A HEAVY HEAD
Staff, weather and budgets are just a few of the worries that weigh on superintendents’ minds

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Tree management
A renovation at Scioto
A conversation with Mark Esoda
A solid foundation was firmly established in 1955 with the birth of Penncross. The Penn Bent family continued to grow, thanks to the introduction of the Penn A's & G's and Seaside II, followed by Penneagle II & PennLinks II. The legacy continues with the recent arrival of Crystal BlueLinks. Just like family, each new variety owes its best qualities to the generation that came before. The Penn Bent family from Tee-2-Green continues to revolutionize the industry, and remains trusted by superintendents around the world.
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* 72" CONFIGURATION REQUIRES LIFT ARM CHANGE. **14" TRIMMING REACH ONLY WITH 72" WIDTH OF CUT.
*** ENGINE HP IS PROVIDED BY ENGINE MANUFACTURER FOR COMPARISON PURPOSES. ACTUAL OPERATING HP WILL BE LESS.

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HERE AND THERE

Everyone knows the golf market here in the States is flat, even struggling a bit. Demand remains stagnant, and supply is contracting slowly. Check the National Golf Foundation’s numbers (www.golfcourseindustry.com/ngf) for the details. Despite a few active development spots in the South and the efforts of various industry organizations encouraging more people to play the game, don’t bet the farm on significant growth anytime soon.

But, as the industry treads water here, there are bigger opportunities abroad. There are now close to 7,000 golf courses and almost 4.5 million affiliated golfers in Europe, the Middle East and Africa, according to KPMG’s Golf Benchmark Survey 2007. Just 10 countries with the most golf courses account for 83 percent of total supply – Great Britain and Ireland total almost half. The data show there aren’t many countries in the EMA region that can claim a well-developed golf market with robust supply and demand.

According to the survey, there are a significant number of projects in the planning or construction phases in Eastern Europe, the Southeast Mediterranean and the Middle East. Factors contributing to growth are: local demand, international golf tourism, media interest in golf, disposable income in emerging economies, the ease of travel at cheaper costs and governments’ awareness and understanding of the benefits of golf development and tourism.

Of note, 18-hole golf courses in the Middle East recorded the highest average number of rounds played, almost 42,000. Dubai has the highest number of rounds per playable day and the highest greens fees in the EMA region. Golf courses in the Middle East charge almost twice as much for greens fees than those in Europe. Is it any wonder why Tiger Woods is attaching his name to a golf project there?

Furthermore, 51 percent of the owners and operators (representing 1,500 golf courses) surveyed said they plan for capital investments or refurbishments to their facilities. These include upgrading the clubhouse, expanding the golf course, purchasing new course maintenance equipment, and replacing or improving the irrigation system.

In China, golf is still in its infancy. Since the first golf course was built there in 1984, between 350 and 400 courses have opened. The China Golf Association predicts 100 more courses will be built during the next three years. The consumer class in Asia is reportedly a $7-billion market. And there are between 2 million and 3 million golfers in China, according to the CGA. By 2020, the association predicts the number of golfers to increase to 10 million and the number of golf courses to increase by another 20 percent. However, there are limitations to golf course development in China. There’s limited farmland for golf, a limited supply of water and Chinese society doesn’t understand golf all that well. They’re worried about the cost and the perception the game is for rich people.

At the GCBAAs summer meeting last month in Michigan, I met with Maris Gulans of Modo-Riga, a golf course builder from Latvia who’s working in Eastern Europe and Russia, and Kun Li, Ph.D., from Citic Forward Golf Management, a Chinese company that’s developing eight golf courses in its homeland. These guys, both members of the GCBAA, are coming to America to learn more about golf course development and management because there’s a big need overseas for the expertise of American golf course builders and architects. And if there’s a need for American knowledge to develop golf courses, think about the potential need for maintenance expertise.

The next golf boom isn’t going to happen here in the States. It will happen in Asia and the parts of the EMA region, if it hasn’t already. If you’ve ever wanted to take a risk and head overseas, now’s the time. Do your research, talk to people who’ve been there, and think about how you might take advantage of the opportunities and reap the rewards associated with them. GCI
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GCI Live at GIE + Expo

At this year’s GIE + Expo – the 16th largest tradeshow in North America – at the Kentucky Exposition Center in Louisville Oct. 23-24, Golf Course Industry will present GCI Live, a new education program for golf course superintendents.

The program includes a live, outdoor bunker renovation demonstration, technical presentations about fertilizer applications and water management, and business management presentations about career development and communications. GCI columnists Jim McLoughlin, Tim Moraghan and Pat Jones will be a few of speakers. The event also features outdoor product demos, a new products showcase and a reception October 23 at 4:30 p.m. Preregistration for GCI Live is required. Additionally, attendees can register to win $20,000 toward a new truck. Visit www.gie-expo.com, or call 800-558-8767.

Correction

In the July issue in the Smart Irrigation supplement on page S25, the amendment Hydretain was misspelled. Visit www.hydretain.com for more information.

CALENDAR

Nov. 9 - 11
CALIFORNIA GOLF COURSE SUPERINTENDENTS ASSOCIATION STATE MEETING
Morongo Casino Resort and Spa
Cabazon, Calif.
Visit www.californiagcsa.org, or call 559-643-8707.

Nov. 9 - 11
KENTUCKY TURFGRASS CONFERENCE
Sloan Convention Center
Bowling Green, Ky.
Visit www.uky.edu/Ag/ukturf/, or call 859-257-2715.

Nov. 11
WORLD GOLF FOUNDATION’S GOLF 20/20
World Golf Village
St. Augustine, Fla.

Nov. 17 - 20
CAROLINAS GCBS CONFERENCE & TRADE SHOW
Myrtle Beach (S.C.) Convention Center
Visit www.cgcsa.org, or call 800-476-4272.

Dec. 8 - 11
OHIO TURFGRASS CONFERENCE & SHOW
Greater Columbus Convention Center
Visit www.ohioturfgrass.org, or call 614-863-3445.

Jan. 6 - 9, 2009
EASTERN PENNSYLVANIA TURF CONFERENCE AND SHOW
Valley Forge Convention Plaza
King of Prussia, Pa.
Visit www.paturf.org, or call 877-326-5996.

Feb. 2 - 7, 2009
GCSAA EDUCATION CONFERENCE
New Orleans Morial Convention Center
Visit www.gcsaa.org/conference, or call 800-472-7878.

Feb. 3 - 7, 2009
NGCOA’S ANNUAL CONFERENCE
New Orleans Morial Convention Center
Visit www.ngcoa.org/ac08, or call 843-881-9956.

Feb. 5 - 7, 2009
GOLF INDUSTRY SHOW
New Orleans Morial Convention Center

Feb. 5 – 10, 2009
CLUB MANAGERS ASSOCIATION OF AMERICA’S WORLD CONFERENCE ON CLUB MANAGEMENT
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ADAPT TO CHANGE ... OR FAIL

During the past several weeks, I've been thinking about life and how certain moments change people. Recently, I finished reading "Quiet Strength," a book written by Tony Dungy, the head football coach of the Indianapolis Colts. Early in the book, Dungy told stories about playing in the NFL during the late 1970s for the Pittsburgh Steelers.

One of Dungy's mentors, who he refers to many times in the book, was the Steelers Hall of Fame coach Chuck Noll. One of Noll's sayings was, "Those who fail to adapt to change are preparing to fail."

This isn't the first time I've heard this saying. I played football for more than 10 years, and I heard many of these types of motivational sayings. However, this one hit home the most for me because of recent changes in my life.

To begin with, my first child was born in July. Also, I turned 29 recently. My 30th birthday is getting closer each day, and I haven't met some of the goals I've set for myself. Suddenly, it hit me: Am I nearing the half-way point in my life and not accomplishing the goals I set for myself?

One goal I set for myself in college - 10 years ago - was that I'd be a head superintendent by the time I was 30. Now, with that magic number about 200 days away, I wonder where I'll be? Ten years ago, 30 was a long way off, and I figured it wouldn't be an issue. Now, with the big 3-0 looming, it's a thought that lingers in the back of my mind. I think about the quote from Noll: Do I need to change and adapt, or should I just stay the course?

There might be many assistants who have these same thoughts: Is it time to consider alternative occupations? Do I need to learn different skills? Has my well run dry for opportunities? These are all valid questions that run through assistants' minds as they approach a certain age and level of experience in life if they haven't accomplished their goals yet. Family, income and career goals are areas I think about - and worry about - as time passes.

I'm fortunate to be married to a woman who I love with a passion and with whom I hope to grow old. Our three-week-old son is amazing. We're so blessed. My wife's parents and my mother grow older along with the rest of us. As we watch them take care of our grandparents who are in their mid-80s, we ask if we'll follow that road, too? We love our parents and family very much and would do anything necessary to help them. However, that's one more concern about the future I have to consider. Are you in the same boat?

Another question you might ask yourself when you reach a certain threshold is, "Am I achieving my career goals and doing all I can for my family?" With rising fuel and energy costs, a difficult housing market, insurance rates at an all-time high, Social Security in shambles and the largest budget deficit in U.S. history, you might think, "How do I prepare for the future?" That sounds daunting, but it raises concerns for me and my family and how I help prepare us for the future.

With a child, you no longer think of yourself first. My wife and I think of all the hopes and dreams we have for each other as a family, professionally and in our Christian faiths. But, now that we have our son Aiden, we want to give him every opportunity and experience we never thought imaginable. There's nothing I wouldn't do for him ... and I'm sure you feel that way about your children. Which brings me back to that same question, "Am I doing all that I can to help my family?"

When answering the question, you have to ask: Is what I'm doing making a difference? Am I doing what's best for my family? Am I adapting to change? For me, the answer is yes. Does golf maintenance solve the problems of the world? Maybe not, but it provides millions of people worldwide enjoyment. Also, I'm working in a career that satisfies me and makes me happy, which, in turn, makes me a better husband and father. That's a good thing.

As my deadline approaches to reach my goal, I'm going to have to make some changes. I'm going to have to recognize the field is changing. It's taking longer to become a superintendent. As a result, I'm going to have to adapt my goal. The big 4-0 seems like a long way away.

Like Dungy and Noll, I'm going to do my best to change with the new demands of our profession. Anyway, it's time for that 3:00 a.m. feeding for the baby before work.

Good morning, Aiden. GCI
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BUNKER DESIGN CHANGES

Last month, I vented about the trend toward perfect playing conditions in sand hazards. Regardless of my opinion, it’s a trend that’s here to stay. So, providing consistent bunkers is one of any good superintendent’s biggest concerns. There’s little doubt the recent downturn in golf, combined with golfers’ expectations of bunker consistency (perfect lies and easy and predictable playing characteristics every day, even after heavy rains) and white sand use is causing golf course architects, builders, superintendents and suppliers to seek new bunker construction technologies.

It’s really a continuation of a long-standing trend of technology affecting design. It happens in all design professions. In building architecture, for example, steel beams allowed for taller skyscrapers. In golf course design, technology changed almost every era whenever advances in earthmoving, irrigation and drainage were incorporated into cost-efficient designs.

When scrapers and bulldozers replaced horses for earthmoving, architects initially just completed work more quickly. Eventually, they used increased earthmoving capacity for new design concepts, often enlarging the scale of golf greens and tees and adding more features such as fairway mounding and large lakes, which stored enough water to allow larger irrigation systems, which contributed to advances in automatic irrigation.

With drainage, technological advances in plastic drain pipe during the 1980s reduced costs, which allowed architects to experiment with creative earthmoving, rather than accepting nature’s contours.

Similarly, recent technological advances in bunker liners have changed the way bunkers are built and maintained. To facilitate desired conditions, bunkers have evolved into complex construction projects with standard construction that includes liners, fully tamped subsoils, carefully selected sand and full herringbone tile with cleanout boxes. Some have experimented with other techniques, including gravel sublayers.

