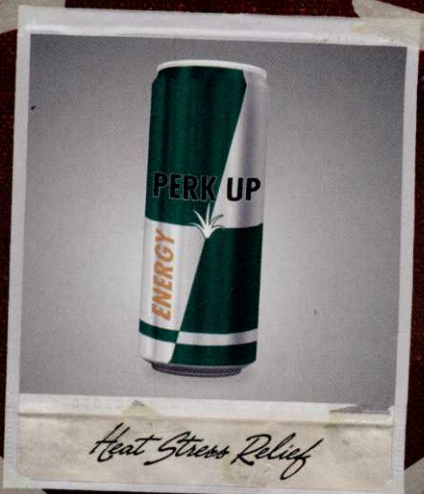


Push Water

Defensive Stress Nutrition

Rapid Green

Essential Amino Acids



Heat Stress Relief

Micronutrient Technology

Visit Floratine.com, or call (901) 853.2898 to find the Floratine distributor in your region.

Rooted in Science

FLORATINE

In Munis

By Mark Leslie

We Trust

Some question whether municipalities should be operating golf facilities, while others argue that municipal golf is a necessary component for the game.

Government-run golf courses may be about as popular as death and taxes among the private operators who are forced to compete with them, but they are just as inevitable. And, in these tough times, they may even outperform comparable facilities.

The question is, so what's fair on the fairways?

Some industry insiders, especially owners of public courses, question whether municipalities should be operating golf facilities while struggling with shrinking budgets and escalating costs. Others, though, argue that municipal golf is every bit as viable as its public and private counterparts and is a necessary component for the growth of the game.

Municipal golf has been around for a long time, says National Golf Foundation (NGF) President and CEO Joe Beditz, and it plays an important role in the overall mix of supply in the United States. Municipal courses fill a need for millions of less-affluent golfers who enjoy not only the game, but its affordability through a government-owned venue. Eliminate that price point afforded at these facilities and those players will cease to play, Beditz says.

"If you removed that price point and took all of the munis out of business, do you think the public courses would lower their fees? No," he says. "And that would reduce the demand for golf. Therefore, overall rounds played and consumption in golf would decline."

Despite the recent economic downturn and subsequent slow recovery, Mark Woodward, CGCS, CEO of the Golf Course Superintendents Association of America (GCSAA) believes it is a prime time for municipal courses to stay in the business. And Woodward is no stranger to municipal operations. He worked for the city of Mesa, Ariz., for 31 years and at the famed Torrey Pines in San Diego for three years.

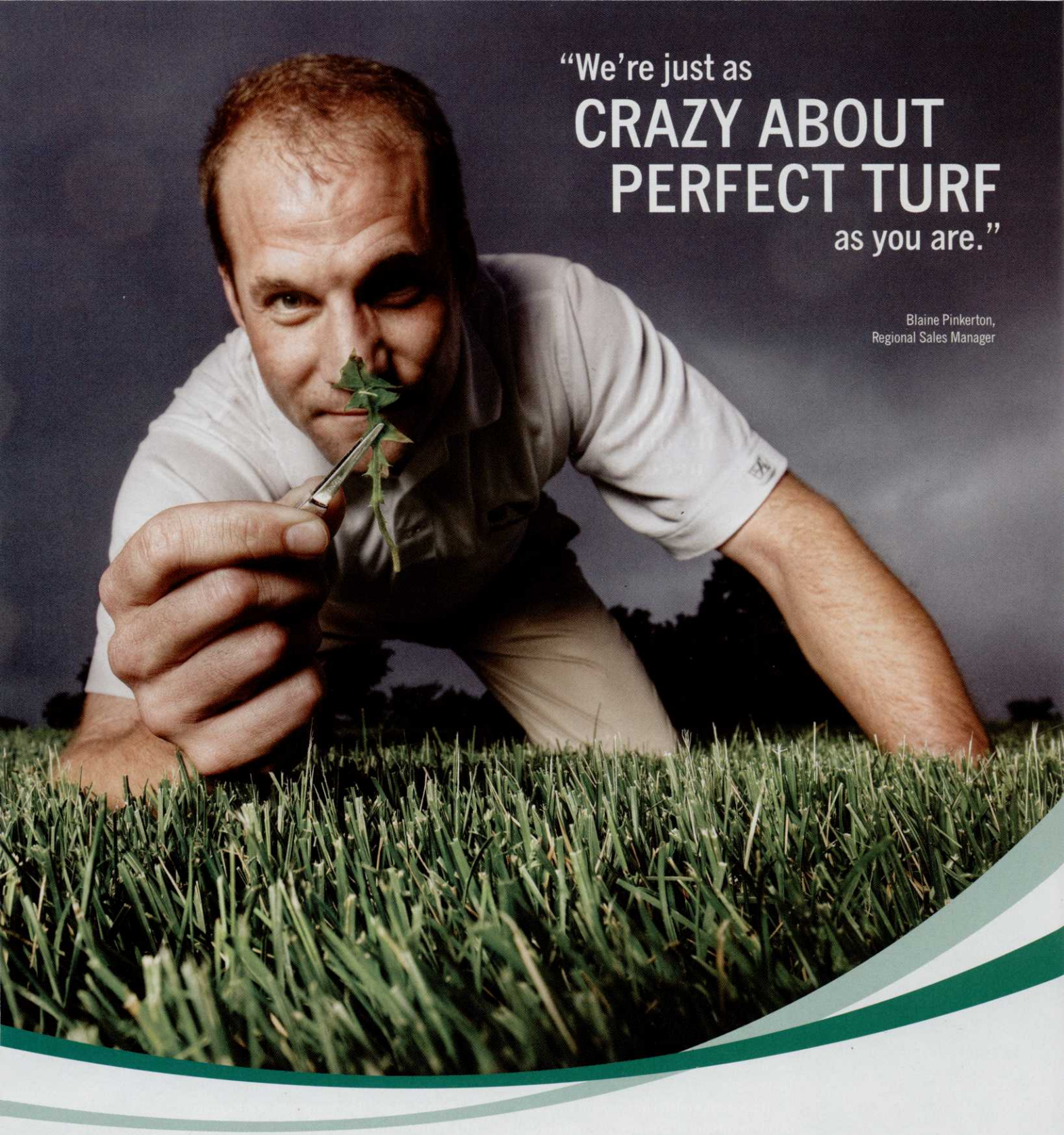
"Municipal golf provides an avenue for people to begin the game, whether they are juniors, ladies or just beginning golfers," Woodward says. "We want more golfers to get into the game, so I would hope municipalities hang in there and try to operate their golf courses as much like a business as they can and yet provide affordable, accessible golf for the vast majority of people who want to begin the game."

Ted Horton, CGCS, of Ted Horton Consulting of Canyon Lake, Calif., says municipal courses are probably the only large open spaces within communities that pay for themselves.

"I don't know of any park lands, any football fields, any baseball diamonds that can pay their way," says the former vice president of resource management at Pebble Beach for nine years and the interim general manager at Torrey Pines for the year leading up to the U.S. Open there in 2005. "Golf can."

Horton adds: "The competitive advantage of a municipal course is that they probably don't have to pay the same real-estate taxes and the same taxes on their income that a private daily-fee golf course pays. But, clearly, there is a need for it in the golf hierarchy."

While the argument that municipal operations have an unfair competitive advantage resonates with a contingent of people in the golf industry, Woodward doesn't see it as a



Great things happen when passion and commitment combine with technology and value. To learn more about how Nufarm's passion for turf can help you, both agronomically and financially, see your distributor or go to www.nufarm.com/us.

Better Choices. Better Business.

Nufarm

www.nufarm.com/us

"Municipalities running at deficits are looking for ways to close that budget gap. And that includes the privatization of a lot of different kinds of operations, including golf."

— Mike Hughes, executive director, National Golf Course Owners Association

major issue, adding there's room for everyone, municipal and private sectors alike.

Horton agrees, adding the only competitive advantage he sees is that government-run courses don't have to pay the same real estate and income taxes as their public and private daily-fee brethren do. "Clearly, there is a need for (municipal facilities) in the golf hierarchy," he says. "Somebody has to support the relatively inexpensive the golf course that is maintained to a lower standard so that people can learn the game and develop a love for the game and grow to the level of course at which he or she is most comfortable."

THE ECONOMICS OF IT ALL

"I'm not making any money, but I'm not costing the taxpayers anything, either," says Dennis Lyon, CGCS, who operates the seven-course golf division for the city of Aurora, Colo. "As long as we don't cost the taxpayers anything, there's not a big issue. Once a public course starts costing general-fund money, and they're subsidizing golf courses and not hiring policemen or buying fire engines, then that's a big problem."

In the face of the country's economic malaise, municipal courses are subject to most of the same challenges as privately owned facilities. And, as Richard Singer of NGF Consulting in Jupiter, Fla., puts it, "All golf – as in all politics – is local."

According to NGF figures for 2007-2009, across America 141.5 18-hole-equivalent daily-fee courses were built, compared to 15 municipal tracks and 79 private clubs.

During the same period, 305 public, 22 municipal and another 40 private facilities closed. Total for the three-year period: 234.5 openings and 367 closures.

The net loss of municipal facilities: seven.

So whether the debate focuses on buying, selling or outsourcing management, it's all going on with municipal courses, Singer says.

"Every instance is unique in how it has been set up, what kind of market they're serving, what kind of fees they're charging, what amenities they have, what expense situation is in place," he says.

On the positive end for municipal operations, surveys show a lot of drop-down effect on the demand side. "People who used to play golf at higher-fee courses are dropping down to lower-fee facilities, and that often is municipal golf," Singer says. "So, in some cases, they're doing a little better on the revenue side."

Also, Beditz points out that the 1960s golf-construction boom was in public golf – much of it government-owned. The reason municipal golf is so affordable is all the courses built in the 1960s no longer have debt to pay off. In contrast, he says the new courses built with the high-end client in mind and to cash in on the mythical boom are now facing the same difficulties as their daily-fee counterparts.

Meanwhile, more communities are farming out management of their municipal courses.

The trend, says Mike Hughes, executive director of the National Golf Course Owners Association (NGCOA), is for cash-strapped municipalities to leasing out to private operators. This trend has accelerated since the economic downturn. "Municipalities running at deficits are looking for ways to close that budget gap," he says. "And that includes the privatization of a lot of different kinds of operations, including golf.

"Nobody's done a quantitative analysis," he adds. "But intuitively people know private operators are generally more efficient and can at least staunch the losses they are experiencing."

The industry is seeing a move toward some type of outsourcing, privatization-type arrangements, agrees NGF Consulting's Singer. "Obviously the cost structure and future liabilities with regard to health care and union arrangements and all these things on the expense side definitely impact municipal golf," he says. "A lot are opting toward full-service agreements, bringing in a management company to run the entire operation, either for a fee from the municipality to the company or the other way around, with a lease where the company pays the municipality for the right

to operate the course. You also see shorter-term, specific agreements that involve F&B, pro shop, that type of thing."

The pendulum swings back and forth, Singer says. "Twenty years ago that was the craze," he says. "Then in the 1990s and this last decade it seemed to swing back the other way, with municipalities self-operating. Now they're swinging back in the opposite direction."

There are positive and negative aspects in hiring management companies to run a golf facility, Woodward says. For instance, facilities that are run by a management company have a "different spin," he says.

"The city loses some control," he says. "But, all in all, they can structure the agreement so that the city maintains control of the fee structure to provide the affordable golf it wants for its residents.

"Plus, a management company can come in with resources to fix up the course and make it competitive from a conditioning standpoint," he adds. "A lot of municipalities shop out the

PRO/CON

Government-owned golf provides the playing fields for the masses

By Dennis Lyon

The argument against government-owned golf courses is usually based on an opinion that golf is an "inappropriate activity" for government or that government courses compete "unfairly" against private sector daily-fee operators.

According to recent information from the NGF, there are 15,945 golf courses in the U.S. Of these courses, 11,643 (73 percent) are open to the public. There are currently 2,458 government-owned courses in the U.S. This number represents 15 percent of all courses and 21 percent of all public courses. The first 18-hole municipal golf course in the United States opened in 1895 in Van Cortland Park, in New York City. Van Courtland Golf Course remains in operation today.

Lyon

Based on the long history and number of government-owned courses, this category of golf is woven into the fabric of golf in this country and is an important segment of the game. Government-owned golf provides the "playing fields for the masses." It is also the "point of entry" for a great many players. I submit that keeping golf accessible – to as many people as possible – is a very good thing?

Government is motivated to go into the golf business for many reasons. The most common reasons are to serve its citizens and provide a healthy recreational activity.

Additional reasons may include promoting a community's image, partnering with developers to increase property values, efficiently utilizing and preserving open space, generating revenue to support other community programs and promoting tourism. The bottom line is: Government's primary mission is to improve the quality of life of its citizens. I cannot think of a more appropriate vehicle for government in supporting this mission than accessible, affordable, quality golf.

The other argument against government golf is "unfair competition" with the private sector. In my opinion, unfair competition occurs only when an entity utilizes predatory business practices to intentionally damage or drive the competition out of business. I submit when it comes to competition between golf courses, regardless of ownership, there are no level playing fields. Some government-owned courses do not pay property taxes; most privately owned courses do. Some government-owned courses have to deal with labor unions; most privately owned public courses do not.

In my case, Aurora Golf does not pay property taxes. However, a daily-fee course in our market pays $10 per acre foot for water. One of my courses pays $960 per acre foot for water. Another daily-fee course in our market is owned by a homeowner's association (HOA). This course was given to the HOA debt free and uses dues to offset operating costs. My golf operation is a separate enterprise business and receives no financial support from the city. Our operation also has very high debt service payments. I am sure many daily-fee course owners can cite similar situations where government-owned courses have an advantage. I submit these are not examples of "unfair competition." They simply reflect the challenges and business environment all golf managers operate in every day. As stated previously, "There are no level playing fields."

In summary, government-owned golf is deservedly here to stay and every owner or manager operates in his unique business environment. The courses that will survive and prosper, regardless of ownership, are the ones with strong management, superior customer service, great course conditions and the ability to maximize the value of the golf experience.

Dennis Lyon, CGCS, is a former president of GCSAA and has managed the city of Aurora, Colo., golf program for the past 37 years.

"I'm not making any money, but I'm not costing the taxpayers anything, either."

— Dennis Lyon, CGCS, who operates the seven-course golf division for Aurora, Colo.

pro shop and food-and-beverage, but maintain control of the maintenance, fee structures and policies. That model can work."

FROM PENNSYLVANIA TO COLORADO

In some cases, like the Township of East Hempfield, Pa., management companies are eschewed even while officials seek advice on golf course operations.

In 1989, East Hempfield bought a previously private facility for the open space and to protect a major underground aquifer. Four Seasons Golf Course hosted 45,000 rounds a year in its heyday, but that figure has declined to 35,000, says Head Golf Professional Craig Hall.

"I don't have a sound reason for it, but the board of supervisors opposes hiring a management company," says Town Manager Bob Krimmel. The debt service of $600,000 a year should be paid off in 2011, but he says the course isn't earning enough to pay that service.

"We're bringing in a consultant to help us look under some rocks, see what we can do better, what our player niche is, who they are and what we can do to encourage more of it," Krimmel says.

