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Many super-genius experts predicted a few years ago that you would not be reading a dead-tree magazine in 2013. If video killed the radio star, digital would certainly kill print, they proclaimed. People would reject this clunky, outdated format for the sexier (and cheaper) version they could get on the Internet.

Well, to quote another super-genius, Mr. Lee Corso: “Not so fast, my friend.”

Our research shows that nearly 90 percent of you still highly value getting a print magazine. Only about 10 percent of you don’t want us to send you one. Most of those folks aren’t environmental nuts or anything...they just prefer reading the magazine on their computer or tablet.

On the other end of the spectrum, 10 percent of you are the “luddites” who say you never visit our website or open an email from us. You want to kick back (usually in the comfort of the maintenance facility crapper) and read us in old skool style. That’s cool too.

(Side note: I consider finding copies of my version they could get on the Internet.)

The new app will, essentially, bring the “flat” pages of the magazine to life. We’ll be able to animate stories. We can incorporate video or sound seamlessly to a story. We can make a mole cricket march across the page or give you 15 pictures of a course renovation project where only one would fit before. The content can link to anything, including live social-media feeds or blogs about the topic.

Even the ads will come to life. We’re working right now with our industry partners to recreate their ads with movement, sound and even geolocation. That’s a fancy way of saying that if you see an ad for a product you’re interested in, you can touch one hotspot on the page and instantly see a map pinpointing local distributors who carry that product.

I think it will, as Timothy Leary famously said, blow your mind.

What blows my mind is that we did it ourselves. Our little company — which also produces incredible publications in the lawn care, nursery, greenhouse and garden center markets — created this new app by ourselves. And we’re building apps and other digital goodies for some leading companies, too. More on that soon. I love my team.

Here’s the bottom line: If you have an iPhone, a Droid or an iPad and you haven’t already downloaded our app, go do it right now. We’ll be sending you a little post-Christmas present that I think you’ll really like. Happy Holidays to all... GCi
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*Compared to a comparable KOHLER carbureted engine under comparable loads and duty cycles. Based on 600 hours of annual operation at $3.50/gallon.
RISE AND CROPLIFE AMERICA have never been afraid to take on the big issues, whether it's working with government officials to find solutions to complex regulatory issues relating to protecting public health and the environment or grappling with how to feed an exploding global population that is expected to top 9 billion people by 2050.

That's why a well-attended general session titled "The Seven Revolutions" featuring Johanna Nesseth Tuttle of the Center for Strategic & International Studies proved so timely, as 500 industry executives traveled to Amelia Island, Fla., just a month before the U.S. Presidential election to chart the future of the chemical industry.

"What's the world going to look like in the year 2030?" Tuttle asked those attending the bi-annual meeting of RISE (Responsible Industry for a Sound Environment) and CropLife America. How policy makers respond to seven key issues with global implications in the years ahead — population, resources, technology, economics, information, security and governance — will likely provide the answer to that question.

There will be opportunities for government and industry "to find new paths forward" and address the challenges of population growth, security, and other issues of importance to people around the globe, and chemical suppliers are going to play an important role in shaping that new world, although "the role that your industry plays is going to continue 'to be challenging' given the complex nature of the issues facing policy makers.

Still, there is reason for optimism if industry representatives stay actively engaged on issues of importance to them. "Our theme for this week — political campaigns of the past — also reminds us how important our individual and collective participation in the political process is — and how powerful it can be," observed Dave Morris, outgoing RISE Governing Board Chairman and Commercial Leader, Pest Management and Turf and Ornamentals Business, Dow AgroSciences.

In other RISE/CLA highlights, keynote speaker Charlie Cook, editor and publisher of The Cook Political Report, shared his thoughts on the presidential race and the state of American politics. Regardless of the outcome of the election, he said, there is much work to be done in Washington, particularly as it relates to the economy.

"After this election...I'm very worried about what's going to happen at the end of this year and the beginning of next year," he said. "When they (Congress) get back, if they don't get a deficit package in place... you're going to see some bad things happen. Can these folks get their act together?" Cook asked. "We're now getting sort of close to judgment day."

In closing the conference, RISE President Aaron Hobbs said the association's longtime partnership with CropLife America "is a great thing for our industry," allowing the two advocacy organizations to speak with one voice. "We have a lot of opportunity out there to change policy and change minds," he said, but it requires active involvement by RISE members, a theme echoed by MGK President Steve Gullickson, incoming RISE Governing Board Chairman.

Industry pros have a lot of opportunities to change minds, but active involvement is required, says Aaron Hobbs, RISE president.
**From THE FEED**

With a summer of drought behind us, water use and irrigation is an even higher priority for golf courses throughout the U.S. Pat Jones attended the “Golf’s Use of Water” summit put on by the USGA in November, and tweeted some of the key points made by the speakers and experts. We invited superintendents to join in the conversation on Twitter.

**Veterans go the distance**

So a couple guys clocked seven full rounds in a single day in Minnesota. Big deal. On Veterans Day this year, military veteran students at the Golf Academy of America played from dawn to dusk at River Oaks Golf Plantation in Myrtle Beach, and raised money for the Wounded Warrior Project and Salute Military Golf Association.

About a dozen total veterans played throughout the day, switching in for each other to keep a foursome going no matter what came up. Golfers received sponsorships or pledges to play, and each of the branches of the Golf Academy co-sponsored the marathon. Such strong support is no surprise for an institution where a full 15 percent of the student population is made up of veterans, according to Jim Hart, Myrtle Beach campus director.

The event was one of three Wounded Warrior Project fundraisers at River Oaks, which included a green target drive on a par 3 or a practice green putt, both for a donation. The marathon, however, comes on the heels of last year’s effort: Air Force veteran and Golf Academy student Mark Chapman golfed 11 rounds in 11 hours to raise money.

**MEAN GREEN DANCING MACHINE**

Perfectly managing a height of cut while tracing graceful lines across a fairway takes skill, talent and focus, but turf management branched into an entirely new art form at the end of October - a Mean Green CXR-60 shimmied its way to the dancefloor in the most recent season of Dancing With the Stars.

Mean Green owner Joe Conrad got the call from CBS studios just three days before the taping of the episode, meaning the Ohio-based team hauled a 36-hour journey to Los Angeles to make it. After arriving in the City of Angels, Conrad helped Derek Hough and Shawn Johnson prep with their new dance partner. Unfortunately, the mower didn’t really get to cut up the dance floor, although the dancers rode out on it to Kenny Chesney’s “She Thinks My Tractor’s Sexy,” scoring a 28 total for their country cha cha.

Maybe next season the machine will actually make it onto the dancefloor? We hear it does a mean mow-rence.
WHAT WE NEED IS A JUNKYARD

The famous Iowa artist Grant Wood really had something when, many years ago, he said, "All the really good ideas I ever had came to me while I was milking a cow." This former farm kid can relate to Mr. Wood's observation. But my long career in golf inspires me to amend his observation to time spent mowing fairways.

I have done a lot of planning and reflection on fairway mowers and more than a few ideas came to me over the drone of their small diesel engines. The thought came to me this spring that golf courses could really make use of a junkyard dedicated to golf course maintenance machinery. I was operating a Toro fairway mower at the time, and before I had headed across the tracks to the golf course I was watching the club's equipment manager pulling a starter from an engine he'd salvaged years ago. He removed a few bolts and, just like that, he had saved the club hundreds of dollars and had the machine back in use in minutes.

It wasn't the first time he had removed a part from that old engine and it likely wasn't likely the last. We have shelves with parts salvaged from equipment that had no value as a trade-in. They are pieces that experience had shown we would need somewhere down the line. Tires and rims were included. Often, there wasn't much left when we were done stripping an old machine.

We would have salesmen keep their eyes open for a cheap machine we could purchase that had great value after we cannibalized it for parts. Those salesmen sometimes even knew where a machine was abandoned in a fence row or behind a shop. A phone call to the superintendent and the machine was ours, solving a parts problem for the near future.