After decades of trying to create better bunkers by replacing superintendents, most green committees now realize superintendents can’t provide perfect conditions with imperfectly constructed bunkers. Bunker consistency is important enough to them to justify spending money to build or rebuild bunkers correctly.

But there’s no correct technique for creating perpetually perfect bunkers – and one single method might not exist. For starters, golfers can’t agree on what constitutes a good bunker. Typically, good players, who often have more pull at a club, like them firmer than average ones. Inevitably, some golfers aren’t happy with bunker conditions, despite spending more on construction and maintenance.

Greater costs, a desire for consistency and better maintenance (sometimes on tight budgets) affects the way golf course architects design bunkers.

As a result, the combination of greater costs, a desire for consistency and better maintenance (sometimes on tight budgets) affects the way golf course architects design bunkers. Design responses to current conditions include:

- Reducing the number of bunkers. During the 1990s, golf course architects probably used too many bunkers for visual drama and design “signatures.” Their justification was they looked good. Recently, I’ve consulted with several course managers, including those who manage some courses that I designed earlier in my career, who wish to remove bunkers that are marginally necessary. With new course design or complete renovations, I’m replacing their hazard value with features such as fairway slopes, chipping areas, grass bunkers, mounds and steep banks. My budget plug-in number for bunkers used to be 100,000 square feet; now it’s half that. It’s a design challenge, but using different hazards allows each hole to be more unique. Aren’t there already too many greens with bunkers on either side?

- Reducing bunker size. Before liners, maintenance-friendly bunkers had large (16 to 20 feet in diameter) sand lobes to accommodate the turning radius of mechanical bunker rakes. The result was large bunkers. Bunker liners require hand-raking, unless you opt for careful mechanical raking with only leaf-rake attachments. Smaller bunkers that require less time to rake, in concert with quicker travel time because of utility vehicles, help balance the total labor requirement for bunker raking. Smaller bunkers often look much better, so design challenges are nil.

- Reducing bunker shape. Many designers still use extravagant cape and bay shapes and rugged bunker edges. At lower-budget courses, fancy bunker shapes might soon give way to simpler ones closely tuned to the mowing radii of bank mowers.

- Reducing bunker-face slope. Maximum practical bunker-face slope varies with local rainfall, sand quality and bunker drainage. Sharp angular sands hold well on slopes. Many courses import sand with these characteristics rather than using local sand, figuring that labor savings eventually offset higher initial cost.

For any sand, flatter bunker slopes generally reduce washing. Reducing maximum slope from 25 to 30 percent to 15 percent or less reduces hand-shoveling. The challenge with flatter bunkers is making the sand visible. Visibility usually requires a simple front edge, no little mounds in front that block views, a 3- to 5-percent base slope throughout the bunker to reduce steeper slopes near the top, and sometimes, giving bunkers more length along the line of play to achieve visibility.
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MUTUAL-GAINS NEGOTIATING

Do you have productive, synergistic relationships with the other professionals at your facility that benefit the whole organization? Or, instead, are the relationships contentious?

As the economic pressures on golf courses continue to intensify, effective collaboration among facility leadership is essential.

Mutual-gains negotiating is an effective tool that enhances collaboration. The traditional paradigm of negotiating focuses on winning and is, consequently, typically win-lose. Mutual-gains negotiating, on the other hand, is an attempt to get people to synthesize their aims rather than enter into win-lose competitiveness. There are four principles of mutual-gains negotiation.

1. **Focus on interests, not positions.** A position is a single answer or solution to a problem, one the other party frequently can't accept. An interest is a fear, a need, a worry, a concern, a hope, an aspiration that can be solved or resolved by numerous outcomes, some of which both parties can accept.

   The idea behind focusing on interests is to clarify what's important to each party and find areas of common ground. The negotiator – you – must understand the other party's interests. Effective listening and empathy should replace hard negotiating skills. It's also important to discuss your own interests openly and candidly. Don't be misled by the lack of focus on competing. Mutual-gains negotiating also doesn't focus on accommodating. You must be open to the other party's interests and insist the other party understands yours. Stephen Covey's habit of "seek first to understand then to be understood" is crucial.

   When working with club leadership, there are many common interests: the facility's success, the enjoyment and well-being of golfers, the long-term health of the course, the community in which the course is located, and the personal and career development of the entire work force. This principle places the focus on these common interests rather than personal positions.

   To accomplish this principle, people must change the way they behave while negotiating. While power is the key to resolving traditional negotiations, empathy is the key to mutual-gains negotiations.

2. **Separate the people issues from the contextual issues.** I've struggled to understand this principle because at first it seems inconsistent with the key role negotiators play in mutual-gains negotiating. The importance of this principle emanates from the key role of people. If you're about to negotiate with someone with whom you have unresolved interpersonal issues unrelated to the negotiation, you must resolve those issues or agree to set them aside or they will tarnish the negotiation easily and perhaps make mutual-gains negotiation impossible.

   My discussions with superintendents often include questions or complaints about ongoing conflicts with the golf pro or green committee members that began with a dispute about course layout, green speed, tee times, etc. Proactively confronting these people issues will enhance the effectiveness of superintendents collaborating on course leadership issues. What are the people issues that are reducing your effectiveness as a club leader?

3. **Invent options for mutual gain.** Focusing on interests makes it possible to identify numerous alternative solutions. The negotiators then can work together to identify solutions that meet the interests of both parties. At golf facilities, the positions often relate to the course/superintendent versus the pro shop/pro versus the club manager. Creativity, collaboration and a focus on common interests often can invent options that meet the interests of all three. Brainstorming and identifying alternatives focused on common interests is the key.

4. **Insist on using objective criteria.** The reality is that interests will conflict. Through the first three principles, we almost always can fulfill the interests of each party better than through traditional negotiation or compromising. It is, however, easy to revert back to using power when negotiating the remaining conflicting interests.

The alternative is to resolve the remaining issues using objective criteria instead of power to preserve the benefits of mutual-gain bargaining. A common example of this principle is a negotiation between employees (or a union) and management. Let's say all issues have been resolved based on mutual-gains principles except the increase of wages. Instead of allowing the entire negotiation to fail, peg the percentage increase to an objective measure – the Consumer Price Index, average wage increase of other companies in the industry, etc.

When using mutual gains, you need not adhere exactly to each of the four principles to improve collaboration among course leaders, maintenance staff and in your personal life. Try using one or more – especially focusing on interest rather than positions – to enhance your collaborations and relationships.
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MOVING FORWARD

During the last two years, the International Golf Course Equipment Managers Association has been moving quickly to build an association on a worldwide scale for equipment technicians. During those two years, we've overcome many obstacles, and now we can say, formally, the IGCEMA is here to stay. Most recently, we've established our 501(c)(6) nonprofit designation and built a strong foundation to help bring us into the future.

Since our inception, we've also seen our membership increase from a handful of members to more than 500 throughout the world. Our membership consists of a wide cross section of the industry, including talented technicians setting up equipment for The Ryder Cup, turf equipment engineers and golf course owners in Europe.

The biggest reason we've been successful so far is technicians' drive to make a statement in our industry. For many years, technicians have been the behind-the-scenes heroes who help produce the smooth playing surfaces so many golfers enjoy. Now the tides are beginning to turn, and many are being looked at as professionals, and more importantly, equals.

The IGCEMA has achieved other goals as well. With the help of sponsors, we've sent seven equipment managers to the Golf Industry Show to experience the event and have the opportunity to discuss equipment with engineers and fellow technicians. Sponsors also have allowed us to send technicians to NASCAR races and manufacturing facility tours.

This year, we hosted a booth at the GIS in Orlando, and we will host a booth at the BTME conference, a turf management trade show in Harrogate, England, in January. In 2007, we put on presentations in South Africa as we traveled with the Federation of European Golf Greenkeepers Association on its road show. We also attended the FEGGA annual conference in Belgium, where we learned about the ever-changing environmental regulations in Europe and the challenges technicians face there.

This year, IGCEMA has many new goals, one of which is to develop an industry-standard technician certification program. This topic has arisen many times during the past few years, and it's one that we, as an association, have struggled with. Certification is an important part of a profession; however, it's only as good as the people who take it. We have spent the past two years looking at different ways to approach this subject, and quite honestly, we always come back to the start. Developing a certification program isn't an easy task. The IGCEMA recently hired a consultant who specializes in certification programs, and we'll be putting together surveys and models of different programs to solicit input from technicians, manufacturers and superintendents.

The IGCEMA isn't interested in telling technicians what they have to do. We want technicians to tell us what standards they want. With good feedback we'll be able to build an effective certification program. We're also working on completing job descriptions. There are many titles for technicians— from head mechanic to equipment manager to technician. While it might seem like they're all the same, they're really not. It's important potential employers be able to identify what type of candidates they're looking for by knowing what those individuals are capable of doing or can be responsible for. We hope this will clear up any confusion about the many different job titles floating around for technicians.

Finally, we'd like to thank all of our supporters, including superintendents, manufacturers and publications. Without all of you, technicians wouldn't be where they are today. The IGCEMA will continue to educate technicians for the future, and we hope all of you will join us as we move forward. GCJ
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A MODEL FOR OTHERS

MARK ESODA leads the industry through difficult water issues in Georgia and throughout the country

By Pat Jones

Photos: Chris Hamilton
Droughts are cyclical by nature and come and go, but the issues surrounding water – usage, efficiency and perception – remain the same.

What’s not cyclical is the fact there are a handful of superintendents and other industry professionals who go above and beyond the call of duty to meet the challenges regulation and legislation sometimes throw against the business of golf course management.

Mark Esoda is definitely one of those guys.

Esoda has been superintendent at Atlanta Country Club, which features a 1965 Willard Byrd design, for almost two decades. For seven years, he and his crew hosted the BellSouth Classic, an event that historically was the lead-in for the Masters and demanded excellent conditions from the world’s top players.

Esoda has an enviable list of outside accomplishments as well, having worked his way through the chairs of the Georgia GC SA board and served on numerous committees for his alma mater, the University of Georgia. He’s even found time to keep active as a Boy Scout leader and pursue his passion for scuba diving.

That would be enough for most of us, but for the past seven years, Esoda also has been up to his neck – figuratively – in water. His involvement with the GCCSA board led to a seemingly innocuous committee appointment on the state golf industry’s water task force in 2001. Since then, Esoda’s commitment to the profession and his keen sense of marketing and communications has driven him to become a state, regional and national champion for issues relating to golf and its lifeblood.

Esoda has a pile of awards and honors – including GCSAA’s Excellence in Government Relations – to show for his work, but he seems most proud that it has made a difference. State regulators are starting to listen and learn. Despite the severest drought in a half century last year, the golf industry managed to build a reputation of its lifeblood.

How’s the water situation in Georgia right now?
It’s good. We’re mostly green. We’re still in a level-four drought, but the state has eased off the greens-only restriction. The Georgia GC SA did an awesome job of communicating and negotiating to get us to this point.

How did you get them to reconsider the restrictions?
Even last year, when we were restricted to irrigating on odd/even days, there was a temptation to water even if we knew it wasn’t necessarily the best thing to do because of the way the regulations were structured. The regulators came out with the rules before we had a chance to educate, communicate and negotiate with the state. When we started the task force, we found out there’s a huge amount of education that needs to be done with regulators. We told them from day one scheduling irrigation of odd/even days didn’t conserve. They didn’t allow us to manage water as effectively as we could.

Over time, we were able to find the right people who understood that plants don’t work on that basis. They don’t behave like industrial plants. I have to give credit to Carol Coach, the director of the Environmental Protection Division of the Department of Natural Resources. She was the most important person who really listened to us and understood that we used water wisely and did far more to conserve than most users. They were shocked to learn the effort we made, and they finally started to get it. We reached an agreement that required 75 percent of our member courses to follow the best management practices, and we’re now at 96-percent compliance. This is more than half of the courses in Georgia. Even the nonmember state-owned courses have joined the program.

