Navigating Political Waters
It's all about diplomacy
Since the Beginning

Since the introduction of Penncross, superintendents around the world have come to trust Tee-2-Green and the Penn bents.

How many superintendents do you know with the Penn bents on their course?
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Alternately rolling and mowing can help alleviate stress on greens while maintaining speed.

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John Walsh, editor of GCI, interviews Roots' Scott Inman about biologicals and overall turfgrass health. Visit our home page and click on the podcast icon to listen.

EDITORIAL MISSION STATEMENT:
Golf Course Industry reports on and analyzes the business of maintaining golf courses, as well as the broader business of golf course management. This includes three main areas: agronomy, business management and career development as it relates to golf course superintendents and those managers responsible for maintaining a golf course as an important asset. Golf Course Industry shows superintendents what's possible, helps them understand why it's important and tells them how to take the next step.

James Watson was the first person to earn a Ph.D. in agronomy in the United States. He worked for The Toro Co. during the late 1950s.
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A UNITED PUBLIC RELATIONS WAVE

Water. Agua. H2O. Who isn't talking or writing about it these days? Words such as drought, restriction, conservation and rights are tossed around frequently when the topic of water is discussed. Here in the Great Lakes region, legislators are working to prevent water diversion to thirsty states in the West. Even Hollywood – in the form of ecocrazed Ed Begley Jr. and others – has spoken up. There’s no doubt about it: Water is a precious resource, and its use is being scrutinized.

But there are too many people among the general public, as well as state regulators, who believe golf course superintendents are part of the water-use problem. Many of the folks who claim golf courses consistently misuse and waste water are emotional and passionate about the environment. They’re also often misinformed or uneducated about the water issue as it relates to the golf industry. Still, they have the ears of politicians, who love to take hold of an emotional issue and run with it for political gain.

In Georgia, drought conditions have been severe – 61 counties skipped level three restrictions and went directly to level four, which bans all outdoor watering. The golf industry has been targeted unfairly.

"Golf, which is a $3.5-billion business in Georgia, has been mandated to save 97 percent of water when other businesses were asked to save only 10 percent," says Mike Crawford, CGCS, at TPC Sugarloaf in Duluth. “The GCSAA is working with the state to come up with a plan that works for all.”

Water use is an enormous issue in many areas of the country that has yet to be resolved. And the severity of the problem is expected to worsen in the future.

So, just like combating activists when it comes to pesticide and fertilizer use, the industry, as a whole, needs to unite to help alter the false perception that golf courses waste water.

Superintendents are good at growing grass but not as good at fighting a bad public relations image. They need help. Aquatrols, the wetting agent manufacturer, is one example of a company helping those in Georgia by mounting a PR campaign to show the general public that superintendents are good stewards of the environment and don’t waste water. Rain Bird and Toro are two other companies that come to mind immediately. The GCSAA is working with the state to come up with a plan that works for all.

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ENSURE EMPLOYEE MOTIVATION

Recently, I read an article addressing motivational issues and the disconnect that sometimes happens between managers and employees, as well as possible solutions to the problem. "Why your employees are losing motivation," by Sirota, Mischkind and Meltzer, was published in the April 2006 issue of the Harvard Management Update. Not surprisingly, motivational issues cause problems with productivity and trust.

The article emphasizes that employers must understand the importance of certain practices to ensure high motivation and commitment from employees. Those practices are instilling an inspiring purpose, providing recognition, coaching employees for improvement, building camaraderie, finding solutions and facing poor performance. The authors’ research found about 85 percent of employees’ morale sharply decreases after the first six months at a new company and continues to decline thereafter. To reverse this trend, management must fulfill three areas most employees want:

- Achievement - to be proud of one’s job, accomplishments and employer.
- Equity - to be respected and treated fairly in pay, benefits and job security.
- Camaraderie - to have good, productive relationships with fellow employees.

The following practices have been proven to maintain employee motivation and morale and will help employers fulfill the three aforementioned areas.

INSTILL AN INSPIRING PURPOSE
A critical condition for employee enthusiasm is a clear, credible and inspiring organizational purpose summed up in a mission statement, which, if properly conceived, is a powerful tool. Equally important is a manager’s ability to explain and communicate the reason behind the mission to subordinates. The mission statement explains what’s important to the organization and its values.

PROVIDE RECOGNITION
All accomplishments must be recognized by managers, even if an employee is performing tasks he’s paid to do, because everyone appreciates a compliment. Recognition reinforces accomplishments and ensures there will be more of them. A few ways a manager can acknowledge an employee’s positive actions include encouragement, praise in front of others and schedule flexibility. This is one of the most difficult practices for managers to follow, especially if employees are doing the things they’re paid to do. Nonetheless, it’s a necessary practice of good employee management.

COACH FOR IMPROVEMENT
An employee whose performance is satisfactory should be made aware of it. It’s easier for employees to accept coaching when they know management is pleased with their efforts, and management is helping better them. Managers need to remember the importance of providing feedback in a timely manner. Managers should record and monitor employees’ satisfactory and unsatisfactory actions and use the information in performance reviews, where they can evaluate actions and review the position’s expectations.

BUILD CAMARADERIE
Teamwork heightens motivation. Research shows work also quality increases when employees work in teams. Whenever possible, managers should organize employees into self-managed teams. This typically reduces costs and time. However, managers should be clear about a team’s role, how it operates and management’s expectations. Most employees prefer to work with their coworkers. This isn’t true in all situations, but if managed properly, teams can serve as a great way for employees to build camaraderie and bond with one another.

FIND SOLUTIONS
Employees are a rich source of information about how to do a job and how to do it better. This principle has been demonstrated with many different employees, from hourly workers doing the most routine tasks to high-ranking professionals. The best managers find opportunities to have direct conversations with individuals and give employees freedom to operate and make changes on their own, with their knowledge and experience. The keys are to get through negative talk and to have employees focus on solutions to the problems they face. Many times managers understand how difficult a problem or project can be because they’ve been there themselves. All of us have and will continue to face problems and focus on the solutions that move us forward.

FACE POOR PERFORMANCE
Managers should identify and deal decisively with employees who don’t want to work. Doing this will raise the morale and performance of other employees, who will understand an obstacle to their performance has been removed. Managers owe it to employees to tell them if their performance is unsatisfactory and why, and should give examples. If managers are unfair or inconsistent with employees, good performers get nervous and upset and will likely leave the organization. The best-performing employees need to see an effort being made to correct poor performers. Otherwise, they’ll lose respect for managers.

Dan Schuknecht is the assistant superintendent at Talons of Tuscany Golf Club in Ankeny, Iowa. He can be reached at dsschuknecht@msn.com.
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THREE MESSAGES FOR YOU

In the historic home of golf, in the dramatic landscape of Scotland, the ceremonial gavel sounded to signal the beginning of my presidency of the American Society of Golf Course Architects. As I accepted the responsibility associated with leading this group for the coming year, I vowed to devote as much energy as I could to help the ASGCA familiarize the golf industry and general public with our members' progressive messages—of which many revolve around water use and our views about environmentally responsible and sustainable practices in golf course development and remodeling. These messages can impact the game at every level, from player to pro. Golf course superintendents can keep these messages in mind when considering the goals of their architect associates.

THE NEW GOLDEN AGE
Many players view the 1920s and much of the '30s as the Golden Age of golf course architecture. Courses by such legends as Alister MacKenzie, Seth Raynor and Donald Ross are among the greatest examples of elemental design and are rightfully glorified. But now we're in a revival period of great course design.

It can be argued that today's practitioners have less optimal pieces of land to work with than their predecessors. Since the early 1990s, our generation's architects have been producing some of the finest golf courses on some of the most challenging sites. By taking advantage of today's technological advances and new theories about design, architects have created an exciting time in golf.

WATER USAGE
Water is the lifeblood of every golf course. Many misconceptions linger around the ways in which golf courses use this resource. ASGCA members believe in doing more with less, and courses have begun to follow suit. ASGCA architects have been helping many courses reduce their annual overhead by strategically revamping their habitual water use.

At this year's ASGCA annual meeting, members had the privilege of playing some of the most fabled courses in the history of golf, including The Old Course, Royal Dornoch and Turnberry. And it's never been more apparent just how great a course can play when it simply echoes the watering practices, or lack thereof, of those legendary Scottish layouts. Club management and superintendents should allow their courses to play firm and fast. It's a brand of golf that has been the norm for years at great courses worldwide and a concept many ASGCA members support.

ASGCA architects also are designing new courses and remodeling existing ones using improved technology, including drought-resistant grass varieties, and computer-monitored irrigation and root-moisture monitoring systems. Science has afforded architects the option of using recycled water resources. Effluent water is the only option for irrigation in many parts of the country, and its use is one way golf does its part to contribute to environmental sustainability.

GOLF IS GREEN
There's a saying that fits the times: “Golf is green, has been green and always will be green.” Unfortunately, some people outside the game adhere to dated beliefs that golf courses are bad for the environment, which isn't true.

The fundamental nature of the game relies on thriving ecosystems ripe with beautiful, healthy landscapes and full of natural wildlife. As architects and ASGCA members, we do everything we can to maintain and enhance these intricate relationships. With the financial support of the ASGCA Foundation and the help of his fellow architects, ASGCA member and environmental committee chairman Bill Love recently completed the third edition of An Environmental Approach to Golf Course Development.

Love's latest publication highlights positive ways in which golf courses maintain and rehabilitate the environment. The book includes 18 case studies from throughout North America and describes course projects that were situated on a variety of environmentally sensitive sites, including wetlands, wildlife habitats and abandoned areas once used for mining and landfills.

It's ingrained in every ASGCA architect just how important it is to protect, enhance and preserve the environment in which we work and play. ASGCA members are in a unique position to help the golf industry recognize exactly what kind of progress is being made in new development projects and the new techniques that can be applied to future remodeling efforts. I hope you'll join me in getting the word out that today's golf design rivals that of the 1920s and '30s and is an environmentally responsible steward of Mother Nature's gifts.
ImidiPRO® imidacloprid liquid insecticide gives you a break from those aggravating little bags. Our bottles make your life easier: **what could be simpler than one bottle per acre?**

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**NEW 60 oz. Bottle Treats 3 Acres.**
As promised, this column will focus on within a much lower range of dues-paying to address this pressing issue. The key play within an evolving national campaign the important role GCSA chapters can presumably are able to deny superintendents might help themselves in this regard. The observation to note again is that clubs aren't always able to deny superintendents written contracts primarily because their members (almost 100 percent of whom enjoy the privilege of written contracts or grant them universally to management level employees they hire) aren't aware of the situation. Once club memberships are educated about this situation effectively, the picture will begin to change.

Unfortunately, chapters aren't organized peoplewise to undertake this educational assignment effectively because short-term rotating chapter presidents aren't on the scene long enough to command enough attention to make clubs listen. The situation calls for the continuing presence of an articulate, informed professional to fill the role of chapter executive director. Easy talk, but a difficult walk as the following comparison of the way the GCSAA and PGA fund their chapters/sections will show.

More interestingly, the national PGA dues format rebates $500 of each member's $600 annual dues fee back to the sections. This provides the average mid-sized section with an approximate $225,000 stipend each year, which is enough money to allow PGA sections to hire executive directors comfortably within a salary range of from roughly $60,000 for the smaller sections to more then $125,000 for the larger sections. GCSAA members pay an annual dues fee of $320 the association keeps without rebating to chapters.

My next column (July 2008) will discuss this subject in more detail and present a definitive job description that will profile the wide range of valuable services a qualified chapter executive director can deliver. GCI
Discover what superintendents nationwide have already found...

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MARKETING YOUR COURSE

Dwell on Your Business

What's with the brouhaha between the New York Times article "More Americans are giving up golf," (Feb. 21) and the editorial response from Mike Hughes, C.E.O. of the National Golf Course Owners Association, in the April issue of Golf Business challenging the Times' negative opinion about the golf industry's health?

I received an e-mail copy of the Times article the same day it ran. It was sent to me by a course owner, who was one of the sources in the article. He was shocked and dismayed by its negativity. Call me a sensationalist, but after I read it, I agreed with the author's underlying basis for the negative headline.

The author uses many statistics attributed to the National Golf Foundation. I'm not saying the statistics are wrong, though they might be dated or inaccurate. Nonetheless, the author's forecast was negative. He came to the conclusion that the problem isn't a game of golf, it's the game of golf itself: "Over the past decade, the leisure activity most associated with corporate success in America has been in a kind of recession." Hmmmm, I thought the leisure activity most associated with corporate success in America was cigar smoking and martini drinking, but I digress.