Jacobsen's earliest models of their Turfcat, when fitted with a flail deck, pulverized fairway cores after aerification like nothing we ever had seen or demonstrated. They were terrific for mulching leaves, also. We like to keep three of them in good operating condition, but new OEM parts haven't been available for years. The way out has been to look for some junkers to salvage. So far, so good.

But someday, we will have to cast a wider net to find old machines. This is where turf equipment junkyard would come in handy.

I have liked junkyards since the day, back in 1962, when I got my driver's license and my first car. I kept that 1951 Chevy two-door hardtop running by getting parts from an area junkyard. A glass-packed muffler, a condenser, a battery, a distributor cap and even a tire and rim were unaffordable new, but often for less than a buck, my car was running smoothly again. When I upgraded to a 1954 Chevy, I made a quick trip to the junkyard to find a radio and an antenna that would fit in the dash of my "new" car.

The biggest junkyard I ever saw was on the edge of an enormous Army post about 25 miles north of Saigon. Battle damaged equipment was hauled to this junkyard, which had to be a couple hundred acres. One day our MP jeep had a flat tire. To avoid the hassle and wasted time at the motor pool, my partner and I pulled into the junkyard to get a replacement tire. The yard was packed with disabled jeeps; nearly everyone had a couple of good tires on it. However, the ornery old E-6 threw us out, saying, "The Army doesn't put used parts on its equipment." A prime example of military efficiency.

Here in the Midwest businesses have been created that are essentially sophisticated junkyards for ag equipment. You can call an 800 number, give them the part number, and the staff strips it out of an old machine and overnights it to the farmer. Your back in business for a fraction of the cost of a new part.

Often the best way to make a repair is with a new part, but not always. How many times do you simply need a small component of a part, but have to buy the entire piece to get it. Instead of a few bucks, it could be $500.

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here comes a point in life in which most of us must face retirement. Some are looking forward to that time in our lives while others are forced into this inevitable scenario. In either case, there are a variety of things to consider relative to retirement. Undoubtedly, this general overview will help you on your way, but I would encourage you to reach out and contact a certified financial planner to assist you with developing a retirement plan.

EXIT STRATEGIES AND PLANNING.
We once considered 65 as the magical age for retirement. Pension plans were set up for 65 as the age of retirement and we actually looked forward to entering our “golden years.” But things have changed over the last four decades. This isn’t your father’s retirement scenario.

Human life expectancy has increased and, more than ever before, people are enjoying healthier and longer lives. Today, health permitting, it’s not uncommon to work until 70 or older.

In our industry, I have seen a number of superintendents who are working out of necessity well into their early 70’s. There are many reasons for this, but more often than not it is for financial support to pay off mortgages, car payments, kid’s college loans, weddings and other of life’s costly endeavors.

Regardless of your situation, you need a solid plan to set the course for those golden years.

If a superintendent has not put his or her financial house in order by the age of 50, then it will be difficult to get ahead of the curve in the last 15-20 years of employment. My suggestion is that all financial planning should be done prior to your 50th birthday. Then, this plan is reviewed every few years to make sure things are on track.

PENSIONS. In the mid-1990’s, many businesses switched from defined benefit pension plans to defined contribution plans. Instead of receiving a specific amount of money for the rest of your life, employees started to receive a specific amount of money from their employer that could be placed into a 401k account and allowed to grow over time. The switch allowed for employees to control their costs and also allowed employees to take advantage of several different options to grow their money via stocks, mutual funds and other financial vehicles.

In an informal survey of superintendents, I found a range from no-pension benefits all the way up to 10 percent of wages with a contribution of matching funds. In fact, quite a few superintendents indicated a $2,000-per-year contribution by the employer regardless of the salary.

While better than nothing, it is logical that with 40 years of employment those funds would only equal $80,000. But with the power of interest and compounding it could result in as much as $256,000, at a reasonable interest rate. Coupled with Social Security this could provide as much as $4,000 per month during retirement.

Some superintendents report-ed pension plans that allow them to live well due to generous contributions by their employer. One example is a club that provides the superintendent with a base of 2 percent of his wage plus matching funds of up to 4 percent of his wage. Using a baseline figure of $80,000 in wages, that sum would total $1,600 automatically contributed by the employer. If the employee utilized his ability to contribute his own $3,200, then the club would match that at an additional $3,200. The total amount going into your 401k per year would be $8,000. A smart
ability to receive funds when you think they will be available.

There is a lot of information available online at ssa.gov relative to Social Security and your own personal account. You can actually track your account and see what your benefits will be when you need them.

LIVING ON A FIXED INCOME. When a person is fully retired they will need to learn to live on a budget. Income will only be coming from a few sources. There will be no raises, but there may be some cost-of-living adjustments with Social Security. While a financial planner can help you with deriving your budget there are also a variety of planning tools available online with websites such as money.com.

Income will come from:
• Social security
• Pensions
• Investments
• Savings
• Income property rentals
• Misc.

Expenses to consider:
• Mortgage or rent
• Utilities
• Insurance for autos, home, etc.
• Medicare supplemental costs
• Food
• Gas
• Taxes
• Gifts
• Entertainment
• Vacation

While income is fixed, expenses are not. To avoid creating or increasing debt the expense side must be managed. Adjustments can be made by minimizing some of the costs. Some people will downsize their homes, buy a more economical auto, cut back on vacations, etc.

HEALTH CARE. Health care is another area changing from year to year. Best advice is to stay current with the fees and programs so you will not be surprised. Many people believe that at 65 they will automatically receive free health care. Sorry to disillusion anyone but it would be more accurate to say that some health care is covered by Medicare. Most people are opting to buy supplemental plans (continued on page 49)
A knowledgeable local partner can be a valuable resource that can provide the proven products and expertise needed to keep turf healthy and golfers happy.

Unique tools are another thing that can set distributors apart. WinField representatives combine local expertise with unique, data-based technology to simplify complex decisions for superintendents. Through soil, water and tissue nutrition testing; plant health assessments; and a variety of unique tools, such as 1" Turf Variety Finder, searchable turf varieties, and others, WinField offers experienced, fact-based support to superintendents to help them find the best solutions for the challenges they face.

Of course, it's important find a distributor with a wide range of quality plant nutrition products to help keep your greens looking their best. With proven products and technical support fromWinField, you'll be equipped with the resources to exceed your expectations.
DESIGN CONCEPTS

COST BENEFITS IN RENOVATIONS

Since the beginning of the “Great Recession” architects and manufacturers have been touting reduced cost as a benefit of renovation programs. Just last year, both Bob Lohmann and I wrote about the emphasis on “cost benefits analysis” of proposed course renovations.

Since then, I have been monitoring renovation “payback” results of my and other projects. The result is a mixed bag. Perhaps not surprisingly, the actual results aren’t always quite as stunning as the promise of savings and it turns out to be harder to save money than we originally thought.

I cited a California resort that sought to reduce turf and irrigation, because of a $1 million water budget. They reduced turf by 30 percent, but have had less than expected water savings. Given that most of the 30 percent turf reduction was in less intensively irrigated rough areas, rather than fairways, tees or greens, potential savings were less than a direct ratio of turf reduction. In addition, they simultaneously sand capped fairways to improve their quality, but that required more water. As a result, there were nominal water cost savings.

Another superintendent has been slowly converting his old 80-foot spacing double-row system to a triple-row spacing at 65 feet. By conventional wisdom, the tighter spacing should have allowed drier, more consistent turf, and his water logs suggest he isn’t saving very much water.

Similarly, modern, 25 percent more electrically efficient pump stations haven’t always translated to lower electric bills. While it’s true they use less electricity on an apples-to-apples basis, the reality is electrical consumption is often determined by “use charges” that kick in with every pump start, negating the tactic of starting pumps only when necessary. These vary among utility companies, so your situation might vary, but every superintendent needs to become familiar with how their power providers calculate rates and charges.