Meanwhile, Gypsum, Colo., a town of 6,200 bought Cotton Ranch Golf Course last December, not for the open space or even to provide municipal golf in particular. Gypsum bought the $7.5-million, Pete Dye-designed track for a mere $2.5 million to protect home values. According to Town Manager Jeff Shroll, the bank that owned the property did not intend to reopen the course.

"From our perspective, if that course failed, housing would plummet and our overall tax base with it," he says. "Plus, we could put it in our quiver of recreational opportunities."

The public, Shroll says, has shown overwhelming support. "They're not happy with the feds over their ridiculous bailouts, so we were nervous," he says. "But this has no comparison with what the federal government is doing. Most people are smart enough to know it was a

DAY-IN, DAY-OUT DURABILITY AND PERFORMANCE.

Ordinary golf carts and other electric vehicles require extraordinary batteries to keep them humming worry free. Since nothing will ruin a day on the links like a dead golf cart, Exide makes an advanced line of golf cart and electric vehicle batteries designed for increased cycle life and reduced maintenance time. All this, backed by Exide's strong nationwide warranty program, means you can worry more about your swing and less about getting to the next hole. Want more positive news? Go to exide.com.

EXIDE
exide.com

good move, protecting the town tax base and their neighbors."

Helping calm any storm is the $49 fees, which includes a golf cart. "All other places around here are $30 to $150 higher than us," Shroll says. "We think our model will attract a lot of people."

Municipal courses may be doing better, but Singer says you have to look at it from the revenue and the expense sides. "On the revenue side, yes, some of them are doing better, although not all," he says. "On the expense side, particularly with the self-operating munis, it is much more difficult for them to cut costs than the private sector. So the net may not be any better for the public sector."

So how are municipal courses' finances comparing to their daily-fee compatriots? "I've heard of golf courses that have gone under and been turned into condos," says Wooward, "but not any municipal structure." **GCI**

Mark Leslie is a freelance writer based in Monmouth, Maine.

PRO/CON

A cautionary tale

By Charlie Birney

As those who know me can surely attest, I've always felt passionately about this topic and about why I believe municipalities should stay out of the golf course business.

From my experience, those who oppose the growth of government-supported golf, or worse, voice their opinions on this subject, are dismissed by many both inside and outside of our industry as not supporting the growth of the game.

This couldn't be further from the truth.

Birney

Now, I could easily launch into an extended treatise on the perils associated with supporting government golf. But I fear that for many of you reading this it's a tired argument that may do more to encourage you to turn the page than to consider the ramifications I, and many other pretty smart people in this great profession, believe government-supported golf will have on the long-term sustainability of our industry.

At its base level the argument against is a very simple one: Don't support the growth of government in the golf business because ultimately everyone loses. Why? Well, I believe the support of this argument needs to have more legs to it than the same old "small business owner opposes government competition in the private sector" story. It hasn't worked and only turns people off to the big-picture issues.

Ultimately, this is the classic "Death of a Thousand Cuts" and it's a battle that will only be won if we are all understand that our businesses are truly at stake. We need to look our elected officials in the eye, especially those in county government, and tell them this is a failing business model.

Yes, it's easier said than done. So humor me for a moment and consider this cautionary tale.

Our company, along with 16 other state groups and associations, opposed the growth of government golf in Maryland by the Maryland Economic Development Corp. (MEDCO), a quasi-governmental institution which exists to promote economic growth. At the time they had four major golf projects underway – resorts, a conference center and, of course, a 36-hole course which supported someone else's housing development.

It just didn't seem to make sense.

The case was simple: MEDCO was supposed to do stuff in the state's economically depressed areas. More importantly, these were to be development projects that the private sector did not want to do themselves. Well, MEDCO was not operating in an economically depressed area of the state for this golf project. And the private sector had tried to build the project, but MEDCO beat them on financing. I actually had testimony from two individuals who couldn't get zero-interest bond financing like MEDCO.

MEDCO forged ahead and we accused them of acting outside the limits of their founding charter. So in response to our claim they passed legislation to take away any limits whatsoever. Now MEDCO can open a shoe store in downtown Baltimore if they so choose.

We appealed everything we could, but the golf course got built and every day it eats away at our corporate-outing business. In a nutshell, here is the moral to my little story: The golf course was managed poorly and the county had to buy back a $17-million bond package.

I wish I could say there was a happy ending in this story, but you won't find one because this isn't a fairy tale. It's reality, and in my opinion, it's typical of what happens when government intervenes in the golf industry, and why municipalities have no place running local golf courses.

To borrow from the Kingston Trio and Charlie on the MTA – "Citizens – This could happen to you!"

Charlie Birney is the former president of the National Golf Course Owners Association and managing director of The Brick Companies.

introducing the game changer in sting nematode control.

econem™
BIOLOGICAL NEMATICIDE

safe, sustainable, simple and effective. yes, you can have it all.

Sting nematodes are the turf industry's largest unmet pest control need. Econem™ biological nematicide **for sting nematode control** is the first EPA-registered product that harnesses the power of *Pasteuria*, a naturally-occurring soil bacteria long recognized as effective against nematodes.

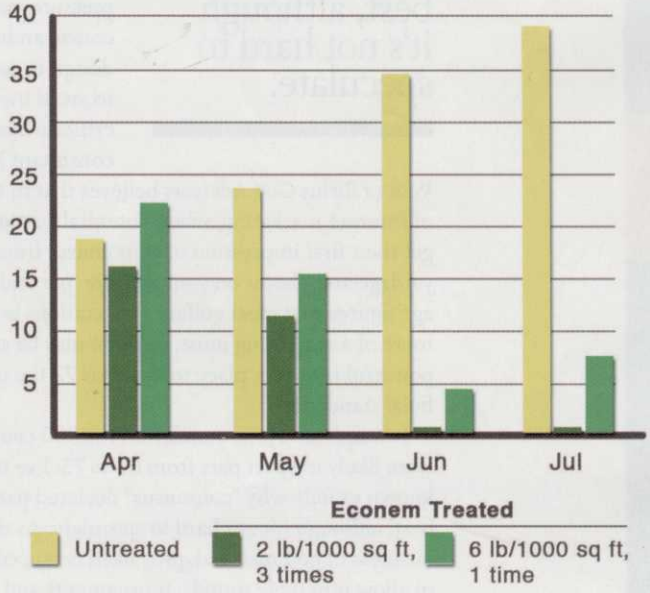
Field trials prove Econem has the power to effectively control sting nematodes. While reducing nematodes, Econem **improves turf density** and **stimulates new root development** resulting in **green productive turf.**

Econem is also **environmentally friendly** so it doesn't harm grass, soil or the environment. Get healthy, lush turf along with sustainable course maintenance.

Highly effective, safe and sustainable. For more information, visit **pasteuriabio.com** or contact your Harrell's representative.

Econem Dramatically Reduced Sting Nematode Counts

2009 Field Trial, Palm Beach Gardens, FL



PASTEURIA™ bioscience

econem™
BIOLOGICAL NEMATICIDE
this changes the game, for good.

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

WHY IS PAR USUALLY 72?

I am back with another one of those interesting discussions I had on the floor of the Golf Industry Show in San Diego. I was asked, "Why is par 72 standard?" My answer? "No one really knows."

But I know that most developers demand par-72 courses, and most golfers think something other than par 72, with four par 3s and par 5s, and distance balanced between nines, is somehow inferior.

As a golf course architect, I would expect most sites to yield better courses with other pars, or unbalanced nines. I tend to judge courses after I play them, but average (and perhaps cash strapped) golfers actively judge a course as worth their cash before their round, and 7,000 yards (even if the back tees are just a rumor to 97 percent of golfers) and par 72 are still all too important "factoids" to them.

> Pre-1900 courses were likely to sport pars from 69 to 73. I've never known exactly why "consensus" declared par 72 best, although it's not hard to speculate.

Succumbing to pressure, most golf course architects design to par 72 to avoid inevitable criticism. Industry consultant John Wait of Sirius Golf Advisors believes that in this day of Internet marketing, when potential customers get their first impression of your course from the yardage and photos on your website, par and yardage figures that meet golfers' expectations is even more of a marketing must, so there may be some powerful trends in place to keep par 72 the unofficial standard.

It wasn't always so standard. Pre-1900 courses were likely to sport pars from 69 to 73. I've never known exactly why "consensus" declared par 72 best, although it's not hard to speculate. As the business of golf matured, pros liked balanced nines to allow nine-hole rounds, tournaments and starts off 1 and 10 tees to give golfers similar experiences.

The par 4 is probably the best expression of golf strategy and should be the predominant hole type. The tee shot determines the chance of success on the approach shot, depending on whether it is in rough, hazard or fairway, and even if it's on the "better" side of the fairway. The approach shot determines if your score will be birdie, par, or bogey. If early golf courses were built on featureless ground, or with better earthmoving technology, golf courses might have featured all par-4 holes. But, whether to fit the land, or create variety, par-3 and par-5 holes were built and became accepted as part of the mix.

But, as golf evolves, there may be strong reasons to change the traditional mix and reduce par. First, most par-5 holes have second shots that are inherently less interesting, without the option to reach the green in two shots. How many times should we offer a great chance to beat par? Once per nine seems enough.

The USGA and many older courses have actually been solidifying this concept for years, with many fine older courses currently playing to par 70 or 71 as a result of converting their shorter par-5 holes to par-4s. With golf shots getting longer, we can easily restore or protect the value of par with a little "scorecard magic" by dropping two strokes with the magic of the pen. The par-5 holes that remain should be shorter, rather than longer so that most are reachable in two.

Other new conditions suggest reducing par, too. As construction costs rise, and regulatory limits on turf acreage and water usage increase, the pressure to build on less land rises, too. The simplest way to reduce acres and budgets is to eliminate a few par-5 holes, and maybe add in another par-3 hole as well for par of 70 or 69.

I have a hunch that when new course construction picks up again, many golf course architects will be proposing par-70 courses for just these reasons. Someone should start the drumbeat for reduced par as golf moves forward. Whoops, someone just did. **GCI**

HUSTLER GOLF **BEAUTIFULLY SIMPLE**

PRECISION CUTTING / LOW MAINTENANCE / DURABLE BUILD

HUSTLER 7500/7700
FAIRWAY

HUSTLER

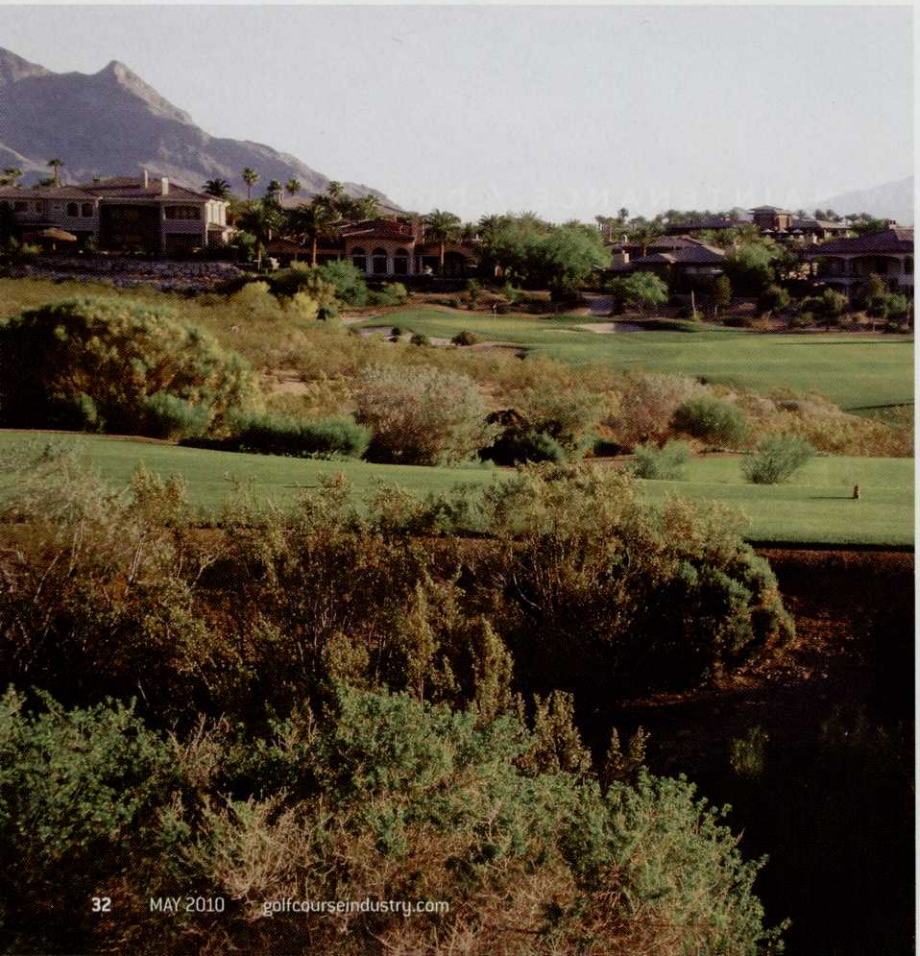
Find your nearest dealer at www.hustlerturf.com

Red Rock Country Club is a good case study of how a variety of methods to manage bicarbonates were combined with great success. The three courses at Red Rock are now irrigated with buffered water and treated biweekly with a direct application of synthetic acid. The courses have reversed their negative trend and are now responding to the management decisions as a typical course would in the Midwest.

By David McPherson

Battling bicarbonates

Superintendents have a number of weapons at their disposal to keep calcium viable in the soil.



Bicarbonate levels are often overlooked in irrigation water analysis. You don't need a Ph.D. in pH levels to manage bicarbonates, but understanding a little about water chemistry helps. The most important thing when dealing with water issues is that the soil takes on the characteristics of the water. So, analyze your water first, then look at your soil.

Bicarbonates are toxic to the roots and reduce the shoot growth of the turf. High bicarbonates can also affect the effectiveness of fungicides and particularly insecticides you spray because the half-life of the product is often reduced by high pH levels. Bicarbonates also reduce the uptake of phosphorous and many other micronutrients

RED ROCK COUNTRY CLUB

The disease control system that puts you in control. The DISARM® Complete Control System gives you all the options you need to solve every disease control problem. DISARM, DISARM C and DISARM M fungicides provide premier strobilurin disease control performance and value throughout the entire season. Each is specifically tailored to climate region, disease history and turfgrass variety. Alone, in chlorothalonil-based or DMI-based premixes, the DISARM Complete Control System allows you to choose your application – giving you complete control. To learn more, contact Arysta LifeScience North America Support Services at 1-866-761-9397 or visit www.totaldiseasecontrol.com.

that grasses need. Bicarbonates react with calcium to form calcium carbonate. Every time bicarbonate hits calcium and magnesium it keeps it in a carbonate form. In a carbonate form, it's hard for calcium to work into the soil.

"Calcium is an important building block in the plant just like it is in our body," explains George Frye, president of TransGolf Inc. "When we break a bone in our body, it's slow to repair. If a plant doesn't have the right amount of calcium, every time we mow or damage that plant, it has trouble replenishing that calcium."