The author even sourced Jim Kass, research director for the NGF, who used the terms "doom and gloom" when asked what was keeping people from taking up the game, and golfers from playing more. Oops. Seems that quote steepened the author's apparent negative slope.

We have two different perspectives about the health of the industry - doom- and-gloom on the one hand and rose-colored glasses on the other. Considering those two views - both correct in my opinion - here's a marketing suggestion: Don't dwell on the state of the industry. Rather, dwell on the state of your golf business. You can help make the industry better by making your golf business healthier. And two easy-to-implement marketing elements to help monitor your business are play trends and player surveys.

Here's a marketing suggestion: Don't dwell on the state of the industry. You can help make the industry better by making your golf business healthier.

As owners, managers and operators, it's meaningful to understand the trends in the industry, but don't you care more about what's happening at your course, in your market? How many rounds are being played at your course versus your competitors, and why? Whether rounds have increased or decreased, you need to know why a market trend is occurring at your course.

One section of my company's course marketing plan is called a calendarized revenue plan. Calendarized means incorporating your rounds and revenue projections into each month of the year, even weekly, if you can. The marketing secret to these projections is that they're not right or wrong. You don't live and die by these numbers. You learn from them. Doing so, you'll begin to understand your market better. Whenever you miss your calendarized revenue plan, ask why you missed the projection and investigate the reasons. Learn why, and you'll be able to project that month's rounds more accurately next year.

For those operators who monitor player surveys, how consistently do you monitor them? Too often can be bothersome to golfers and not often enough is almost meaningless. Current, meaningful insight about players - their habits and likes and dislikes about your course and golf market can be gathered effectively once a quarter. The manager should schedule a survey week in each quarter of the year. The survey should be handed out for seven consecutive days, preferably 10, to be representative of all play segments patronizing the course. The most difficult part of organizing a player survey for owners and managers is knowing which questions to ask and how many questions to include. (And example survey can be found online. See box below.)

The manager should determine an effective, appropriate incentive (e.g., a free beverage) to give the customer for filling out the survey and returning it. The returns on this type of a survey are low - 5 to 10 percent - so it's important for the entire staff to encourage customers to fill them out.

As surveys are handed out, the atmosphere should be friendly. You're asking customers to do you a favor, so you need to make sure they realize the information is important and meaningful to your operation and service to them.

The favorable results should be posted the week after the survey. Research information should be used as a barometer to gauge real and/or perceived problems that might need to be addressed within the marketplace. The first few surveys will provide bare market insight. However, with the compilation of repeated surveys, you'll begin to see meaningful results about who's playing the course and why. This information will go a long way to help you better market your course.

Paladin's Player Survey

View the example player survey on GCI's Web site. It will be posted with this column. Click on "current issue" at the bottom of the home page.

Jack Brennan founded Paladin Golf Marketing in Plant City, Fla., to assist golf course owners and managers with successful marketing. He can be reached at jackbrennan@tampabay.rr.com.
Foliar Program Checklist

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- Consistent results?
- Great color?
- Controlled growth?
- Seaplant extract?
- Cytokinins
- Anti-oxidants
- Fulvic acid?
- Amino acids?
- Customized to my needs?
- Tank-mix compatible?
- Easy to use?
- Independent research?
- Reliable manufacturer?
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Consumer RESEARCH

This is a glimpse at how golfers' behavior impacts the business of facility maintenance and management. It shows the link between the professional community and golfers. Throughout the year, we'll publish trends, likes/dislikes, suggestions and other information from your customers.

Know your customers' buying habits

Do you have fresh insights into your customers' characteristics, attitudes, perceptions and spending behavior? If you don't, you should. Being more in tune with customers helps operators manage their business better and chart a course for growth.

When it comes to golfers' purchasing habits, their purchase incidence increases with age and income. Golfers age 60 and older have a higher purchase incidence for shoes, for example, compared to those age 18 to 39 (38 percent to 20 percent, respectively). Higher income players are more likely to purchase shirts - 52 percent of $100,000-plus purchase versus 32 percent of less than $50,000.

Additionally, there's a distinct channel profile among buyers. Channel profile means the profile of golfers by different channels of distribution for a given product, such as golf gloves. The on-course shopper plays more frequently, has a higher income and is more likely to be a private club member compared to the sporting goods shopper. However, the sporting goods shopper shoots lower scores and is more tuned into golf Web sites compared to on-course and off-course shoppers.

Take the Wal-Mart shopper for golf balls. The profile of the golfer who buys golf balls exclusively at mass merchants is quite different from other buyers. The Wal-Mart shopper is a less avid golfer in terms of rounds, number of balls purchased and golf media consumption. The mass merchant shopper also has a lower income and is less likely to be a private club member.

The statistics on this page are based on more than 2,000 U.S. golfers who completed an online survey in May 2007 from the National Golf Foundation. The sample was drawn from global market research firm Synovate's nationally representative panel of 2.6 million Americans.

Source: National Golf Foundation

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<th>CLUB BUYER PROFILE</th>
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<tr>
<td><strong>GOLFING CHARACTERISTICS</strong></td>
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<tr>
<td>Average rounds 2006</td>
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<tr>
<td>Average score</td>
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<tr>
<td>% hooked on golf</td>
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<tr>
<td>% watch golf on TV at least monthly</td>
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<tr>
<td>% read golf magazines at least monthly</td>
</tr>
<tr>
<td>% visit golf websites at least monthly</td>
</tr>
<tr>
<td>% went on golf trip last 12 months</td>
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| **DEMOGRAPHIC CHARACTERISTICS** |
| % male | 81 | 106 |
| Average age | 49 | 103 |
| Average household income | $102,790 | 111 |

Buyers are defined as having spent $200+ on new clubs in the past 12 months.

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<td><strong>GOLFING CHARACTERISTICS</strong></td>
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<td>Average rounds</td>
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<td>% private</td>
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<tr>
<td>% maintain handicap</td>
</tr>
<tr>
<td>% take golf lessons</td>
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<tr>
<td>% read golf magazines at least monthly</td>
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<td>% watch golf on TV at least monthly</td>
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| **DEMOGRAPHIC CHARACTERISTICS** |
| % male | 77 | 100 |
| Average age | 59 | 123 |
| Average household income | $152,300 | 164 |
| % college grad | 79 | 143 |
| % retired | 36 | 175 |

Buyers are defined as typically spending $40 or more per shirt.
You've got enough to worry about, so use Trinity™ fungicide to control anthracnose, brown patch, take-all patch, summer patch and dollar spot, even during summer stress periods. Use it to suppress algae, too, which can lead to higher turf quality. Like the entire family of BASF fungicides, Trinity works. So don't worry. Everything will be a-ok.

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STEVE COOK prepares for the PGA Championship, discusses his career, and offers advice for younger superintendents and assistants
The economy in Detroit isn’t exactly humming along. The city is the epicenter of the sagging U.S. auto industry as well as ground zero for the subprime loan and foreclosure meltdown. The city is working diligently to make a comeback, but it’s a slow and painful process. Yet, there are glimmers of hope that energize the Motor City and light the way for the future.

One of those bright spots is the 2008 PGA Championship. This August, the world’s greatest players – and a hundred thousand or so of their closest friends – will convene at Oakland Hills Country Club to experience great golf on a fabulous old course. And Steve Cook will be there to welcome them.

Cook, one of only a handful of superintendents who’ve earned both the CGCS and Master Greenkeeper designations, understands the challenges of hosting a major and the value of the event in his adopted hometown.

“Economically, if the rest of the country has a cold, Detroit has a bad case of the flu,” Cook says. “Our club is in really good shape, but the PGA Championship is a much bigger deal than just our club.”

Cook was raised in the Quad Cities area and eventually headed off to the University of Illinois in the early ‘80s with visions of becoming a forest ranger dancing in his head. The forestry program required summer classes, and he ended up at a tree farm in southern Illinois where he observed how telephone poles were produced.

“They had this huge, long machine that cut the tree, trimmed it, treated it and injected it with creosote to preserve it,” he says. “The guy running the machine was completely black with creosote, which is nasty stuff, and he had a master’s degree in forestry. That was the end of my interest in forestry.”

Fortunately, Cook had a buddy, Dan Anderson, who was majoring in turf, and he soon discovered what would become his life’s work.

“I thought, ‘It’s a job where you take your dog to work, you’re required to play golf, and you get to be outdoors all the time – how bad could it be?’” he says.

Apparently, not too bad, since he secured a position as an assistant at Chicago’s famed Medinah Country Club after college and later helped host the 1988 U.S. Open. From there, he took a bit of a detour and spent two years as the superintendent at Golf de Joyenval near Paris.

“I found the job through the CGCSA’s job listings and thought, ‘Why not?’” he says. “Best of all, I met my wife, Robin, while I was learning French before I went over. It was a great time. We still go back to France every couple of years.”

Eventually, he returned to the U.S. to become superintendent at Wakonda Club in Des Moines, Iowa, for several years before securing his current position at Oakland Hills in 1997. In the decade since, he’s hosted a U.S. Amateur Championship and, of course, the 2004 Ryder Cup.

“We decided it was time to check in with Cook – who’s a huge Chicago Cubs fan – as he goes into the stretch drive for the Championship and throw him a few curveball questions about his life, what he’s learned along the way and what it takes to prepare for a Motomajors.”

How’d you end up with one of the best jobs in the industry?

I found out about Oakland Hills through the CGCSA. From my time at Medinah, I knew I liked the bigger operation and the tournaments. I applied and got the position. I was fortunate. I clicked with the general manager, Rick Bayliss. He was relatively new and wanted a younger guy in the position. I was shocked when he offered it to me.

What knowledge about hosting a major would surprise your colleagues?

It’s surprising how much time is spent on things other than turfgrass management. All of the infrastructure that gets built, the member communication and an endless list of issues that consume your time mean you need a good staff to attend to the golf course.

Most people think the superintendent is wrapped up in scheduling and fertilization and water. But, at this point, I only walk the course once a week – and I have to schedule that time. What keeps me busy is working with vendors and dealing with construction issues and nonagronomic stuff. We take 10 semi-trailer deliveries a day of flooring, bleachers, etc. I’m working closely with the construction superintendent, Ron Bentley, and the tournament director to make sure everything gets done. It’s like a big ship. All you’re doing as a superintendent is trying to get it steered in the right direction.

You have to have enormous trust in your staff. Superintendents at big events who try to do a lot themselves tend to face challenges. You have to make decisions quickly. You have to know when to say no. You have to be good at picking your battles. Most importantly, you can’t let the event go by without having some fun. You have to stop and smell the roses. I try to take pictures and keep a diary. You have to savor every moment, or else the event goes past so quickly. All of the sudden it’s over, and you look back and say, ‘What the hell did I do that for?’

What do you fear most as you prepare for an event?

I fear the things I can’t control, such as the weather. We have a rain plan that covers everything, including a worst-case scenario such as six inches of rain in two hours on Wednesday night. It specifies a lot of detail about pumping, different kinds of pumps we’ll use, squeegees, other equipment, etc., all on a color-coded list that’s broken down by teams. One of the huge differences between now and ’88 at the U.S. Open at Medinah is technology. It’s a tremendous help when planning the details.

How has the club changed during your 10 years there?

Physically, we’ve renovated the golf course to add more ‘teeth’ by adding some length and narrowing the fairways. Rees Jones has done a lot of that work. Unlike some old clubs, Oakland Hills is still interested in hosting majors, which is more difficult to do because there are more good golf courses out there now than ever before.

From a business standpoint, we try to position ourselves as the best game in town. It’s a tough market in Detroit, and everywhere else, I guess. We have become a little more cost conscious. Frankly, that’s healthy for us and for golf in general. It’s a difficult process, but I’m happy to see it. I’d rather be working in that kind of environment than one where people spend money foolishly on things that don’t matter to the success of the club.

Who’s the most superintendent-friendly player you’ve met?

It’s funny – I don’t know I’ve ever met a professional golfer. Within our club, I’d have to pick Steve Yzerman, the now-retired captain of the Detroit Red Wings. He’s a member, and he’s obviously a legend here in town. But any time
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he sees a staff person, he sits down and talks with him and buys him lunch. He's just a down-to-earth guy who treats people so well. He even brought the Stanley Cup over one day for everyone to check out. I'm not a big hockey fan, but that was pretty cool.

**What key things do you try to teach the interns and other young people who work for you?**

I try to teach that if you do your job, you get a paycheck. If you want something more, then you have to do something more than just your job. You have to go the extra mile.

If you want to stand out, you have two choices – you can be really good or really bad. Everything else is average, so make the right choice. I give the same speech every time we hire interns: How do you want to be remembered? The choice is up to you.

I'm always impressed with young guys who take work home at night.