Moreover, irrigation designers now specify significantly larger pumps, to reduce the “industry standard” irrigation water window to six hours, rather than 8-9 hours. Doubling the traditional pump size often offsets the 25 percent increase in electrical efficiency. One superintendent lengthened his watering schedules and found that used less electricity. Even then, with annual rate increases, it was discouraging that the bills merely held steady for a few years.

Nonetheless, many courses feel as if new irrigation does provide payback. As the old saying goes, if the superintendent spends more time fixing the system than using it, it is usually time for a change.

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The 25 percent increase in electrical efficiency. One superintendent lengthened his watering schedules and found that used less electricity. Even then, with annual rate increases, it was discouraging that the bills merely held steady for a few years.

Nonetheless, many courses feel as if new irrigation does provide payback. As the old saying goes, if the superintendent spends more time fixing the system than using it, it is usually time for a change. In some cases, the lack of savings comes from using the watering efficiencies gained from replacing old systems to water more area, which is a goal in many cases.

There can be solid payback from drainage improvements where regular rains close the course frequently. One course experienced 4-5 day closures 7-8 times a year, losing 15-20 percent of available tee times. At 30 days, 200 rounds per day, and average fees of $25 per golfer, poor drainage demonstrably reduced revenues $150,000 annually. At current municipal bond rates, those reasonably projected revenues would fund millions in drainage. Related improvements, like cart path expansion from partial to full loops, which helps play get out even faster after rains, and to a lesser degree, curbs, which save the labor of roping off areas regularly also added to the bottom line.

Generally, great drainage provides nothing but improvement all around, although some will claim it leads to newer, higher maintenance turf varieties, which can increase costs. In fact, we usually do find courses that

Jeffrey D. Brauer is a veteran golf course architect responsible for more than 50 new courses and more than 100 renovations. A member and past president of the American Society of Golf Course Architects, he is president of Jeffrey D. Brauer/GolfScapes in Arlington, Texas. Reach him at jeff@jeffreydbrauer.com.
As you know, golf course superintendents face a myriad of challenges on the course that can cause major difficulties off the course with management and members. Add in budget pressures and you've got a typical season.

Typical tools are another thing that can set distributors apart. WinField representatives combine local expertise with unique, data-based technology to simplify complex decisions for superintendents. Through soil, water and tissue nutrition testing; plant health assessment; and the use of unique tools such as the WinField™ Turf Variety Selection Tool (a searchable turf variety database), WinField experts offer unprecedented, fact-based insights to help superintendents find the best solutions for each challenge they face.

A knowledgeable local partner can be a valuable resource that can provide the proven products and expertise needed to keep turf healthy and golfers happy.

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Best laid plans

Avoid the common traps and added costs superintendents and courses fall into during a renovation project.
Ten years ago, many clubs had already invested in Master Plans that mapped out course improvements that would inevitably be funded and executed 5, 10, 15 years down the road. What's a few grand here or there, over the course of decades?

So, you're planning a modest renovation project for the spring of 2013. Nothing fancy – the budget is some $100,000 or less. You've actually been plotting a strategy for getting this done for two or three years now. After a season where revenues were actually better than anticipated (Hallelujah!), the money and backing are finally in place. Well, I've got news for you: You're probably already behind the scheduling 8-ball.

By the same token, if you're thinking you might tackle that project not this spring, but in the fall, do yourself a favor and start your serious planning today! Now is the time to get all your i's dotted and t's crossed. The planning you do now could save you thousands a year from now.

In the last six weeks, our firm has received probably 10 different calls from superintendents and course owners wanting to get a modest renovation job done this fall, before the snow flies. These projects aren't the result of any master planning. They're more attributable to facilities scrimp and saving enough to address issues that have probably lingered/festered for several years.

They've pulled together the cash and they want to move. And that's a good thing in the great scheme of things. Two years ago, the revenue picture didn't allow for scrimping, saving and project-undertaking. It's evidence to us here at Lohmann Golf Designs, and our sister construction division, Golf Creations, that rock-bottom is behind us and things are slowly improving.

However, money is still tight, which makes the planning process all the more critical. As much as we relish the opportunity to do jobs on the spur of the moment, everyone is better served (including your friends in accounting) by prudent planning.

For example, here in the Midwest lots of superintendents figure they can redo bunkers late in the fall, sod the surrounds and be back online for spring opening. Well, you can work with sod well into November no doubt, but that sod will need irrigation and most superintendents like to blow out their systems mid- to late-October. If you wait to shut down until later, can your system handle the freezing overnight temperatures that occur that time of year? Speaking of sod, how late will the farms be cutting? If weather slows you down, do you have a contingency plan for finishing in the spring? Will it cost you extra money? Have you planned for these items in advance?

Let me give you some examples of the traps into which we see supers and their employing course/clubs fall, and how to avoid them (and their associated costs). Because you can plan your way out of most any problem. Even when you can't, there are construction/planning strategies that can lessen the pain.

When architects hold forth on this subject, we sound like scolds and schoolmarm's. But if you take anything to heart after reading this, please promise me it'll be this: Put together an asset management plan that details a prioritized wish list of projects that need doing, along with cost projections and detailed scheduling parameters.

I'm not recommending a Master Plan. An asset management plan is not an overarching, long-term plan for a golf course property. Instead, it is segmented project by project; it assumes those upgrades/renovations/fixes will be consumated independent of each other, depending on the amount of money you have at any one moment. Because each project is considered on its own, the scheduling is also considered in a vacuum, independent of other projects.
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With this sort of leg work done in advance, supers and owners can move quickly and efficiently. If, in September, they realize there is $30,000 available, the asset management plan tells you immediately that Project A, Project D and Project E are all viable from a cost and scheduling standpoint. Or maybe there’s $50,000, making Project B and C viable, but only if they are started by a certain date (to realize the savings of using seed instead of sod) while still being able to open first thing in spring.

It’s really important today that when you’ve budgeted $50,000 for a project, you don’t spend $65,000. With an asset management plan in place, you won’t.

There was a time when saving a few grand wasn’t really top of mind for superintendents planning a renovation. Ten years ago, many clubs had already invested in Master Plans that mapped out course improvements that would inevitably be funded and executed 5, 10, 15 years down the road. What’s a few grand here or there, over the course of decades?

Well, times have changed. That feels like a very long time ago – like another century entirely. And something else has changed: Time schedules seem to have gotten tighter, or maybe more accurately, owners/golfers want things done now, but they don’t want you to start until later.

We ran into this situation a bit this fall at a project we’re working on with Links Across America, developing a 5-hole short course. It was planned as a 3-5 week construction project and, after getting a late go-ahead to start the planning and bidding, then waiting several weeks for all our approvals, we were looking at a start date of Sept. 12. Right there, we were pushing the envelope to get seed down before mid-October.

Ideally, you want to seed a fall project in our area around August, so you have a couple months of the warm days and cool nights ideal for growing. So long as soil temperatures are above 50 degrees, you’re good, but as soon as those late fall temperatures drop and the soil gets cold, plant growth halts. The best you can hope for is an early blanket of snow that insulates all winter. Snow these days is so unpredictable, however, that any fall grow-in not well established by mid-October can fall victim to melts and refreezing over the winter months. You don’t want to rely on young seed making it through such a winter unscathed.

So we had a classic scheduling crunch. Bids came in high because of that anticipated crunch (extra labor, overtime) and all of a sudden...
the project was over budget.

Ultimately, we advised the client to put off construction and seeding till the spring of 2013. Bids can be revisited over the winter, according to a more expansive schedule; we'll likely get a few more bidders and see if we can get better numbers. Most important, the client will ultimately have a finished product with healthy, durable turf. When the schedule is against you, why play a dangerous hand? Better to pull back, reconsider the project planning, and make the safest, most efficient use of the client's money.