How did you get up to your neck in water issues during the past few years?
Wade Thomas was president of the GGCSA in 2001, and it was finalizing the rules. He asked me to come to a meeting for the urban agriculture group, along with professor Gill Landry and other green industry people. Most of the green industry was exempt … except golf. They thought we were too much of a political hot potato to give exemptions to. I went back and told my green committee, and they basically said, “So, what are you doing about it?” So I helped to get a coalition started with other state chapters of the CMAA, PGA, NGCOA, etc. We did an economic analysis and developed information to give the government folks. We hired a lobbyist, and I and others joined any committee we could.

Hiring a lobbying firm is a big step for a local association. Do you have advice for other chapters?
It’s not cheap to hire a lobbyist, but we knew if we lost, we’d lose our water. We chose Georgia Link because they have great connections and credibility. We chose wisely.

How effective have you been trying to get superintendents to lobby the influential members at their clubs?
Some members are good at bringing players into the process. Some aren’t. The bigger thing was having members contact their local representatives and pass along the information.

What perception issues have you encountered as the golf guy in the process?
There was a water conference at the University of Georgia – basically me and 600 regulators and representatives of other industries. There was a guy there from a brewing company who threw everybody else under the bus. He stood up there and called beer food. So I said, if he can do that, we need to be more aggressive.

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But our message is so good, we’ll win in the long run. And it’s not like you’re a leper. I’ve made a lot of friends through the process and many people have come to view us positively. We did it proactively and voluntarily. They like that. The governor’s commendation is proof of that. However, our public perception is still bad.

I’ve been on the speaking circuit in a bunch of other states facing these same issues. It’s all throughout the country.

Tell us about the new Water Impact Alliance.

It looks at the most effective way to get our message out to the legislators and the public. I give credit for getting the WIA going to Kathy Conard from Aquatrols. She reached out to us last year and said the company was interested in helping us in Georgia. We’ve been meeting to discuss the biggest issues, and it all seems to come down to public relations. The average person sees us as the bad guys. Kathy and Aquatrols have spent a lot of time learning the issues and helping us develop a plan, unify it and get the message out through a PR firm we’ve hired. It’s been unbelievable.

It jazzes me that if we can get the support, we have professionals that can help us do the right thing. We’ve been so good at preaching to the choir. Now we can finally get our message outside our business and do it right.

What’s the core message?

My message is different. I believe you can be good water stewards and not kill plants. I heard a story the other day about a couple who were “going green” out in California and letting their lawn die. That’s crazy. The natural color of green is green. People need to understand that we monitor our systems for efficiency and have people on staff who fix leaks and other problems daily. Compare that to the city of Atlanta, which loses 30 percent of the water it pumps daily because of leaks.

We have a lot of expertise to offer. We’re helping to lead the way toward a future where there’s an effective, efficient management system where we can have enough water for everybody. It’s like Goldilocks and the Three Bears – not using too much water, not using too little. Our goal is to get it just right. We can be a model for everyone.

You also have a “real” job. What’s going on at the club?
Our No. 1 issue is labor. I've started turning stuff (speaking, committees, etc.) down so I could be around here more. I've had fantastic help and long-term employees. The problem is finding seasonal help with the right qualifications. Everybody on our staff pitches in, but we're having to get more creative. We're going to flex hours and are using students and retired folks. We're getting by but it's not easy.

Do you see changes in the work ethic of the young folks you hire?
I'm old school. I love to get up at 5 a.m. and go to work. My sense is that young people today don't mind working, they just mind when they're working. That's why we're trying flexible hours and other things to make it more palatable for them.

What message do you try to get across to the students you talk to?
I talked to the UGA turf club this spring, and my topic was supposed to be business etiquette and management, but it quickly became a discussion about hours and pay scales. I tried to reinforce that they're going to have to apprentice. Your fastest way to the goal of being a superintendent is to put in the hours. There still are really good young folks out there. I have a couple interning right now. They haven't had enough thrown at them yet to learn how to duck. The ones that get it will go far, but they're fewer and farther in between.

How do you balance all the professional stuff with your family's needs?
I've been married for 23 years to my college sweetheart, Marty. We dated for six years before we got married, but the first six months were still really difficult. She'd ask, "Why are you never home?" which was pretty ironic considering she was a flight attendant. Now, if I'm hanging around the house, she'll say, "What are you doing here?"

My kids are awesome. My son's 18 and attending Georgia Tech. He's an Eagle Scout and won a GCSAA Legacy Award and the Garske scholarship. My two daughters are in high school, and both of them are great students who are involved with tons of stuff such as travel soccer and church missions. We've really been blessed by having great kids who didn't seem to mind that dad has this job that keeps him away all the time.

What kinds of challenges does the Georgia GCSA face?
We've had great leadership and executive staff who are focused on the needs of the average member. You can't forget that. We had membership standards long before the national, but the idea was to enhance the value membership offers to our employers. We were extremely lucky to have guys such as Bill Womac, Randy Nichols and Ken Mangum - really dynamic folks who've mentored the other leaders and who see the worth in younger folks and bring them up. A good example is Richard Staughton, who's now taking over most of my task-force duties from me.

Final thoughts?
We're always so good at talking to ourselves, but we've done a poor job of getting the message out to the public. There's so much good stuff being done out there - usually by one individual who burns with a passion for the profession - but, until we're all doing that, we'll still be doomed to be perceived as bad guys. We have to change that or golf will always be on the outside looking in when it comes to water. GCi
Labor shortages, overdevelopment, reduced budgets and pressing agronomic issues—among others—worry golf course superintendents. But as expected, most of them are rising to confront the challenges like seasoned professionals.

The top 10 concerns reported in a Golf Course Industry survey of 200 subscribers (see info box on page 30) include staff, irrigation, members’ expectations and the U.S. economy. Of course, every situation is different, and like politics, all concerns are local.

Jeff Staeger, who has been the golf course superintendent at Wildwood Golf and Country Club in Cape May Court House, N.J., for eight years, says overdevelopment in the area has gotten to the point where clubs are reducing rates and giving away memberships at considerable discounts.

“Development has been unbridled,” Staeger says. “Whoever has money can build a golf course.”

With many traditional members in the area finding less time to play golf and having less cash on hand, a one-two punch of high supply and low demand is putting the bottom line on the canvas. Wildwood has lost 15 percent of its membership during the past two years.

“Clubs in the area are offering memberships that would acclimate them to a certain group of people,” Staeger says. “The thinking is that once new members make some friends and enjoy playing the course, hopefully, cost won’t be a factor when the discount expires.”

The membership committee at Wildwood plans to focus on retaining younger members during the next decade. Meanwhile, Staeger must deal with high expectations of the players who arrive during summer—visitors who are used to playing in Philadelphia and New York much of the year.

“People compare our course with their course back home,” he says.

Some newer courses in New Jersey aren’t owned by experienced golf people. Campground owners and other investors outside the golf world built golf courses searching for profit, Staeger says. But even though course construction continues, the economy has caused people to feel strapped for cash and reduce their spending.

Much of the current economic woes are a self-fulfilling prophesy, says Josh Olinger, golf course superintendent at Stonebridge Golf Club in Lakeland, Tenn.

“A lot of this is in the American public’s head,” he says. “We’re in a recession because we think we are.”

STAFFING/LABOR
While worry might be undue, the reality is that economic concerns trickle down to Olinger’s budget when people spend less on golf.

“In turn, my budget suffers, and we have to cut employees out, and we have to cut chemicals, fertilizers, wherever we can cut to get that balance,” he says.

Olinger isn’t alone facing staffing issues. It tops the list of concerns in the GCI survey. For many, a narrowing pool of immigrant laborers recently has made hiring more challenging. Fewer workers coming to the U.S. from Mexico and South America mean some positions go unfilled.

Part of the worker shortage is because of a reduction of the number of H-2B visas issued this year. Congress failed to pass a provision that, during the past few years, has allowed returning H-2B workers not to count against the annual cap of 66,000 visas. Because the so-called “returning-worker exemption” hasn’t been passed, many businesses didn’t receive the
Staffing issues top the list of superintendents' concerns. For many, a narrowing pool of immigrant laborers recently has made hiring more challenging.

seasonal workers they’ve come to depend on.

"Because it’s more difficult for them to cross the border and get the work visas, we’re not getting the volume of Hispanic labor like we did five years ago," Olinger says.

Olinger has been three people shy of full staff most of this year. Normally, he has a crew of nine. Still, all the important work gets done with the help of extra work by the smaller crew.

"I would put the small crew I have against any crew in the country," he says. "I feel like they’re the hardest working crew I’ve ever seen."

Olinger’s crew always wants more hours, so that helps compensate for the open slots.

"The course doesn’t suffer because I’m short staffed," he says. "But it doesn’t really benefit either. We’re staying afloat."

Hiring also is affected by reduced visas and competition. John Cunningham, CGCS, at Four Seasons Las Colinas in Irving, Texas, is insulated a bit because of the extensive screening process conducted by the resort’s human resources department. The resort completes multiple interviews before making any hires.

“We have a very strict policy about hiring a legal work force," Cunningham says. "It’s becoming more difficult to find those employees that are legal, have good paperwork and are able to work in the United States."

The golf industry is negatively affected by the available labor pool because good employees are being siphoned off by other industries. The first hurdle is being able to hire a legal employee, and the second is finding a qualified person. Finding the right employees is a chief concern for Cunningham because they determine the success of
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Sometimes superintendents inherit challenges on day one and are forced to deal with them right off the bat.

his maintenance operation.

“They’re the real heroes,” he says. “You go to any well-groomed golf course or great-run golf course, and it’s because of the staff.”

**AGRONOMIC CONCERNS**

Beyond staff concerns, Olinger’s most pressing worry is the facility’s aging irrigation system, which was installed in 1975 and last upgraded in the mid-1980s.

“We’ve gone actually weeks with it down completely,” Olinger says. “The players and others at the club are good about the troubles, though. For the most part, they understand. If they see me out here, they know I’m doing everything I can.”

Likewise, Olinger makes due with the irrigation system because he understands the significant investment the club would need to make to install a new one.

Drought conditions this year also haven’t eased Olinger’s mind. While he has the benefit of an irrigation pond and two wells that he can fill with free ground water, he doesn’t take water for granted because the rain clouds might not return for a long time.

“Everybody needs to keep that in the back of their mind,” he says. “You never know when you’re not going to have any more rain.”

Good planning helps a maintenance operation run smoothly, but sometimes superintendents inherit challenges on day one and are forced to deal with them right off the bat.

“A big issue that was here at the club before I started, and one that’s becoming more common around the country, is earthworms,” says Doug Brooks, golf course superintendent at Denver Country Club.

Brooks is trying to solve the issue through water management and strengthening the ryegrass turf’s canopy, which is a top priority.

“I’ve learned where the bad areas are and when there’s going to be more activity,” he says. “I’ve really been on top of it this year.”

Another concern for Brooks is a purely local one that took root - or failed to - after a renovation project. The club’s driving range was changed from two levels to one. About 1,500 tons of material were brought in to level it out. But the sod hasn’t flourished because the soil struggles to supply enough oxygen and water.

“It’s not recovering well, so that’s a real focus to make some improvements,” he says.

Ricky Craig, golf course superintendent at Shingle Creek Golf Club in Orlando, Fla., is concerned about the future without Nemacur because his Tifeagle greens are susceptible to nematodes.

Nemacur, a nematicide with the active ingredient fenamiphos, is in the process of a five-year phase out because of Environmental Protection Agency concerns.

“It’s a concern with sand-based greens,” Craig says. “But I haven’t had to use a nematicide to date.”