Two keys to success are hiring great people and focusing on the things you can control, says Steve Cook.

Photo: Jim West
and things like that. I had a guy who came up with a new spray program on his own time. He just showed up one day with a complete manual that had photos, step-by-step instructions and the whole works, all in a nice binder. If you want to get ahead, you have to do things like that and go the extra mile. The list of things you can do to succeed is endless, but the list of things you can do to fail is pretty short: be late, be disrespectful, don’t get along with co-workers, etc.

Who was your mentor, and what did he teach you that’s stuck with you?

My dad was my mentor. He taught me hard work, loyalty and effort matter. He grew up in the country and was a farm guy. He never went to college, but he was successful because of his great work ethic. He moved up through his company and ended up being the right-hand man of the owner – all because the boss could trust him. Watching him, I learned that honesty, integrity and treating others with respect are the foundation of any successful career.

Why does integrity seem to come up a lot with you and other top-end superintendents I talk with?

None of us are perfect, but integrity means a lot. If you try to do the right thing all the time, you’ll get there 99 percent of the time. Unfortunately, we’re in a business that can potentially lend itself to inappropriate behavior. Superintendents, pros, club managers: We’re all, for the most part, unsupervised. The average board usually stays out of things unless there are problems. If you don’t have honest people, bad things can happen.

What do you do in your spare time?

I like to backpack, hike and work out, and I love to watch the Cubs.

Being a Cubs fan seems painful to me.

It’s a great but strange life. We have a couple of other Cubbie fans on staff so we get to cheer and cry together. The worst thing that could ever happen would be if they won the World Series some year. It would change the whole dynamic.

What can every superintendent do to be more successful in an environment like yours?

Understand you can’t do it alone, and you have to hire great people. Also, focus on the things you can control and not worry about the things you can’t.

You can’t forget it’s a team effort. Don’t be the Lone Ranger. That’s a pretty thankless thing to do, and it’s not effective. Check your ego at the door, and you’ll be better off for it. And be open to learning things from the people around you. I’ve learned from every assistant, superintendent and golf pro I’ve ever worked with.

What’s your advice to a candidate for a job like yours?

At the end of the day, when it’s down to the final five in the search process, they’re going to hire the guy they think they can have a beer with after the round. They want to be comfortable with you. You have to be able to relate to the members on a personal level, but you can’t forget you’re still an employee. No matter how good you are, never start to believe that it’s your golf course. It’s the members’ course. You work for them. The moment you forget that, you’re dead.
Navigating political waters

No matter the structure of a club, diplomacy is the key for dealing with controversial decisions  By David McPherson

The agronomic practices that seem to be the most beneficial to grasses and soils are the most contentious with members, says Donald Singlehurst, golf course superintendent at Royal Colwood Golf Club. Photo: Royal Colwood Golf Club
Good governance is the common denominator at the most successful clubs, says John Gravett, g.m. at the Granite Club. Photo: Granite Club

As keepers of the green and guardians of privileged playgrounds, golf course superintendents at private clubs have to navigate political waters daily. From potentially controversial turf maintenance practices such as aerification, tree removal and pesticide use to large course renovation projects, superintendents need a degree in diplomacy as much as a degree in agronomy.

Several superintendents at clubs throughout North America make it clear there are common ways keep this gamesmanship to a minimum: have an open mind and maintain good communication with membership, use consultants to validate your decisions and have a long-range, approved master plan.

"The impact politics plays at a golf club, especially a private club, can make or break a club in terms of maintenance and membership satisfaction," says Donald Singlehurst, golf course superintendent at Royal Colwood Golf Club in Victoria, British Columbia, Canada. 

"As a superintendent at a semiprivate club, I'm aware there will always be some form of governance model made up of club members, and these members will have a direct impact on the direction the club will take.

"As Spock once said in 'Star Trek,' 'The needs of the many outweigh the needs of the few,'" Singlehurst adds. "This also holds true in a private club. I've always believed we defend par and set up the golf course for all to enjoy. Ironically, the agronomic practices that seem to be the most beneficial to the grasses and soils are most contentious with members. The demand for ideal conditions all the time puts added stress on those who have to make the difficult decisions to schedule the work, and on those who actually do the work."

THE RIGHT STRUCTURE

One key to ensuring politics play a minimal role in course maintenance is good governance. There need to be clearly defined roles and responsibilities for the superintendent, the general manager and the chairs of various member committees. Good governance is essential to ensure superintendents and members get along and are always working toward the same goal: making the golf course a better place to play. Just as in the corporate world, without good governance at a club, divisiveness, abuse of power and infighting arise.

While there's a different dynamic at every club when it comes to the relationship between the superintendent and the members, good governance is the common denominator at the most successful ones, says John Gravett, general manager at the high-end, private Granite Club in Stouffville, Ontario, Canada.

"My personal preference is the governance model in which the superintendent and the pro report to the general manager, who then reports to the board," Gravett says. "That's been the trend at successful clubs these days. This model protects the superintendent more from political influence because it's dealt with by the general manager at the board level.

"At clubs that don't have that structure, you might have the superintendent reporting to the green and property chair, the director of golf or the pro reporting to the club captain, and someone else reporting to the general manager," he adds. "That's when you get into the worst political games."

Whatever the structure, when it comes to working with committees, retired superintendent Gord Witteveen, who's a recipient of the GCSAA Distin-
Distinguished Service Award, advises superintendents can’t win ‘em all.

"Give in on things that don’t matter much so you can have your way with the important stuff," Witterveen says. "With committee governance, you’ll inevitably antagonize one or two members every year. That adds up and is the chief cause of superintendents being eased out before they’re ready to retire."

At Des Moines Golf and Country Club in Iowa, Rick Tegtmeier, the director of grounds, says the committee structure at the 1,500-member, 36-hole private club is a key to its success. Instead of having a golf committee and a green committee, the club has a golf, green and grounds committee.

"This works well," Tegtmeier says. "Both groups want what’s best for the golfer, and by having the groups meet together, we work to meet that common goal. The director of golf and I help facilitate these meetings, along with our green chairman, who serves as the committee chair for one year and then moves up the ranks to president. This is a very good system because by the time he’s our president, he has a good working knowledge of what we do in the golf course maintenance department."

"At our committee, I give all members the USGA Green Committee Guide," he adds. "I urge all members of the group to read it and try to abide by it. One of the things stressed in this book is how important it is to not have personal agendas. The committee is in place to do what’s correct for the good of the entire membership."

Tegtmeier and his staff also attend board meetings to present brief reports each month and answer any questions that might arise about their department.

It’s important to have a leader who helps you and guides you, but also lets you do your own thing in your department,” he says.

**STRONG LEADERSHIP**

One of the best ways to avoid political problems is to have strong leadership at the presidential level, says Paul Scenna, golf course superintendent at Beacon Hall Golf Club in Aurora, Ontario, Canada.

"A dictatorship in a private club works best because sometimes people are just dancing around the issues and are afraid to offend their friends," Scenna says.

While a dictatorship is seen by some as the ideal management model to avoid controversy when it comes to the superintendent’s decision-making and recommendations, the larger the group one works with – in terms of the membership and the number of committees involved – directly relates to how much time
Instead of having a golf committee and a green committee, the Des Moines Golf and Country Club has one committee for golf, green and grounds. Photo: Des Moines Golf and Country Club

the political process takes. David Kuypers, golf course superintendent at The Cutten Club in Guelph, Ontario, Canada, was lucky to spend a year at Winged Foot Golf Club in New York right before it was awarded the 2006 U.S. Open.

“They had a very small group of decision-makers – only four guys – whereas here at The Cutten Club, we have to go through a grounds and golf course committee for approval, then the finance committee, then the board of directors, then the membership as a whole,” Kuypers says. “It’s democracy in action.”

PLAN AHEAD
In addition to strong leadership, clubs need a master plan. This long-term vision sets the direction of the club and prioritizes maintenance and capital improvement issues, to prevent future disagreements.

Kuypers was hired by The Cutten Club in 2005, when ownership was about to make considerable renovations to the course. This also was the same time when club members took over ownership from the local university. One of the new management team’s first pieces of business was to draw a master plan.

“The strategic plan laid out everything from 2005 to 2010, and every year it’s updated,” Kuypers says. “That was the vision of the finance chair at the time. As a member-run facility, where each year three directors are removed and three new ones come in, you don’t want to be at the whim of who’s in charge that particular year. A five-year plan avoids that problem and gives continuity to the club’s vision.”

Gravett couldn’t agree with Kuypers more.

“You should sit down with the architect, green committee and board every two to three years and say, ‘Here’s the master plan for the golf course. It has everything on it,’” Gravett says. “So, if you have a plan to move a cart path or add a bunker, it’s on that plan. What that does is it sets the priorities without the influence of the green chair or board because the architect is involved and the committee is involved. Any deviation from that plan has to go back to the board and committee.”
OUTSIDE OPINIONS
From a political standpoint, the master plan also protects superintendents by validating their maintenance decisions and providing a strategic focus. Another key is using consultants to validate superintendents’ decisions.

“For example, the club at which I previously worked wanted to remove six trees that were more than 30 years old,” Gravett says. “There was a fair amount of controversy, not only at the green committee level, but also with the membership, so we brought in a USGA consultant and someone who studies trees and sunlight angles and those types of things, and we got to the point where we didn’t have to remove all the trees. Through selective pruning practices, we were able to remove certain branches so a certain amount of sun got into the green.

“It was a win-win because the superintendent wasn’t seen as someone who just wanted to cut trees down,” he adds. “Instead, we went out of our way to do our homework and brought consultants in to help out with these recommendations.”

KEEP AN OPEN MIND
Political problems at private clubs also arise when superintendents believe they own the course, says Jim Nicol, CGCS, at Hazeltine National Golf Club in Chaska, Minn., which has hosted several major championship events throughout the years.

“Superintendents who take ownership of golf courses by saying ‘This is my course’ are the ones who get in trouble, because it’s not their course,” says Nicol, who has been a superintendent since 1978.

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Bill Fach, golf course superintendent at Black Bear Ridge, in Belleville, Ontario, Canada, agrees with Nicol.

"I know we think it’s ours after five to 10 years, but it’s theirs," Fach says about club members. "They pay our wages."

In Fach’s experience, avoiding conflicts and politics all comes down to having an open mind and looking for alternative solutions, which makes the superintendent and members happy. When it comes to agronomic and other turf issues, Fach recommends superintendents question themselves. For example, how can superintendents reconcile the need for aerification with members’ desires?

"I could punch these holes in November when the course is shut down, even though I like to do it in July," Fach says.

Bob Brewster, golf course superintendent at Mississaugua Golf & Country Club in Ontario, Canada, has been working at private clubs for more than 30 years. Brewster takes a similar approach. He has a designated time on Mondays when the course is closed for maintenance, allowing his team to topdress greens, and he doesn’t use coring tines when aerating greens. Rather, he uses solid tines so there’s no mess.

"We go in with 1/4-inch tines, aerate the greens, roll them and topdress them, and you wouldn’t even know it’d been done three days later because you can’t even see a hole," Brewster says.

"I’ve always tried to be golfer-friendly," he adds. "I’ve been using solid tines for 30 years. I’m a golfer, and I don’t like my play interrupted. It’s all about communication. You can never communicate enough. Golfers know more about course conditioning today than generations ago, so it’s more difficult if you don’t communicate properly."

Whether superintendents work in a democratic environment or under a dictatorship, diplomacy contributes to their success. GCIA
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It's been 20 years since Bill Aragona, vice president of the National Golf Course Owners Association, manned the pro shop, but on a Friday morning this past April, Aragona arrived at his Boulder Creek (Calif.) Golf and Country Club to find customers lined up outside and no staff in sight. Aragona jumped into action, using paper tee sheets until the regular crew arrived.

"I guess I still have it," he says. "I'm fired up right now. I'm a people person. That's why I got in the business. I like being out in front."

Aragona is one of countless industry veterans who've fallen prey to an evolving industry, working 60-plus hours a week, many of those behind a desk. It hasn't always been this way. Technological advances of course equipment and management tools haven't quite caught up to the burden placed on courses by advances in the game itself. It's tempting to scrutinize past mistakes and insufficient resources, but the pertinent question now is where to go from here? Time, cost and labor have been pushed to the extreme. Rounds are down. Most superintendents can't possibly work more hours. Will course technology catch up with demand in the next 20 years? Will courses themselves get longer? Browner? Drier?

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industry and is growing at 4.1 percent per year. It impacts 2 million jobs and $61 billion in wages, according to the Golf Economy Report commissioned by Golf 20/20. With a total economic impact close to $200 billion, golf is a cornerstone of American leisure, but its caretakers—golf course superintendents, managers and owners—can only do so much to keep the game on track. Considerable changes, some long overdue, need to be implemented during the next 20 years if the industry wants to secure a successful future.