Sometimes pulling back is the hardest thing to do, because these spur of the moment projects generate excitement and momentum quickly. That's why proper pre-planning is so critical; it allows the necessary time to pare down emotions and consider the most prudent options. Sometimes you improve a dangerous hand by simply taking your time.

In Appleton, Wis., we're executing a renovation at Reid Municipal GC where the plan, all along, had been to start mid-summer 2013 (working back from an August 2013 seeding deadline), finish by late fall, and reopen in the spring/summer of 2014. But the client here, the City of Appleton, was anxious about the schedule. Specifically, when you seed the fall prior, you really don't know when the course will reopen the following spring - again, you just don't know how the weather will treat you in the fall, how the new seed will come through the winter, or how quickly the spring will warm up.

So the city made a somewhat unconventional but I think ultimately sound decision. It moved the start date up to spring 2013, reasoning that it was better to close for one full season and guarantee the course would open alongside other golf options immediately in the spring of 2014. The key here, though, is that by starting the planning process really early on, the city was able to make this major scheduling change as a matter of course, with little or no threat to the coordination or costs of the project.

In fact, we'll probably gain extra time and may save some money under this schedule, because some of the work can be done this winter. We're up there working at Reid right now - removing trees and isolating those parts of the irrigation system that will be dismantled next year. Some main irrigation lines have to be rerouted as part of the preparation as well, and that's work you want to do in winter while the irrigation system is empty of water. It will also allow us to be ready so the major work can begin in the spring, so soon as the weather allows.

This winter, the contractor will be out there at Reid digging lakes, as the weather allows. The nature of this renovation - we're vastly expanding stormwater retention and providing water quality control for a large area of the City - informed the decision to move the schedule up. Winter can be a great time to dig ponds and do tree work, as frozen ground is better for tracking across the site than soggy ground, and turf damage can be minimized. Winter is also a good time to do tree work, too, as oftentimes golfers come back in the spring and never notice they're gone.

The point is, while the grand old Master Plans of yore may be dead, or at least in serious hibernation, the primary objective of these valuable exercises should not be overlooked. Don't underestimate the incredibly useful habit of continual planning. I'm not saying this is a lost art. However, get yourself an asset management plan, because you'll find it incredibly useful.

Bob Lohmann is founder, president, and principal architect of Lohmann Golf Designs and a frequent GCI contributor. Check out his blog at lohmanncompanies.blogspot.com.
THE "GRAINY" AWARDS

Music has the Grammys. TV the Emmys. I'm proud to announce "The Grainys," my awards — both good and bad — for the golf industry. Looking back at 2012, it's been an up and down year, which is why there are so many contestants in both the "yay" and "nay" categories. There will be one big winner, announced at the end. I hope you can stay up.

YAYS. WE GIVE A BIG THUMBS-UP TO:
• Peter McDonough. The superintendent at Keswick GC in Virginia, Pete is a true innovator in the use of water. Working on behalf of Virginia's golf course superintendents and allied associations, he created state of the art water-management guidelines in the use, preservation, and conservation of the world's most precious resource. Be prepared to hear "Water is the new oil" in the new year and for years to come. Because it's true.
• Augusta National and the USGA. Both bodies nominated African-American women, to membership and leadership posts. I could say "about time," but I'll take "better late than never."
• The National Women's Golf Alliance (NWGA). The creation of four leading women's golf associations, it announced a "Rolling Out the Green Carpet to Women" program that should help women find courses that actually welcome them. The industry had better wake up to the fact that women are the next force in golf. And I don't mean only on "Ladies' Day."
• PGA of America. Kudos to the world's largest working sports organization for naming Pete Bevacqua its new CEO. I've had the pleasure of working closely with this Georgetown-educated lawyer and am convinced he will align golf professionals behind an intelligent business model while managing the sensitive relationship between golf pros and superintendents. It's about time the "weed-whackers" and "shirt-stackers" understand that we're all in this together.
• Ernie Els. Not just for his inspiring win at the Open Championship, but for his Els for Autism Foundation. After struggling with his game for the past few years, and putting his family and particularly his son first and foremost, it is inspiring to see a true champion get his due.
• Gil Hanse. This course architect has reached the top of his game by doing great things for ours. His designs are creative and innovative, keeping golfers challenged and coming back for more. I can't wait to see what he does in Rio.

NAYS. THUMBS DOWN (OR A SINGLE FINGER) TO:
• The confusion regarding long putters, belly putters, and anchoring. Yes, Rules are important. But golf's governing bodies need to think not just about their paychecks but the millions of golfers who currently play the game and the many millions more who might. Saying something "doesn't look like golf" is a lame excuse, especially if we agree that we need to encourage new players, not turn them away with musty pronouncements and 18th-century attitudes. Times have changed and it's time to consider two sets of rules. Once new golfers reach a higher level, they'll have to follow a slightly different set of regulations: It exists in other sports and the world hasn't come to an end. Getting more people playing golf is much more important than the length of a putter or where it is positioned.
• Pace of Play as defined by golf's leading associations. Watching PGA Tour pros stand for what seems like hours over a two-footer is just wrong. The PGA Tour, USGA, R&A, and LPGA (Caddies lining up their players? Really?) need to do a much better job monitoring the pros' pace of play so good habits trickle down to the rest of us. A few penalties — and announcing them — would help.
• Ryder Cup Selection System. It stinks. (Pete Bevacqua, you listening?) Judging by the last few matches, the U.S. Team isn't built to handle tense battles. The PGA of America should take a lesson from hockey, specifically the 1987 Team Canada series against the Russians. Along with Gretzky, Lemieux, and Messier, Team Canada had a bench of grinders, players who know how to win. Winning is measured by heart and guts, not money.
• Mike Davis and "Jungle Bird." The US Open trophy presentation was an embarrassment. The "Jungle Bird" man belongs with Nurse Ratchet. But Davis, the USGA's Executive Director, should have demonstrated better self control and left security to those trained for the job.
• Johnny Miller. This misinformed media motor mouth makes superintendents miserable week after week blaming every missed putt on grain. But the greens at major events are mown at less than .100 cm so there is no grain or any of its cousins — down-grain, cross-grain, down-breeze grain, drainage water grain,
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Scheduling tree pruning for winter months can cut expenses and enhance tree health. GCI walks you through the process to establish a pruning program.

BY ROB THOMAS
WITH WINTER WINDS ON the horizon, superintendents are quickly preparing their courses for the cold months ahead. Focusing solely on the turf, however, would be shortsighted. A proper tree pruning program can have far-reaching benefits - ensuring trees remain healthy and are ready for the foul weather ahead.

Tom DePaepe, ISA Certified Arborist with Ryan Lawn & Tree, looks at tree care from two sides – arboriculture and golf. “First, good pruning should minimize storm damage,” he says. “This should help the golf superintendent reduce untimely expenses. He can schedule his pruning to winter months when play is down. Then it becomes a budget item he can prepare for.

“Second, raising trees on the course can benefit air movement, which will help the turf, plus may improve sight for golf play, and if done artistically, aesthetic benefits for members,” he adds.

Dr. Bruce Fraedrich, vice president research, Bartlett Tree Experts, agrees with reducing the potential for storm damage through thinning or removing branches when the crown is dense, therefore reducing wind resistance. In addition, thinning improves light and air penetration into the canopy, which can reduce the severity of foliage diseases.

“Pruning can also provide benefits to surrounding plants and to people using the site,” Fraedrich says. “For example, raising branch levels by removing low limbs can increase light penetration to the turf beneath the tree’s canopy. Pruning can also provide clearance to buildings, security lights and pedestrian and vehicular traffic. For young trees, pruning is particularly important to establish a strong branch structure for future growth.”

Add root pruning to the list of tree care that will ultimately benefit turfgrass health, lessening competition for vital nutrients, says Scott Johnson, a Board Certified Master Arborist and assistant district manager for Davey Tree Expert Co., Nashville.

As for knowing which ones to prune, Fraedrich suggests inspecting trees annually and after major storms. Look for dead, broken and cracked limbs as well as low branches that may interfere with play or may be excessively shading turf.