Craig’s interest in staying ahead of nematodes shows in his topdressing program. He focuses on keeping the biomass healthy through aeration every three years. He strives to keep the microbial population happy and moving so they decompose thatch. This should keep the turf healthy and the nematodes in check. If this doesn’t work, however, the situation could deteriorate.

Users can apply Nemacur until supplies are depleted, but distributor sales will cease after May 31.

“Other than using Curfew, there’s not a plan in place,” he says.

**MONEY MATTERS**

Skyrocketing fuel costs are a worry for superintendents, but some foresight keeps sleepless nights at bay. For example, Olinger readjusted his budget to accommodate for that.

“Fuel is a concern, but if you’re prepared for it, it’s not that bad,” he says.

Other superintendents say they prepared for the higher costs this year by increasing their fuel budget considerably. Surprisingly, fuel costs didn’t make the top 10 concerns in the GCI survey.

Unlike rising fuel costs, not all trouble can be seen in advance. Sometimes the issues keeping superintendents up at night seem like a rare disease. Other times they’re like the common cold. Brooks has experienced both this year. Inflation is a common concern for him.
Top 10 concerns for superintendents

1. Staff
2. Weather
3. Family/home affairs
4. Irrigation
5. Budget
6. Turf
7. U.S. economy
8. Members’ expectations
9. Pests/diseases
10. Job security

Other concerns for superintendents
- Gas prices
- Business plans
- Labor shortage
- Equipment
- Tournaments

Source: A Golf Course Industry survey of 200 subscribers

"Obviously, the cost of fuel and fertilizer has got everyone's attention, but we've been able to manage those," he says. Brooks splits fuel purchases of unleaded and diesel over alternate months to help cash flow.

"We've paid attention to every part of our operation," he says. "We’re careful with the money we’re spending on labor and paying attention to our fertility, making sure we’re not getting ahead of ourselves."

Tighter budgets have handcuffed many superintendents. Rounds played nationwide have been flat the past several years. For Staeger, a decline of members has hurt his nearly $1-million budget, which was reduced 10 percent this year. Staeger, with a crew of 15, used ingenuity to trim back to the new funding level. For example, he cut $45,000 out of his chemical budget by switching one chemical to a new product that lasts longer and requires fewer applications. He also has swapped several branded products for generic ones. He hopes that strategy will save money and that no significant issues demanding costly reactive measures will crop up and burn through the savings.

Staeger also is concerned that the roughly $85,000 in planned reductions he made won't be enough because of the higher-than-expected equipment and irrigation costs. He’s keeping the financial team abreast of the situation.

"Hopefully, they don't get to the end of the year and their eyes pop out," Staeger says.

Because of these various operational concerns, superintendents have been working a lot of overtime, and that's not likely to change. Keeping a course in premium condition despite a barrage of personnel, budgetary and agronomic issues might require them to work even more hours than they already clock.

"It's going to be our cost to bear in upcoming years if this economy doesn't turn around," Staeger says. GCI

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TIME to go

Although a touchy subject with golfers, tree trimming or removal improves turfgrass health

BY TOM LELAND

Though few careers are as intertwined with nature as that of a golf course superintendent, golf maintenance professionals tend not to be nature freaks. At least, not at first. But they spend their days monitoring and tending vegetation, surrounded by natural splendor at every turn. Superintendents - and golfers - can't help but build an appreciation for nature's beauty and relentless vitality, including an enhanced respect for the colossal strength and stoic elegance of trees.

So when a tree has a negative effect on a putting green and it's time to examine the possibility of cutting it down, a superintendent approaches a club's green chairman or general manager knowing it's a touchy subject.

Many golf courses in the United States have hundreds of trees, and many were planted with little thought to their placement beyond aesthetic appeal. Trees planted during the 1960s and 1970s weren't planted with the costs of pruning or removal in mind, says Bruce Williams, CGCS, director of golf courses and
Searching For A Cost-Effective Solution To Control Dollar Spot?

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At Glendora Country Club, superintendent Juan Maldonado uses tree growth regulators to reduce the need for pruning. Photo: Glendora Country Club

but not both," he says.

Nowadays, with much greater awareness about the negative effects shade has on turf and the competition between trees and turf for air and water, a great deal of time, energy and money is spent managing trees around putting greens. However, opinions vary about best practices for tree management. At private clubs, tree management often causes friction between management and members.

SEEING THROUGH THE FOREST
The biggest tree issue on superintendents' minds is the effect of shade on turf. When turf receives less than optimal light, it begins to change almost immediately at the biochemical and molecular levels, resulting in lower rates of respiration and photosynthesis and slower growth. Plants become taller, but their stems become thinner and weaker. The turf thins, root growth decreases and the leaves become more vulnerable to traffic and disease. To make matters worse, the depleted root system and lower energy reserves make it more difficult for the plant to recover from the effects of heat, cold, dry and wet conditions, or disease. Weeds proliferate because the turf plant can't compete with them for moisture, light and nutrients.

Pruning is only a temporary solution and can be harmful to trees. Tree growth regulators, such as trinexapac-ethyl or flurprimidol, can increase plant density and decrease shoot elongation, counteracting some of the negative effects of shade. Juan Maldonado, superinten-
dent at Glendora Country Club in Los Angeles County, has been using a flurprimidol product for about a year. The chemical is injected around the base of a tree and is effective for about three years, Maldonado says.

“We’ve reduced the need for having trees pruned,” he says. “Canopy production and tissue growth are regulated, the trees don’t produce as many leaves and foliage no longer grows into the netting. More light comes in, and now our greens are nice and dry.”

Steve Thomas, director of golf course maintenance at Pelican Hill Golf Club in Newport Beach, Calif., combines a growth regulator with a physical barrier.

“Where our tree roots grow into the collar of the green and compete with the grass for moisture, we trench in a thick, plastic 18-inch barrier that also has a chemical to stunt root growth,” Thomas says.

In 2003, Pelican Hill hired a company to create a global positioning system for the course. “Every hole has its own map, and every one of our 5,000 trees has a GPS coordinate,” Thomas says. “This really helps us make an overall tree management plan and helps us allocate our budget.”

Generally, the approach superintendents take is to prune when it makes sense while educating themselves about the amount of light greens receive, then adjust their turf care accordingly. But there’s a lot of information to consider. Morning light is the most important for turf, and sun angles vary throughout the course of the year. In the fall, shade can cause frost on greens. More bad things happen to wet grass than dry grass, and if trees are hampering air circulation, they might need to be cut down.

Safety also can be an issue. Sometimes cutting down a tree increases the chance someone will get hit by an errant ball. Or trees that drop a lot of debris onto a green or bunker take priority over those causing shade problems.

**EVERYONE’S AN EXPERT**

Overall, tree removal is becoming more widely accepted as a necessary evil, and that’s when emotions, and club politics, can heat up.

Too often, emotion plays a part in the process of deciding whether a tree needs to be removed. Golfers, particularly old-timers, become attached to trees and the specific look of the landscape around greens. It’s common for a green committee to thwart a tree removal that clearly would benefit a nearby green. But these incidents are rooted in ignorance as much as emotion. Golfers often don’t understand the significant impact trees have on turf. They tend to assume solutions lie in pruning and better or different application of water or nutrients.

“It’s difficult for them to understand you have to cut down a 30-year-old tree because it’s competing with the turf,” Williams says. “They say, ‘Can’t you just prune it?’ At some clubs, they say, ‘We won’t let you take every tree out, but every other one.’ But that might improve the situation by, say, only 20 percent.”

It doesn’t help that club members have their own trees and grass at home, so they think they have the answers. Many superintendents must bite their tongues regularly, tapping into unknown reserves of diplomacy as management or member committees resist cutting down trees. Sometimes a superintendent’s superior sees things his way, sometimes he doesn’t. Every private course has its own hierarchy and each superintendent has unique challenges in enlightening decision-makers. Superintendents at public courses have a much easier row to hoe because they’re often empowered with all tree management decisions.

It’s common for a course to hire a certified arborist as a consultant, or to enlist the help of one who’s on the staff of a tree management company. Inevitably, an arborist’s opinion can help a superintendent make his case about certain trees. Generally, arborists agree that if a tree needs pruning more than twice a year, it’s so bad for the health of the tree it might as well be removed.

Most courses try to remove trees as quickly as possible, usually on a Monday when club’s are closed. Many courses alert their members of the action with an e-mail or other communication, with hopes that this courtesy will soften the blow.

**FINANCIAL REGULATORS**

The money golf course managers spend on tree management varies somewhat, usually falling within the $40,000 to $90,000 range annually. But often it’s not enough.

“Tree management budgets are usually deficient to keep up with the number of trees on a property,” Williams says. "It's a lot easier
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Every one of Pelican Hill's 5,000 trees has a GPS coordinate to help Steve Thomas make an overall tree management plan and allocate his budget properly. Photo: Pelican Hill Golf Club

to come up with money to plant a tree than to maintain it.”

Occasionally, there's even some horse-trading involved.

"Sometimes I'll negotiate with our tree company," says Brian Archbold, golf course superintendent at El Niguel Country Club in Laguna Niguel, Calif. "I'll trade their usual trimming and pruning for the removal of a tree."

One tree management approach is probably out of the league of all but the biggest budgets. There are companies that document shade issues and quantify light levels with tools such as portable weather stations and aerial photography. When taken at a time of day and year when tree shadows are visible, they are a convincing and inarguable record of tree shading. If a course is lucky, aerial photographs from years past might exist in photo banks. However, such images are always taken vertically — directly above the area — and at mid-day, when shadows are less pronounced. If an archive of these photos is available, they can be especially useful in tracking the increasing size of trees and the shade they cast throughout time. When available, they can be obtained from aerial photography services, usually for less than $100.

Superintendents can photograph areas where they believe trees are hurting turf quality. Keeping a photo record of a given location throughout the year could help them convince others of the need for action on trees. Williams uses this technique at L.A. Country Club.

"After a diseased or decaying tree comes down, no one remembers it was sick," he says. "We try to take pictures of trees before removal, so if we're questioned about it, we can show their prior condition."

Some superintendents observe light conditions on their own.

"I'll study where the sun comes up over a couple of days, just seeing which greens aren't getting enough morning light," Archbold says.

**BUSINESS AND THE ENVIRONMENT**

The line between running the business of a golf course and doing right by the environment and its living things is a fuzzy one. Thankfully, many superintendents instinctively try to preserve the nature around them. When a tree is cut down, some courses make a conscious effort to mimic nature as closely as possible.

"We try to leave the snag (stump) up so it can be a habitat for wildlife," says Charles Joachim, CGCS, at Champions Golf Club in Houston. "We get a better diversity of wildlife that way. For instance, as far as I know, our stumps are the only home around for the pileated woodpecker."

Ultimately, when push comes to shove, grass must win over trees. Stanley Zontek, Mid-Atlantic region director for the USGA's Green Section, breaks the issue down to its core.

"The game of golf is played on grass," he says. "Superintendents are judged on their ability to grow grass, and trees are bad for grass."
How do you make a great course better? Well, at Scioto Country Club in Columbus, Ohio, the grounds crew dug up the greens to find out.

It turns out a renovation at Scioto in the 1960s contaminated the soil profile, preventing the greens from draining efficiently. But because talented superintendents Mark Yoder and Bob Becker babied the greens for years, club members tolerated the poorly draining greens. After a field experiment, Yoder, Becker and architect Mike Hurdzan convinced members their greens needed to be rebuilt.

But the renovation didn’t stop there. The project team moved a few greens, added two sets of tees and regrassed the fairways.

TRY THIS FIRST
In 1974, members of Scioto called Hurdzan to look at winter damage on the greens, and he commented how poorly the greens were built. “They were very inconsistent,” he says. “It was a first-class golf course, and it needed first-class greens.”