THE PRICE IS RIGHT
Twenty years from now, half of the golf in the U.S. will be played by retirees, says Jim Koppenhaver, founder and president of Pellucid Corp., a marketing firm for golf professionals. "The thing we keep telling our clients is they're giving discounts to all those seniors, so as fewer seniors play more rounds, there's a huge lookout on the revenue line," Koppenhaver says. "The number of rounds at a facility might be up, but it might actually be making less money."

The age qualification for full retirement and social security increases every year. By 2028, it'll be near 70, Koppenhaver says.

"You need to be smart about your senior rates," he says. "You're not going to be able to give all these guys the full benefit at the earliest possible age."

The challenge is to keep current golfers in the game and to price rounds in a way that's appealing to the customer and profitable to the course. Koppenhaver and Joe Beditz, Ph.D., president and c.e.o. of the National Golf Foundation, emphasize the need for prices that won't knock players in the $35,000 to $50,000 income range out of the market.

"Successful golf courses manage their prices to allow people who need lower prices to play at times that don't hurt their business," Beditz says.

NET PROFIT
With increased competition among courses and clubs, it's essential to get the word out about your facility. Just how important is marketing? Beditz puts it this way: "My son asks the dentist if it's important to floss his teeth. The dentist answers, only the ones you want to keep."

With golf, it's all about the long-term payoff. Aragona relies on Internet marketing to keep his course at Boulder Creek alive and well.

"We're neophytes, but we're learning as we go," he says. "We've built up our database to 3,000 or 4,000 people, and when we throw stuff out to them, they react. We're using a third-party booking service, which features our golf course now. It opens us up to many more people, maybe half a million golfers in our area. The traditional print marketing isn't the bang for the buck it was before."

Aragona used to publish print coupons, but he's found specials on the Web are easy to track and eliminate busywork.

"Of course, I can only speak for myself, but we've had pretty good success with it," he says. "The Internet is changing the way America does business."

GREEN MILES
One thing is certain about course length: Few industry professionals are in favor of its increase. Doug Carrick, treasurer of the American
Society of Golf Course Architects and founder of Toronto firm Carrick Design, believes even architects would like to see a ceiling imposed on course yardage, but he acknowledges it’s a formidable challenge.

“It’s a tricky thing to do,” he says. “Once players have a club or a ball that goes 20 yards farther, how do you take it away? We need to get all the minds in the golf industry together, including the manufacturers, and make them understand.”

It should become easier to make golf courses shorter, considering the impact of course length on the industry.

“We’re using more land to build golf courses,” Carrick says. “We’re stretching yardage well over 7,000, even though the average person is playing in the 6,200- or 6,300-yard range. That means it’s taking five and six hours to play golf instead of four.”

Bob Pinson, president of the Golf Course Builders Association of America and founder of Course Crafters, also favors shorter courses, especially to shorten the time it takes to play. He encourages industry professionals to protest increasing course length.

“As builders, we’re going to have to start shouting wherever we go,” Pinson says. “That’s what the GCBAA is trying to do. It’s got to come from the architects. I’m not trying to put the monkey on their backs. We’re all in this together. But they’re still looking for clients, and the clients are telling them what they want.”

Regardless of course length, Jim Fitzroy, CGCS, at the Presidents Golf Club in North Quincy, Mass., and GCSAA board member, takes pride in the industry’s ability to retain open green space – a position that comes with great responsibility.

“We have a wonderful message to tell,” he says: “The land area of golf courses in this country is equal to the land area of the state of Delaware and the state of Rhode Island, so we’ve preserved a vast amount of green space. We just need to make sure we’re the best possible managers of that space.”

**CONDITIONED FOR CHANGE**

Changes in course conditioning will be a crucial part of the future, says Mike Kenna, Ph.D., director of research for the USGA Green Section.

“As far as playability, the golf course will be just as fun and challenging,” he says. “It’s going to be a firmer surface than what we play on today. That’s primarily going to be because of how we manage water in the future.”

Kenna believes the trend will be to maintain healthy turfgrass with adequate moisture.

“Right now, golf courses are generally well-watered to overwatered,” Kenna says. “Golf courses aren’t going to be as lush and soft as they are today.”

Carrick finds a distinct difference between

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golf courses in North America and those in Europe.

"In North America, golfers have come to expect perfect conditions and lush green golf courses, but it's certainly different when you travel overseas to the U.K. and parts of Europe," he says. "There's a different approach and attitude toward maintenance and playing conditions, which are every bit as good, maybe even better. The courses tend to be a little drier, a little browner — and the ball rolls. We've lost that in North America in the way we maintain and irrigate our golf courses."

Carrick admits browner courses require an aesthetic adjustment, but he believes there's no sacrifice when it comes to the quality of play. "We're used to highly manicured courses, lush and green and beautiful," he says. "In the U.K., courses look a little more rugged and not as well maintained, but from a play standpoint, they still play well. It'll be interesting to see if golfers in North America can accept that style of golf course. We'll see it 20 years from now."

INNOVATION IN HYDRATION

Kenna predicts the amount and quality of water available for golf courses is going to be reduced in the future. More recycled waste water, as treated effluent or sewage effluent, will be used.

"Those are the two water sources that we're going to have available for golf courses," he says. "It'll be a necessity, but this'll happen slowly during the next 20 years."

Carrick sees water as the biggest area of opposition to new golf course development. He's seen much more storm and effluent water recycling.

"We'll continue to see less reliance on water in new course development," he says.

The conservative mindset is new to many in the industry. When Pinson started Course Crafters in 1992, the sky was the limit when it came to executing golf course designs. Pinson, whose company is headquartered in Georgia, has seen monumental changes since then in the way water is used. He believes regulations will only become more stringent during the next 20 years. He says televised tournaments at courses such as Augusta National influence what members think they should see on their own courses, but such conditions are unnecessary for everyday play. Pinson hopes to see a change in the future.

"You're going to see irrigation designers, and irrigation design, more geared toward saving water," he says. "If you go back to when the game started, it didn't even have irrigation. If it's not a playable area, it doesn't need to be plush. If you hit your ball over in an area where the grass is knee-deep and there isn't any irrigation, it means you're not supposed to be over there."

In Georgia, as well as in other states throughout the country, regulations prohibit golf courses from watering anything but tees and greens. This is a step in the right direction for the industry,

Even golf course architects want to see a cap placed on course length. says Doug Carrick, secretary of the ASGCA.
Pinson says.

“It’s a win-win,” he says. “Is it going to be as plush as a PGA Championship course, or The TPC or Augusta National? No. But if you can pay $20 to play there instead of $100, those are the kinds of things that benefit everybody. It benefits the environment, and we’ve still got water to drink.”

Jim Koppenhaver, president of Pellucid Corp., emphasizes the industry’s need to keep current players in the game and increase their rounds.

WORTH ITS SALT
Another change in the future is that the overall tolerance of turfgrass species to salt will increase. Kenna says that’s primarily because the water available for irrigating golf courses is going to have more salt in it. The management of golf courses will require grasses with a better salinity tolerance, and golf course superintendents will have to do a better job of managing salts in the soil.

“Anything we can do to provide turfgrass species that at least have better salinity tolerance is a must, and it’s something our research funding goes toward,” he says.

Seashore paspalum and inland saltgrass are two species the USGA has researched because of their excellent salinity tolerance. It’s also working to increase the salt tolerance of bentgrass, creeping ryegrass, Kentucky bluegrass, Bermudagrass and zoysiagrass.

“It’s a little easier to find a species with excellent salt tolerance and then try and domesticate that, but those species aren’t going to work everywhere in the U.S., so we have to work with the other turfgrass species also and increase their salt tolerance,” Kenna says. “We have projects that deal with every turfgrass species on golf courses, and we’re trying to increase the salinity tolerance of all of them.”

LOOKING AHEAD
For many in the industry, it’s difficult to imagine working under present conditions for the next 20 years. But with the help of technology, research, the proper tools, a good marketing strategy and a little luck, golf course managers will navigate successfully through the next 20 years with a profitable business. GCI

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**GCI**
An irrigation system serves as the veins and arteries that deliver life-sustaining water to golf courses. Superintendents must maintain that system properly to avoid turf-quality problems on fairways, greens and tee boxes. Ignoring irrigation problems or putting off needed maintenance work might lead to costly repairs in the future.

One of the problems with an irrigation system is that, for the most part, it's out of sight and therefore out of mind. Pipes are underground, and superintendents don't often detect problems right away.

Bob Scott of Conyers, Ga.-based Irrigation Consulting Services has seen a number of golf

Maintain—or even replace—your irrigation system to prevent recurring problems

As part of routine irrigation system maintenance, superintendents are encouraged to track water use daily so they can notice changes as a result of leaks or nonoperating equipment. Photo: Irrigation Consulting
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courses that have poor water quality in their old or improperly maintained systems.

“There’s a lot of wear and tear on an irrigation system, especially where you have iron in the water,” he says. “Things start to wear out, whether it’s the piping system or the pumping station. You run into problems with algae in ponds, things like that.”

But advances in technology have enhanced the quality and performance of irrigation systems. Most new systems are designed to last about 20 years at high efficiency. Pipes and fittings might have a longer physical life, but changes in technology have made it worth replacing nozzles, controllers and software far more frequently, says Dave Davis of irrigation consulting firm David D. Davis and Associates, based in Crestline, Calif. A small investment made in an irrigation system could result in considerable savings.

“If a superintendent has expensive water and power, updating nozzles more frequently can save huge amounts of water, power and money,” Davis says. “Updating software more frequently can improve conservation and pay for the change quickly.”

IRRIGATION IMPROVEMENTS

Charlie Babcock, golf course superintendent at Tunxis Plantation Country Club, a 45-hole facility in Farmington, Conn., has been dealing with irrigation problems for 26 years. Ten years ago, Babcock liked the new technology at the time and decided to retrofit 27 holes with a variable frequency pump, new main irrigation lines in the rough and laterals into the fairways.

Babcock is pleased with the results of the project, which cost about $250,000 and was done...
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Between repairs and the man-hours needed to conduct those repairs, Tri Mountain Golf Club's old, 18-hole irrigation system consumed between 20 and 30 percent of superintendent Dan Bierscheid’s annual maintenance budget. Photo: Tri Mountain Golf Club

in house in three years. In terms of maintenance and avoiding problems, the biggest thing for Babcock was switching to variable frequency drives for the pumps. Now there’s a slower, more controlled release of water into the system.

“You don’t have that blast of pressure that can cause fittings to weaken and eventually burst,” he says.

“I would advise superintendents not to undersize their irrigation pipes just to save money,” he adds. “We used iron fittings at the elbows and Ts of the pipes and locked them up securely with cement. We rarely have had a problem in 10 years.”

John Roth, golf course superintendent and part owner of the 18-hole Paradise Valley Country Club in Casper, Wyo., and his crews were battling leaks in the course's irrigation system constantly.

“The pipes were old, the pumps were old and it was an archaic design, so the system was out every night,” Roth says. “We would fix the problem, and it would happen all over again the next day. It was a huge commitment of manpower and was taking us away from other course maintenance.”

Two years ago, Roth and others convinced Paradise Valley members to undertake a $1-million project to install a new irrigation system.

“We had zero problems last year,” he says. “We might have had an issue with a sprinkler head here and there, but we don’t need a backhoe and 20 guys to fix a leak as we did with the old system.”

Roth also incorporated more native-grass areas into the course. This reduced the need to water and lowered the water pressure, reducing wear and tear on the pumps and system in general.

“We have great temperature fluctuations here – 105 degrees in the summer and minus 40 in the winter – that can really damage the pipes,” he says. “But I went home this past winter not worrying about leaks with the new system.”

Dan Bierscheid, golf course superintendent of Tri Mountain Golf Club, a municipal course in Ridgefield, Wash., found himself in a similar situation, battling problems with the irrigation system almost daily.

“We were spending between $3,000 and $4,000 a year on irrigation repairs, and that didn’t include the money to pay my crew doing the work,” Bierscheid says.

Bierscheid convinced the town to approve a new irrigation system installation at Tri Mountain, which is being done in house. He and his crew completed nine holes last fall and will complete the other nine this fall. Bierscheid hired a contractor to do the digging and a few temporary guys to augment his staff, which installed all the lines.

“It’s very windy here,” he says. “The course was capped with eight to 10 inches of sand, which dries out very quickly.”

With the old system, Bierscheid would have to send at least six guys out to hand-water because of the two-row system and a lack of sprinklers in the middle of the fairways.