Larry Ryan, a graduate forester and president of Ryan Lawn & Tree, looks at the aesthetic importance, as well. “Removing visible, unsightly limbs makes any grounds appear to be manicured and kept up,” he says. “Nothing says ‘run down and struggling business’ like something that appears poorly maintained.”

Trees that are unhealthy, but not targeted for removal, can still be pruned, but Fraedrich warns to tread cautiously. “Trees in poor health frequently have dead branches which should be removed,” he says. “However, removing live branches from unhealthy trees should be avoided unless it is done for safety reasons. Removing live branches reduces the energy-producing area of the tree, which can result in further decline.

“Pruning also creates wounds, which makes the tree expend additional energy to close those wounds and defend against insect and disease attack,” Fraedrich adds. “This is not an issue in healthy trees, but can be problematic for one that is in poor health.”

DePaepe points to oak decline, in which case an arborist may spread the virus or disease via their tools to healthy trees, as a concern when pruning unhealthy trees. “A good arborist will sterilize tools after pruning a questionable tree with rubbing alcohol or diluted Clorox,” he says. If you can afford to remove this tree, it is often cheaper to remove it in the early stages of decline versus pruning every few years, then removing the tree. Save that annual cost if the tree is on its way out.”

But should the work be done in-house?

“Some superintendents have a good understanding of arboriculture. Most probably don’t,” Ryan says. “I know turfgrass for home lawns, but not for golf courses. We can’t know everything.”

A benefit of hiring a professional arborist is knowing the person pruning a tree is using proper technique.

“It doesn’t take longer to prune a limb correctly than it does to prune incorrectly,” DePaepe says. “Taking off the needed limbs to get a proper pruning job, but not more. Over pruning is tough on trees. A good arborist will realize not to remove a limb that is too large for the size of the tree. This can compromise the future structure of the tree.”

For example, by removing a limb equal in size to a limb you leave in the lower section of the tree, you are often dealing with large trunk wood. This will create a very large wound. An alternative, if the limb has to be removed for structural reasons, is first cut the limb back by one-third this year. Next year, remove half of the remaining limb. A year or two in the future, decide whether to remove the rest of the limb or again remove half of what remains. It creates less shock to the tree.

“A newer procedure good arborists are implementing is removing co-dominant leaders in trees. This can reduce future limb failure, big time,” DePaepe says.

This is done with the same process described above. Again, reducing shock to the tree.
Most professional commercial arborists provide assessments and management programs as part of their maintenance services, Fraedrich says. The height of the golf season isn’t a great time for a superintendent to schedule a major pruning project. The cycle of a tree happens to cooperate.

“Light pruning can be done any time of the year, but the dormant season is generally the best time to schedule pruning operations,” Fraedrich says. “In late autumn and winter, the structure is more visible and pruning is easier since there are no leaves to deal with. Additionally, in northern areas, courses are usually closed and pruning in winter minimizes disruptions on the course.”

Johnson, who worked for Crooked Stick Golf Club in Carmel, Ind., for 10 years and developed their tree-management program, suggests staying on top of the situation. “Think preventatively and actively manage trees instead of letting them dictate when you work on them,” he says. “An ounce of prevention is worth a pound of cure.”

When Johnson first arrived at Crooked Stick, a tree would fail during the height of the golf season. The maintenance staff would have to slow down or stop what they were doing to fix the problem. As the tree-care program progressed, the staff better managed tree issues.

Scheduling can help with cost. “It has to fit into the superintendent’s budget,” Ryan says. “If he can work with a good tree company so they partner, both organizations can plan ahead to have the best people do the work, and get the superintendent excellent results at a fair price.

“Winter pruning is often discounted by tree companies to fill out their year and keep staff employed,” he adds, noting there’s less impact on the course working on frozen ground during the winter months in Midwestern and Northern climates.”

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Considering doing the work in-house? You'll need the right tools.
Realizing some southern courses might desire to do pruning mid-summer, when their play is lower, Ryan suggests picking the off season for your area of the country and working with a reputable tree company.

Still consider doing the work in-house? You'll need the right tools. "For safety, I'd recommend renting a bucket truck," Ryan says. "You don't want to try to teach your people to climb if they don't have the right gear and safety training. There is a reason pruning companies pay 15 percent workman's compensation insurance.

"Safety instructional videos from International Society of Arboriculture are good," he adds. "We'd also recommend all safety gear, from Kevlar chaps for people running chain saws on the ground to eye, ear and head protection. Don't cut corners on protection. We tell our arborists frequently, we never want to tell your spouse you won't be coming home tonight, so be safe every moment."

Think along the lines of safety and ask: "What can my crew safely do?"

Johnson suggests having a tree care expert train a couple of your employees. They can concentrate on pruning some of the smaller trees with minimal tools — such as a pole pruner and handsaw. For medium-sized and larger, more mature trees, recommends utilizing a professional service.

Cost is often an issue, so Fraedrich urges superintendents to consider all options before taking on this task. "While we recommend pruning be handled by a professional arborist, we do realize that budgets only go so far," he says. "With this in mind, if we can work with the course's crew we will. For example, there are times when we have handled the pruning and removals and the course employees have done the cleanup. This stretches the budget and helps to keep course crews productive in winter."

Find an arborist who will work with your crew on cleanup to maximize the course's budget dollars. As for cost, pruning is often done on an hourly basis, but those rates can be misleading, according to Ryan.

"As an employee-owned company, our people are used to working quickly and efficiently and we have found we often get more work done per dollar spent than many companies do," he says. "A good superintendent might want to farm out a small portion of their work to several companies and watch the outcome of each company. Judge who gives you the best value. The results might be surprising."

A superintendent can actually earn some of the money back — selling logs to people looking for firewood or dealing the smaller logs to paper mills, Johnson says. Courses he works with will utilize wood chips to cover maintenance cart paths or for weed suppression in natural areas.

Still undecided about in-house pruning versus hiring a professional tree company? Ryan says to start small.

"Prune, the shrubs, then small trees. Work your way up," he says. "Study, ask, read, continue to learn. If it was me and I was a superintendent competing with your course, I'd spend my time training my staff to wow my clients and hire the pruning [to be] done.

"My focus is to have so much play on my course, make it such a good experience, that I can afford to hire services like pruning," Ryan adds. "I would want to be the best golf course in the city. You can be the second best and do your own pruning."

GCI

Rob Thomas is a Cleveland-based freelance writer and frequent GCI contributor.
IT’S NOT THE GADGET, IT’S THE USER

If you’re like me, then you’re thinking about all of the cool gadgets out there just waiting for me to come along and put down my credit card. While there are a lot of things I would be interested in buying, the same genre of electronics always comes back and takes the lion’s share of my money – camera equipment.

I am a photography buff. I received my first real camera (a Nikon N70) during my 1997 internship at Congressional. Film, though, proved to be too expensive for a starving graduate student living on $16K per year in Washington, D.C. That didn’t stop my love for photography, though. Instead, I realized a simple digital camera produces some great images if you learned how to use it.

Today everyone has a digital camera and is an amateur photographer, and I receive plenty of images through email, Facebook and Twitter where some poor superintendent has been struck with some monstrous problem that needs identifying. The ability to diagnose problems digitally, while not always possible, has increased our efficiency and ability to quickly relay our “best guess” based on a single photograph. Unfortunately, about 50 percent of those images, for one reason or another, don’t tell the story.

In many cases, images shared with me are either blurry (No. 1 problem) or don’t show the scope of the problem. If the image is sharp and identifiable, then it’s probably too close to the subject, too far away or in some other way doesn’t really tell the full story. In this month’s article, I will cover some basics about purchasing the right camera and share techniques on how to capture the perfect image.

BUYING GUIDE. While I am a converted iPhone user simply because of its camera, I don’t usually recommend this as your primary camera. Any cell phone camera will be good for general documentation, but it lacks key functions that situates it far behind most digital cameras. I also don’t recommend running out and buying an expensive interchangeable lens DSLR. A good point-and-shoot digital camera can provide some of the best images for a number of reasons.