Scioto has had a history of problems with greens—they didn’t drain, says Bob Becker, CGCS. “The greens were basically big bath tubs,” he says. “We always had complaints about the greens being too soft and overwatered. I chased localized dry spots all day. To work water in, it was delivered by hose. We would use the overhead irrigation only three to four times a year. I was fed up with it.”

From 1980 on, Yoder, now the director of golf course operations, built a USGA-conforming sand layer, but the layer was only 3 inches deep after about 30 years. So Yoder and Becker did what they called the “Scioto Experiment,” in which they double drilled and filled three greens on a few holes using ¼-inch tines.

They then contracted XGD Drainage to install its system on two greens. Their crew cut 19 channels—14 inches deep and 4 inches wide—into the greens and installed drain tile on 6-foot centers. The process of cutting channels in the greens, including the addition of the Advanced Aer System on only one of the drained greens and the 6-2-2 (sand, soil, peat) profile mix that was added to the trenches, cost $40,000.

There were four greens in the experiment. The first had drainage, an Advanced-Aer unit, and drill and fill. The second had drainage and drill and fill. The third just had drill and fill. The last was a control green. All greens contained RZ wireless sensors at different locations and depths.

“We had so many issues,” Becker says. “We found chunks of concrete, asphalt and steel in the greens. Architect Dick Wilson rebuilt the greens in the 1960s, but we would have been better off with the original Donald Ross greens. The root-zone mix and methods used in the 1960s were horrible. There was no quality control, and the result was inconsistent depths of gravel and root zone. There also was no drain tile under many of the greens.”

The crew used wireless sensors in the greens to measure how much water they were pulling out of the greens. Using information from the sensors, Yoder and Becker were able to plot graphs of the profiles so members could see moisture movement in the greens and the lack of drainage.

“We tried to fix the greens without tearing...
GO GREEN!

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- Use less water
- Use salt to kill weeds
- Use less fertilizer
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them up,” says general manager Greg Wolf. “The sensors told us the work we did putting channels into the greens didn’t help at all.”

SELLING IT TO MEMBERS
Yoder and Becker showed Wolf the results of their experiment.

“It’s always different when it comes from the general manager, not the superintendent,” Becker says. “Members sometimes think the superintendent is just making excuses.”

Yoder and Becker eventually presented the data to the green committee, which made a recommendation to the board of directors. In turn, the membership needed to vote on the suggested greens renovation because the project would change the golf course and the cost required approval from a voting majority. At a town hall meeting about the proposed renovation, members expressed concern about closing their course for a year. That concern was addressed when the club purchased rounds at nearby, recently opened Pinnacle Golf Course. The renovation project was approved by 88 percent of the membership.

“I never thought the members would approve the project to rebuild the greens,” Becker says.

The golf course closed July 9, 2007, and reopened April 29, 2008.

CHOOSING AN ARCHITECT
The Scioto team chose Hurdzan as the architect for several reasons: He’s local, he’s been a friend of Yoder’s for 30 years and Scioto leadership recognizes the quality of work he does.

“Not everybody will trust you to dust the Mona Lisa,” Hurdzan says.

Several years ago, Hurdzan proposed a golf course improvement plan, including bunkers, that the Scioto membership approved.

“Everyone liked the way the golf course was,” he says. “Membership didn’t want to change what they had because it was good. I thought a few changes could make it better. I won the confidence of the membership. Then I got more aggressive with the renovation.”

Hurdzan says his work on the greens renovation was a continuum of the bunker renovation he did in 2005 and 2006.

“They kept expanding my services in order to satisfy their concerns about the greens,” he says.

NEW GREENS
Using LIDAR, Hurdzan mapped out the greens down to one-inch contours, conducted a slope analysis and presented the information to members.

“Some greens were too steep with today’s green speeds, so we softened them a bit,” Wolf says. “With the help of a computer program, we were able to increase the size of the pinnable areas.”

Hurdzan and Norm Hummel from soil testing lab Hummel & Co. were involved with selecting the greens mix from six options.

“The members wanted to make the greens firm and fast, so we added 5 percent soil to the root-zone mix,” Hurdzan says. “It’s a touchy thing to do because the greens can become like concrete. We tested the soil and made sure it remained acceptable.”

The team used an 8-1-1 sand-based root zone that included a soil component at 10 percent to create the desired firmness. The last 10 percent was Profile, which helped keep the performance characteristics of the mix. Before settling on the mix, the team used many variations of each of the mixes on practice greens built on the range in the year leading up to the project.

Wolpert Engineering staked the USGA-spec greens, Becker’s crew stripped them, and Dayton, Ohio-based builder Topp Shape cored them. Then the team restaked the greens and installed the gravel and mix.

“We couldn’t disrupt the outside of the greens – the collars and edges remained the same,” Hurdzan says. “So there was a lot of hand labor.”

In 1989, the greens were regrassed with Pennlinks, and in 1999, they were regrassed again – this time with G2 bentgrass. In 2003, the G2 greens weren’t performing very well, so Becker built a nursery green to test different varieties.

Eventually, Yoder and Becker recommended a combination of A-1, A-4 and T-2 (alpha) on the new greens. The decision was based on a blind test – selecting the plot that survived the practices the best. Becker liked the addition of the T-2 because the A-1 and A-4 are so similar genetically, and he wanted another variety in the mix for diversity. Yoder and Becker educated the project committee about the different varieties, showed them the plots, and the committee approved the superintendents’ recommendations.

All the greens were seeded three ways at one pound per 1,000 square feet August 31, 2007. “We told the members we wouldn’t push the greens,” Becker says. “The height of cut is a little higher. We got to a speed of 9 on opening day and now we’re a 12 on the Stimpmeter at the same height as opening day. We started rolling twice a week, and now we’re up to four days a week. They’re single cut and groomed daily. Next year, we’ll push the greens to what members want.”

NICKLAUS’ TWO CENTS
On May 28, 2007, six weeks before the start of the renovation project, Jack Nicklaus, an honorary member of Scioto, called the club and said he loved the old course and because he grew up there and felt responsible for bringing in Dick
Prevent Poa
and they can’t blame you!

Keep your greens Poa-free and they’ll be looking for another excuse for their missed putt.

Fall prevention is the secret to smooth greens in the Spring. With weeds like Poa, goosegrass, and crabgrass, your best control strategy is prevention – just don’t let ‘em get started.

Extensive trials throughout the United States have demonstrated the effectiveness of Bensumec™ 4 LF and Pre-San® Granules for control of crabgrass, goosegrass, annual bluegrass and many other undesirable grasses and broadleaf weeds.

Both Bensumec and Pre-San provide the two key preemergent benefits on your greens: highly effective weed control and high turfgrass tolerance. Stop your Poa annua problem before it starts and they won’t be blaming you.
The MULTI-TINE AERA-VATOR is great for overseeding tees, fairways, and localized dry spots. The patented vibrating action fractures the soil for increased seed germination. Also used to incorporate top dressing on tees and fairways for increased versatility.

COURSE CONSTRUCTION

Wilson, he wanted to be involved. Nicklaus came to Scioto and drove around the course with Hurdzan and committee members. 

"Jack said, 'If you want my input, call me,'" Hurdzan says. "Jack called back and was passionate about the job. The committee said, 'Mike's our architect.' Jack said, 'Fine, we'll work together.' Jack came back seven or eight times during the project. I give him credit for making the project better. When Jack says something, people listen more intently.

"I came at this purely from an architectural view," Hurdzan adds. "Jack looked at it from a player's view, but we came to the exact same spot. We met dead in the middle. We had a strict budget and weren't going back to the club for more money."

Nicklaus moved the greens on holes 8, 10 and 17 closer to water to make shots more challenging. He also moved a few greenside and fairway bunkers.

"He had a lot of fantastic ideas to get the course the way it used to be," says Tom Topp, v.p. of Topp Shape, who previously worked for Nicklaus at Muirfield Village. "Hurdzan and Nicklaus worked great together. Scioto got the best out of them."

WIDENING THE SCOPE

What started out with just rebuilding the greens expanded into regrassing the fairways and adding two sets of tees.

"We changed our philosophy," Becker says. "The members wanted firm and fast and developed a little threshold for browning, so we changed from Poa annua to L-93 bentgrass in the fairways. Now we're using one-quarter of the water, less chemicals and we have better playability."

Members were able to evaluate L-93 at several courses in the area before choosing to use the variety in the fairways.

"We have an older membership, and they like a little roll, but they didn't have that with the Poa because we had to water a lot to keep it alive," Wolf says. "The course is playing more difficult now."

When it came to the additional tee boxes, the team used the earth removed from the greens to build championship tees, short tees for juniors and higher handicappers, and member tees. There are now six sets of tees.

The crew seeded the fairways during the last 10 days of August 2007 and seeded the tees in September. "We need 10 to 12 weeks of good grow-in and we got it," Becker says.

WORKING TOGETHER

Members weren't assessed for the project – the funds came from a capital budget. Scioto purchased everything for the project, and if anything went wrong, Yoder and Becker were responsible. They communicated to members hourly and cleaned up the site every evening.

"Members would come out every night and ask questions," Becker says. "It's traumatic to see the golf course they love torn up. They wondered how it would be back the following year. We were visible and answered all questions. It's a member golf course, and we needed to deliver what they wanted us to do."

Topp, who had worked for Scioto in the past, was a little stressed about the project but got off to a good start.

"The grounds crew under Becker - their direction and cooperation - had a lot to with the success of the project," he says. "I can't say enough about the greens staff. They were always pitching in and helping out. Nobody was trying to take all the credit. The Scioto job was one of the most exciting jobs I've had. The project was near because of the way Mike and Jack worked together and trusted us to put their ideas on the ground."

Hurdzan praised Topp for doing a herculean job at a high standard.

"He worked long periods of time and did what most thought would be impossible," he says. "Overall, the project was smooth sailing, Hurdzan says.

"We all had the same focus to produce the best golf course," he says. "To continue my relationship with Scioto was enormously exciting and rewarding. It's one of my all-time professional highlights. We took a great golf course and made it better."

The renovation, though, was about the future, Wolf says.

"This project was about making a championship golf course for the next generation," he says.
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Water is a limited resource that’s in increasing demand as populations, and particularly urban populations, grow. Reclaimed water use – sometimes called effluent or recycled water – on golf courses is a logical response to conserving water, but one that should be appreciated for the increased financial and agronomic demands it can make on turf management operations. Reclaimed water can cause problems if superintendents don’t make adequate preparations.

Because reclaimed water frequently – though not always – is of lower quality than traditional water sources, turf quality can be seriously compromised unless aggressive leaching programs, improved irrigation systems, modified soil amendment and cultural programs, and the flexibility to replace salt-sensitive turf varieties are taken into account. Even if all of these changes are incorporated, turf quality will still suffer unless a supplier can guarantee delivery of a prescribed quality and volume of reclaimed water.

Golf courses that rely on reclaimed water have dealt successfully with most of these problems by instituting soil monitoring programs and cultural practices that optimize turf health under low-quality water irrigation conditions. In the future, negotiating strong contracts with suppliers might further reduce the potential hazards of using reclaimed water.

### Negotiating tips
Here are a few pointers to consider when negotiating reclaimed water contracts:

- The price of reclaimed water should be keyed to current water prices and should consider water quality. Expect a 15- to 20-percent cost per unit reduction compared to domestic water.
- Define maximum acceptable quality limits. If water-quality limits are exceeded, the contract might be voided by the golf course without penalty to the golf course. Use the values in Table 3 as rough guidelines, tailoring them to meet your unique conditions.
- Define delivery guarantees, including access to the pump area to allow restarts and guaranteed pump repair times.
- Include costs of fairway cultivation and amendment programs you’ll need to prevent soil damage from long-term use of reclaimed water.
- Include costs of monitoring equipment, such as in-line electrical conductivity and flow meters.
- Include the costs of soil testing and management consultations.
- Estimate a 5-percent to 10-percent increase of water use to compensate for leaching fraction increases.