Frye was the superintendent at Kiawah Golf and Country Club in South Carolina for 15 years. While there, he dealt with what he considers the "worst water in the world."

"I didn't know anything about water until I started dealing with it," he says. "I had bicarbonates of 1,100 ppm and a Sodium Absorption Ratio of more than 90. Everything got locked up because of the high bicarbonates. It was a long learning process."

Frye subscribes to the philosophy that for every cause there is an effect. Every situation is different and there is no single solution.

"You really need to have your soil and water tested to make an informed decision," he says. "Look at your circumstances and design your program based on what your infrastructure is.

Right: Before using Burst Turf at Tonto Verde Golf Club, Scottsdale, Ariz., the soils were tight and hard to penetrate. Bottom: After starting the program in June 2008, superintendent Robert Davis reported better moisture penetration, allowing him to water deeply and infrequently. Soil sampling and aerification became easier, too. The photo was taken during overseeding, thus the brown turf conditions.

"Look at your circumstances and design your program based on what your infrastructure is. You **can't answer the bicarbonates issue** in one sentence." *—George Frye, TransGolf Inc.*

You can't answer the bicarbonates issue in one sentence. There are so many other variables – if you have tunnel vision, while addressing it, you could cause other problems."

Mike Huck, owner of Irrigation & Turfgrass Services, and a former superintendent, feels greenkeepers sometimes spend too much time worrying about bicarbonates.

"Everyone thinks when they have bicarbonates, you've got to remove them and that's not always necessarily the case," he says. "The question becomes whether your particular problem is significant enough that you want or need to inject your water with an acid or something, or do you want to take a different approach with your fertility programs. It really is a balancing act. Ask first whether the quantity of bicarbonate you are dealing with can be addressed on a small scale with an acidifier fertilizer application."

Red Rock Country Club is a good case study of how a variety of methods to manage bicarbonates were combined with great success. Steve Swanson, the director of grounds and golf course maintenance at this trio of courses in Las Vegas, recalls the day his problems with bicarbonates began. It was at the same time he switched from potable water to effluent. "From the minute the effluent water began to flow, our turf conditions began to slide south," he says.

Swanson's initial solution – using a sulfur burner to acidify the soil – is a method familiar to many superintendents. This particular acidification method worked well on potable water, he says, but it proved inadequate to treat effluent, especially during the summer months when irrigation cycles increased. "We needed a system that could effectively treat our water no matter the time of year or the amount of water being consumed," he says.

By 2008, Swanson's bicarbonate problems reached a boiling point. Turf loss was prolific and rampant and large areas on the three courses were void of grass and crusted over with either a calcium or sodium bicarbonate layer. It took him six months of intense investigation and testing before determining a two-pronged plan. First, he attacked the water at the point of delivery. Second, he addressed the problem in the field with direct applications.

"Our first, and most significant decision, was the installation of a sulfuric acid injection system," Swanson says. "After doing countless titration tests with our Brookside Laboratories consultant, Corey Angelo, we found sulfuric acid was by far the most effective means to attack our alka-

Swanson

TOP: TONTO VERDE GOLF CLUB

LebanonTurf

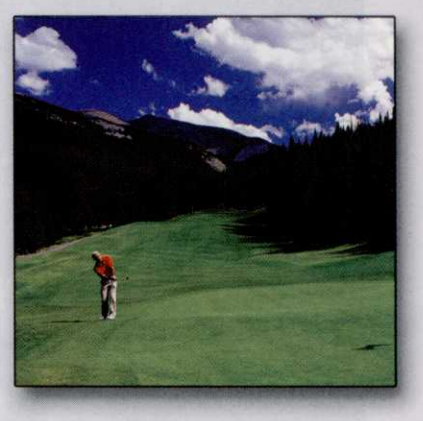
For all your golf course needs

The **ROOTS**® brand of biological solutions merges nature and technology to offer unlimited possibilities in the care and feeding of plants.

Emerald Isle True Foliar® products promote turfgrass physiological fitness through a precise combination of nutrients, seaplant extract, and other growth stimulants which are beneficial to turf.

How can something that works so fast...last so long? **MESA**® provides brilliant green color, quick response and extended feeding, all in a single granule.

EXPO® is a premier slow release N & K source that feeds up to sixteen weeks. EXPO provides beautiful color, disease resistance, and is available in both 145 SGN and 195 SGN.



LebanonTurf

For more information about all our technologies, brands and products, please visit our web site at LebanonTurf.com or call 1-800-233-0628.

roots Emerald Isle Solutions™ MESA expo

linity and bicarbonate problem."

Swanson says this decision did not come easy since sulfuric acid is very corrosive and dangerous. But, after weighing the options, they settled on the Werecon acid injection system for all three courses, which proved to be very safe. "Its effectiveness is astonishing," Swanson says. "The system is essentially a self-monitoring system that adjusts on the fly without human contact. The rate of acid injection is not based on flow, but rather on pH by continuously monitoring pH sensors installed downstream to determine sulfuric acid injection needs.

"This option was very important as our water quality varies hour-to-hour and season-

Troubleshooting bicarbonate levels

There are a number of ways a superintendent can address the bicarbonate levels at their facility. Mike Huck, owner of Irrigation & Turfgrass Services, offers some of the methods to manage bicarbonates.

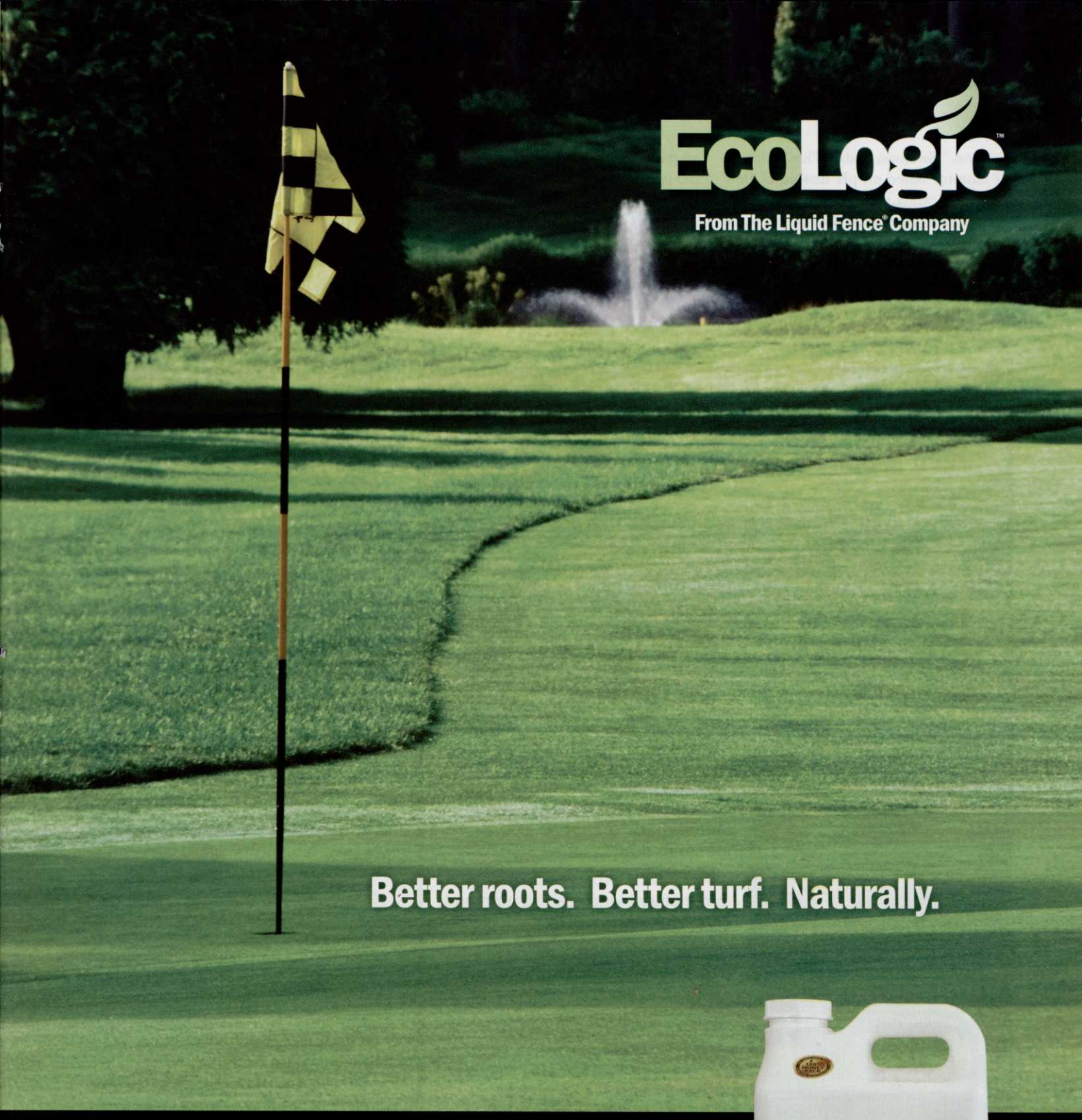
An acid injection of sulphuric acid. You usually have a company that comes in and services it, so the greens crew doesn't touch the product other than adjusting the microprocessor on the injection equipment to fine-tune the pH output.

Urea sulphuric acid. This is sold under the trade name n-PHURIC acid. One example is pHirst from Your Growing Solutions (www.yourgrowingsolutions.com). President Warren Shafer says his company designs and builds the injection systems. "We install and build a storage tank, so whenever the superintendent gets low, we go back out and fill their storage tank; the superintendent doesn't even need to touch the product."

Soil sulphur applications. An old standby, says Huck, but you need to get the right amount down at a safe rate that won't burn the turf. Typically, between 50 and 200 pounds per acre. This needs to be timed properly and put down in the right season. It's typically applied during the fall or spring because it converts into raw sulfuric acid in the soil. As soils warm, it slowly converts. If you put it down in the middle of July and August when soils are warm, it can convert too fast and can cause burning of the turf.

Acidifying fertilizers. "If you only have a small amount accumulating over the year, you can attack them with acidifying fertilizer and convert them to calcium carbonate, sodium carbonate or magnesium carbonate," says Huck.

Synthetic acids. While Huck says these newer products may be the greatest thing since sliced bread, the companies do not label what are in them, so you have no idea what the chemistry is in these products. "Their rates for application on the label make no sense because they are not based on anything other than the acreages," he says. "With any acid products you are going to inject in water, the only proper way to determine your rate is through a laboratory titration."



New Ecologic SG's organic Ecklonia maxima Kelp formula naturally increases root volume and root tips.

- Increases turf's natural ability to uptake moisture and nutrients
- Improves turf's natural resistance to the stresses of drought, nutrient deficiency and salinity
- Can reduce the amount of traditional fertilizer applied
- Saves time and money: No extra application steps necessary – in most cases SG can be co-applied with existing fertigation programs

LIQUID FENCE® PRO DIVISION

Environmentally Responsible Professional Turf, Agricultural & Landscape Products
All-natural, Guaranteed-effective Animal & Insect Repellents

(800) 923-3623 www.liquidfencepro.com pro@liquidfence.com

to-season," Swanson adds. "This ability to self-monitor based on pH instead of flow rates significantly reduces potential corrosion problems that could develop from the over application of sulfuric acid into your irrigation system."

Swanson says they now consistently and accurately apply sulfuric acid treated water on their courses at a consistent pH reading of 6.0 to 6.5, which is a big improvement over the 8.0 to 9.0 pH untreated water that was previously used.

The second approach Swanson applied was the use of a synthetic acid, settling on applying and spraying applications of Aquatrols Burst Turf wall-to-wall biweekly. Burst is strictly a pH adjuster; it drops the bicarbonates. In that process it is neutralized like a normal acid. After it does its work, there is no longer any acid left. "This was a daunting and labor intensive task considering the economy was at the start of a severe contraction and labor resources were being scrutinized in all departments," Swanson says.

The Werecon computerized pumping system Red Rock installed. This system utilizes a vacuum technology to eliminate the delivery of sulfuric acid at high pressures into the irrigation system.

To overcome this economic labor "hiccup" Swanson completely changed their fertilization program – abandoning the traditional granular programs and fertilizing the entire course biweekly via a sprayer. "Taking this approach has increased our labor needs, yet those expenses have been offset through reduced fertility costs," he says. "Expensive poly- and sulfur-coated granular fertilizers have since been replaced by inexpensive raw materials such as ammonium nitrate, potassium nitrate and ferrous sulfate."

With all the changes in place, the three courses at Red Rock Country Club are now irrigated with buffered water (bicarbonates in check) and treated biweekly with a direct application of synthetic acid. "These are by far the best changes I have ever implemented on a course," Swanson says. "The return on investment has been amazing. The courses have reversed their negative trend and are now responding to our management decisions as a typical course would in the Midwest." GCI

David McPherson is a freelance writer based in Toronto.

STEVE SWANSON, RED ROCK COUNTRY CLUB

In 2005 we made history introducing them.

Now, they're starting to make other mowers history.

E-Cut™ Hybrid Fairway & Greens Mowers. It's the fifth anniversary of E-Cut™ Hybrid technology. And the honeymoon's still not over. No wonder: they offer a flawless consistency of cut only electricity can deliver. Save up to 30% on fuel. And banish hydraulic-leak anxiety forever.

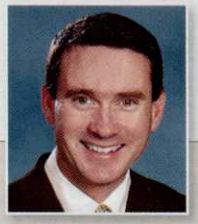
First gaining recognition on greens and next on fairways, our latest models, the 7500/8500 E-Cut Hybrid Fairway mowers, won the prestigious AE50 award.

But that's nothing compared to the reward of winning the confidence of so many courses, whose trust has transformed this revolutionary technology into a routine choice the world over. Have a spot open in your fleet? Try one on your course. See what all the buzz is about. **Consider us part of your crew.**

JOHN DEERE
GOLF

OFFICIAL GOLF COURSE EQUIPMENT SUPPLIER

1-800-537-8233 • JohnDeere.com/Golf



Erik Christiansen is a licensed irrigator and president of EC Design Group, an irrigation consulting and water management firm based in West Des Moines, Iowa. A board member for the American Society of Irrigation Consultants, Christiansen can be contacted at erik@ecdesigngroup.com.

SPRING TUNE-UP

Without question, spring golf has to be one of the favorite seasons – especially for the northern market coming out of this year's brutal winter. Golf clubs are filling up like anthills – diehards are joined by recreationalists at these collection points for the masochistic masses.

For golf courses, springtime first impressions can set the tone for summer traffic. For many turf managers, this is the time to invigorate your turf, while preparing for summer's challenging conditions. And irrigation plays a critical role in both early spring turf establishment and peak-heat season resilience.

Under summer's searing stress, an irrigation system needs to be operating at maximum performance. Better to have crews jump on the tune-up process now with a thorough inspection of the irrigation system operating under "normal" conditions. This will help to ensure good performance throughout the potentially stressful growing season.

All over the country, superintendents and irrigation technicians (who are worth their weight in gold, by the way) have made their initial spring system start-up and evaluations, with programmed irrigation schedules to get turf growing. Now's definitely the time to revisit each zone/sprinkler more intensively, look at system performance in greater detail and correct wayward irrigation operations. Any indication of turf stress this early in the season should be noted – especially around tee boxes and aprons where hot spots tend to surface.