“There’s 85 feet of spacing between sprinklers in the old system, so we have to compensate for that,” he says. “It takes a toll and causes a lot of pipe leaks and breaks.”

Between repairs and the man-hours needed to conduct those repairs, the old, 18-hole irrigation system consumed between 20 and 30 percent of Bierscheid’s annual maintenance budget.

“We’ll really get a good comparison this summer between the new system and the old one,” he says.

System maintenance

Brian Vinchesi of Irrigation Consulting in Pepperell, Mass., offers tips to help superintendents maintain an irrigation system properly:

• Check to make sure sprinklers are level and at grade monthly.
• Make sure sprinkler heads turn, go on and off, and go up and down.
• Track water use daily so you can notice changes as a result of leaks or nonoperating equipment.
• Check the pumping station at least once a week, even if it seems to be working fine.
• Meg controller grounds every seven months for the first few years after a system's installation to make sure the grounds are acceptable throughout.
• Open and close all gate valves (lateral and mainline) at least once a year to keep them from locking in an open position.
• Check drain and air-release valves each spring, and during winterization (if applicable), for proper operation. If you irrigate year round, they should be checked at least twice a year.

ROUTINE MAINTENANCE

Whether a golf course irrigation system is new, a few years old or 20 years old, superintendents need to maintain it vigilantly to ensure it continues to function properly. The irrigation system at the 18-hole Crystal Springs Golf Club in Vernon, N.J., was installed in 1990 and is still a good system, says golf course superintendent Craig Worts. One reason for that is Worts’ maintenance routine.

“We have about $10,000 in our budget for irrigation system repairs, and that doesn’t include my guy who supervises the system,” he says. “You can probably add another $5,000 to $7,500 on top of the $10,000 to figure...
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At Tri Mountain Golf Club, Dan Bierscheid and his crew completed nine holes of an irrigation renovation last fall and will complete the other nine holes this fall. Photo: Tri Mountain Golf Club

what it costs annually to maintain.”

Worts doesn’t have a computerized system that alerts him of malfunctioning sprinkler heads. Rather, he and the crew complete a visual run through of the system every day, taking nothing for granted.

The installation of a 5-horsepower pump is one considerable improvement to the irrigation system at Crystal Springs. The jockey pump saves wear and tear on the two 30-horsepower pumps.

“The small pump kicks on every five minutes during watering so the bigger pumps don’t go on full and produce the hammering effect on the system that can result in damaged pipes,” Worts says.

Having a person on staff designated as an irrigation specialist helps the daily management of the course’s watering system considerably.

“One of the things I take pride in is our irrigation guy,” Worts says. “I put a lot of faith in him. He’s been here 10 years and knows the system inside and out. Some of the smaller clubs don’t have the manpower we do, so the superintendent or assistant superintendent monitors the system.”

Keeping a close eye, and ear, on an irrigation system is the best way to prevent big problems.

“We listen to hear if the pump starts recycling when we aren’t watering,” Babcock says. “That might indicate a leak somewhere. The guys who are mowing notice if there are any damaged or malfunctioning sprinkler heads. We just have to eyeball everything continually and not get caught up in something else if we see a problem with the irrigation.”

In the northern regions of the country, there are ways to protect an irrigation system during the winter and make sure it will operate smoothly once the water is turned on again in the spring.

Every fall in middle to late November at the Old Course at Bedford (Pa.) Springs Resort, golf course superintendent Dave Swartzel and his crew blow out the irrigation system by connecting a compressor to the main irrigation line at the pump house to blow air through the system.

“Some courses do it once, but we do it two or three times to make sure we get every bit of water we can out of the system,” Swartzel says. “It prevents water from freezing in the pipes and causing problems.”

When starting an irrigation system in the spring, superintendents recommend that pump pressure should be built up slowly, perhaps during the course of several days, so the pipes aren’t stressed by blasting a large amount of water into the system all at once.

Often, repairs or simple maintenance work can be done in house. But it might be wise to...
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Charlie Babcock, golf course superintendent at Tunxis Plantation Country Club, advises superintendents not to undersize irrigation pipes just to save money. Larger photo: Irrigation Consultants. Smaller photos: Tri Mountain Golf Club

seek outside help at times. As a general rule, superintendents recommend contracting out repairs that are specialized, such as pump and filter service, or something that takes a lot of manpower or more than a few days, such as mass replacement of nozzles or rotors and valves, Davis says. Contractor labor can get the job done more expeditiously.

Perhaps the best way to prevent irrigation system problems is to do it properly from the start.

“Sometimes people don’t realize the importance of doing it right, and they try and do things on the cheap,” Scott says. “Maybe they get by for a couple of years, but then things start to go wrong, and they wind up with costly repairs. Often, we make recommendations about how to improve an older system. But there are times when it just makes more economic sense to go ahead and replace the system. We usually advise clubs to phase the work during three or four years because it’s a costly undertaking.”

Charlie Babcock, golf course superintendent at Tunxis Plantation Country Club, advises superintendents not to undersize irrigation pipes just to save money. Larger photo: Irrigation Consultants. Smaller photos: Tri Mountain Golf Club
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Monitoring Mother Nature

Various tools help superintendents make the most of weather while tending turf

By John Walsh
As much as superintendents want control over the golf courses they maintain, turfgrass conditioning comes down to something out of their hands – weather. It contributes to lush, green turf and dead, brown turf. It also makes or breaks superintendents, forcing them to react constantly to the effects of weather.

Weather monitoring tools, then, are critical for superintendents. They impact the bottom line and product efficacy, prevent product wastefulness and help contribute to healthy turfgrass.

THE WEATHER REPORT

It’s no secret northern Georgia has been in an extreme drought. This year, areas of the state are two inches below the norm, and in the past 16 months, 20 inches below the norm. Even though the private, 27-hole TPC Sugarloaf in Duluth has been in a level two drought since last summer and under a restricted water-use regulation, Mike Crawford, CGCS, has managed to keep the course healthy, growing and alive. The drought in the state has been so bad that, this past September, 61 counties skipped level three and went directly to level four, which bans all outdoor watering. But the golf industry has been targeted unfairly, Crawford says.

"Golf, which is a $3.5-billion business in Georgia, has been mandated to save 97 percent of water when other businesses were asked to save only 10 percent," he says. "The GCSAA is working with the state to come up with a plan that works for all."

In Georgia, any water running into or off a property can be controlled by the state.

In Austin, Texas, Mark Semm, director of golf course maintenance at the private 18-hole Spanish Oaks, has been dealing with weather extremes the past few years. In 2004, during his first season at Spanish Oaks, the area experienced a high rain season of 50 inches. The next 18 months were under a drought stage close to water restrictions. And last year, rainfall totaled 60 inches.

"I’m in my third full season and have yet to see anything that’s normal weatherwise," Semm says. "We’ve gone from extreme cool, wet weather to heat and drought."

Kevin Shields, in his third year as golf course superintendent at Tuscany Reserve Golf Course in Naples, Fla., is no stranger to weather extremes either. Tuscany Reserve, which opened in 2005 and has a maintenance budget of $1.9 million this year, experienced two wet years – 2003 and 2004 – during its grow-in, but the past few years have been dry. The course, which is covered with seashore paspalum, also has endured two tropical storms, and two hurricanes (in 2006), in which 50 percent of the plant material blew over and had to be replanted. There were wash outs and wind damage but no flooding.

The area has been in a phase three water restriction since November. It was in phase two a year ago in April and skipped phase one altogether.

In April, Shields kept an eye out for cold fronts to prevent frost damage on ornamentals. If frost is predicted, he doesn’t run the irrigation system beforehand. Shields was looking for a stretch of good spring weather. This year, January was warmer than February, and compared to previous years, the Gulf temperature was almost the same as the soil temperature this spring. Typically, April and May are the driest times of the year, and June is the start of the rainy season, which falls in summer. This year the area is down 37 inches of rainfall, and Lake Okeechobee is four feet below normal.

"Right now, we’re in a drought," he says. "It’s a struggle to keep things looking good."

TOURNEY PREP

TPC Sugarloaf is the site of the AT&T Classic, the PGA Tour event it hosts in addition to the other 20 to 25 annual tournaments played there. Greg Norman designed the 13-year-old course.

Because of the magnitude of the AT&T Classic, weather monitoring is an essential aspect of tournament preparation. In addition to the typical weather monitoring tools Crawford has on the property, he has help from the PGA Tour’s on-site meteorologist during the week of the tournament. The meteorologist has tools most don’t, such as national weather radar and professional Web sites, to predict wind, temperature, severe weather and precipitation.
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"We use that information to help determine what we need to do," says Crawford, who was the first employee hired at TPC Sugarloaf during its construction. "For example, if it’s dry and windy, we’ll water greens by hand. Or if it’s too windy, we might not roll greens because we don’t want the ball rolling off the green too easily. Every year, we use the meteorologist’s information. He can predict harsh weather with extreme accuracy, so we’re able to get people off the course before a situation becomes dangerous."

Crawford, who has been at TPC Sugarloaf for 13 years and a superintendent for 16, says meteorologists almost can predict weather to the minute because of the radar they use. And because of the nature of the AT&T Classic, which has a $5.5-million purse and millions of viewers worldwide, weather prediction is critical.

**MONITORING METHODS**

In addition to the PGA Tour’s meteorologist, Crawford has his own weather monitoring routine. He uses a DTN/Meteorlogix weather radar to the best of his ability.

“It can pick up rainfall that doesn’t hit the ground, so it can be misleading,” he says. The radar information comes through a satellite system or the Internet. The information is close to real-time but not quite, Crawford says. The radar can be insurance policy.

“If you use radar just one time to delay a fungicide application, then you’ve paid for it,” he says, adding that he wants to avoid applying a fungicide only to have it washed off the plant.

Like many superintendents, Crawford also uses a weather station, which is tied to the irrigation system, to help determine whether to irrigate or not. The weather station measures evapotranspiration, windfall and wind speed. Crawford also watches the Weather Channel.

“In my office, the Weather Channel is on TV all the time,” he says. “I watch it twice at night and listen to the radio for weather on the way to work.”

But unlike some superintendents, Crawford doesn’t have the ability to control his irrigation system remotely. That’s one of his goals this year.

Like Crawford, Semm has an on-site weather station in an area that’s a good representation of the entire golf course. The station tracks weather by the hour, day and month, and tracks temperature lows and highs, humidity, precipitation, solar radiation and wind. Semm compiles all the information and uses historical totals to determine when to start his semiannual verticutting and aerifying.

But Semm hasn’t been relying on weather data as much. Lately, extremes – dry and wet – have caused him to turn on a dime. He uses the Farmers’ Almanac, which he says has been pretty darn close in giving general trends of the year, as well as the National Oceanic and Atmospheric Administration’s Web site and the Weather Channel. He also watches local news stations daily.

Additionally, Semm uses the DTN/Meteorlogix forecasting tool, for which he pays an annual fee. He used to pick the information up through one of the company’s satellites, but he now uses the Web-based program. The tool has a parameter of 50 miles and can send warnings via cell phone, e-mail and text message. It tracks light rain, moderate rain and heavy rain, as well as lightning.

Ssem’s weather station is integrated into the irrigation system so the system will shut down and won’t irrigate when it’s raining or will stop if it’s too windy. This can save between $5,000 and $15,000 a year, he says.

“For me, I sleep better at the end of the day when I put together something based on the information we have,” Semm says.

Weather station use at Spanish Oaks can save between $5,000 and $15,000 annually. Photo: Spanish Oaks
Even though Tuscany Reserve in Florida is experiencing drought conditions lately, the color of the seashore paspalum is hanging in there. Photo: Tuscany Reserve Golf Course

Shields’ method is a bit different than Semm’s. He uses a lot of history from previous years, tracking weather information on the Internet or by his hand-written notes from years past.

PROBING FURTHER
Aside from weather radar and stations, Crawford uses small soil probes to core greens throughout the day, looking for dryness to know when he needs to hand-water greens.

“Soil moisture consistency on greens is different,” he says. “You never get it exact. Our typical irrigation cycle is seven minutes on all greens. Four or five greens get more air movement and sun, so they dry out quickly. We monitor them more closely to watch for wilt. We want to put out only the water needed to keep the plant healthy. Watering by hand is labor intensive, but the money we spend on that is worth its weight in gold.”

Still, Crawford saves a lot on labor overall because of weather monitoring.

Shields would like to be using a soil probe, but he says it all comes down to money and budgets, and with the way the economy is, soil probes aren’t an option right now.

CULTURAL PRACTICES
Semm, who has been at Spanish Oaks four years and a superintendent for seven, operates the seven-year-old course with a $1.9-million maintenance budget. The course is in hill country, built on rock and capped with a sandy loam profile eight to 12 inches deep. The USGA-spec greens feature TifEagle, and TifSport is everywhere else.