### Table 1. Comparison of reclaimed water sources used for golf course irrigation in Southern California
Blue shading indicates the reclaimed water exceeds the recommended guidelines in Table 3. Yellow shading indicates the value is within 10 percent of guidelines, and green shading indicates the value falls within recommended guidelines.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Average</th>
<th>Big Canyon</th>
<th>Dove Canyon</th>
<th>Laguna Woods</th>
<th>Bear Creek</th>
<th>El Niguel</th>
<th>Oakmont</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC (dS/m)</td>
<td>0.8</td>
<td>1.6</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>1.6</td>
<td>1.1</td>
</tr>
<tr>
<td>SAR</td>
<td>1.9</td>
<td>5.3</td>
<td>2.8</td>
<td>3.6</td>
<td>4.6</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td>SARadj</td>
<td>3.4</td>
<td>11.2</td>
<td>5.3</td>
<td>6.1</td>
<td>7.5</td>
<td>6.6</td>
<td>6.12</td>
</tr>
<tr>
<td>HCO3 (ppm)</td>
<td>173.8</td>
<td>243</td>
<td>134</td>
<td>125</td>
<td>156</td>
<td>134</td>
<td>203</td>
</tr>
<tr>
<td>B (ppm)</td>
<td>0.17</td>
<td>0.52</td>
<td>0.26</td>
<td>0.41</td>
<td>0.62</td>
<td>0.42</td>
<td>0.64</td>
</tr>
<tr>
<td>Cl (ppm)</td>
<td>81.7</td>
<td>244</td>
<td>122</td>
<td>228</td>
<td>158</td>
<td>211</td>
<td>106</td>
</tr>
<tr>
<td>Na (ppm)</td>
<td>70.0</td>
<td>194</td>
<td>112</td>
<td>151</td>
<td>147</td>
<td>168</td>
<td>115</td>
</tr>
</tbody>
</table>
"Ha. Looks like those guys can't handle a little Tenacity."

Tenacity™ herbicide. Safe for seeds. Not good for weeds.

This revolutionary product works in a way where new turf seeds safely metabolize the active ingredient mesotrione but unwanted weeds and grasses fall victim. In fact, Tenacity™ selectively controls 46 types of weeds and grasses. Apply Tenacity during this year's overseeding and watch unwanted weeds and grasses wither away. Your grass seeds have never had a better ally.

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In most cases, reclaimed water is of lower quality than the domestic water source from which it originates. This is because the reclamation process isn’t able to remove all the salts and other materials that are added to the water in its first use by the community. For this reason, there’s usually about a 10-percent increase in total dissolved salts in reclaimed water versus the original domestic water source.

High levels of nitrogen in some reclaimed water sources also can be a threat to turf quality, unless fertility programs are adjusted to take this into account. In fact, we’ve seen more turf quality problems that result as a consequence of high-nitrogen reclaimed water than we have as a result of high salts.

The impact of reclaimed water on a golf course, however, can be evaluated only by comparing the reclaimed water to the irrigation water that it will replace. For example, golf courses that use low-quality well water might see an improvement in turf health if the reclaimed water is of slightly higher quality (see Table 3 on page 52). In most cases, though, reclaimed water has lower quality than current domestic water sources. Tables 1 (page 46) and 2 (below) illustrate the dramatic differences that occur among different reclaimed water sources and the types of problems most frequently encountered.

---

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The AER-AID moves air uniformly throughout the root zone for complete aeration of the entire area - not just where the tines have penetrated.

---

**LEACHING**

The increasing accumulation of soil salts that results throughout time from use of low-quality reclaimed water will result in shorter roots and unhealthy plants unless leaching programs are implemented.

A leaching fraction is the amount of water that must be applied during irrigation to maintain soil salts below levels that are damaging to the plant. To calculate the leaching fraction, one needs to know the electrical conductivity of the irrigation water and the electrical conductivity that’s tolerated by the turf type managed (see Figure 1 on page 50).

\[
\text{Leaching requirement} = \frac{5 \times \text{EC tolerated} - \text{EC water}}{\text{EC water}}
\]

For example, if irrigation water has an electrical conductivity of 1 dS/m (= 1 mmho/cm or about 640 ppm total dissolved salts) and the turf type is Poa (which, according to Figure 1, can’t tolerate more than 3 dS/m), then the leaching fraction is \(\frac{1}{14} = 0.07\). This means 7 percent more water will need to be applied to move salts beyond the root zone. Another way of saying this is that if you’re irrigating for 10 minutes to replace the water lost by evapotranspiration and saturate the root zone, you’ll need to add another 0.7 minutes of irrigation – for a total of 10.7 minutes – to prevent accumulation of salts to plant-damaging levels.

To estimate the increase in water use that reclaimed water will produce, compare the leaching fraction for the water you’re currently using versus the leaching fraction you’ll need with reclaimed water.

---

**CRITERIA FOR RECLAMATION WATER**

These criteria are derived from Table 3 in the related referenced document and provide a basis for evaluating reclaimed water sources for use in golf course irrigation. They are intended to help ensure that the reclaimed water quality does not exceed reasonable guidelines and that the water is used in a sustainable manner.

**Table 2. Recommended maximum limits for reclaimed water negotiation for use on sand-based bermudagrass fairways.** These limits don’t ensure the water might be used in a sustainable fashion for turfgrass irrigation. They only prevent the reclaimed water quality from exceeding reasonable guidelines and reduce the hidden costs of using reclaimed water. Reclaimed water with quality factors falling within these guidelines might not provide a high-quality golfing experience.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Average domestic</th>
<th>Average reclaimed</th>
<th>Maximum limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical conductivity</td>
<td>0.7 dS/m</td>
<td>1.1 dS/m</td>
<td>1.5 dS/m</td>
</tr>
<tr>
<td>Sodium absorption ratio</td>
<td>2.7</td>
<td>4.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Bicarbonate (HC03)</td>
<td>134 ppm</td>
<td>201 ppm</td>
<td>250 ppm</td>
</tr>
<tr>
<td>Boron (B)</td>
<td>0.22 ppm</td>
<td>0.42 ppm</td>
<td>0.50 ppm</td>
</tr>
<tr>
<td>Chloride (Cl)</td>
<td>74 ppm</td>
<td>149 ppm</td>
<td>250 ppm</td>
</tr>
<tr>
<td>Nitrogen (N)</td>
<td>3.2 ppm</td>
<td>7.3 ppm</td>
<td>8 ppm</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>85 ppm</td>
<td>147 ppm</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

---

**MONITORING AND CULTURAL PRACTICES**

Leaching alone won’t solve all salt-related problems if drainage, soil quality and irrigation distribution aren’t perfect. To increase the effectiveness of leaching programs, and to help you keep on top of salt-related problems, the program outlined below is recommended. Implementing this program will cost money and time, but the savings it will produce
PLEASE REPAIR YOUR DIVOT

Soon, a fungus free course won’t have to hurt the planet

Coming this Fall – a truly new fungicide choice that’s virtually non-toxic¹ and just as effective as the leading competitors. Good for you. Good for the environment.

¹Based on the results of the health and safety tests: OECD 401, 402, 403, 404, 405, 406, 203 and 301B.
The research in terms of turf protection are well worth it. The recommended monitoring and cultural practices guidelines are:

- Implement an annual aerial photography program to help identify and correct salt accumulation in turf hot spots and declining trees.
- Initiate annual soil sampling and analysis programs to identify soil chemistry problems before they become serious. Make sure total nitrogen (nitrate plus ammonium) is included in the analysis. Compare results against recommended guidelines, such as those provided at www.paceturf.org.
- Monitor soil salinity using a TDS-4 meter or equivalent. Leach to prevent accumulation of salts to levels above the tolerance of your turf variety.
- Based on soil testing results, apply amendments to compensate for accumulation of sodium or for elemental deficits that might occur during leaching. Adjust nitrogen fertility programs if total nitrogen in the soil exceeds 20 ppm, or if ammonium levels exceed 7 ppm.
- Aerate fairways at least twice annually using a deep tine – to a 9-inch depth, if possible. Apply required amendments such as gypsum in conjunction with aeration.
- Consider a sand topdressing program if organic matter accumulation and/or poor water movement is a problem.
- Consider trimming free foliage to prevent contact with irrigation spray.

IRRIGATION DISTRIBUTION

While leaching programs can be effective to reduce salt damage, they also highlight irrigation distribution problems and soil drainage problems. Frequently, more wet spots and/or bare areas occur as a result. To alleviate these problems, follow these suggested water management guidelines:

- Avoid using reclaimed water on cool-
Trouble getting the soil moisture levels right?

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When it comes to preventing hydrophobic soil conditions and optimizing soil moisture, nothing works better than TriCure AD — the last surfactant you’ll ever need to try!

- A single product to treat all soil types and soil depth levels
- Optimizes soil moisture for plant health and firm playing surfaces
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- Lower usage rates for lower cost

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Aqua-Dynamics

The true breakthrough in soil surfactant technology
season turfgrass greens.

• Implement a periodic irrigation distribution monitoring program to ensure optimum distribution – greater than 75 percent distribution uniformity – is maintained.

• Install a water flow meter on one fairway to enable accurate calculation of leaching fractions. Consider installing an in-line electrical conductivity meter to monitor water quality fluctuations.

• Become even more meticulous about irrigation system maintenance, including replacing misaligned, sunken, broken or poorly selected sprinkler heads and dealing with pressure fluctuations.

• Implement a leaching fraction for areas where reclaimed water is used.

• Require the water district to provide access to daily, weekly and monthly summary values for water quality indicators. Of particular interest is electrical conductivity, sodium, chloride and boron levels. Consider conducting independent water test for more complete evaluations.

Despite all of the efforts outlined above, some reduction of golf course playability because of salt-related turf and tree damage might result.

Table 3. Comparison of well water sources used at several golf courses in Southern California. Note that in several cases (Fairbanks Ranch, Vista Valley, and San Diego) well water quality is inferior to reclaimed water quality values reported in Tables 1 and 2. These courses would benefit from use of higher quality reclaimed water.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Average Domestic</th>
<th>Fairbanks Ranch</th>
<th>Vista Valley</th>
<th>San Diego</th>
<th>Arrowhead</th>
<th>Friendly Hills</th>
<th>Oakmont</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC (dS/m)</td>
<td>0.8</td>
<td>2.8</td>
<td>2.8</td>
<td>4.0</td>
<td>0.5</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>SAR</td>
<td>1.9</td>
<td>3.2</td>
<td>2.8</td>
<td>5.2</td>
<td>0.8</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>SARadj</td>
<td>3.4</td>
<td>8.2</td>
<td>6.7</td>
<td>13.3</td>
<td>1.4</td>
<td>2.4</td>
<td>3.1</td>
</tr>
<tr>
<td>HC03 (ppm)</td>
<td>173.8</td>
<td>366.1</td>
<td>389.5</td>
<td>363.9</td>
<td>189.5</td>
<td>244.1</td>
<td>185.4</td>
</tr>
<tr>
<td>B (ppm)</td>
<td>0.17</td>
<td>0.05</td>
<td>0.21</td>
<td>0.41</td>
<td>0.15</td>
<td>0.13</td>
<td>0.13</td>
</tr>
<tr>
<td>Cl (ppm)</td>
<td>81.7</td>
<td>322.7</td>
<td>609.3</td>
<td>1004.2</td>
<td>9.8</td>
<td>59.6</td>
<td>73.2</td>
</tr>
<tr>
<td>Na (ppm)</td>
<td>70.0</td>
<td>195.0</td>
<td>194.8</td>
<td>406.5</td>
<td>24.6</td>
<td>44.4</td>
<td>65.3</td>
</tr>
</tbody>
</table>

RETURN ON INVESTMENT – 9 MONTHS

→ Mow your greens: Monday, Wednesday & Friday
→ Roll your greens: Tuesday, Thursday & Saturday

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tionally, development of wet areas because of leaching programs might be difficult to avoid. It's critical to communicate with golfers so they adjust their expectations for high-quality turf.