The sprinkler is the most important part of any irrigation system. It flexes the hydraulic muscles. So let's start at the heads – they're the most visible and vulnerable part of the system. It's important that conditions for good sprinkler performance are in place, including the right heads with matched precipitation nozzles as specified in the original design – not replacement heads that don't match (you know, the one that gets slapped on a zone in the heat of the battle or after an aerification incident).

A good, inquisitive irrigation technician also should be checking for proper pressure at the nozzle; worn or mismatched nozzles; and proper, even head spacing and alignment. With spring rains and emerging growth, the slightest turf discoloration today will only turn ugly later.

Frontline crews should be out activating sprinkler zones and checking the operation of specific components. Pressure at the nozzle is essential to sprinkler performance, and too often ignored. Arm your crews with manufacturer's specifications for the appropriate sprinkler operating pressure range and a pilot tube (your handy diagnostic tool) with a pressure gauge. Then, under full station flow, have them gauge and record pressure at each nozzle, while looking for worn or damaged parts. This proactive step will save you from scratching your head while looking at dry spots 10 feet from a sprinkler during the summer months.

If pressure is either excessive or inadequate, have the necessary changes made to bring each head back to spec – like moving or removing heads from overburdened zones, or installing pressure regulation at the valve. Pressure regulators can restore hydraulic balance and are pretty simple and relatively non-invasive to install. Easy procedures that improve the performance of individual sprinklers and the overall system are our best opportunities.

Under summer's searing stress, an irrigation system needs to be operating at maximum performance.

Activated sprinklers also should be observed for rotation time – closely matching one another – because crews have already ensured that each head on a zone is of the same make and model. Crews also should be paying attention to any mushy turf around sprinklers for weeping valves or low-head drainage.

Furthermore, they might as well make sure each head is flush and perpendicular to grade, as the slightest disruption from hitting the turf will destroy the best of patterns. Heaved heads invite damage and can require springtime arc adjustment. All of these sprinkler tweaks actively drive accurate precipitation rates – and that's what it's all about!

By the end of May, staff should have inspected, detected and corrected sprinkler performance for great springtime conditions and the upcoming summer stress.

Use your crews and get your heads in the game, then plan any major upgrades from there. **GCI**

The safe bet for dealing with bicarbonates.

Forget the hassles and hazards of sulfuric acid. Now there's a better way.

Burst Turf is a safe and effective alternative, without all the specialized storage and protective gear associated with traditional acid injection. This non-corrosive formulation is non-irritating to skin and 100% biodegradable, and will not harm turfgrass or other plants when used as directed.

When used regularly, Burst Turf will lower bicarbonate and sodium levels, improve soil structure, and increase nutrient availability.

The smart solution for large turf areas.

- Reduces bicarbonate levels
- Opens soil pores
- Increases infiltration
- Safer than traditional acid

1273 Imperial Way • Paulsboro, NJ 08066 • USA • (800) 257-7797 • www.aquatrols.com Aquatrols®

By John Torsiello

Dialing in details

A growing number of superintendents are turning to more detailed analyses to better manage their fairways and greens.

Golf course superintendents can be a rather traditional group of professionals.

What has worked in the past will work now and in the future, some will tell you. That philosophy applies to soil testing. There are plenty of supers who like to keep it simple, thank you. Just ask Lance Johnson, CGCS, The Heritage at Westmoor Golf Club and Legacy Ridge Golf Club in Westminster, Colo.

"We use a very basic test for our soil analysis. It does include base saturation but we have had that included for years. Our budget doesn't allow us to get too fancy with our testing," he says.

Johnson certainly isn't alone. Many superintendents feel quite comfortable with some rather basic information, such as pH levels, to determine if their aerification processes are effective, as well as what type and how much fertilizer and other chemicals they should apply to their turf.

But a growing number of superintendents are turning to more detailed testing and analysis, viewing more expansive testing as a way to fine tune their turf management programs and insure complete and long-lasting health of fairways and greens.

pH is only a small piece of the puzzle, says Joel Simmons, president of EarthWorks, Martins Creek, Pa. "When we built a business selling organic fertilizer we realized we needed to understand a client's soil better," he says. "If we got the soils right our products worked better."

Soil tests are done to improve turf health and disease resistance.

Simmons and other soil experts believe that quality and in-depth soil tests should show how much nutrients the soil can hold. A beneficial test should also list the basic anions (negatively charged elements) and cations (positive charged elements), and should show the desired levels of calcium, magnesium and potassium, three vitally important nutrients that make up around 85 percent of the soil base saturation. It is also helpful if sodium, trace elements and hydrogen levels can be listed in a report to develop a more comprehensive picture of the soil.

Soil fertility tests are done to improve turf health and disease resistance; irrigation water uptake tests are used to determine how water impedes plant nutrition uptake; tissue tests are a tool to follow nutrition from the soil to the plant; and soil paste tests measure and compare water nutrient solutions between soil and plant.

Tissue testing can reveal interesting aspects of the soil profile, such as the somewhat disturbing fact that even when the soil chemistry seems in balance, the movement of nutrients may not be adequate enough to give the plant what it needs for proper growth.

Also, when a complete understanding of the soil is reached, it then becomes possible for superintendents to treat their turf, in effect "open it up," and allow air and water to pass through the soil profile. This will improve drainage, will create a sort of "check and balances" for pathogens, will mobilize nutrients, improve recovery and reduce fertility inputs.

Brian Smith, president of Arizona Sports Turf in Scottsdale, Ariz., believes superintendents are getting the message.

"It takes a while to change habits, but supers are seeing the value of more detailed soil testing and analysis," he says. "The superintendent will have the information to reach solutions to turf stress and not just apply Band-Aids over and over again on the problem. Some of the issues we find from more detailed soil testing are way more serious than what would be indicated by base saturation testing."

Detailed information can be used by superintendents to "pick the right nutrient options," says Smith, which is "critical" to building an effective and sustainable program for turf

Says Simmons, whose firm conducts some 15,000 soil tests a year, "We look at pH, yes, but we also look at the bigger picture – calcium, potassium and nitrogen levels – and gather knowledge on what the soil is doing both organically and chemically. The superintendent can look at a bigger picture and make choices that allow for a more fine-tuned management approach."

He likes to say, "It's like we are putting a 100-watt light bulb on a painting where there was only a 20-watt bulb before."

More and more superintendents are seeing the light.

"I'm not sure I would call them more sophisticated testing methods, I call them more thorough and complete," says Eric Snelsire, director of grounds at Glen Riddle Golf Club in Berlin, Md. He uses Analync testing offered through Floratine Products and Harris Labs because these tests show exchangeable and extractable nutrients.

"Therefore, it is showing us what is in the soil and how available those nutrients are to the turf plants. The Analync testing provides a complete picture of what is happening under the turf. In addition, the result recommendations are based on an extensive database of all their past turf samples, which take into account our region, soil, water and

"There is a little more expense involved but our **fairways and greens are worth it.**" — *Rob Davis, Tonto Verde Golf Club*

Testing soil provides a benchmark for how to start and end the year.

environmental conditions. We can truly look at the impact of the soil on all facets of plant growth, health and sustainability."

Brendon Byrne, superintendent at Llanarch Country Club in Philadelphia, has been using saturated paste extract tests from Soil First Consulting in conjunction with soil tests that measure "everything from base saturation to trace elements."

He says, "I use the saturated paste analysis because it gives me a true picture of what nutrient levels are soluble at that specific moment in the season. It is an advantage to have such a targeted and tangible set of information to review."

Time used in testing soil is time well spent, says Paul Dotti, superintendent at Arcola Country Club in Paramus, N.J. He tests for pH and nutrient deficiencies twice a year, in the spring and again in the fall, to provide a "benchmark for how to start and end the year" and to allow him to plan for the following season if there is a need to apply lime or gypsum during the winter months. He also conducts tissue testing throughout the summer months to monitor what nutrients the plant is taking up. This allows him to make adjustments to fertility programs "on the fly." Tissue testing is critical in "optimizing turf health and justifying fertilizer applications," he says.

Dotti adds, "We use Norm Hummel and ISTRC. Hummel is excellent in assessing soil profiles and topdressing compatibility. If you consider a change in topdressing material, a sample of your green profile and topdressing should be sent for analysis. ISTRC does an inch-by-inch analysis of the soil profile with 4-inch or 8-inch plugs, and they will make recommendations as far as organic matter content, infiltration rates, bulk density and air and water porosity. They also assess growing environments, as well as determine why a green may or may not be thriving."

Ron Gribble, superintendent at Red Hawk Golf Club in Reno, Nev., utilizes a bevy of tests, including standard soil tests, paste extract testing, tissue sampling and irrigation water testing.

"We have based our entire fertility, soil remediation and integrated pest management programs on this testing," Gribble says. "We have custom designed our annual programs using testing done every September, and our programs change from year to year based upon data collected. With help from our chemical and fertilizer partners, Redox Chemicals and Arizona Sports Turf, we prioritize deficiencies."

Detailed soil testing has proved invaluable to the courses Billy Casper Golf manages, says Dan Evers, Mid-Atlantic director of agrono-

AMS INC.

my. "Our partnerships with John Deere Golf and CLC Labs have been extremely valuable," he says. "BCG superintendents have been able to reduce fertility inputs, while increasing turf density, quality and course aesthetics. It has helped us reduce money spent on fertilizer line items in our budgets."

Each BCG superintendent works closely with Dr. Chuck Darrah, owner of CLC Labs, who walks them through the soil tests. "Dr. Darrah explains the results and what impact the results have or will have on the turf," Evers says. "He then makes recommendations and helps the superintendents set up a fertility plan."

This "no nonsense" approach is key to ensuring that each BCG superintendent is being fiscally and environmentally responsible. "Dr. Darrah also helps the BCG staff navigate through the murky waters of the fad or snake oil products that are rampant in our industry," he says.

Rob Davis, superintendent at Tonto Verde Golf Club in Rio Verde, Ariz., also says detailed testing helps him "fine-tune" his turf management. "There is a little more expense involved but our fairways and greens are worth it," he says. "The tests show us a variety of things, such as whether we should increase our aeration program or cut back, or if we should do light topdressing or be heavier with it. The better the turf is balanced the better it will behave."

Byrne interprets information in two ways. "First, I use experience as a golf course superintendent and my education in agronomy to determine a plan," he says. "Second, I read Soil First's summation and analysis of the test results."

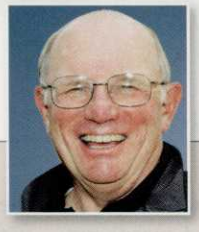
Armed with such detailed information, Byrne has a guide for what type and what amount of fertilizers he needs to apply. In the case of sodium test results, it will determine if he needs to use gypsum.

Testing gives Snelsire the actual amount of calcium, magnesium and potassium bulk amendment recommendations for a three- to six-month period depending on soil types. "We also use some of the information to implement or determine the need to flush the profile when amounts become excessive with any one nutrient, such as nitrogen or sodium," he says. "The testing has helped us reduce inputs or make strategic applications during certain times of the year to optimize plant health and provide greater growing environments for our turf."

Matt Fauerbach, Billy Casper Golf's director of agronomy for the firm's Northeast Region, says the company's superintendents view soil tests as baselines for their agronomic plans. "We are working with some courses on grid sampling," he adds. "This will provide a more accurate map of data across an area and is a more environmentally responsible approach that will ultimately prove to be more fiscally responsible as well."

"Although our testing budget has increased over the last few years, our chemical and fertilizer expenses have come down," Gribble says. "We are applying products exactly when and where we need them." **GCI**

John Torsiello is a freelance writer based in Torrington, Conn.



Monroe Miller is a retired golf course superintendent. He spent 36 years as superintendent at Blackhawk Country Club in Madison, Wis. Miller can be reached at groots@charter.net.

REMEMBER WHAT WALTER SAID

Golf course work moves at a notoriously fast pace, faster than I realized when I was immersed in it as a superintendent. This spring I'm making that observation from my perch as a volunteer walking greensmower and a totally relaxed fairway cutter at the club that employed me for nearly 40 years.

A fast, almost frantic pace doesn't mean it's disorganized; quite the opposite. If the crew I am an occasional member of wasn't highly organized and carefully managed, the workload required for topnotch playing conditions wouldn't get done. But I see now that despite being a keen observer of nature, I missed a lot simply because I was so busy. The advent of portable radios, cell phones and affordable golf course vehicles cramped quiet, personal times even more. Any superintendent's time is severely challenged. To some extent, I tried to compensate by getting to the golf course at a ridiculous hour each morning, usually in the dark. And often times that worked; it gave me the chance to see a huge yellow moon sitting low over our sixth green, so low it seemed I could jump up and touch it. The sunrise was mine to enjoy, and dew on the golf course was unmarked by golfers or golf course equipment, sparkling like acres of diamonds. But too often this plan was sidetracked by the consummate drive to squeeze a little more efficiency from a day – helping get mowers ready, shutting down irrigation, fueling equipment and a dozen other tasks.

Nowadays, I can more easily assume nature's pace – slow and steady yet unrelenting, day after day. After a Wisconsin winter of 100 days of snow cover, this spring and my newly acquired privilege of moving slowly and watching what's going on around me on the course has been a pleasure. It's like I can follow, at last, Walter Hagen's advice from over 30 years ago: "Don't hurry, don't worry. You're only here for a short visit. Be sure to stop and smell the flowers."

We experience seasons because the earth's axis of rotation is tilted at an approximate angle of 23 degrees, 27 feet, 8 inches (it varies a little each year) from the vertical plane of its orbit. So it you are at the equator, the angle of tilt doesn't have much effect. But at the north and south poles the full effect of this angle results in seasons of nearly full light and seasons that are mostly dark. Here in Wisconsin we are literally right in the middle and can fully enjoy four distinct seasons. And now it's spring!

In our town the March weather swings wildly – golf courses are actually open some years, and in others we may get 20 to 30 inches of snow. Years ago, when I was a college student, I did a phonological study of blooming dates of woody ornamentals, and such a project begins in March and doesn't end until June. I've always wanted to do that again,

> Golf course work moves at a notoriously fast pace, faster than I realized when I was immersed in it as a superintendent.

and now I can. I would also like to note when the various bird species return here, which also begins in March, and now I can. I'd like to record when the ice leaves the five Madison lakes and the small pond on our course.

Spring is more earnest in April and really starts to assert itself. You can hear the spring peepers, see the turtles emerging from the water to sun themselves, watch the spring bulbs mature and count the wildflowers on the course, IF you take the time. Or if you have the time, which many superintendents don't.

When May arrives, it almost isn't possible to keep up with all of Nature's activity. The work required on the course "interferes!" If that describes you, fret not. Your time will come, like mine has. I can finally follow the simple advice of poet W.H. Davies, lines I wrote down many years ago:

"What is this life if, full of care,
We have not time to stand and stare?"

So if you see some older guy mowing greens with a pair of binocs and a loupe around his neck and a notebook on the seat of his course vehicle, it could be a retired superintendent finally taking Walter's advice. **GCI**

Golf Course Industry:

The only magazine moving UP the leaderboard.