Ninety-five percent of Semm’s cultural practices are conducted based on weather. There are a few things he would do agronomically in the rain, but topdressing is an exception. Always thinking about the weather, Semm tries to time wetting-agent applications during or within 48 hours of rainfall to get a wetting agent to wash in. Potassium and gypsum application for greens are timed with rain, too.

Shields’s maintenance practices also are dictated by weather, and he also applies wetting agents right before it rains. He applies less fertilizer in the rough and in out-of-play areas because they’re dormant.

On Jan. 15, a phase three water restriction took effect in some areas of Florida, allowing Shields to use only 180,000 gallons a night to water the golf course, common areas and surrounding home lawns. He submits a water report once a week detailing how much water he uses.

“I’m basically watering just the tees and greens,” he says. “I haven’t watered the rough in six months. The color of the paspalum is hanging in there, though.”

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Sometimes inspiration can come from something as simple as a couple of old, black-and-white photos on a men’s locker room wall. That was the case at Tavistock Country Club in Haddonfield, N.J., an Alexander Findlay original design that opened in 1921.

Upon close inspection of the course and the aging pictures adorning the locker room walls of the facility, architect Jim Nagle of Forse Design noted 14 of the original Findlay greens still existed. Unfortunately, all the original deep bunkers and lofty mounds, except one complex on the 10th hole, had changed drastically from their original forms.
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Soon, Nagle, golf course superintendent Tom Grimac and several Tavistock members were searching for additional photos and descriptions of the course's 1920s-era features.

"The members were already considering a restoration project," Nagle says. "When I saw the original bunker complex on No. 10, examined the internal slopes on some of the greens and compared them with the two black-and-white photos, I was ecstatic."

Part of the excitement came from studying other Findlay courses in the area that featured mound and bunker complexes with deep bunkers, some 15 feet deep. Lebanon Golf Club in Pennsylvania was a good example of the type of deep bunkers Findlay preferred, and Reading Country Club in Pennsylvania featured Findlay's work.

"Findlay's influence was out there, and we had a chance to bring it back to Tavistock," Nagle says.

**A DESIGN LEGACY**

Findlay, who lived from 1865 to 1942, was a golf pioneer who played a series of exhibitions against English golfer Harry Vardon and designed more than 100 golf courses, including such classics as The Breakers Golf Club (Ocean Course) in Palm Beach, Fla., and Aronimink Golf Club in Philadelphia.

What's happened at Tavistock throughout the years is similar to the types of changes that occurred at many Golden Era layouts. After Findlay's originally-designed course opened for play during the first year of U.S. President Warren Harding's administration, several other architects took turns lending their touch to the private club, located just seven miles from Pine Valley. A.W. Tillinghast, Robert Trent Jones Sr., William and Dave Gordon, and Brian Ault were among the designers drawn to Tavistock. Perhaps Jones had the greatest effect, adding several holes and rerouting parts of the course after an interstate highway cut through the property and eliminated significant acreage back in 1960.

**ARCHAEOLOGICAL ARCHITECTURE**

Once Nagle, Grimac and a few members knew the potential gem they could unearth with a little extra work, it was time to sell the rest of the members on the idea. Nagle scanned photos of Tavistock's existing features into his computer, blew them up and presented them next to similar features at other Findlay courses.

"Once we showed the members the details of Findlay's features, they asked incredulously, 'Wow, that's what our course could look like?' It led to a fairly easy sell for the feature restorations," Nagle says.

One of the other selling points was that the Findlay restoration would add little expense compared to the cost of a generic renovation. Most of the greens, Findlay's primary emphasis, were intact, and the bunkers simply needed to be dug slightly deeper than they might have been with most simple renovation projects.

"It was helpful having a company with which we were familiar - Frontier Golf and its shaper, Jimmy Myers, had worked with us on other intricate course-restoration projects," Nagle says. "Having Jimmy on site was essential."

Another key to the restoration was that the club had completed a considerable course upgrade recently. Tavistock installed a new, $2-million irrigation system, including pumps, a filtration and fertigation system, and a significant amount of drainage work.

"We're also in the middle of a massive tree-management program," Grimac says. "We've opened up the course by taking out 3,000 trees in the past five years. We're still not even close to what the land was like back in 1921. Like Oakmont Country Club or Philadelphia Country Club, our original photos show there was just a handful of trees here when the course was originally built."

**UNDER CONSTRUCTION**

Grimac closed the course July 31, 2006. The construction team would beat the reopening date, June 1, 2007, by nine days.

Using knowledge gained from studying Tavistock's own photos, plus the examples mimicked...
from other Findlay designs, Frontier began rein-stating the ground features Nagle felt had been lost throughout the years, particularly around greens and bunkers. “Myers and Nagle did a masterful job on those ground features,” Grimac says. “They rebuilt all the bunkers and mounds, and many of the tees.” Nagle was on site frequently to oversee the shaping and make sure the work looked the way he wanted it. He also put together a portfolio of photos for the builder to refer to on site. “It was a historic restoration, but it was still important to modernize features to fit with today’s game of golf,” says Chris Brennan, Frontier’s project superintendent. “While many of the fairway bunkers were similar in design to Findlay originals, they were placed in different locations than they would have been in the 1920s to accommodate the longer distances today’s golfer hits the ball.” Nagle, Grimac and Tavistock committee members did a fantastic job in the planning stage, Brennan says. That effort minimized the number of challenges faced by Frontier and allowed the construction firm to meet its deadlines. “The main time constraint involved seeding two new greens and several green expansions that occurred in the first few weeks,” Brennan says. “But it worked out fine.” “The project was well planned,” he adds. “We had weekly staff and committee member meetings. They were monotonous at times, but it was definitely the best way to run the project. Everyone was on the same page — club officials, the superintendent, contractor and architect. Everyone knew what the others were doing.” The meticulous planning process also resulted in the project having few change orders. Any changes were generally one of two types – an increase in sodded areas or additional drainage. Additional drainage helped because much of the property is in a floodplain, Brennan says. Nagle believes the major challenge he and Frontier faced was rebuilding the 16th green. The putting surface on the 185-yard, par-3 is carved out of a hillside, about 18 feet above the tee. The back and front of the green had severe slopes. In the middle lurked a buried elephant. But because of the severe back-to-front slope, the huge central hump created interesting pin placements across the middle. “The members loved that hump but hated the rest of the green,” Nagle says. “They felt if the green wasn’t rebuilt successfully the rest of the project would be a failure.” Working with Nagle, Frontier took 3,200 GPS readings around the 16th green. Then they lowered and expanded the back of the green.
while elevating the front of the putting surface to provide additional cup placements. Finally, they recreated the buried elephant. “We were off by no more than an inch in some areas, which we were able to duplicate by simply bringing in a little more sand,” Nagle says. “We created a green that yielded more cupping space yet kept an internal feature exactly the same. The members were happy. Frontier can take a lot of the credit for that.”

SOD OFF
While Frontier was busy shaping, earthmoving and rebuilding two putting surfaces, Grimac’s staff concerned itself with regrassing the remaining 16 greens, fairways and most of the tees.

The greens had shrunk throughout the years, but the Tavistock crew recaptured the original green shapes and sizes, adding another 35 percent of putting surface in the process. That required using methyl bromide on the old turf before replanting with two varieties of bent-grass, A-1 and Tyee, a relatively new offering from Seed Research of Oregon.

Grimac’s crew used Basimid (a granular fumigant) and recontoured the fairways to recreate the original flow. He replanted 007 (another Seed Research variety of creeping bentgrass) along with a chavings fescue nurse grass.

All the tee surfaces were sodded with 007. “We wanted to have a thatch layer on the tees,” Grimac says. “Because the tee work was done later in the fall, we needed to sod them. We also sodded all the green surrounds with bluegrass. Being in the transition zone, we have to have a lot of grass varieties. There’s no one perfect grass. We also sodded the intermediate rough with a low-mow bluegrass to provide a contrast between the bentgrass fairways and intermediate rough.”

Luckily, the weather during most of the construction season was dry, and while the extreme heat was demanding occasionally on the various crews, the season was ideal for construction work.

“We had a couple major thunderstorms after they planted the greens that washed a lot of the seed out, but they were repaired rapidly,” Brennan says.

RESTORATION HAS ITS PRICE
While returning Tavistock to its Findlayesque roots required little in the way of additional construction costs, it necessitated a significant increase of the ongoing personnel budget, Grimac says.

Maintaining and hand-mowing the severe ground features around the greens, coupled with the decision to start hand-raking bunkers, has meant additional labor hours. The recapturing of additional putting surface area, much of it running to the crest of the surrounding banks, has meant more time spent grooming the greens, plus the need to walk mow rather than machine groom those areas.

“We’ve added another five people on the maintenance staff and raised our labor budget by $120,000, about a 20-percent increase,” Grimac says. “Our overall maintenance labor budget is $706,000 with a total maintenance budget of $1.36 million.”

The transition-zone climate and the low-lying, poor-draining nature of the property leave Tavistock susceptible to many turf diseases. Grimac’s preventive fungicide program had been fairly expensive, but that all changed after the renovation.

“Now that we’re mostly bentgrass with no Poa annua, we’ve decreased our fungicide budget,” Grimac says. “But we’re using more plant growth regulators to fight the reintroduction of Poa. So, what we’re saving on fungicides, we’ve made up for with PGRs.”

THE GREEN ROAD AHEAD
In his 29 years at Tavistock, Grimac has tried to be a good steward of the environment. The club recently earned the first stage of certification with Audubon International’s Cooperative Sanctuary Program.

Grimac is proud of the fact that all of the club’s irrigation water comes from an on-site lake fed by natural drainage.

“Every drop of water that falls on the course for several miles around drains into our lake,” he says. “We waste no water. Almost everything we irrigate goes back to that pond.”

Plus, Grimac’s irrigating less now than he used to.

“The bentgrass is easier to maintain than the old Poa annua,” he says. “We inject wetting agents into the water to maximize the effectiveness of the water we use. The new irrigation system is much more site-specific. We went from having about 600 heads before to about 1,900 now. Each head is individually controlled, so we can deliver water only where it needs to be.”

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POSITIVE REINFORCEMENT
Grimac has always been a big believer in communication with members. For instance, before initiating the tree-management program several years ago, he held frequent meetings with members to explain what he hoped to accomplish, then kept them informed via e-mail, newsletters and bulletin-board postings as the project progressed.

"We started slowly until we gained the members' confidence," he says. "We've received virtually no complaints. We've carefully evaluated the trees through committees and with input from the USGA Green Section's agronomist Dave Oatis. We concentrated largely on the agronomic benefits first. The members have embraced the project and enjoy the expanded views, cleaner look and healthier turf."

It was only natural for Grimac to continue with the communication effort, keeping members involved and abreast of what was happening throughout the preconstruction, construction and postconstruction processes. He also expanded his communication efforts to draw in outside contractors such as Forse Design and Frontier.

"I feel great about how the project turned out," Nagle says. "The feedback from the club has been tremendous. I attribute much of that to Tom's upfront communication."

Grimac posted photos on the club's Web site and took members on tours of the construction at crucial phases, giving them the opportunity to share their input.

"Tavistock has a lot of excellent amateur golfers who compete in local, state and national competitions," Nagle says. "They are strong golfers with strong ideas about course design. They offered a lot of ideas and depended on us to tell them whether the ideas would work or not. Even if we didn't use their suggestions, they were happy we'd listened to them."

Brennan was impressed equally with Grimac's communication skill and the effect it had on the final product.

"Not only were club officials well-informed, they informed other members about what was occurring through mailers, the Web site and walk-throughs," he says. "That was huge. But the best indication of how everything worked out was hearing from members that the outcome exceeded their expectations. We can't ask for more than that." GCI

Architect Jim Nagle believes the major challenge he and Frontier Golf faced was rebuilding the 16th green, pictured below. Photo: Jerry Sheets
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Looking for clarity
Researchers make headway detecting and treating new turf diseases

The presence of several new turfgrass diseases has increased on golf courses in the United States recently. Three new diseases in particular – Pythium root dysfunction, brown ring patch and rapid blight – are challenging for golf course superintendents. Fortunately, researchers have made headway detecting and treating these destructive diseases.

TACKLING NEW DISEASES
New turfgrass diseases can evolve for a number of reasons, and several factors contribute to the prevalence of disease such as geography, moisture and temperature.
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Stress caused by heat, drought and excess moisture can weaken turf, making it more prone to disease. Simply put, healthy turf is less susceptible to disease. The challenge with golf courses, particularly on greens, is that turfgrass is kept short by plant growth regulators and/or frequent mowing, which causes stress.