If, after several years of efforts, the above management programs don't provide effective salinity management for the soil-turfgrass system, it might be necessary to switch turfgrasses to more salt-tolerant types such as bermudagrass or paspalum.

As mentioned, the quality of reclaimed water is in the eye of the beholder, and might be a benefit in some situations, as illustrated in Table 3 on page 52. The value of reclaimed water must be judged on a case-by-case basis.

By Larry J. Stowell, Ph.D. and Wendy Gelenter, Ph.D. are research directors with the PACE Turfgrass Research Institute (www.paceturf.org). References for this article can be found posted with this article at www.golfcourseindustry.com.

Learning from San Pedro's contract troubles
By Marisa Palmieri

Coming off the late June settlement of a four-year-old lawsuit about an effluent water contract, the management staff at San Pedro Golf Course in Benson, Ariz., can't stress enough the due diligence managers and superintendents must perform when entering a contract with a government entity. Though Dan Wickman, PGA golf course manager, and superintendent Brad Quiring weren't around when the contract was created, the two have endured many difficulties during the past few years as a result of the litigation and running out of water.

"Watching your course die in Arizona in May and June is painful," Wickman says. "My superintendent and I had some long days."

In August 2004, the course's owner filed the suit, alleging the city of Benson failed to provide the amount of effluent water stipulated in a contract between the city and the course. Benson, from which San Pedro's owner originally leased the course's land, had promised to provide 180 million gallons of effluent water per year but was about 30 million gallons short, says Quiring, who joined the crew after construction and grow-in.

Though the city said, in the contract, it would make up for any water shortfalls from a nearby well, that water was never tested before the contract was signed. It turns out the salty well water was unsuitable for growing turfgrass, but no one discovered this until Quiring tested the water well after the course's effluent water storage facility, a 9-acre lake, was close to running dry.

The maintenance staff made due with the unsuitable water for a short time, supplementing the turf with gypsum and soil treatments to combat the poor water quality. After a while, the city provided some relief, allowing the course access to fire hydrants, Quiring says. Thankfully, the original superintendent on the project overestimated the amount of water the course would need, and the maintenance staff was successful at limiting water use thanks to an efficient irrigation system.

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IMPACT ON THE BUSINESS (continued)

The staff's efforts to work with what it had weren't without significant changes and financial losses, Wickman says. Unsure when the suit would be settled, management opted to reduce the turf area and switch from a rye blue course to bermudagrass. This change shut down the course for almost three months during reseeding. Additionally, the course's owner purchased a nearby piece of land equipped with a well for a supplemental water supply.

Though the city settled the lawsuit, which turned over ownership of the course, valued at $1.4 million, to the lessee, Arizona Golf Systems, the settlement didn't come close to the estimated damages, which topped $5 million. Damages include costs of reseeding the course, sodding several areas, lost revenue from a year's worth of grow-in delays and the effects on the business value's from poor course conditions early on.

"If people come in to play and the course isn't in good shape, they might never come back," Wickman says. "We really struggled for the first three years. If we opened correctly, would the business be under those circumstances?"

Though Wickman says the development team did many of the right things when signing the original contract with the city, going a few steps farther and probing the city about its effluent water-producing capabilities might have raised some red flags that could've prevented the lawsuit.

"Unless you've been through what we just went through, you probably wouldn't think a city could run out of water, but they did," Wickman says. "If I were part of another development, that's definitely something I'd look at. It's something I wouldn't have known to question before, but it's something I'll never forget."

In addition to recommending traditional contract procedures, such as having an attorney review everything, Wickman encourages superintendents to get involved in evaluating the water quantity and quality terms of effluent water contracts. One thing to consider is including a buffer amount of water based on weather-related fluctuations.

"You need a buffer, and it can't just be a couple thousand gallons," Wickman says. "You'll have hot years and dry years, and you can't count on the weather."

Also, consider a contingency clause stipulating that any supplemental water sources must be suitable for turfgrass grow-in and maintenance. Don't forget to test these sources, and ask questions.

"Most people are going to trust a government entity can live up to the terms it's promised," Wickman says. "Don't feel like you're the little guy compared to the government. If there's something that doesn't meet your needs, get it changed."

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Reel sharp
An equipment manager starts from scratch with new grinders in Raleigh, N.C.

Jim Swartzel loved his job as equipment manager, but in Fort Lauderdale, Fla., enough was enough. "After four hurricanes in a year, I had to say goodbye," he says.

Fortunately for Hasentree Golf Club in Raleigh, N.C., Swartzel wanted a fresh start. He accepted a position at the then-unfinished club in early 2006. By the time the course opened in October 2007, Swartzel had just the clean slate he'd been seeking: a brand new course, a new fleet of equipment and an entire shop full of new tools.

As Swartzel compiled his list of necessities for the shop, among the most essential pieces were a bedknife sharpener and a spin grinder. Both pieces – the Anglemaster 3000 DX ($15,566) and the Express Dual 5000 ($39,302) – were purchased from Bernhard and Co. as part of the club's capital expenditure budget.

But before Swartzel could get the grinders running, there were a few things to consider. Because the machines required 220 to 230 volts of electricity, he had to add a voltage device. Also, the two machines were put in a separate room to combat noise and dust. The grinding room at Hasentree is 10 feet by 15.5 feet, equipped with an exhaust fan and a 10-foot roll-up door.

Partly because he had experience using Bernhard machines, Swartzel was happy to continue using the grinders. If your mowers cut well, don't change a thing, Swartzel says. "They're so easy to use and set up, it's a no-brainer," he says. "I'd consider Bernhard the leaders in the industry. They've been doing this for many years. But it's really Ford versus Chevy. It's not a matter of right or wrong but a matter of what you feel comfortable with and what you've been successful with."

The rotary grinder is equipped with an automatic switch, but thanks to extensive lessons from Bernhard, Swartzel feels comfortable grinding manually. It's important to get a feel for the number of passes and the speed and pressure required for the proper sharpness, he says. Automatic programs can come in handy if one has been working

The grinding process looks simple, but if you're not doing it right, you'll see a dramatic effect on the golf course, says Jim Swartzel, equipment manager at Hasentree Golf Club. Photos: Bernhard and Co.
through sand. With three degrees – light, medium and heavy – and three reel sizes to choose from, the Anglemaster and the Express Dual are equipped to handle difficult jobs.

"The machines are under a lot of stress," Swartzel says. "You've got three different motors running at the same time in different directions. I put these things under a lot of pressure and literally have them running eight hours a day. No trouble. They keep on going."

Swartzel and his coworkers typically grind twice a week. There are about 20 units at Hasentree, including two greensmowers, and their reels are ground weekly. The other units' reels are sharpened as needed, about every two to three weeks.

Echoing Steven Tucker's column about grinding techniques ("Setting the cutting unit," page 18, July '08, GCI), it's important to have the same person sharpening all the equipment at one golf course, Swartzel says.

"Unless you're both really consistent, it's best to have one guy doing most of the grinding," he says. "Otherwise, turf can look shaggy."

Still, Swartzel is teaching his assistant, Brandon Reams, the ins and outs of grinding to perfection – just in case.

"The grinding process looks simple, but if you're not doing it right, you'll see a dramatic effect on the golf course," he says.

Here are some of his training tips:

• Look at the wear pattern. It'll change how you grind next time.
• Reel speed is another crucial consideration. It's essential to grind as slowly as possible; grind too quickly, and the reel blade will bounce, causing the stone to miss and skip the blade.
• A lack of pressure can diminish the relief on the blade. If you're not aggressive enough, you'll sharpen only the tips.
• Sixty percent of my job is keeping mowers sharp," he says. "I can do a greensmower in about 15 minutes. I break it down, grind it, then it's ready to go."

Swartzel spends a bit more time on larger machines, about 20 to 30 minutes per reel or up to three hours for a five-reel mower.

"I always have four heads at the shop I can work on," he says. "It gives us a little extra time and flexibility. That was just one of the ways I put together our equipment package to give us a little more versatility."

It's a philosophy Swartzel extends to his career: Be knowledgeable and versatile. He's the president of an equipment association in the Carolinas and is also a member of the International Golf Course Equipment Managers Association.

"I simply do what's supposed to be done," he says. "The results are there. If you have a busy morning, it means something went wrong. I like to roll the equipment out the door and get everybody going, first thing."
Modern marvels

Golf and parks superintendent Jeff Kreie leads an upgrade in Ulysses, Kan.

Born and raised in Ulysses, Kan., Jeff Kreie is inclined to be ever-so-slightly old school. But while he’s been at the same golf course 27 years, he’s not archaic. Let him finish when he says he used a “modern” 50-year-old grinder during his first years at Bentwood Golf Course – he’s referring to the manufacturer, Modern Equipment.

Kreie has made frequent tweaks to keep the machine up to speed. It belonged to the father of Bentwood’s former superintendent, who used it to grind push-mower reels. It was still going strong when Kreie finally got rid of it earlier this year.

“We bought a bunch of Foley parts and made it work,” he says. “We built some jigs and turned it into a rotary grinder. It did a nice job. It didn’t have an overhead bar or any of the fancy stuff for strapping down and tightening the reels, but it worked the same way as the reel grinder.”

Change comes gradually in Ulysses, and Kreie knows just how to make it happen. He’s now the city golf and parks superintendent, and he’s slowly but surely updated his grinder repertoire to include a Foley Model 388 relief grinder, purchased in 1991 for about $2,300, and a Foley 405 spin grinder, purchased in 2006 for about $15,300.

“Those old Foley relief grinders were kind of the only thing going for little budget clubs for a long time,” he says. “We might be the only nine-hole course in the area that has a spin grinder. At the time, $2,300 sounded like a lot of money. Now, $15,000 sounds like a cheap greensmower.”

Kreie works with about 50 reels. Most superintendents in the area send their reels out daily to technicians, but he says the job is more cost effective when done in house.

“One of the reasons for buying the spin grinder was to be able to trim reels up during the season,” he says, adding that the sheer quantity of work was becoming a daunting task with such a small staff. “We throw them in there, touch them up, and they’re like new again. It’s so much nicer when you can walk off. You don’t have to stand there and drag the motor over the reel again and again.”

With the Modern grinder, reels required constant baby-sitting. If equipment mainte-
nance was in its infancy when Kreie first started, it's matured, gradually, to become partially self-sufficient. The rest of the course is growing, too; another nine holes should be complete this fall, along with a new effluent water system.

When Kreie first started in 1981, he was the only person on the crew. Today, he has six employees and a large parks system, but he still doesn't have an assistant to help him grind reels. Several of his crewmen have taken on the job, and when a handful of Foley representatives stopped by earlier this year to give the Bentwood staff a grinding clinic, they were impressed.

"Foley verified we've been doing things correctly," Kreie says. "I was glad to know my guys picked it up pretty well."

New skills acquired in the clinic were how to get the right kind of relief and how to square up the blades on the grinding unit. Kreie no longer has time to do his own grinding—he worked on the Modern for five years before he passed the torch—but he says when something comes up, he tries to fix it.

"I go out and poke around—probably make things worse," he says, laughing. "Since the new reel grinder, I have to hit the books to get in there and figure it all out. At the golf course, there's something broken every day, but I want my reels working well."

Because he values work quality, Kreie says his crew never rushes a grinding job.

"We can get a whole set of reels done in a day, but the tendency is to do more than one thing at a time," he says. "We never have done that."

Bentwood doesn't own a bedknife grinder, and Kreie says he'll probably never buy one, despite the upgrade to an 18-hole budget of about $300,000, which includes $50,000 for capital expenditures. He prefers to use the Foley 388 to touch them up. It also keeps him from the necessity of frequent bedknife purchases.