Canon vs. Nikon? I don’t get into the whole Canon vs. Nikon argument. I’m a Nikon guy…for the most part. My DSLRs are all Nikon because that’s what I started with and that’s what my lenses fit. Besides, it’s the lenses of the DSLR that cost you all the money. So, once you go down that road you don’t switch bodies. However, when it comes to my point and shoot, I’m actually a Canon and Nikon shooter.

My recommendations for those of you on the golf course would be the following. For less than $250 you can get a great digital point and shoot. My recommendations would be a Canon Power Shot ELPH 110 HS ($179 at B&H Photo) or for the more rugged users a Nikon AW100 ($249). The latter is a great camera because it is shockproof, shoots 1080p HD video and is waterproof for up to 33 feet.

LEARN THE MACRO MODE. Now that you’ve bought yourself a digital camera, it’s important to know how to use it properly. The first and probably most important function you should learn on your new camera is “macro.” This button usually is represented by a little flower or tulip. The setting is the difference between an in-focus or a blurry image. Most cameras are designed to shoot macro, but there are a few things you should know before setting the button to “flower mode” and shooting.

On most cameras, the macro mode is designed to work with the zoom as wide as possible. However, most people believe because you are trying to shoot something in very close that you also have to zoom in to the subject. It’s actually just the opposite. Set your camera to macro, zoom out as far as possible and move your camera as close to the subject as allows without getting blurry. On the Nikon AW100, you can get 0.39 inches away from your subject and still be in focus. Now (continued on page 47)
Does your “to-do” list look like this?

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Pipe down

With no shortage on opinions, superintendents should beware misinformation plaguing the market about PVC vs. HDPE irrigation pipe.

By Jason Stahl
Nothing vexes Brian Vinchesi more than misinformation. It doesn't matter what the misinformation concerns, the irrigation consultant says, it's just bad news all around. In the ongoing debate of PVC (polyvinyl chloride) pipe vs. HDPE (high-density polyethylene) pipe for irrigation systems, the misinformation is that HDPE is stronger than PVC.

To that, Vinchesi says poppycock. "HDPE is not a stronger material than PVC," he says. "You can buy PVC and HDPE with exactly the same pressure rating, which makes them exactly the same strength. As a matter of fact, in the golf market, HDPE is usually weaker because people use a less pressure-rated HDPE vs. PVC. When you compare the two pipes, you have to compare apples to apples, and no one is hardly doing that."

Another fallacy, says Vinchesi, is that HDPE performs better than PVC in cold climates. "Based on my engineering knowledge, there is no basis for HDPE being more suited to cold climates than PVC," he says.

Okay, so now that we've got the misinformation out of the way, what are the truths about HDPE being better than PVC in cold climates?

"Flexibility also means that it expands and contracts at a much higher rate than PVC, so you have to be careful of that because it's not a good thing," he says.

Vinchesi goes back to the apples-to-apples comparison. If you compare HDPE vs. PVC this way, HDPE is going to cost more. So Vinchesi typically asks superintendents, "Why do you want to use HDPE?" In most cases, they tell him things that are untrue. So then he lays out the real pros and cons and lets them decide.

"Apples to apples would be having pipe that has the same pressure ratings," Vinchesi says. "I can make HDPE cheaper or equivalent to PVC if I lower the pressure rating of HDPE compared to the pressure rating of PVC, and that's what a lot of people do."

The other factor superintendents have to consider, says Vinchesi, is HDPE has a much thicker wall than PVC and therefore a smaller inside diameter. Therefore, the velocities in HDPE are higher than PVC. So if you intend to keep your velocity the same in HDPE as it is in PVC (which Vinchesi says you should because there is a standard that says you should), you will have to boost your pipe size, which will raise costs.

"The reason HDPE is so popular is because they cheapen it up to make it cost competitive," says Vinchesi. "And the only way you can do that is by raising the velocities and lowering the pressure rating."

Vinchesi does grant that the manufacture of HDPE is more environmentally friendly than the manufacture of PVC. He claims there is a green code being proposed today by the Sustainable Site Initiative that would prohibit the use of PVC pipe on a sustainable site, but the outcome of that proposal is not yet known.

As far as HDPE being less tolerant of chlorine than PVC, Vin-
When done correctly an HDPE joint is 150 times stronger than the pipe itself.

chesi believes the jury is still out. “[Researchers] are not 100 percent sure on chlorine degradation,” he says. “They’re doing studies, but it does seem HDPE is susceptible to chlorine at low levels, which can be found in most potable water from cities.”

As for HDPE being less fragile than PVC, Vinchesi would argue that PVC, when installed correctly, has as little chance of breaking as HDPE. However, with HDPE, if it does break, a golf course has to hire someone to fix it because it requires a special fusing machine, he says.

In the future, Vinchesi feels superintendents will see more hybrid systems combining both HDPE and PVC, with the laterals being PVC and the mainline being HDPE, or vice versa.

“Mainline PVC doesn’t break as much and keeps the cost down,” says Vinchesi. “The problem you usually have with PVC is the glued stuff, so if you make all the laterals HDPE, you get rid of all your gluing.”

Matt Shaffer, director of golf course operations at Merion Golf Club in Havertown, Pa., has one of these hybrid systems. His system consists mostly of PVC, but on new additions they have been installing HDPE. Once he saw how well it worked, he bought his own welder and trimmer. An irrigation technician on staff who Shaffer calls “fantastic” took the necessary training to become an experienced welder, and now they do all their own pipe in-house.

Shaffer was sold on HDPE because he felt like it was a stronger product that didn’t need as many pressure blocks.

Normally, when you have a leak, it’s almost always in a fitting,” he says. “But these [HDPE] fittings are really beefy and welded fast to the pipe. I really like that.”

He initially thought HDPE had no drawbacks because of its flexibility and “high bursting point,” but then learned of its supposed susceptibility to chlorine – a concern to him since he uses city water.

“We’re looking at putting in a new irrigation system with all HDPE, and if we do, we would look into a different water source other than the city,” says Shaffer. “If I can’t drill wells and fill my lake but have to rely more on city water, then we may have to go back to PVC. To what extent chlorine impacts HDPE, I’m not sure and am certainly not qualified to say. I will definitely speak to an irrigation consultant before we go through with this.”

Nick Sinnott, partner and president of ServiScape Golf Management, took bids on both PVC and HDPE when considering a total irrigation system replacement at Long Beach Country Club in Long Beach, Ind. The original system had been installed in 1985, and after the ductile iron fittings used throughout the system were recalled due to their tendency to rust, the club knew in 2001 that it would have to start saving for a new system. With that kind of foresight, they were able to install the system in 2011 without having to assess the membership or take out loans.

The primary reason he chose HDPE was because of the soil characteristics of the golf course, Sinnott says. “There is a beach sand section of the course and a heavy peat area,” he says. “To effectively thrust block PVC would have required enormous amounts of concrete, and we didn’t have to do that with HDPE. Plus, the costs of installing HDPE have come down so much that it’s almost apples to apples with PVC. Looking back, it was the right decision.”

The only downside Sinnott sees to the new HDPE installation is the learning curve the crew will have to go through. For instance, they’re currently looking at redoing many of the

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bunkers at Long Beach, which would require alterations to the pipe – adjusting, fusing and saddling it, all the while getting used to working with HDPE.

"Once you get it, you get it. It's pretty simple," says Sinnott. "The manufacturer of the HDPE came out and gave multiple lessons to our crews on how to correctly fuse the pipe and maintain quality control."

HDPE's flexibility expedited the installation, says Sinnott. "There were many mature trees on that course whose dripline we didn't want to trench through or under. We were able to bend the pipe, especially on some of the mainlines, around some of the larger trees."