1	**GOLF COURSE INDUSTRY**	**49%***
2	Golfdom	16.3%
3	Golf Course Management	16.3%
4	Golf Business	13.3%
5	Superintendent	5.1%

Source: 2010 Readership Study

To find out how you can drive your business with the *industry publication readers recognize as growing and improving, consult your advertising representative at 800-456-0707 or visit mediakit.golfcourseindustry.com.

Golf Course Industry . . . Driving the business of golf.

GOLF COURSE INDUSTRY

Grasses gone *wild*

Besides enhancing a course's unique character, ornamental grasses reduce water, fertilizer and pesticide demands.

It's turf you want to *run wild.*

by Nancy Sadlon

The flowers and subsequent seed heads of ornamental grasses are diverse, ranging from understated to truly spectacular. From far left: *Pennisetum orientale*; *Erianthus ravennae*; *Pennisetum orientale.*

A superintendent's duties range beyond managing a golf course for playability. In fact, many are charged with not only presenting players a course with unique characteristics, but doing so on a constrained budget and by demonstrating sustainable land use. What many golf course superintendents might not realize is that incorporating ornamental grasses into their courses can help them accomplish many of these goals.

CHARACTER

Ornamental grasses can serve as fillers or specimens, border plants or background plantings and as groundcovers or screens.

Their adaptability and subtle beauty make them perfect companions to flowering plants and other woody ornamentals. And clumped together, ornamental grasses create an area requiring less water and fertilization than other planting beds.

Ornamental grasses are available in a wide array of colors, shapes, textures and sizes. The flowers and subsequent seed heads are equally diverse, ranging from understated to truly spectacular.

Likewise, each grass species has its own unique form. They may form low compact mounds, tall screens or densely spreading mats. The foliage colors include various shades of green, blue and red, as well as variegated varieties having red, white or yellow foliage banded with ivory or yellow stripes.

In the fall, spring and summer their colors change to hues of red, beige or brown, providing a great winter garden accent. The flower spikes also offer a diversity of colors.

Ornamental grasses also add a dimension of motion and sound to an environment. And often these animated movements will change with the seasons.

MAINTENANCE

Once established, ornamental grasses require very little care. Unlike greens and fairways, ornamental grasses are low-maintenance, have low water demands, attract few pests and have low fertilization requirements.

These durable, low-maintenance plants not only add distinction to a landscape during the summer months, but they are quite dramatic in a winter landscape, as well.

Grasses do not need to be cut down before winter. In fact, they remain attractive when left standing and the foliage helps insulate the plant's crown. In the spring, before growth resumes, superintendents are advised to cut back the foliage to a height of 4 to 6 inches. Division depends on the spacing and visual appearance of the ornamental grass, as well as its overall health.

Plants suffering from die-out in the center should be divided to improve appearances. Division is done in the spring before growth resumes or in the late summer or fall after the growing season. Plants that bloom late could be divided in the spring.

Divided plants should be well watered the first season after planting to develop a solid root system. Established plants do not need regular watering, earning them a drought-tolerant reputation. The amount of watering depends on the grass species, the site and on the quality, size and desired growth rate.

Likewise, most ornamental grasses require low levels of fertilization. By keeping nitrogen levels low, lodging or flopping over can be kept to a minimum. Leaf color and vigor are good guides to nitrogen requirements. Application of one-half to one

Ornamental grasses come in a wide array of colors, shapes, textures and sizes. From far left: *Festuca glauca*; *Helictotrichon sempervirens*; *Miscanthus sinensis*; *Panicum virgatum*; *Liriope spicata*.

WALTERS GARDENS

With few pests and diseases, ornamental grasses require little to no pesticide applications. Above: *Chasmanthium latifolium.*

"Ornamental grasses also add a dimension of *motion and of sound* to your golf environment. And often these animated movements will change with the seasons."

pound of 10-10-10 fertilizer per 100 sq. ft. of garden area, or about one-quarter cup per plant, is sufficient. An application of a slow-release fertilizer just as growth resumes in the spring is enough to take care of the plant's needs throughout the summer.

For weed control, cultivate around grass plants. An application of mulch reduces the need for cultivation and watering, and it will keep in check those grasses that have a tendency to be heavy seeders. With few pests and diseases, ornamental grasses require few if any pesticide applications.

WARM- AND COOL-SEASON SELECTION

Grasses respond and start to grow based upon soil temperature.

Cool-season grasses will start to grow early in the spring and may remain semi-evergreen over the winter. Cool-season grasses also seem to do better and have better foliage quality when temperatures are cool or if they are given sufficient water during drought periods. If they are not watered during drought, then they will go dormant resulting in brown foliage. These grasses may require more frequent division to keep them healthy looking and vigorous. If not, they will die out in the center.

For those grasses that remain semi-evergreen, you should only cut off the brown or winter-injured foliage in the spring. Some of the more popular cool-season grasses include fescues, blue oat grass (*Helictotrichon*), tufted hair grass (*Deschampsia*), and autumn moor grass (*Sesleria*).

Warm-season grasses will do better during warmer times of the year and remain good looking even when temperatures are high and moisture is limited. Warm-season grasses do not begin to show growth until the weather becomes stable and the soils warm. The previous season's growth usually browns out in the fall and requires the cutting back of plants to a height of between 4 to 6 inches in the spring. Warm-season grasses usually do not require as frequent division as cool-season grasses. Some warm-season grasses include northern sea oats (*Chasmanthium*), Japanese silver grass (*Miscanthus*), hardy pampas grass

WALTERS GARDENS

Biological fungicide offers four modes of action.

NEW SYSTEMIC PRODUCT CONTROLS SOIL-BORNE DISEASES WITHOUT TENDENCY FOR RESISTANCE.

ActinoGrow™ T&O
Biological Fungicide

A good fungicide program manages disease, meets budget restrictions, incorporates IPM standards and maximizes efficiency. A great fungicide program also addresses the demand for environmental stewardship by incorporating softer, greener chemistry.

The increased commitment to sustainability and the demand for more and better biorational products is a trend that is here to stay. Luckily for golf course superintendents, the industry is keeping pace with the introduction of biological fungicides, such as ActinoGrow™ T&O, as well as other plant protection products. These products make it easy to integrate biorational solutions into your turf management program, while continuing to rely on traditional solutions . . . all with no sacrifice of quality.

"ActinoGrow T&O serves as an excellent example of why interest in biorational alternatives for golf course fungicide programs is so great," George Furrer, national marketing manager for SipcamAdvan, said. "Proven in university trials, ActinoGrow T&O controls soil-borne *Rhizoctonia, Pythium, Phytophthora* and *Fusarium*. It also promotes plant strength and vigor, enhances root systems and increases nutrient and water uptake. This OMRI Listed® product will be popular not because it is "green," but because it works."

As George Stallings, Ph.D., western field development manager for SipcamAdvan, explained, "ActinoGrow T&O contains a high concentration of a patented strain of the beneficial bacterium *Streptomyces lydicus*, which offers four modes of action in one product. Because of its unique properties and multiple modes of action, *Streptomyces lydicus* is not prone to disease resistance. And as any golf course superintendent knows, a systemic fungicide without resistance issues is a very important disease management tool."

FOUR MODES OF ACTION OF *STREPTOMYCES LYDICUS*.

1. **Exclusionary: Beneficial microorganisms grow around roots and foliage, preventing disease organisms from growing.**
2. **Antibiotic Production: Produces three unique antibiotics that are destructive to disease organisms.**
3. **Enzyme Production: Produces chitenase, which destroys chiten found in cell walls of disease fungi.**
4. **Predatory Action: Attacks and devours certain disease-causing fungi.**

Although traditional pesticides will always have a place in golf course turf management, superintendents who also embrace the use of biorationals will be rewarded with positive results at all levels. That is why SipcamAdvan is committed to promoting success in an environment where "more of the same" is no longer adequate. Giving you the edge required to maintain your golf course to top standards by delivering both traditional and biorational product solutions is our number one responsibility.

ActinoGrow T&O Highlights

- Contains high concentration of the patented beneficial bacterium *Streptomyces lydicus* as a 100% water-soluble powder
- Provides four modes of action so disease organisms cannot develop a resistance to *Streptomyces lydicus*
- Controls soil-borne diseases including *Rhizoctonia, Pythium, Phytophthora* and *Fusarium*.
- Promotes plant strength and vigor, enhances root system, increases nutrient and water uptake
- Tank mixes with most fungicides, insecticides, biological stimulants and liquid fertilizers
- Does not require constant agitation, will not clog application equipment

SipcamAdvan
The Natural Choice™
www.sipcamadvan.com
800-295-0733

Ornamental grass resources

Cooperative extension services have excellent references on ornamental grasses. Check your local office for details on the varieties ideal for your facility.

USGA agronomists can offer expertise on ornamental grass selection and maintenance, too. Check out the "Landscape Restoration Handbook," a publication sponsored by USGA published in 1993 which encourages golf courses to embrace landscape naturalization.

Likewise, nursery Web sites abound with photos and information. In addition, landscape professionals can provide assistance on ornamental grass selection.

David Kuack, editor of *GMPRO*, a Golf Course Industry sister publication, suggests the following books:

- "Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses," by Michael A. Dirr, Stipes Publishing.
- "The Encyclopedia of Ornamental Grasses: How to Grow and Use Over 250 Beautiful and Versatile Plants," by John Greenlee, Rodale Press.
- "Herbaceous Perennial Plants: A Treatise on Their Identification, Culture, and Garden Attributes," by Allan M. Armitage, Stipes Publishing.

(*Erianthus*), perennial fountain grass (*Pennisetum*), switch grass (*Panicum*) and prairie cord grass (*Spartina*).

No fall or winter landscape should be without a tall ornamental grass. Plume grass (*Erianthus ravennae*) is found in zones 4 through 9 and it grows to a height of between 8 and 11 feet with a clump that spreads up to 4 feet. This plant – with its tall, thin shafts and fluffy coiffures – exhibits a delicate structure that lends a touch of charm to a harsh winter landscape. Because of its height, a plant such as plume grass can be used as a focal point in a ornamental bed or landscape setting.

Maiden grass (*Miscanthus sinensis 'Gracillimus'*) is a fine choice in zones 5 through 9 for a tall, drought-tolerant ornamental grass, as it reaches a height of 7 feet, with a spread a bit less than that. Maiden grass bears coppery tassels as a seed head in early fall, eventually growing lighter in color and adorning the plant as a "plume." It's advised not to cut the clump's stems back until after the bleakness of winter passes, since the graceful stems and puffy plumes of this plant will provide some visual interest on an otherwise barren December through February landscape.

Blue oat grass (*Helictotrichon sempervirens*) is a cool-season ornamental grass that can be grown in zones 4 through 8 and is effective for deer control. This ornamental grass grows in a 3-foot mound. If you wish to enjoy the signature blue hues of its foliage to the fullest, then grow it in full sun and well-drained soils. The plant also produces spiky, dark flowers with a bluish tint in summer that turn harvest gold in autumn.

Another favorite, northern sea oats (*Chasmanthium latifolium*), is an ornamental grass that grows to a height of 3 feet in loose clumps of green foliage. Its name derives from its seed pods, which resemble oats. This deer-resistant ornamental grass is cold hardy to zone 5. Even after its leaves have died, it provides visual interest to the winter landscape.

For a shorter, deer-resistant ornamental grass, try lilyturf (*Liriope spicata*). Lilyturf ornamental grass can be grown in zones 4 through 10 and reaches about a foot in height. Lilyturf likes water, but also does well in well-drained soil. For best results select an area with partial shade and soil rich in organic matter. This ornamental grass has a spiky flower, ranging in color from white to lavender. In autumn it bears a dark berry. Be warned: You'll want to contain this plant, because it is enviously.

Another short ornamental grass grown in zones 4 through 8 is blue fescue (*Festuca glauca*). The popularity of this clumping, drought-tolerant ornamental grass lies in the blue color of its foliage, which complements any surrounding plants with silvery foliage, such as lamb's ears. The plant resembles a pincushion bristling with blue pins. As with maiden grass, cut back foliage in early spring. Divide every few years to rejuvenate.

CALL TO ACTION

Doing your part in establishing ornamental grass areas on a golf course will help you meet reduced pesticide, fertilizer and water demands.

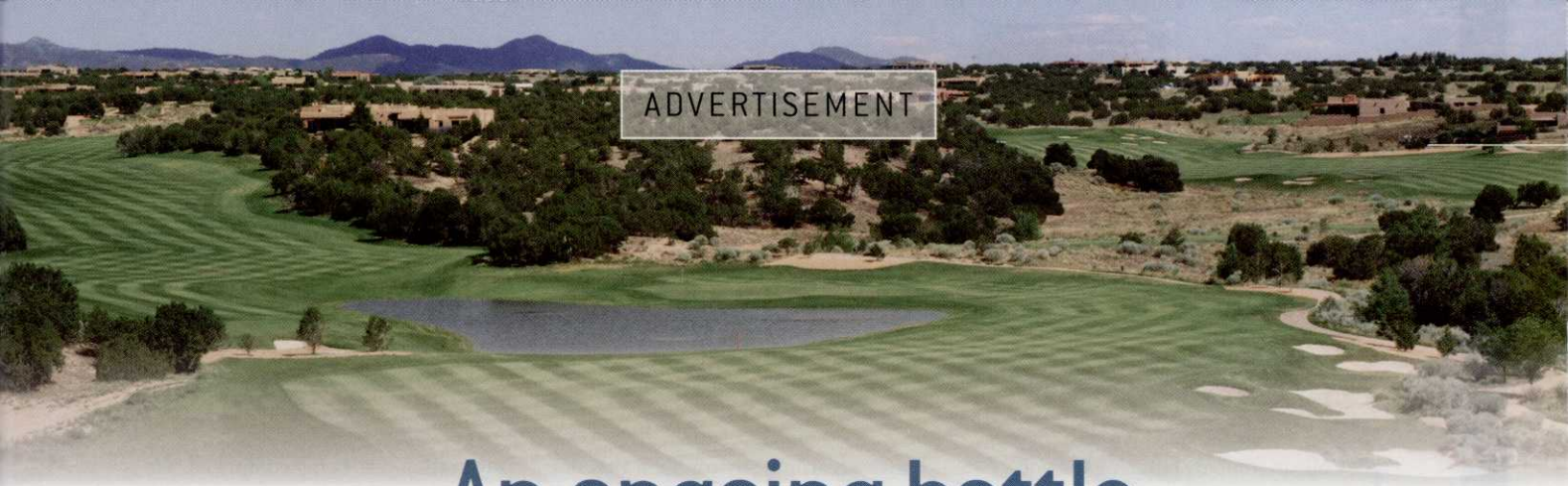
States such as New Jersey, Florida, Minnesota are considering the adoption of fertilizer restrictions that would impacting golf and other green industry sectors.

If you are in New Jersey visit the New Jersey Green Industry Council Web site: njgic.org/ for more information on this topic. Those outside of New Jersey are encouraged to visit Responsible Industry for Sound Environment Web site: www.pestfacts.org/rise/index.html for an advocacy group in your area.