Players expect superintendents to provide the best of both worlds — short grass and healthy turf. It's a difficult balance, especially when new diseases emerge and superintendents don't know how to treat them.

University and industry researchers are addressing these three emerging problem diseases. To avoid being caught off-guard, superintendents should learn more about these diseases. Doing so will help identify and treat the diseases, and in some cases, avoid them altogether.

**PYTHIUM ROOT DYSFUNCTION**

Discovered in North Carolina in 1994, Pythium root dysfunction attacks putting greens and is limited to newly constructed greens younger than eight years old. It's most commonly found in the Southeast but also occurs in Midwestern areas with harsh summers. Bentgrass is most susceptible to the disease, which occurs on turf stressed from one or more of the following factors:
- High heat.
- Repeated close mowing.
- Low fertility schedules.
- Drought.

Pythium root dysfunction causes the roots and crown of turfgrass to turn brown or black. The symptoms are most visible during the summer, but the disease spreads during spring and fall, when it's cool and wet.

Because symptoms are less prevalent on plants with strong root systems, there are several cultural practices superintendents can undertake to minimize damage caused by Pythium root dysfunction. Root enhancement techniques — specifically aerification, nutrition supplements, verticutting and reduced irrigation — are helpful to counteract symptoms of the disease.

Irrigation management also is extremely important. Clay and compacted soils are more likely to harbor Pythium root dysfunction because of reduced drainage.

It's less difficult and less expensive to prevent Pythium root dysfunction than it is to try to cure it. Fungicides such as pyraclostrobin and triticonazole are two of the most effective at preventing the disease.

Lane Tredway, Ph.D., turfgrass pathologist at North Carolina State University, is one of the foremost experts on Pythium root dysfunction. To learn more about his research and information on N.C. State's Center for Turfgrass Environmental Research & Education, visit www.turffiles.ncsu.edu.

**BROWN RING PATCH**

Formerly known as waita patch, brown ring patch has been reported sporadically through-
out the Midwest and is a mounting problem in Southern California. Occurring primarily on greens with high annual bluegrass (Poa annua) populations, the disease is prevalent in warm and moist conditions.

Initial symptoms of brown ring patch are thin, yellow, concentric rings several inches in diameter that turn brown under hot or wet conditions. Once established, brown ring patch can quickly damage turfgrass. Temperature plays a significant role in whether or not brown ring patch occurs. The disease doesn’t spread in hot or cold conditions, but rather during times of mild temperature (middle 60s to low 80s F).

Cultural control options of aerification and higher mowing heights are sometimes used to combat brown ring patch. Alternating among several fungicides – pyraclostrobin, propiconazole and triticonazole – has been an effective treatment.

Frank Wong, Ph.D., assistant plant pathologist

Rapid blight occurs during the fall and winter, affecting ryegrass, annual bluegrass and Poa trivialis, shown here. Photo: PACE Turf

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Research

at the University of California-Riverside, is considered one of the top brown ring patch researchers. For more information, visit UC Riverside’s department of plant pathology and microbiology at www.plantpathology.ucr.edu.

RAPID BLIGHT
Rapid blight occurs in the fall and winter, affecting several annual winter grasses used to overseed Bermudagrass. Affected species include ryegrass, annual bluegrass and Poa trivialis. It’s primarily seen in the Southwest, including Nevada, Arizona and Southern California, as well as on coastal areas in the Southeast and Northeast. Perennial grasses aren’t affected by rapid blight.

Rapid blight occurs in the fall and winter, affecting several annual winter grasses used to overseed Bermudagrass. Photo: PACE Turf
The disease is associated with a marine organism and cases of rapid blight rise significantly in areas where superintendents use reclaimed water or water with high salinity for irrigation. The disease can occur on any area that has been overseeded but is usually treated only on putting greens.

Mary Olsen, Ph.D., plant pathology specialist for the University of Arizona-Tucson, has confirmed rapid blight is caused by an obscure microorganism that, before its discovery in turf, was known to infect marine plants such as seagrass, diatoms and algae. The University of Arizona’s division of plant pathology and microbiology is available at http://ag.arizona.edu/PLP.

Rapid blight shows itself as water-soaked, slightly sunken and darker-looking turf. It turns yellow and dies in patches.

The primary cultural control option is to use better quality irrigation water, avoiding reclaimed water, if possible. Pyraclostrobin provides the most effective preventative control; mancozeb is a less effective alternative.

PREVENTION AND EDUCATION
To avoid being caught off-guard by new diseases, it’s important to stay educated, be consistent with preventative tactics and devote time to detection efforts.

Part of being proactive is keeping up with the latest research and information about turfgrass disease. Superintendents who collect and absorb background information are better prepared when they encounter a problem. They know what they’re dealing with and who can help them.

Some superintendents are quick to write off an undiagnosed problem as untreatable by a particular fungicide they’ve already applied, and they simply re-treat with a different product. Instead, they should take a turf sample and send it in to a diagnostics lab.

Fungicide manufacturer representatives, university extension personnel and other golf course superintendents also are good sources of information. It’s wise for superintendents to seek the help of others if they encounter an abnormality they don’t recognize.

It’s common sense, but it’s important for superintendents to walk their courses daily, keeping an eye out for abnormalities. New diseases such as Pythium root dysfunction, brown ring patch and rapid blight can cause problems quickly if undetected.

Todd Burkdoll is a market development specialist for BASF Turf and Ornamentals.
A numbers game
Director of golf course maintenance keeps two different courses in line in Virginia

At Wintergreen Resort, Fred Biggers oversees two golf courses 13 miles apart—a total of 45 holes maintained by 37 peak-season staff. Factor in two completely different climatic zones and a separate routine at each course, and Biggers is nothing short of a mathematician.

Wintergreen is a membership-owned, four-season resort in the Blue Ridge Mountains of Virginia that features golf year-round on two courses. Devil's Knob, the highest course in Va. (a 3,850-foot elevation), is an 18-hole course on the mountain for which it's named. Stony Creek is a 27-hole course in the valley below. In addition to golf, Wintergreen features ski slopes, a tennis facility, a spa and several thousand condos at the top of the mountain, but Biggers has little time for leisure with his busy schedule.

The vast differences in climate between Devil's Knob and Stony Creek—the former is open April through November and rarely gets warmer than 80 degrees, while the latter is a product of its native surroundings—keeps Biggers on his toes when it comes to maintaining turf. Routine maintenance can be quite a production, but Biggers knew what he was getting into when he arrived at the resort nine years ago.

"I took over for a pretty sharp, certified superintendent," he says. "So I had a pretty good idea going in. I knew Devil's Knob is more like a northern course—a lot of Poa annua, a lot of bentgrass. The climate in the valley is similar to Richmond, Va."

Biggers has a golf course superintendent and assistants at both courses, and works closely with his mechanical staff—two separate crews.

As part of Wintergreen's equipment fleet, the resort owns a small fleet of sprayers:

- A Toro 150-gallon greens sprayer at each golf course.
- A Toro 1150, purchased in 1999, used at Devil's Knob.
- A Toro 1250, purchased in 2005, used at Stony Creek for spraying greens and tees.
- A Toro 5500 300-gallon sprayer for spraying fairways.
- An Airtec tractor sprayer, which cost less than $20,000 when it was purchased six or seven years ago.

Fred Biggers mainly uses a tractor sprayer to apply fungicides on green surrounds and fairways. Photo: Airtec
• A 100-gallon Toro sprayer with a hand-boom for herbicides.
• A 20-year-old John Deere sprayer similar to the Toro 1150.

"We mainly use the Airtec for spraying fungicides on green surrounds and fairways," Biggers says. "It's fast and easy, and we're able to use less product. We cut our rates when we use the Airtec. I have a lot of experience with the Airtec, probably as much as anybody in the U.S., because we've used it for five or six years. We can use as much as half the rate and get the two weeks of control we want when we spray with the Airtec."

The crews don't spray the fairways as much as they used to partly because Biggers removed bentgrass from nine holes and replaced it with zoysiagrass.

Biggers is fascinated by the technology behind his Airtec sprayer, which deploys electrostatically charged particles into the air at high
Fred Biggers has a fairly old fleet of equipment, but he credits each machine's longevity to his talented mechanic team. They keep extra pumps, parts, nozzles and fittings around to repair equipment easily.

"It's unbelievable coverage," he says. "We've had a lot of success with the Airtec. The sprayer paid for itself in two years. I have one of the early ones, and we had to mount it on a pretty large tractor, but it does a great job with fungicide applications."

While Biggers is partial to his Airtec, he prefers to use the Toro 5500 on the fairways. It's much more windproof because of shielded booms.

During the summer, the crew controls weeds monthly with hand sprayers to target areas that can't be reached with the large boom. One application lasts three months and saves labor costs.

The John Deere sprayer also has its own unique purpose: It comes in handy for herbicide applications in tight or sloped areas.

"It stays on the slopes a little bit better because it's lighter," Biggers says. "We've kept the booms on the John Deere. We put a whole new engine on that, a whole new muffler and new controls. It's probably on its fifth or sixth pump, but the frame doesn't wear out, and the tank doesn't wear out. It operates well."

Biggers has a fairly old fleet of equipment, but he credits each machine's longevity to his talented mechanic team.

"I've got wonderful mechanics," Biggers says. "We don't think anything of replacing an engine or rebuilding a pump. Everything here works, and works well. We keep extra pumps, parts, nozzles and fittings around so we can fix something without too much drama."

"If we can do anything to cut costs, we're going to do it. And if we contemplate another sprayer, we're going to look all around."

Biggers has been contemplating a new sprayer to replace his Toro 1150, but says that at this point, he might just rebuild the booms (all of Biggers' sprayers have electric booms and T-jet nozzles). The golf courses have a fairly hefty maintenance budget of $1,575,000 - but considering $1,025,000 is allocated to Stony Creek and $550,000 is allocated to Devil's Knob, it's understandable Biggers would rather repair his working machines than shell out the cash for new ones.

"If we can do anything to cut costs, we're going to do it," he says. "And if we contemplate another sprayer, we're going to look all around. We use our sprayers to spray many different things. We spray insecticides and wetting agents one day, and the next day, we spray tees with wetting agents, and the next day, fungicides."

Even with so many operations under way, Biggers manages to keep it all straight.

"It's kind of organizational, but I've been running multiple courses and clubs and resort-type operations since 1988, so it's kind of second nature to me," he says. "It's what I do. I wouldn't know what to do if I went to 18 holes. I guess I'd have to get even more detail-oriented, but you just get used to doing a bunch of different things at once."

And when all else fails, Biggers reminds others you can't always win.

"Sometimes you just prevent the worst loss," he says.
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Spray it right

Opening his fifth golf course, Danny Gwyn relies on two intelligent machines – a turf sprayer and the human brain.

Danny Gwyn speaks about The Club at Twelve Oaks, just outside Raleigh, N.C., with an easy confidence, but it’s not the course’s longstanding tradition that gives Gwyn his self-assurance. Twelve Oaks is a new, 18-hole private golf club that opened this month. But Gwyn has 25 years in the industry under his belt. Currently, he’s the course’s superintendent and regional director of agronomy for ClubCorp, the company that manages Twelve Oaks. In true veteran fashion, he’s about to deliver the club’s inaugural golf season without a hitch.

There’s a lot of pressure that’s part of the grow-in process at a new course, but Gwyn kept a cool head when it was time to bring in equipment and supplies. For his sprayers, he went straight to Smith Turf and Irrigation, the Toro distributor that has served him for more than 20 years.

In June 2007, Gwyn purchased a four-year lease on two Toro sprayers – a Multi Pro 5700D for large turf areas and a Multi Pro 1250, which he uses predominately for greens. The leases cost about $35,000 and $25,000 respectively, and were part of a $950,000 new equipment purchase to supply the course and crew.

The decision to lease was based on the developers’ needs, not ClubCorp’s needs, Gwyn says. “It spreads out capital dollars further,” he says. The decision to invest in Toro was based on loyalty and past experience. “In this region of the country, our Toro distributor is solid,” Gwyn says. “I’ve been in the business for 25 years, and it seems like it’s been this way for the most part. They’re consistent.”

With 15 golf courses under his direction, consistency is a crucial element of Gwyn’s life and practice as a superintendent. His grow-in was regulated carefully.

In June 2007, Danny Gwyn purchased a four-year lease on two Toro sprayers - a Multi Pro 5700D and a Multi Pro 1250 (pictured). Photo: Toro

“We used the 5700 once a week for various growth regulation applications,” he says. “A lot of herbicide sprays were conducted during the grow-in. The 1250 was used at least once a week.”