Long Beach was the first course managed by ServiScape that received HDPE. Each course, says Sinnott, is different. At a couple of their other facilities, he says there would be no reason not to thrust block with PVC. But in the case of Harborside International Golf Course on the South Side of Chicago, he wishes HDPE technology had been where it is today when that course's system was built in the early 1990s.

"That course was built on top of a sludge landfill, and PVC was installed because HDPE technology just hadn't been there," says Sinnott. "Today, there would be no question we would go 100 percent HDPE, with as much soil movement and fracturing of pipe there is every year."

The successful installation of HDPE at Long Beach was the result of many separate parties working together fluidly, including the designer, Jim Held of Automatic Irrigation Supply Co. (a Rainbird distributor), and the installer, Landscapes Unlimited. "Everyone worked really well together," Sinnott says. "We had that system done in 11 weeks, everything from the Z pipe at the pump house all the way out. A lot of our staff took part in restoring the trenches after Landscapes Unlimited came through. And the designer was there once a week to make sure everything was GPS'd and staked out."

Sinnott claims Landscape Unlimited is doing an increasing number of HDPE installations. He definitely recommends HDPE to other courses that are concerned about thrust blocking.

"With PVC, you have to thrust block it on every elbow. Then, when you have some water hammer and that pipe doesn't move or push away from you, the glue joints will fail," he says. "With HDPE, when you put in a joint, it will not fail. The fusion itself is actually 150 times stronger than the pipe itself if you do it properly, so there is no concern with thrust blocking."
IRRIGATION ISSUES

WATER COSTS

At the end of September USA Today published a "Nation's water costs rushing higher" (To read the article, enter usat.ly/QtNya6 into your web browser)

The article discussed the results of a survey undertaken with 100 municipalities regarding their water costs. The survey showed water costs had doubled or more in 29 locations and tripled in three locations over the last 12 years. The study looked at a city in at least every state and the District of Columbia. Where do you think the three U.S cities are where water costs increased the most? I'll reveal those locations a little later in this column.

If you own, operate, manage or maintain a golf course facility that utilizes utility-provided water including treated effluent, rising costs are certainly a concern. However, you should also be concerned if you are using any other type of water as an irrigation source. Why? Because rising water rates will put pressure on large users of utility-provided water to look for alternative sources of water. This, in turn will place pressure on other large users of water regardless of the type water they use. The pressure will be both from a water source availability standpoint as well as a public perception standpoint.

Even locations that are considered flush with water had large increases in rates. What are causing these increases in pricing?

According to the article there are a number of factors, including:

• Paying off bond debt for improvements and upgrades to infrastructure
• Increases in the cost of electricity, fuel and chemicals
• Regulatory compliance
• Rising pension and health-care costs for employees
• Post 9/11 security improvements

All of these factors also apply to effluent-water pricing, so you see that rising, as well.

Keep in mind that you don’t pay for water. Instead, you pay for the costs to deliver the water and maintain the treatment and delivery infrastructure.

Here is a sampling of water rate increases across the country:

- Portland, 161%
- Sioux Falls, S.D., 140%
- Cleveland, Ohio, 130%
- Binghamton, N.Y., 143%
- New York, 151%
- Waterloo, Iowa, 145%
- Philadelphia, 164%
- Baltimore, 140%
- San Diego, 141%
- Augusta, Ga., 141%

In maintaining infrastructure, water agency debt per customer has risen from $1,012 in 2006 to $1,611 in 2011.

The U.S. water infrastructure needs so much work, don’t expect to see much of a change to increasing costs according to the article. Rates will continue to rise at greater than inflationary costs. Increases will be vary from 5 percent to 15 percent per year. Research my firm has conducted shows a 7 percent a year increase on average for urban areas in the eastern United States.

Something else that is happening, as counter intuitive as it may seem, is that the price of water is increasing as its use decreases. Residential water use in 2008 was 13.2 percent less than water use in 1978. Thus, you would think less use, less cost. But since the water is essentially free and all you’re paying for is infrastructure and delivery costs, then there really is no change in those costs even with reduced use. The same infrastructure needs to be maintained and even though it is flowing less water, its size and maintenance requirements do not decrease.

Water conservation or reduced water use has, however, put off resizing of some delivery and treatment systems and it has allowed the population to grow in some cities without having to add more or larger infrastructure.

For some reason, while people accept rising energy prices and fuel prices they look differently at rising water rates. But the price of water is rising and that will put even more (continued on page 49)
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I N THE NEVER-ENDING quest for smoother, faster putting greens, superintendents who choose not to brush may be leaving some valuable ammo in the chamber. According to Bob Vavrek, USGA Senior Agronomist for the North-Central Region, brushing encourages more upright growth of creeping bentgrass and provides a smoother putting surface.

"Less lateral growth means the greens will be less likely to scuff and spike up from aggressive non-metal spikes, when golfers drag their feet across the putting surface," Vavrek says.

Like most golfers, members at Fieldstone Golf Club in Greenville, Del., want fast greens. Superintendent Damon Di Giorgio obliques through brushing.

"At Fieldstone, we use it to increase green speed," Di Giorgio says. "While our mowing heights are very low, the creeping bentgrass on our greens has a tendency to lay down from constant rolling and other maintenance practices. With the thought that brushing stands up the turfgrass plant – versus having it lay down – we believe the ball contacts less leaf tissue when rolling and therefore provides a smoother and faster roll on the putting surface."

Chris Tritabaugh, superintendent at Northland...
"My experience with brushing is on seashore paspalum, Bermudagrass and creeping bentgrass greens. When done during times of optimal turfgrass growth, I have not seen any negatives."

— Damon Di Giorgio, Fieldstone Golf

Country Club in Deluth, Minn., fights to manage and promote bentgrass over Poa annua. He’s been at the club for six years and has been brushing the last three seasons.

“I have worked to limit surface disruption,” he says. “In my opinion, brushing prior to mowing provides many of the benefits desired from vertical mowing, without the surface disruption.”

Tritabaugh warns, however, that brushing, like mowing, is a practice which places physical damage on the leaf tissue. Additional abrasion and wear to the turf is more likely to occur on a severely undulating putting surface. “During time of high heat and/or other climate stresses, the bruising involved from the process may damage the plants,” he says.

Di Giorgio adds: “My experience with brushing is on seashore paspalum, Bermudagrass and creeping bentgrass greens. When done during times of optimal turfgrass growth, I have not seen any negatives.”

Typically, cool-season grasses are more susceptible to injury from overly aggressive cultural practices, especially in stressful summer months. However, warm-season grasses can suffer a similar fate in cooler weather, less conducive to recovery.

Poa annua has an upright growth habit and a predominantly Poa green would not benefit as much as a bentgrass green, Vavrek says.

For Poa, Tritabaugh would recommend another method. “I believe if you are maintaining Poa surfaces, then vertical mowing is the ticket,” he says. “I also believe that the newer, more vertical growing varieties of bentgrasses are unlikely to need regular brushing. Their growth habit is already upright and thus there is little need to stand the leaf tissue before cutting.”

Brushing to stand up the turfgrass has many benefits, from helping work in amendments, such as sand, to aid in combating the development and persistence of grain, especially on warm-season turf, says Kevin Stinnett, territory sales manager at Jacobsen. He’s in a unique position, having been a superintendent and now working directly with others on the equipment side.

"In addition to working in amendments such as sand, it also keeps the turf canopy open (up-right) to accept amendments and granular fertilizer, and also keeps air space in the canopy and prevents the turf from laying/stacking on itself, creating stagnant conditions that can lead to disease, increased thatch development and overall reduced turf health," Stinnett says.

Considering the benefits, Tritabaugh and Vavrek aren’t sure why brushing hasn’t significantly gained in popularity over the years, aside from the fact that verticutting and grooming can produce similar effects. While Vavrek says he sees more courses occasionally brushing greens now versus five years ago, it’s still a minority of superintendents who brush.

Stinnett sees that trend growing in certain regions of the country, however.