Your voice is needed to demand sound science guide future laws and regulations. **GCI**

Nancy Sadlon is the executive director of the New Jersey Green Industry Council, a nonprofit organization whose mission is to secure reasonable regulations and laws for golf and other sectors in the green industry.

WALTERS GARDENS



An ongoing battle

A superintendent in New Mexico experiments with wetting agents to combat localized dry spots

For Steve Campbell, wetting agents aren't a miracle product; they're just another gun in the arsenal of turfgrass management.

"If you know how to use them and what they're supposed to do, they work," says Campbell, director of agronomy at Las Campanas, a 36-hole facility that sits on 5,000 acres of high desert in Santa Fe, N.M. "If you don't know what they do, you won't get good results. There's no 'follow A, B, C and D,' and you'll be successful. Find out what your problems are and figure out how to fix them. If wetting agents work for me, I believe they'll work for everyone if they apply them to their individual needs and situations. Each golf course is different. You don't treat them all the same."

Campbell manages 100 employees and runs the golf course, landscape, public works and revegetation divisions at Las Campanas, a Lyle Anderson development. Budgets are confidential, but Campbell's is more than $1 million.

Campbell, who's been at Las Campanas for 12 years, is a big believer of wetting agents and has used them his entire career. He injects wetting agents into the irrigation system, using 1/16 to ¼ of an ounce per thousand square feet of turf per day.

Las Campanas receives just 12 inches of rainfall a year, so water is king.

"I need to make water wetter to conserve and use every drop," Campbell says. "Wetting agents break the surface tension of the water droplet and force it to go into the soil."

Under water conservation mandates, the most water Campbell can use per golf course per day is 600,000 gallons, even though he says he can use less than that during less stressful months of the year. Determining how much water he uses is a complicated system, he says. He checks water use every morning via a computerized monitoring system and reports it monthly. Other parties, namely municipalities, can check his water use daily if desired.

The water is high in salts and bicarbonates, which makes it difficult for Campbell to flush the soil. He can flush salts down into the soil profile with the annual 12 inches of rainfall and the wetting agents he uses.

The bentgrass Campbell grows isn't native to the area. He says there has been ongoing talk about changing the turf, but the native grasses (buffalograss, for example) would never be used because they wouldn't survive if cut at turf heights.

STEVE CAMPBELL
CGCS

"I have bentgrass on greens, tees and fairways," he says. "The temperature will go down to zero degrees Fahrenheit in the winter, and if I don't have snow cover, I irrigate the turf once a week because the plant will freeze dry if I don't because of the high winds and very low humidity. The crown needs to stay wet or it desiccates. We're at 7,000-feet elevation. The Rocky Mountains begin here in Santa Fe."

To treat localized dry spots, Campbell uses eight ounces of wetting agent per thousand square feet every two weeks. No matter how uniform a green is, there will be inconsistencies and localized dry spots, which is compounded with salts, he says.

Campbell says he has tried every wetting agent on the market and started using them in Philadelphia where it was hot and humid with an entirely different set of weather, soil and agronomic conditions.

"Surfside is the best wetting agent I've used," he says. "I use it exclusively."

Campbell uses wetting agents throughout the year and is always looking for a deal. He buys the 55-gallon drums even though the shipping is expensive.

"I spend a minimum of $12,000 on wetting agents a year," he says. "There has been no year where I spent less than $10,000 on wetting agents. The drier the year, sometimes as little as four inches of rainfall a year, the more I need to supplement my irrigation."

Campbell acknowledges there's an uncertainty about wetting agents in the industry, but he says a superintendent has to know his soils, drainage, irrigation and turf problem areas.

"You need to spend the time to experiment," he says. "One size doesn't fit all. What I used in Philly is different than what I use out here. It's no different than any other business. Attention to detail is the key, and versatility is key to success. You need to make adjustments. You don't just dump a wetting agent in the tank and go."

When Campbell sees a water-related problem, he applies a wetting agent, which alleviates the problem but doesn't eliminate it.

"It will be different for me every year," he says. "It's frustrating, but just because it worked last year, doesn't mean it will work exactly the same way this year. It's an ongoing thing."

Superintendents will always deal with localized dry spots and wetting-agent use, Campbell says.

"Every superintendent should have a wetting agent as part of his arsenal," he says. "They've been around a while, but they must be doing something for someone because they've last a long time. That's somewhat of a testimonial." GCI

Nathan Jordan is assistant superintendent at Country Club of the Rockies in Edwards, Colo. Contact him at ntjordan@gmail.com.

WE'VE ALL BEEN THERE

College students pursuing the golf course management industry have many internship options – public, private, cool season, warm season. The list seem to goes on and on. Regardless of the facility where you're employed, it's critical to bring value to the internship experience.

Typically, those who are looking to gain more experience will be motivated and driven to succeed. The dedication an intern puts into the work experience should be reciprocated with meaningful education and strategic guidance from the management team, and that includes assistants. Leading interns comes with additional responsibilities, but it also offers a rewarding experience for you and the student.

Due to class schedules, few students have the ability to complete an internship that's longer than three months. Time is limited. Meet with interns at the beginning of their employment to gain a solid understanding of the skills they're looking to learn or improve. A few minutes spent here will allow for adequate planning.

While routine tasks on a golf course must be completed, keep in mind that assigning a variety of duties helps maintain an intern's interest in the profession. Reflect back on your own personal internship experience and create a list of duties you liked and disliked. I doubt mowing the rough for eight hours a day ranked very highly. There's much more to our job description than operating equipment.

Don't forget that learning can still take place without extensive practical experience. For example, understanding how to rake a bunker can be achieved simply by observing another skilled employee complete the job. By the end of the season most interns will be able to explain the process and replicate the procedure.

Foster a learning environment that not only allows for the development of physical skills, but also cognitive functions.

A tremendous amount of thought goes into scheduling daily tasks on a golf course. Few of us show up for work without a plan to accomplish the tasks that have been handed down by the superintendent. An intern should be given the same opportunity to think independently about how he or she will carry out a set of instructions. The ability to process information takes various lengths of time depending on the individual, so you need to have patience and understanding. You may need to explain the directions differently than you are accustomed to.

> Foster a learning environment that not only allows for the development of physical skills, but cognitive functions, too.

This shouldn't create a negative attitude toward the intern, but merely accommodate the various styles of learning. When fully comprehended, the outcomes are usually great. It's those times when clear and concise communication is lacking that the end results are less than desirable.

It's also important for the student to begin recognizing areas for concern on the golf course and report those problems to the management staff. It takes a concerted effort from everybody to successfully manage a golf course, and everyone's thoughts and opinions should be considered.

The morning is a fast-paced, high-energy time of day, when daily course preparations are being completed. We are all moving in different directions, working toward the common goal of preparing the course for play. Encourage interns to be aware of everything that's happening around them. Although they may be assigned to cutting cups, keeping their heads "on a swivel" can be a tremendous benefit.

It takes a diligent effort to minimize the "tunnel vision" that can plague all of us when focused on a specific task. For example, cutting cups requires an intern to drive from hole-to-hole and walk on the greens. Remind them there is a lot they can notice during this time. Emphasize that even though the primary task includes a certain amount of responsibility, much more can come from it.

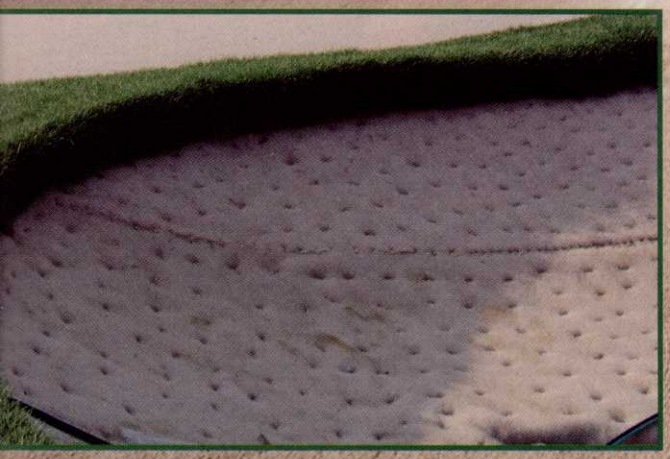
For example, if the intern reports there's an irrigation leak developing before the course opens for play, he could prevent a lot of headaches that would have developed had the problem gone unnoticed until a member reported it later in the day. Instead, course set-up has been completed, a problem has been identified and reported and the intern has gained the feeling that he or she contributed to the team. Learning potential should not be overlooked regardless of the situation or timing of circumstances.

Each facility approaches its internship program differently. The demands vary from one course to another. Despite the differences that exist, one thing should remain constant: We should all work together to provide a positive learning experience for those pursuing a career in the industry.

Don't dismiss the internship experience. Remember, it is a stepping stone in a very competitive market. It's unlikely we would be where we are today without meaningful internships. So take the time to be a positive influence to the next generation of turf managers. **GCI**

Sand daM™

EROSION CONTROL BLANKETS FOR SAND BUNKERS



The easiest to install and most effective of all bunker blankets.

Now available in three great options

1. Hi Performance Sand daM™ for slopes as steep as 60˚
2. Sand daM™ MR is ideal for projects where high performance and low costs are required
3. Install Sand daM™ Lite in greenside bunkers with low angle slopes, or flat bottomed fairway bunkers to eliminate contamination

Professional Turf Products LLC™

TOLL FREE 866-726-3326 PHONE 724-929-2111 FAX 724-929-0282 EMAIL info@proturfproducts.com WEB www.proturfproducts.com

FRAMING THE PICTURE

Ornamentals have nothing to do with the playing surface, but with proper planning and placement they enhance the entire facility. By Joe Wachter

The prime feature of any golf course is the turf that we maintain on a daily basis. Ornamental plantings have nothing to do with the playing surface of our great game but when planned and placed strategically they enhance our clubhouse/pro shop facilities and the entire course.

I have enjoyed working with ornamental plantings on the various golf course facilities that I have managed over the years. All but one of these facilities was managed without the aid of a horticulturist. There are a few keys that I believe can assist superintendents in successfully managing their horticulture programs.

KNOWLEDGE/EDUCATION

Horticulture is a field that is rapidly changing with the development of new plants and designs. There are many ways you can improve your knowledge on this topic.

The Internet is a great reference to use for descriptions of plants and bed design. Photos of plants and combinations of many types and styles of beds are a click away.

Junior colleges, evening adult-education classes, garden centers, state extension services, botanical gardens and regional and or state turf conferences offer classes from one hour to full semesters.

Join a local golf course horticulturist or nurseryman/landscape association. Attend meetings and learn from experts who work primarily with plant material and have years of experience. Their business requires that they are current with the best new plants and trends in the industry. When you attend local golf course superintendent association outings, check out the planting beds and take pictures. Visit commercial properties for ideas on different plant material and design. Most of these properties were designed by a professional architect and are managed by trained horticulturists. Remember, ornamental plantings are changed on a regular basis.

REMEMBER THE SOIL

The soil is the foundation of a planting bed. A well-drained soil will grow the best plants. A great way to build the soil of a new bed is

"Attitude is everything when working with ornamentals on the golf course."

by incorporating compost, leaf mold, manure and or peat moss. This material is available from most mulch suppliers or from city or county yard waste facilities. You can also begin the process of making your own compost from leaves that drop on the golf course. Also, do not forget to mulch your beds lightly to prevent weeds from germinating and reduce the loss of water. I like using compost material for my annual beds because it will be tilled under and takes less time to break down in comparison to mulch.

SITE SELECTION

There are a number of factors I try to keep in consideration when planning an ornamental bed. High visibility areas such as the clubhouse, main patio area, teeing ground or near green complexes are the best sites. The first tee and last hole catch a golfer's attention at the beginning and the end of the round. Some club facilities host group functions, such as banquets and weddings, in which the guests do not leave the immediate clubhouse area. These areas provide first impressions for all guests who visit your facility.

Automatic irrigation is important for plant survival and labor savings. Place soaker hoses around clubhouse plantings to reduce building damage and high water bills.

Know the amount and type of sun your planting bed will receive during the day. A full-sun plant in a shaded bed area will result in a weakened plant and less than attractive overall display.

ANNUALS AND PERENNIALS

I've used both plant types over the years together and separately with success. The benefits of annuals include mass plantings with diverse color combinations and less space for weeds. Season-long blooms and plant designs can be changed on an annual basis.

Perennials do not require new plants every year. In fact, multiple plants can be made from divisions after just a few seasons. However, while less overall maintenance is needed for overall plant health, they do require upkeep.

The use of trees, shrubs and ornamental grasses can fill the space of a bed, provide structure and seasonal beauty.

My facility has a number of very attractive perennial beds designed years ago. Some of these beds are in need of rejuvenation which is a part of the required maintenance for perennials. I place a few annuals in spaces near walk paths that provide a little more depth of color for the perennial bed.

We do grow our own plugged products in a greenhouse on the property. Most of the plants are annuals and are planted in the most highly visible areas of the clubhouse, patio and pro shop. The beds are planted with 1,500 tulips each fall and then are tilled under for the annuals in May after the tulips have finished their blooming cycle.

Our plant material is a zero-dollar cash outlay after we have our yearly plant sale to the membership. Also, I utilize plant brokers from our area who have expanded knowledge of plant varieties and have put me in contact with the best growers for purchasing.

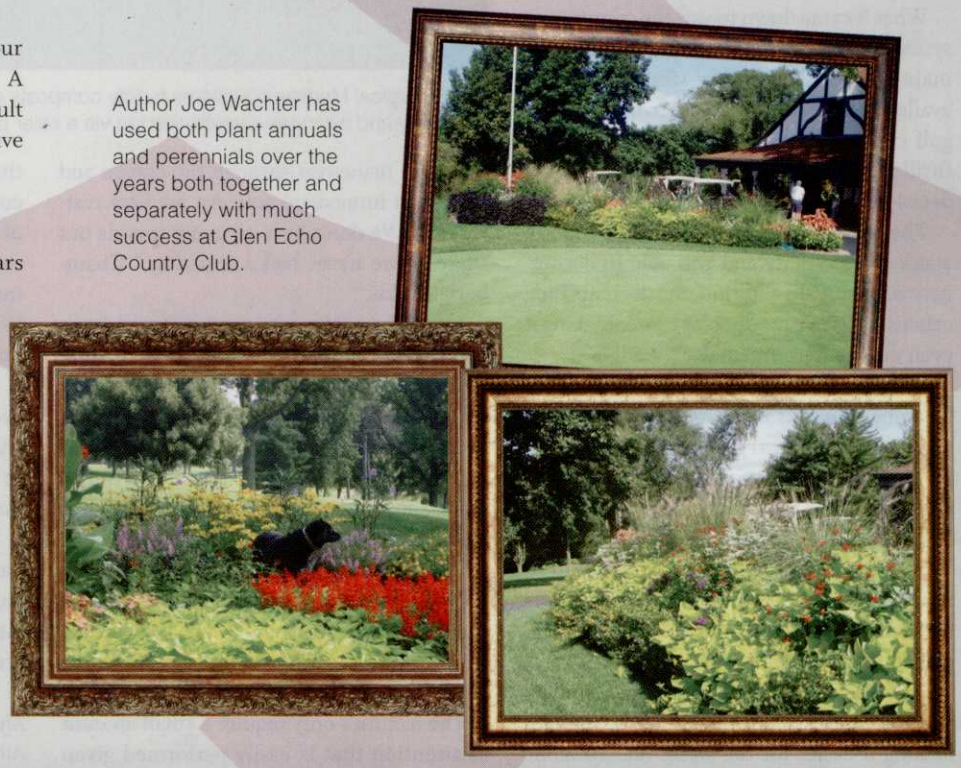
BED SIZE AND PLANTING GUIDELINES

I would rather make a few large beds with mass plantings than a large number of small beds with a few plants. Smaller beds create obstacles for mowing equipment and also get lost in the landscape. Building too many beds that cannot be maintained is a serious mistake. If it cannot be maintained, it should not be built.