Gwyn anticipates he’ll continue to use his 1250 greens sprayer weekly during the rest of the year, but he’ll use his 5700 less frequently, perhaps once every two weeks.

“Once we get a more established turf here, we’ll probably be doing more growth regulations of the lower-cut grass than herbicide sprays with the 5700,” he says. “We’ll continue to spray herbicides, but growth regulation will be a big part of our practice.”

Gwyn’s crew sprayed three fungicide applications in the spring, about six months after the greens were established. Last fall, they sprayed for fall army worms. No insecticides have been applied in 2008. The 5700 was used for both the fungicide and insecticide applications.

The 5700 and 1250 are equipped with T-jet nozzles, each with a triple adapter on the nozzle station. With the help of a $900,000 maintenance budget, Gwyn and his crew are prepared to troubleshoot any sprayer problems as they arise, but the equipment is so new they have yet to run into any malfunctions.

When the four-year leases on the sprayers end, Gwyn predicts he’ll stay with Toro for his next sprayers. “I’ve been a customer for 20 years, and I’ve been in the business for 25,” he says. “Customer service, from my standpoint, is one of the most critical things when deciding on a piece of equipment. Obviously we want the best equipment, but we also want somebody to stand behind it. Toro, as well as our distributor, has always done an exceptional job in servicing its customers.”

In addition to the Toro sprayers, Gwyn also uses four Shindaiwa SP415 backpack sprayers, as well as several hand sprayers from local hardware stores. During the grow-in process, Gwyn’s team used the Shindaiwa sprayers frequently.

“If we have isolated areas for weed control, we’ll actually spot spray,” he says. “It’s labor intensive, but it works well for us.”

Even as Gwyn considers the future, he also takes time to appreciate – and apply – the skills he’s learned along the way. “People rely too much on the sprayers’ computer technology to make some basic calibration decisions,” he says. “To me, the old-fashioned way of calibrating a sprayer is still the most accurate and dependable. The computerized systems are good, but they’re not foolproof. That’s the biggest thing I tend to see.”

Both Gwyn’s sprayers have calibration systems, but, as with his course, he takes nothing for granted. He and his crew constantly double-check the computerized calibration against their own basic calibration techniques. But Gwyn will have to wait until he gets through his first season at Twelve Oaks to find out how well his team measured up.
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RULES FOR SUPERINTENDENTS

The golf season is in full swing, and televised events have been broadcast weekly since January. For professional golfers, every shot counts, and millions of dollars are at stake. Decisions and disputes about the Rules of Golf are handled by qualified officials using Decisions on the Rules of Golf.

There are numerous rules-related details golf course superintendents must attend to when preparing for tournaments or daily play. Consider the following.

PUTTING GREENS

There’s a single Rule (16) for the putting green. Keep these decisions in mind when placing the final touches on the putting greens:

- 16/4 - A hole liner must be sunk deep enough. When setting the hole liner into the green, it should be at least one inch below the surface of the turf. If it’s not, there can be added rules issues such as a ball striking the edge and bouncing out of the hole or the ball striking the hole liner when the flagstick is being removed from the hole.

- 16-1a/6 - If a hole liner isn’t set correctly and the dimensions of the hole become damaged, the hole might need to be changed, delaying play. This isn’t ideal once you’ve headed home or returned to the maintenance area while the event is under way.

- 16-1c - This part of the Rule allows for the repair of hole plugs, ball marks and other damage, whereby a competitor may repair a high or low hole plug, ball marks and even a spike mark if it’s within the hole plug, ball mark or other damage. An easy-to-remember adage in reference to hole plugs: “When they’re high, they die, and when they’re low, they show.”

TEEING GROUND

Several items should be considered when preparing teeing grounds:

- Avoid stretching the yardages on golf holes by placing the tee markers a few feet from the back edge of the tee. This doesn’t meet the two club lengths required to meet the definition and shortchanges the player’s stance if one foot is off the back in the rough.

- There should be no surrounding obstructions or other plant growth compromising the setup of the teeing ground.

- Incorrect tee marker alignment can cause player and Rules issues such as play outside the teeing ground, out-of-bounds concerns (Rule 27) or a missing tee marker where a player would need to estimate the area for play.

- Teeing grounds should be smooth, level and firm.

- Always consider left-handed players.

BUNKERS

Unfortunately, bunkers have become a favorite place to be, but fundamentally, it’s wrong if you’re spending more time and money on sand than turf.

- When using a mechanical bunker rake, don’t leave any ridge or raised sand bank where a player could touch the sand during his backswing (13-4/31), causing a penalty for testing the condition of the hazard.

- If the wind picks up during an event, remove any debris, such as leaves, twigs or grass, which fall into the bunker. If a player touches any debris, he receives a penalty, according to 13-4/33.

- Ensure there’s no functioning drainage within the bunker. If, during or following a heavy downpour, pumping water is required, then 25-1b/8 will cover the options for the player.

- To meet tournament-level expectations of bunker preparation, the hazard must have a clearly defined margin. No rocks or stones should be within the hazard, and sand should be the proper depth.

- Miscellaneous decision (Misc./2) suggests bunker rakes should be left outside bunkers in areas where they’re least likely to affect ball movement.

MISCELLANEOUS PREPARATION DECISIONS

- If you have a problem with fire ants, Rule 33 and its decision 33-8/22 allow you to treat ant hills as ground under repair, and the appropriate relief would follow.

- If your staff misses a pile of clippings, then decision 25/11 indicates the clippings are loose impediments, whether or not they’re piled for removal, and may be removed by the player – then Rule 23-1 (revised).

- The Tournament Players Championship, which was contested in May at Ponte Vedra, allows for the marking of the famous island green (17th hole, par 3) under decision 33-2a/10. The committee may mark the water behind the hole a lateral water hazard for daily play. For the championship, they may mark it as a regular water hazard and establish a dropping zone, giving the player whose ball is in the hazard an option for where to play his next stroke.

- Finally, for those who chew tobacco and occasionally miss the target, Rule 25 and decision 25/6 provides the status of saliva, and in equity (Rule 1-4), saliva can be treated as an abnormal ground condition (Rule 25-1) or as a loose impediment (Rule 23-1) at the player’s option. It’s nasty, but it’s the rules. GCI
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Roof addition

A Steiner four-wheel drive tractor comes equipped with a built-in roll bar. But to protect her workers from sunlight and rainfall, Karla Cora, director of golf course operations at the Palmas del Mar Country Club in Humacao, Puerto Rico, had the equipment manager mount a used roof from an E-Z-GO golf cart to the roll bar. This was done using two 1-inch-square metal tubing brackets, which were bent at one end with a torch and then welded to the roll bar. The rear portion of the roof was mounted to the top of the roll bar with two 3/8-inch-diameter bolts, nuts and lock washers. The front end of the roof was bolted to the square tubing with the same size nuts, bolts and lock washers through 3/8-inch-diameter holes drilled into each angle iron bracket. A 1-inch-diameter PVC pipe coupling was glued underneath the front center portion of the roof using PVC glue. In the underneath rear portion, a 1/4-inch-diameter wire was strung to allow the pointed end of an umbrella to be mounted into the PVC coupling. An umbrella handle can be held in place by the wire.

The square tubing, hardware, flat black enamel paint and umbrella were purchased for about $40, and the labor time was about two hours.

Spreader protection

The pendulum action spreading unit that distributes granular products on the rear of a Vicon spreader can be damaged when backing into a parking space – especially against a wall – in a turf care center. Karla Cora, director of golf course operations at the Palmas del Mar Country Club in Humacao, Puerto Rico, wanted to prevent this. So one of her staff welded a 2-inch-diameter, hollow steel tubing frame to the frame of the Toro Workman, on which the Vicon is mounted. The metal pipe was welded together and spray painted with a flat black enamel.

One of Cora’s staff also mounted a four-gallon Richway Turf-Marker foam marker, which has a single drop nozzle, on the right side of vehicle. Two 3/8-inch-diameter bolts were welded to the bottom of the vehicle’s frame. One-inch angle iron, lock washers and nuts were placed over the top of the tank to hold the foam marker in place. The single foam marker nozzle was mounted with 1/8-inch-wide zip strips strung through 1/4-inch-diameter holes in the right rear fender.

The foam marker cost $480, and the piping, angle iron and zip strips were in stock. The total labor time to mount the frame and foam marker was about four hours.
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* Denotes regional advertisement
AN UNBREAKABLE BOND

It’s been almost 25 years since I graduated from the University of Kansas with a sheepskin in journalism and a nearly useless degree in liberal arts and sciences. I’m a proud Jayhawk. Yes, I went bananas when they won March Madness several months ago. And I feel like I received an excellent education from top-notch instructors.

Yet, I can honestly say that in the quarter century since my matriculation, I never once contacted any of my former professors for help or advice. It’s too late to pick up that habit now because most of those folks are dead or retired. It was probably stupid of me not to take advantage of the incredible mind power, experience and wisdom they could’ve offered, but I’m fairly typical of graduates in most disciplines. Most, that is, except the discipline of turf management.

There seems to be an almost unbreakable bond between superintendents and other turf managers and their college instructors. There’s something unique and lasting about this phenomenon that’s different from the typical student-teacher relationship. I’ve been marveling at this for 20-plus years now and have developed a few conclusions and observations.

Change is a constant. The technologies, techniques and some basic premises of golf course maintenance, unlike journalism and many other industries, have changed drastically in two decades. Cadmium and mercury have been replaced by low-dose active ingredients; foliars have become part of maintenance vocabulary; turfgrasses have been engineered by the dozens. What’s more, we’ve literally reinvented the business in terms of environmentalism. Without that constant contact with the scientists who test and review the endless stream of new products or provide the gentle guidance needed to adapt to new practices, every superintendent would be working with one hand tied behind his back.

Putting value on validation. It’s ingrained in most superintendents not to try or buy a product until their “Doc” has checked it out back at State U. Proving a product through basic independent research is almost like getting a high school diploma – it’s a line of demarcation that has to be crossed before you can even be considered for a job. This is a risk-averse business. Failure isn’t an option when it comes to the care of a multimillion-dollar property. Thinking something works isn’t enough – you have to know. Our academic partners are worth their weight in gold for that reason alone.

If superintendents are a band of brothers, researchers are the wise old uncles who keep them on the straight and narrow ...

Chapter relationships. Throughout the years, there has been a close and mutually beneficial relationship between local superintendent chapters and nearby universities. Chapters fund research projects and provide sites for studies to be done under real-world conditions. In return, professors “donate” time and expertise to the chapters and their members. The same professors speak frequently at local meetings and are often unpaid (or at least underpaid) consultants for their former students.

It’s a small world. By most accounts, golf course maintenance is a $9-billion annual industry. Yet, for such a large business, it’s a small community that tends to stick together. The relationship developed with that leading instructor as an undergrad seems to last, more often than not, because of constant contact and, usually, proximity. In short, most apples don’t fall far from the tree, and that teacher is still close by and still the area’s preeminent expert on all things turfy.

All agronomy is local. I’m always amazed at how different the agronomic programs at two courses just a few miles away from each other can be. No one knows the soils, microclimates and other vagaries of a course better than its superintendent; but usually no one knows the big-picture factors within a state or region better than the local research folks. You can bring in a brilliant consultant from another part of the country and chances are good they won’t understand all the little stuff that adds up to agronomic success as well as the local university professional.

Band of brothers. At the risk of being sexist, golf course maintenance is like a fraternity. The common bond among the membership is mostly a sense of perfectionism, a high level of personal integrity, love for the outdoors and a common sense of frustration that golfers just don’t get it. If superintendents are a band of brothers, researchers are the wise old uncles who keep them on the straight and narrow, remind them of important family history and occasionally take them out for beers. Wait, scratch that last part. You should always buy the drinks for your wise old uncles … and reporters.

Shared values. As hard as most superintendents work, I wonder if many in the university community don’t put in as many hours, blood, sweat and tears to their work. So many professors I know are overachievers who have to balance time in the lab, teaching, speaking, consulting and traveling all over the globe to keep up with the science. It’s amazing how often I cross paths in some remote location with Karl Dannenberger, Joe Vargas, Bruce Clarke or Fred Yelverton. Like superintendents, their commitment to their profession keeps them away from home and continually looking to learn new things.

The bottom line is that the tight-knit symbiotic relationship between turf professionals and their university partners is one of the most important, yet often overlooked, keys to the success and growth of our industry. We’re lucky to have it. So, make sure to take time to thank those who have taught you so well. I wish I had. GC

Pat Jones is president of Flagstick LLC, a consulting firm that provides sales and marketing intelligence to green industry businesses. He can be reached at psjhawk@cox.net or 440-478-4753.
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