"We don't keep throwing away a bunch of bed-knives," he says. "I haven't ever seen a bedknife grinder, and I just can't imagine why they cost so much. We can jig up the old relief grinder and touch them up pretty quickly."

Starting with the upgrades to his first grinder, Kreie has relied exclusively on Foley for grinding, and he plans to continue this in the future.

"Foley's got name recognition, but I had no preconceived notions," he says. "The other companies teach that relief is unnecessary on the reels, but I think it's important. Plus, Foley fits our budget."

As Bentwood matures, Kreie and his crewmen have their work cut out for them. He predicts they'll be doubling the hours on their mowing units, so he's arranged a second set of reels to keep the new tempo at the golf course. Meanwhile, Kreie maintains a steady pace. He doesn't always have time to keep his nose in everything, he says, but time, and progress, move on.
TOURNAMENT INSIDER

VIEWS FROM DOWN UNDER

In July, I attended the 24th Australian Turfgrass Conference and Show. I visited the golf courses and spoke with the superintendents who will host Australia’s major championships: John Odell, superintendent of Royal Sydney Golf Club; Gary Dempsey, superintendent of The New South Wales Golf Club; and Jim Porter, superintendent of Royal Melbourne Golf Club.

This year, the Open Championship of Australia will be played at the 27-hole Royal Sydney. Odell emphasizes the golf course should be played and remembered for the right reasons — honoring the membership and the club’s history. This means:

- Odell works closely with Australian Golf Union officials during visits to review any golf course changes and set-up requests.
- During daily golf course setup, Odell will change hole locations himself to prevent any location mishaps.
- Odell coordinates all off-course issues to reduce operational confusion and non-golfer impact on the golf course.
- To ensure there’s minimal damage to the golf course and turf equipment, he takes construction photos and uses metal detectors to locate any damaging material during the cleanup process.

Because the championship will be contested in early summer, Odell deals with the following agronomic concerns:

- There’s no overseeding, so all cultural processes to reduce organic matter buildup and produce a tight surface and firm-and-fast playing conditions are implemented as the Couch grass is about to break dormancy. Scarifying processes remove an excessive amount of chaff that can’t be deposited on property because of city permitting and disposal concerns. It must be placed into containers and hauled away.
- Odell uses only his staff of 40 for the advance preparation, as well as for maintenance during championship week. He believes his staff did the prework and should be praised and recognized during the week as the people who accomplished the task.
- Rain is the biggest worry. Royal Sydney is located near the harbor and only 4 feet above sea level. The golf course serves as a drainage passageway for upstream communities, so drainage installation during past years has been a priority. Fortunately, the golf course soil profile is rapidly draining dune sand. But, the inconvenience of repairing and pumping bunkers is challenging.
- Odell is preparing to host his first Open Championship — the 2009 Australian Open Championship. Requirements for hosting a championship change when a golf course is located in a national park. Operational setup issues regarding facility location, brush removal for structures and tree removal for new features must be presented to appropriate government agencies well in advance.

Before any setup begins, Dempsey has to allow a minimum of eight weeks for the smallest permit to be granted. Also, all species that might be removed or trimmed must be identified clearly, the amount to be removed specified and revegetation considered after the event has ended.

The biggest project for Dempsey and his staff is bunker renovation. The standard bunkering will be changed to a riveted-style seen in the British Isles. This includes:

- Acquiring the necessary permits to do earthwork within the national park.
- Removing the steep-sloped faces and installing the traditional stacked sod walls.
- Reshaping the floors of the bunkers so there are no buried lies in the faces or floors.
- Factoring in wind velocity that will shift sand or blow it out of the bunker.
- Establishing a raking philosophy to match the new design.

Putting surfaces will be a challenge to Dempsey and competitors, considering:

- Strong winds will require the AGU to determine a proper green speed and maintain it during the week.
- Extra time is needed to choose hole locations to avoid the possibility of a player’s ball from blowing off the putting surface.

- Aerification will require proper timing to allow the 5⁄16-inch holes to heal well in advance of the event.
- The usual stress-related impacts, such as anthracnose and nematodes, are a concern because of increased championship maintenance.
- The collars are cool-season turf and will be susceptible to wear from player and trolley traffic.

The Couch grass, which will be dormant going into championship season, is Dempsey’s No. 1 concern for golf course preparation and setup because it’s a challenging stand of primary rough grass. Sandy soils and little water available for the roughs will limit its density. There will be an increase in fertility and irrigation heading into the championship week to produce the density needed.

When preparing for the 2011 President’s Cup at Royal Melbourne, Porter manages 36 holes, each course with a different maintenance challenge. Porter’s goal is to return the golf course to proper shape for the membership after the event. Water use is his biggest challenge. As water usage and drought pattern developed, such as during the 2006-07 season when turf went into drought-stressed dormancy and didn’t recover, Porter recognized the need to supply Royal Melbourne with a proper water supply for its future. This lead to:

- Years of examining numerous options, undertaking feasibility studies and creating a solution for the water supply.
- The decision to construct a new multiacre storage lake on the property next to the maintenance facility that will be linked to a one-mile-long stormwater pipe linked to a stormwater diversion structure.
- A dam built to block and store one-third of the water supply that Royal Melbourne never had before.
- Added water along with the increase of wetting agents and more organic, long-lasting fertilizers that won’t require watering in have aided the turf management plan.
- Inclusion of an acid injection system and increase of calcium-based fertilizers to move sodium through the soils.

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Terry Blichen, CGCS, MG, is president of Golf Agronomy International. He’s a 38-year, life member of the GCSAA. He can be reached at terrybuchen@earthlink.net.

**Portable reel grinder**

Bruce Leonard, equipment manager at The Silverleaf Club in Scottsdale, Ariz., has a Foley 670 bedknife grinder, a Foley 650 Accu-Master reel grinder and an Express Dual reel grinder that are each operated about eight hours a day, six days a week. All three grinders are about seven years old.

Because the mechanic’s shop is too crowded to operate all three grinders at once, the Express Dual has casters so the staff can move it easily outside the shop’s garage door underneath a covered breezeway to operate it and then return it inside the shop each night.

Leonard acquired the caster setup from a local distributor. The two caster wheels, which are 6 inches in diameter, on the right side of the grinder are stationary. They’re attached to a 5/8-inch-diameter axle that’s connected to a 2-inch-by-1-inch-by-0.120-inch steel rear bracket, which is attached to 3-inch-by-6-inch-by-0.250-inch flat steel brackets that are attached to the bottom of the grinder. The front bracket on the left side of the grinder also has two 6-inch-diameter caster wheels attached to a 5/8-inch-diameter axle that are mounted on a front bracket.

The wheel assembly has two slots that a 57-inch, removable T-shaped handle fits into. The handle slides into a vertical slot and then can be moved to a horizontal position and locked in place. This movement lifts the grinder off the ground. The handle is then relocated to the other slot so a person can pull the grinder and steer it at the same time while transporting it.

The materials can cost as much as $150, and the labor needed for assembly can take as long as three hours.

**Aerifier trailers**

The staff at The Silverleaf Club in Scottsdale, Ariz., travels 1.7 miles to the first tee and more than two miles to the farthest green from their turf care center. Superintendent Kent Coburn and equipment manager Bruce Leonard built three trailers to transport two John Deere Aercore 800s and a Toro greens aerifier. The trailers save valuable time and prevent wear and tear on the machines.

Coburn and Leonard constructed the trailers by welding together 2-inch-by-2-inch-by-0.120-inch square tubing. The total length of the trailers, including the hitches, is 123 inches. The trailer width is 68 inches. The tongue is 48 inches wide and 42 inches long. The trailers themselves are 81 inches long.

The railing, which is 18 inches high, was made out of 1-inch-by-1-inch-by-0.120-inch square tubing. The ramps on the trailers have two different mountings for the John Deere and Toro aerifiers because the axle widths are different – 48 inches and 50 inches, respectively. The axles fit inside the 2-inch-by-2-inch-by-0.250-inch square tubing. The golf cart turf tires and rims are standard, 4-lug, 18-inch-by-8.50-inch-by-8-inch stock items. The hitch pin measures 1/4 inch by 6 inches, and the clip is 1/4 inch.

Materials used to construct the trailers include:

- 60 feet of 2-inch-by-2-inch-by-0.120-inch square tubing $100
- 50 feet of 1-inch-by-1-inch-by-0.120-inch square tubing $50
- 50 inches of 2-inch-by-2-inch-by-0.250-inch square tubing $25
- One sheet of 1/2-inch flat expanded metal $50
- 1/2-inch plate steel for hitch scrap
- Super trailer axle kit $265
- Rims and turf tires $60
- Hitch pin $25

The first trailer took about 40 hours to make, and the second and third trailers took about 20 hours each to make. GCI
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* Denotes regional advertisement
Wayback When ...

At the risk of being accused of being fixated on things that happened 20 years ago, I'd like to take you on a magical mystery tour into our industry's past.

For all of you of a certain age who grew up watching Rocky and Bullwinkle on TV, please pretend you're Sherman, and I'll be Mr. Peabody. (Editor's note to young readers: Google "Mr. Peabody" before reading this column, and we'll be on the same page.)

Now, let's fire up the WABAC (pronounced "wayback") machine and return to the interesting times of the late 1980s.

Golf is a punching bag for environmentalists in the U.S. and around the globe. Articles are appearing regularly in publications about how we're destroying wetlands and decimating populations of cute, fuzzy little animals and adorable waterfowl. A luna
tic from Japan is gaining worldwide fame and massive media exposure for starting the "global antigolf movement" to combat the reprehensible notion that people should be able to enjoy hitting a little white ball around a well-maintained open green space.

Yet, the cloud of suspicion created by that brouhaha 20 years ago continued to haunt us.

Yet, the cloud of suspicion created by that brouhaha 20 years ago continued to haunt us. The stain of pesticides always seemed to mark us whenever a new construction project was proposed in a sensitive area or whenever a neighboring homeowner's beloved pet poodle developed a mild case of diarrhea.

People - not just rabid activists - continued to ask: Are the pesticides you use to make these courses so nice really safe for those of us who play or live along the course?

OK, Sherman, let's climb into the WABAC machine again and return to the summer of 2008. The moment we come back to the present, I hear the gentle ding of an e-mail arriving in my laptop's inbox. Yet another *%$@! press release. This one's from some flack at the University of Massachusetts at Amherst. Probably another useless piece of "news" about how they've promoted a graduate assistant to a junior assistant professor.

I opened the attachment anyway, and for about the millionth time in my 46 years of life, I found I was completely wrong again. This bit of news, which virtually no one - not the GCSAA, not RISE, not the chemical companies - paid any attention to, is an earth-shaking item for those of us who've been in that WABAC machine and who know how challenging it's been for our industry to defend the use of pesticides on golf courses. Here's how the news release began: "Residues of two insecticides widely used on golf courses do not pose a health risk, new research says."

"Sevin SL (using the active ingredient carbaryl) and Dursban Pro (chlorpyrifos), when applied at the maximum U.S.-approved label rate and followed with irrigation, are of little concern to golfers, according to findings published in the Journal of Agricultural and Food Chemistry."

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"After extensive monitoring, estimated exposures to golfers following full applications of two turfgrass insecticides that are used throughout the northeastern United States were 19 to 68 times lower than levels set by the U.S. Environmental Protection Agency designed to protect human health," said toxicology expert John Clark.

So, according to an article in a major nonturf scientific journal by a serious independent expert who has no skin in the golf pesticides game, the threat presented by even old chemistry such as Sevin and Dursban is at least 20 times below what the EPA considers to be the minimum threshold for a health problem.

Case closed, Sherman. GSC

(For details and to share with golfers and colleagues, visit http://www.umass.edu/news-office/newsreleases/articles/77053.php)
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