Each plant has specific guidelines for spacing. Plants properly spaced compliment one another and will enhance the characteristics of the plant such as its color, form and or texture. Plants not properly spaced look lonely and afraid to show their true color. You see more of the ground or mulch than of the plant, plus it leaves space for weeds to overrun a bed. Use a color wheel to identify plants whose blooms work well in combination.

Attitude is everything when working with ornamentals on the golf course. It is obvious when visiting a facility where the superintendent understands the importance of maintaining an ornamental program to the highest level. Great turf along with well-maintained ornamental plantings compliment one another and can set you and your facility apart from the competition. **GCI**

Joe Wachter, CGCS, is superintendent at Glen Echo Country Club in St. Louis.



Author Joe Wachter has used both plant annuals and perennials over the years both together and separately with much success at Glen Echo Country Club.

JOE WACHTER, GLEN ECHO COUNTRY CLUB

Quality **treatment**

A trio of facilities try out waterless on-course restrooms in lieu of Porta-Potties. BY ALYSE LAMPARYK

Watching his courses' turf being torn up by waste management trucks twice a week was just too much for superintendent Russ Chamberlain, so he started looking for alternatives to the 50-gallon Porta-Potties. "You get about 90,000 rounds of golf and you've got to keep them clean," Chamberlain says of the required frequent cleaning for the portable waste units.

Chamberlain supervises Brae Loch Golf Club in Grayslake, Ill., and Countryside Golf Club in Mundelein, Ill., which is made up of the Prairie course and the Traditional course. All three are public, 18-hole courses located in northern Illinois.

After picking up a tip about possible companies from another employee, Chamberlain began researching several different options. Eventually the choices were narrowed down to a Biological Mediation Systems (BMS) facility or comparable waste system.

What it came down to was the composting system, and the BMS unit required much less maintenance than (other similar systems) available at the time. "I talked to three or four golf courses that had it and they just were thrilled by them," Chamberlain says of his decision to purchase from BMS.

The unit he decided on did not require water or electricity and was able to decompose naturally. In addition, the decomposing exhaust system runs on solar power making it even more environmentally friendly.

Unfortunately, because of budget concerns, Chamberlain was only able to revamp the restrooms at Countryside. In spring 2006, he bought two restrooms at $21,000 each, and two years later purchased one more for $24,000, due to cost increases over time.

"We do plan in the future to do them at Brae Loch, but right now it's not the top priority with the economy right now and how the golf courses are doing," Chamberlain says.

Brae Loch is much smaller than Countryside and its restrooms are more accessible, making it easier for the waste management trucks to maneuver through the course and less of an immediate concern for new restrooms. "We don't have as many rounds out there so we never had a situation," Chamberlain adds.

The Biological Mediation Systems facility composts without water or electricity and operates a ventilation fan via a solar power unit on the roof.

Once the restrooms were ordered from BMS, the prefabricated 500-gallon concrete structure and building were shipped by semi-truck from Colorado where they were built.

Chamberlain worked with his staff and an employee of BMS who was flown out to assist and together they finished the project in about a day.

The layout was set up so that for every nine holes a restroom was made available. The Prairie course has one and the Traditional course has two, one of which is located where it can be shared by both courses.

The facilities only require a small amount of attention that is easily performed given that there are 10 maintenance employees per course and an annual maintenance budget of $500,000. Each course has one employee responsible for cleaning the restrooms every morning and checking for vapors and garbage. With a 500-gallon tank, an outside source is hired once a year to clean out the tanks.

If Chamberlain wanted to, he could wait even longer than a year for the tank to be cleaned. It is only truly necessary every two or three years but he prefers to have it done more frequently.

The on-course restroom's lack of maintenance and repair have left Chamberlain very happy with his purchasing choice. "You just kind of monitor it and it's really easy and there are cost-savings in the long run." **GCI**

Alyse Lamparyk is a freelance writer based in Athens, Ohio.

BIOLOGICAL MEDIATION SYSTEMS

Precision **pumping**

Preston Trail Golf Club relies on local companies for pump station needs. BY ALYSE LAMPARYK

The consistency of Flowtronex pump stations has provided assistant superintendent Chris Rick more time to focus on other issues, both at his current job and at previous places of employment.

Rick, who has worked in the golf industry for 18 years, still maintains the opinion he formed when he first came across a Flowtronex pump station in 1998 at a Seattle course he previously worked at. "It was a solid system and ever since then I've always felt that they were a good pump," Rick says.

The course Rick is presently at, Preston Trail Golf Club in Dallas, underwent renovations involving the installation of a brand new Flowtronex pump station in 1999. Rick was not on board for the initial installation, as he began working at the 18-hole private course 5 ½ years ago, but was involved in decision making when the Silent Storm system needed an update last year.

"We had Flowtronex give us a price to retrofit the pump station and it was a lot more reasonable than buying a new one," Rick says, adding that cost was a definite factor. The decision to retrofit the pump station cost about $130,000 and involved a new flow meter, computer, pumps and motors.

While Rick says he wasn't dead set against specific bells and whistles, there were certain features that appealed to him.

The computer-based pump log is an element that he has been particularly pleased with because it enables constant monitoring of the amount of water running through the pump posts. In addition, the log feeds a signal up to the office computer making it easier to supervise.

Ultimately, Rick was pleased with the process and the results the company produced. "Exactly what they told us they were going to do is what we got and it was a pretty flawless transition," Rick says of the retrofit.

Since the retrofit there has been no need for repairs. Conveniently, if anything malfunctions on the pump station, the Flowtronex main office is located in Dallas, as well.

However, Rick does his best to stop any problems before they can occur by employing Monroe Pump Service to perform preventative maintenance. Once a year the local company inspects everything to make sure it is running properly. "By doing that we can anticipate any problems if they do notice something," Rick says.

Prior to the recent retrofit, Monroe Pump Service came to their aid when a pump broke down. Rick says the company arrived quickly and the machine worked well after the repair.

Besides during inspections, only Rick and two other assistants every really touch the pump station. With an annual maintenance budget more than $1 million, Preston Trail has 31 maintenance employees taking care of the golf course.

Should something change and he would require more help with the system, Rick believes it would be fairly easy to train his employees to use it. The touch screen control panel places everything out in the open, making it simple to modify the system as needed.

"It's all about reliability. It's all about not having to worry about it and having it work all the time."

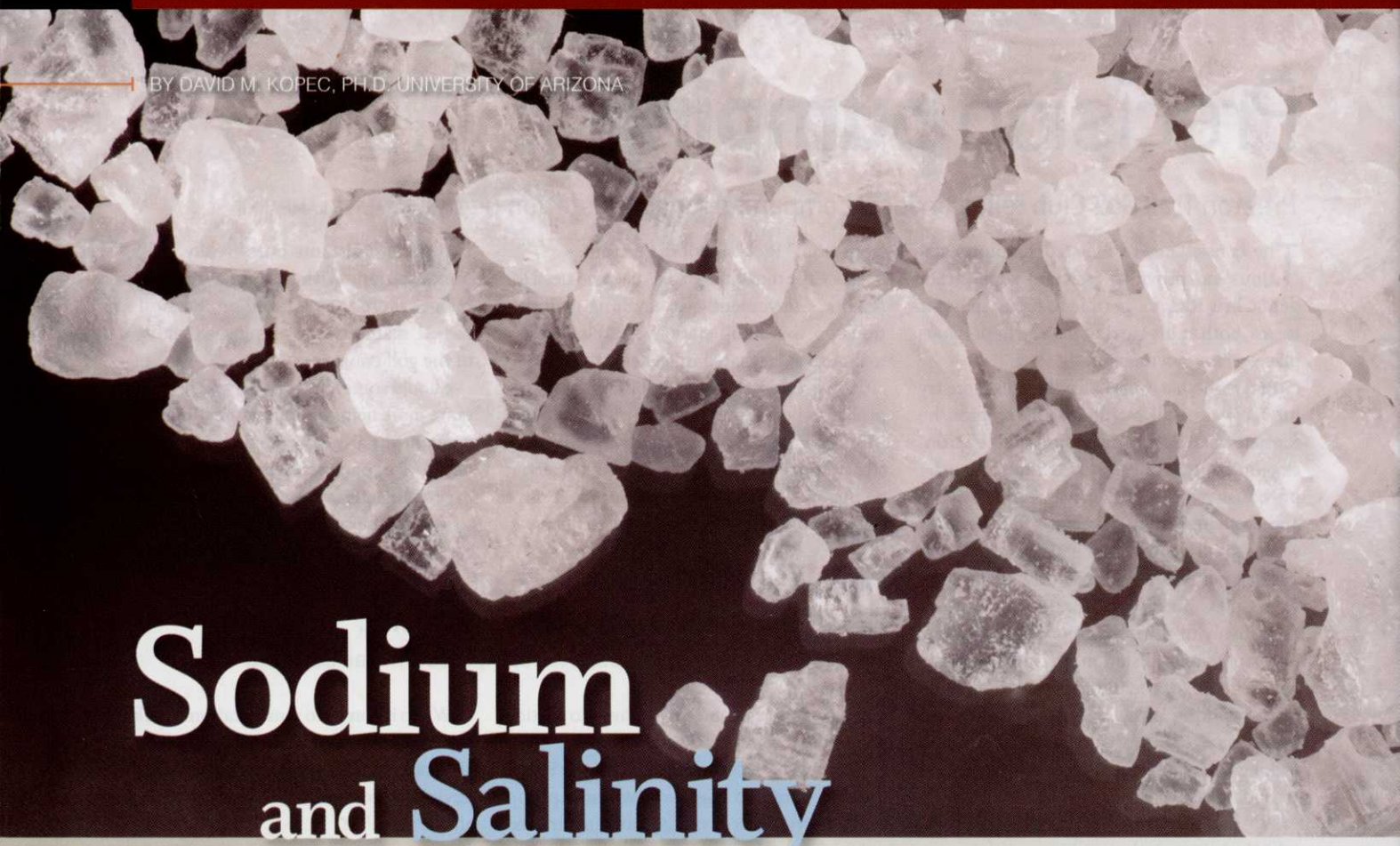
– Chris Rick, assistant superintendent, Preston Trail Golf Club

When it comes to pump stations, Rick simply wants the product to be hassle-free. "It's all about reliability," he says. "It's all about not having to worry about it and having it work all the time." **GCI**

Alyse Lamparyk is a freelance writer based in Athens, Ohio.

Flowtronex's Silent Storm Vertical Turbine system with touch screen.

FLOWTRONIX



BY DAVID M. KOPEC, PH.D., UNIVERSITY OF ARIZONA

Sodium and Salinity

Both minerals effect successful turf irrigation, Part I: Sodium.

Sodium (Na+) as an individual element is commonly found in irrigation water, along with many others (like calcium, magnesium, potassium, sulfur and iron, etc). Salts are actually the dry form of two or more several elements combined. When salts come in contact with water, they dissolve into their component elements once again, but now when in water, they now have a "charge." The sum charges of dissolved salts constitute the total salinity of the irrigation water, or any other body of water, for that matter.

Salinity will be addressed as a separate topic in the next article series. This article addresses the topic of sodium, and its importance in turf and landscape management.

In addition to being one of many mineral elements that dissolve in water, sodium has other effects on plants and soils, so much so, that sodium interpretation and sodium management warrants its own "topic" on soil and water quality test reports.

[What You Need To Know]

- **Sodium is a critical part of soil stabilization.**
- **In turf, sodium can be problematic because it can disrupt the formation of large soil particles, which are essential for water and oxygen penetration.**
- **To manage soil sodium, gypsum is a popular source for calcium, which will remove sodium from the soil particle.**

SOIL ASPECT

Sodium is actually a critical part of soil stabilization. Most people first think of sodium as an "irrigation salt" problem first and foremost. But the effects of sodium on soil are especially important.

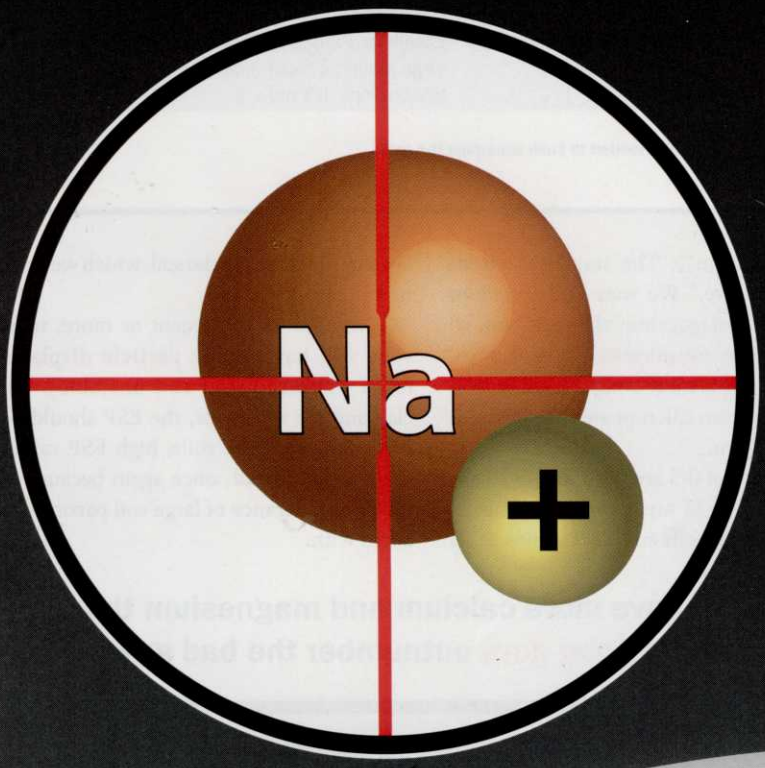
Sodium can be problematic in turf and landscape soils because (in a nutshell) sodium can disrupt the important formation of soil clods which are critical for soil aggregation. It is highly desirable for soil particles to "stick together" to form larger soil particles. Large particles usually result in lots of air spaces between them. The result is room for soil oxygen (for root growth) and water penetration and movement.

The problem with sodium is it's a very small molecule. When it gets "wet" with water, it retains a large bubble of water around it. This is called the radius of hydration. Small-sized elements have a large bubble around them, while larger elements (like calcium and magnesium) have "smaller" water bubbles surrounding them.

When sodium is attached to the soil particles and the soil is "wet," the large bubbles of water surrounding each sodium molecule

Verde-Cal G

Gypsum Enhanced with thCa™



Make Sodium "THE MARK"

- Leaches excessive amounts of Sodium (Na) and Magnesium (Mg) from soil
- Conditions the soil making fertilizer applications more effective
- Supplies Calcium without raising pH
- Helps loosen compacted, heavy soils
- Quicker response at lower rates

For more information on VERDE-CAL® G or other VERDE-CAL® products, visit us at www.verde-cal.com.

AQUA-AID

5484 S. Old Carriage Road
Rocky Mount, NC 27803
1-800-394-1551 • 252-937-4107
www.aquaaid.com

thCa™ is a trademark of AQUA-AID, Inc.

General Salinity Hazard of Irrigation Water

HAZARD LEVEL	TDS ppm or mg/L	EC(w) dS/m or mmhos/ cm	Leaching Requirement
LOW - Little chance of soil salinity buildup.	160 or less	0.25	None – with normal rainfall.
MEDIUM - May cause problems on salt sensitive plants.	160 - 500	0.25 -0.75	Moderate leaching required.
HIGH - May cause adverse effects and require special management.	500- 1,440	0.75 - 2.25	Good drainage required and moderate leaching. Plant salt tolerant species.
VERY HIGH	1,400 or above	2.25 or above	Excellent drainage required with large leaching requirement. Salt tolerant species only.

TDS = Total Dissolved Solids (salts). EC(w) = electrical conductivity
Leaching = Water required above and beyond normal irrigation amounts needed to flush salts past the roots.
FN: Salinity table water Q 210

keeps the soil particles separated spatially. This happens because the water "bubbles" collide and stop, keeping the soil particles "suspended" more or less in between them. When this happens, the soil is referred to as a "deflocculated soil," which results in an "unstable" soil condition.

In this case, the soil particles appear like powdered wheat flour, since the individual soil particles are not allowed to form larger solids. Therefore, the soils particles remain in their smallest sizes, since they are not allowed to form even small aggregates.

This resultant consequences occur on soils first, and then on plants secondly. Soils with high sodium levels are usually incapable of soaking up water at the surface (poor infiltration). If and when it does, the soil tends to stay wet just at the surface, with poor soil oxygen content. Extremely shallow rooting occurs with turf and landscape plants. Unstable sodium affected soils are also highly prone to compaction, since the individual soil particles can be compressed together from external surface pressure (traffic and equipment). The end result is a decrease in the "air portion" of the soil, with the same amount or a slightly greater "water portion" left in the soil.

WARNING SIGNS OF A SODIUM THREAT

A water quality test has a parameter called the sodium adsorption ration (SAR). It is a measure of the potential sodium hazard that may affect soil properties. SAR is a relative comparison of the bad guy (sodium) to the good guys (calcium or magnesium – which has "small water bubbles which allow for soil aggregation"). The important item here is "relative." We want to have more calcium and magnesium than sodium, so the good guys outnumber the bad guys. This way there is more competition for soil attachment from calcium and magnesium, than by sodium.

SAR values of 0-5 are desirable, 5-10 are usually safe, 10-15 are a cause of concern on finer textual soils and SAR values of 18 or more are usually a predictor of an up and coming sodium problem in soils which are sandy loams, or finer in texture. Pure sands can "handle" high SAR water, because the soil particles are naturally large to begin with, and sands have less surface sights to hold onto sodium. Remember that the total amount of calcium, magnesium and sodium salts does not influence the SAR, but the relative amounts do!

The true measure of sodium in the soil is determined from a soils lab test report. The soils test should have a component called the Exchangeable Sodium Percentage (or ESP). This is an estimate of the percentage of the soils to retain sodium, compared to all other elements which are positively charged (like sodium).

Therefore, ESP is calculated as the amount of sodium divided by the sum of the soil adsorbed sodium, calcium, potassium and magnesium. In essence, it is the batting average of sodium in the soil, which we want in this case, to be low.

If the ESP is 15 percent or more, most soils will have single particle displacement (deflocculated and unstable). On clay and silt type soils, the ESP should be 10 or less. On pure soils, high ESP values are less significant, once again because of the preponderance of large soil particles to begin with.

We want to have more calcium and magnesium than sodium, so the good guys outnumber the bad guys.

SOIL MAINTENANCE OF SODIUM EFFECTED SOILS

How can I change my soil to correct and prevent an unstable soil condition from a high sodium content soil? What needs to take place is a chemical substitution between the soil particle and the attached (adsorbed) sodium.

Luckily, sodium has only one positive charge (Na+), while calcium and magnesium have two (Ca++, Mg++). These "double-charged" particles have a stronger attraction to the soil particle, which has a negative outside charge to begin with. Remember, opposites attract each other. Therefore, any element with two charges will be favored over the element with just a single charge.

Along comes calcium. When calcium is added to the soil, we are adding a relatively inexpensive double-charged element. The calcium, in time, will trade hands with the

sodium and remove it from the outside of the soil particle, and allow it to wash away.

The type of calcium product and amounts required are important concepts. Calcium carbonate, also called Ag-limestone, is not soluble in soils which have a pH of 7.8 or above. Gypsum, (calcium sulfate) is way more soluble than Ag-limestone, and is the most popular calcium source for soil sodium management in a high pH soil. Thankfully it's not that expensive. It takes several months for gypsum to slowly dissolve from rain and/or regular irrigation, but when it does, the calcium will "pull off" the sodium, which then gets washed away as sodium sulfate.

Other forms of calcium compounds are expensive and can burn the turf or cause temporary soil drought problems. An example is calcium chloride. While the "calcium" is instantly available, the chloride can burn turf and cause temporary, but severe, water stress availability problems in the soil.

Gypsum needs to be applied on a regular basis, since sodium is most likely being added on a regular basis with the irrigation water. The amount of gypsum required to keep the soil ESP values at acceptable low levels depends on how high the ESP value is, and the capacity of the soil to hold positively charged particles. The letter is called the cation exchange capacity (CEC).

Sands have little CEC, loams are intermediate, while silts and clay-type soils have high CEC capacities. Soils with high organic matter contents (usually in the surface 2.0 inches) also have a high CEC capacity. The higher the CEC and the ESP, the more calcium (gypsum) you will need to lower the ESP to desirable levels. **GCI**

Gypsum Requirement

Exchangeable Sodium Percentage						
Soil Texture	10	15	20	30	40	50
lbs per 1000 sq. ft.						
Coarse	50	100	150	250	350	450
Medium	75	150	250	400	550	700
Fine	100	200	300	500	700	900

Amount of 90 percent pure gypsum to apply to reduce the Exchangeable Sodium Percentage (ESP) value to acceptable levels to restore soil aggregation based on soil type and ESP values from a soil test report.

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.

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.

HOSE REEL TRAILER

At the Des Moines (Iowa) Golf & Country Club, director of grounds Rick Tegtmeier, CGCS, conceived the hose reel trailer idea for hand watering and syringing greens at his tenure as superintendent at his former golf course. 1½" square tubing was used to build the tongue and trailer framework. A Northern Tool model 135012 ATV tire, wheel, axle and hub kit; model 12600 21" tie high-impact fenders; and 1⅞" stainless-steel hitch were used. The 15'-long, 1"-diameter hose to connect to the quick coupler was acquired locally. A Cox Hose Reel model 1175-6-100-BXCX was purchased from the manufacturer and the 100 feet of 1"-diameter hose and nozzle was acquired from Lesco. The material costs were $875 each for the three total trailers built, which took about 20 hours each to build. There is also a 12-volt battery operated hose reel available from Cox Hose Reels.

THE CLAW

Scott Dickson, superintendent, and Bud Wunder, head mechanic, at the Saddle Creek Resort in Copperopolis, Calif., conceived the idea for "The Claw" attachment for the John Deere backhoe to help remove cattails, water primrose and other aquatic weeds more efficiently from numerous lakes and ponds. Eight used Toro model 3500 and 4500 rotary blades were used for the linkage points and another 18 were used for "The Claw" attachment. The frame was built using 15" x 15" long, ⅜" x 2" angle iron and 2" x 4" x ⅛" thick rectangular tubing was used to build the boom. The backhoe extends 12" and "The Claw" boom extends 21', it is attached by two pins and two bolts and it takes less than five minutes to mount or dismount. The materials cost about $30 for items not already in inventory and it took about 30 hours of trial and error to build. **GCI**

HELP WANTED

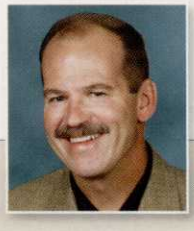
FOR SALE

AD INDEX

COMPANY	WEBSITE	PAGE	RS
Aqua-Aid	www.aquaaid.com	61	46
Aquatrols	www.aquatrols.com	41	37
Arysta LifeScience	www.arystalifescience.com	33	31
BASF	www.betterturf.basf.us	17	21
Bayer Environmental Science	www.backedbybayer.com	67	
Biological Mediation Systems	www.biologicalmediation.com	8	14
Clivus Multrum	www.clivusmultrum.com	26	27
DuPont Professional Products	www.proproducts.dupont.com	25*	25
Exide Technologies	www.exide.com	27	28
Floratine	www.floratine.com	19	22
Horizon	www.horizononline.com	6	12
Hustler Turf Products	www.hustlerturf.com	31	30
Irrigation Consulting	www.irrigationconsulting.com	44	38
Jacobsen	www.jacobsengolf.com	11	18
John Deere Golf	www.deere.com	39, 68	36, 48
JRM	www.jrmonline.com	36	33
JWB Marketing	www.birddamage.com	63	47
Kalo	www.kalo.com	14-15*	19*

COMPANY	WEBSITE	PAGE	RS
Lebanon Turf	www.lebanonturf.com	35	32
Liquid Fence Co., The	www.liquidfence.com	37	34
Montco Products Corporation		53	44
Nufarm	www.turf.us.nufarm.com	22, 23	23, 24
Pasteuria Bioscience	www.pasteuriabio.com	29	29
PBI/Gordon	www.pbigordon.com	26, 47	26, 41
Petro-Canada	www.petro-canada.ca	7	13
Poa Publishing		8	15
Professional Turf Products	www.proturfproducts.com	55	45
Quest Products	www.questproducts.us	38	35
SePRO Corp.	www.sepro.com	5	11
Sipcam/Advan	www.sipcamadvan.com	10, 51	17, 43
Tee-2-Green	www.tee-2-green.com	2	10
Tree Care Industry Association	www.treecareindustry.org	45	40
Underhill	www.underhill.us	44	39
Valent	www.valentpro.com	9	16

Denotes regional advertising



Pat Jones is editorial director and publisher of Golf Course Industry. He can be reached at pjones@gie.net or 330-523-5384.

RUN, WELDON, RUN

In many ways, Weldon Davis is a typical golf course superintendent.

He wakes up at an ungodly hour to head to The Creek GC in Spartanburg, S.C. He's dealing with the lingering aftereffects of a very crappy winter. "We were frozen solid for three or four weeks in February and we had a late frost, so we've been on pins and needles a little bit waiting to see how things respond." He's considering converting the putting surfaces over to Diamond zoysia and has been bending Dr. Milt Engelke's ear about the variety, which is still kind of a novelty on greens. On weekends, he's a NASCAR nut who used to race his own cars.

Yup, Davis is a pretty typical superintendent except for one thing: he's running for a state senate seat. "Three years ago, I never thought I'd be doing it," he says. "I'm just sick and tired of the people in Columbia and D.C. They represent themselves and the special interests, not the people."

Davis wants to serve his neighbors in the 33rd district – mainly the Spartanburg metropolitan area – in the state capitol. This is his second attempt. Two years ago, he ran sort of a practice campaign against a 10-term incumbent Republican. He used his own money, knew he didn't have a chance and even (gasp!) ran as a Democrat because that's the way the local powers-that-be wanted it. "I knew I couldn't win, but I wanted to learn about the process by doing it."

Now, the incumbent is retiring and Davis is gearing up for the primary election in June with a decent shot at being elected. An early online poll has him well ahead, but he's worried that his opponent will outspend him and bury him with dollars from companies and lobbyists.

Why doesn't Davis fight fire with fire? "I'm not taking money from lobbyists. It's been offered, but I said, 'No thank you, sir.' When big money gets into small political races, they're going to want something sooner or later. That's what I'm running against, so why would I do it just to get elected?" Jeez, that sounds like common sense. Is that allowed in politics these days?

Davis isn't new to government. He's served on the local foster care review board and been active in party stuff for years. He's a Spartanburg guy and he knows the right folks around town. Mostly, he's a passionate person who's fed up with politics as usual.

His agenda is conservative, but not over the top. He hates waste and wants smaller government and tax reform. His experience on the foster care board has alarmed him about the quality of child health care and welfare costs. His experience in golf has made him a committed but realistic environmentalist. And, like many, he wants a chance to fight for better jobs and better education in his hometown.

But, two of Davis' positions have gained him the most attention and support in his district. First, he advocates going back to the days of making prisoners do a decent day's labor: "We should put inmates back to work on the highways. We can save money, have better roads and help them get used to working. Frankly, they're more likely to be successful in getting a job and going to work after prison if they're used to working eight hours a day like the rest of the world."

Second, he proposes to institute random drug testing for anyone who's on welfare or lives in public housing in the state. The idea has been a sensation locally, around the state and – thanks to media coverage – nationally.

Hmmm, more common sense. Did he not read the politician's handbook?

Despite the fact that I was intrigued by the idea of a candidate with uncommon common sense, I really wanted to ask Davis one question: How in the hell does a golf course superintendent find time to run for state office? "It's just like being a superintendent – it takes dedication," he says with more modesty than can be imagined. "I get off work, I make calls and I knock on doors. I love talking to people about the issues."

Will he make "our" agenda part of his work at the statehouse? "Of course I will. I'll promote the economic impact of golf in the state and the benefits of turf. It'll be great to have someone from our business letting people know about how much we benefit the community."

> It's sad that what's common in our world is far too uncommon in government. I hope Davis can begin to change that.

After talking with Davis, I tried to remember if another superintendent had even run for statewide office. To my knowledge, none has. That's a shame. We're a profession of hard-working, careful, thrifty problem solvers who value clean water, healthy recreation and a good economy. It's sad that what's common in our world is far too uncommon in government. I hope Davis can begin to change that. **GCI**

Davis' Web site is: www.weldondavis.org. Donations or well wishes from colleagues are welcome.

THE GOLD STANDARD

NOW AVAILABLE IN GREEN.

When it comes to course appearance, there is no trophy for second place. That's why we developed new Reserve™ Fungicide. Reserve delivers superior, broad-spectrum disease control without turf thinning that other fungicides can cause. Reserve prevents algae growth and controls just about everything under the sun including dollar spot, brown patch, snow mold, and anthracnose. And thanks to Reserve's *StressGard*™ formulation technology, it helps manage course stress, maintains turf roots and improves turf density. Of course new Reserve is Backed by Bayer, which means all of our research and support is at your fingertips to help you create the healthiest, thickest, greenest turf possible. Because when it comes to your course, good enough isn't good enough. To learn more, go to www.BackedbyBayer.com/Reserve.

Bayer Environmental Science

BAYER

RESERVE™