"With the aggressive growing nature and the tenden-
TURF MAINTENANCE

cy for thatch and grain development, especially with the new ultra-dwarf Bermudagrasses, brushing has actually gained popularity with warm season turf," he says.

Di Giorgio points to a common reason many superintendents don’t utilize various agronomic practices - money.

"With reduced maintenance budgets, costs need to be cut," he says. "If the brushes are not connected to a mower and an extra piece of equipment is needed, or additional labor, then this practice may be reduced due to costs.

“When doing greens, we use hand brooms and brush in a perpendicular direction to what we are mowing,” Di Giorgio adds. “In the Dominican Republic, on seashore paspalum greens, we had brushes connected to our walk-behind greens mowers that sat in in front of the reel.”

In-front brushes generally cost in the neighborhood of $500-600, while the rotary-style brushes are upwards of $2,000-2,500. “Push brooms at a local hardware store are cheap,” Di Giorgio pointed out, adding that hand brushing takes a staff of five about two hours to do three acres of greens at Fieldstone.

Tritabaugh says many courses, with good equipment managers, are fabricating their own brush units for the front of their mowers, but any kind of broom will do.

“Pull behind brushes used for the incorporation of topdressing work well, but they also produce more damage,” he warned. “Brushes used out front of a mower are our option of choice at Northland. I like these brushes because they can be used or not used on any schedule and they are less damaging than the pull-behind brushing units.”

Tracy Lanier, product manager for John Deere Golf, says superintendents generally look to their products when


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wanting to lift turf to reduce grain and increase playability, making greens more consistent. He says potential negatives really depend on the condition of the turf, but even healthy turf may take a step back, in the beginning.

"The first time brushing, you may see initial negatives—thinning, marking and discoloration," Lanier says. "Eventually, the playability comes back."

Deere offers both out-front and rotary-style brushes, with rotary being the more aggressive of the two. Brushes have been around since the late 60s or early 70s and the popularity between aggressive and non-aggressive has shifted back and forth.

In addition, there's the Greens Tender Conditioner (GTC). Like the rotary brush, the GTC rotates in the opposite direction of the reel to stand grass up prior to cutting for a consistent quality of cut. Both control runners and reduce grain by lifting horizontal grass blades, while the GTC also slices stolons to promote new growth.

Jacobsen is developing a rotary brush. According to Stinnett, a lot of thought and time with their customers goes into the process. "When developing new products, we work very closely with customers in all regions of the United States and world to understand their needs," he says. "We spend time at different courses to be aware of how the product will work in various grass types and conditions. We regularly test product in the U.S., Europe and Asia/Pacific."

Like any agronomic practice, the frequency in which a superintendent brushes greens is a matter of choice.

"We will brush greens every day at certain times of the year, but generally it revolves around our topdressing schedule," Tritabaugh says. "We will topdress on a Monday, then not brush for the following week. Then, beginning the next week we will run the brushes down for a week. So for us: one week on, one week off.

"Leading up to a tournament we will brush for a numbers of days, and then keep the brushes up for the tournament," he adds.

Turfgrass health is the overriding determinant at Fieldstone—never when the plant is diseased, thin or otherwise stressed, but the tournament schedule also plays a factor.

"During optimal growing conditions, we try one-to-two times per week," Di Giorgio says. "More during tournaments or when greater speeds are needed."

Frequency should depend largely on turf type and time of year, Stinnett says.

"During the peak growing season and under optimum temperatures, turf health, etc., for warm-season turf you could lightly brush in a different direction every day," he says. "Today, most practices—cultural, chemical, fertilization—have gone to light and frequent."

Tritabaugh is a strong proponent of brushing, but not at the expense of healthy turf.

"Care needs to be taken any time the plants are under stress," he says about when not to brush. "Out-front brushes are pretty gentle, but when used on many consecutive days the stress can add up. During a stress period and when it doubt, I would say 'brushes up.'"

Rob Thomas is a Cleveland-based freelance writer and frequent GCI contributor.
GOLF AND THE NEXT GENERATION

The next upswing in the housing cycle is underway, which means a new generation of golf courses and communities will soon emerge. There’s no doubt that post-recession courses and communities must be more efficient and more sustainable than those that sprung up in golf’s boom days. But the question developers and builders must ask is how to integrate these new demands while continuing to attract homebuyers who are drawn to the property and aspirational value provided by golf.

What will be different in the upcoming cycle? We should look for three important changes in the priorities of next-generation homebuyers: women will influence purchase decisions more than men; buyers will seek financial stability and transparency; and environmental sustainability will be a priority.

WOMEN ARE LEADING THE WAY. According to Martha Barletta, the visionary author of Marketing to Women, women make 91 percent of home-purchase decisions. Their vote determines location and lifestyle elements of the communities where their families live.

Foremost, women seek a place that complements their interests in (fountains and waterfalls) and socialization characteristics.

Accordingly, in the most recent housing boom, developers and homebuilders began to make community planning attractive to women.

FINANCIAL STABILITY IS CRITICAL. “May I see your balance sheet?” This is one of the entry-level questions asked of club managers and membership directors by new-member prospects. Bruised by the recent recessionary cycle, prospective members are more cautious and alert to the financial condition of any club they might join. Women are deliberate shoppers, and their search for a club membership now involves an evaluation of the finances of prospective clubs.

Club leaders would be wise to prepare concise and easy-to-understand descriptions of the topic once thought confidential and which only arose from discreet questions. New members want to join a club that is both financially secure and transparent.

ENVIRONMENTAL SUSTAINABILITY MATTERS. Staffed by experts trained in the sciences of turf care, responsible water consumption and conscientious use of fertilizers, pesticides and other inputs, golf offers the safe and sustainable haven sought by many of today’s homeowners. Undoubtedly, pressure will continue to be directed at golf courses by politicians, environmentalists and other activists over their environmental practices.

Golf’s defense should be a strong offense aimed at education of all stakeholders, starting with club members. Golf has the opportunity to demonstrate highly sustainable business practices. But club leaders and executives need to do a better job of articulating its case as a responsible environmental steward.

Prospective members should know how chemicals are handled and stored and how the staff monitors their use. The superintendent should publish a roster of inputs used so club members develop trust and confidence in the club’s environmental practices. Clubs might even post important aspects of its fertility program on its website and ask the superintendent to provide a description and explanation. Demonstrating a commitment to a reduction in water and chemical use not only helps educate and inform their members, but also encourages their support as ambassadors.

Golf communities have an opportunity to create market differentiation through effective environmental programs. But before breaking ground, developers should know the answers to four questions: What entity owns and controls water supply? How long is the secured-supply life cycle? What is the backup supply source? And how do you shop for water sources? In the previous development cycle, builders and lending institutions weren’t diligent enough in seeking answers to these questions. My bet is that we’ve learned our lessons.
The hodgepodge of weather extremes makes it difficult to predict pest pressures in 2013. GCI’s experts offer their best predictions.

BY JOHN TORSIELLO
Like a sleuth in an episode of the crime show “CSI,” David Phipps, a member of the Golf Course Superintendents Association of America Field Staff, is keeping his sharp eyes and ears to the ground as he helps superintendents in their ongoing battle with turf pests.

His research during 2012, a time in which the country was hit by all sorts of weather calamities, from drought to hurricanes, shows that 2013 may be a difficult year to predict in terms of what pests will be the biggest problems and where. But early indications are that it might not be pretty.

“Early on in the season I could almost predict the week when I was going to see an outbreak, whether it was bill bug or crane fly. Either way, they were predictable. Now it seems we are in the midst of changing weather conditions and year to year we never know what to expect. It has almost become a wait and see approach but we have to be proactive. I believe it will be more of the same but in greater populations.”

Phipps says, somewhat alarmingly for superintendents, that “pests are on the move” and it will be “imperative” that they be tracked. “Regions may start seeing increasing populations of seldom seen pests and superintendents will need to be vigilant at monitoring their surrounds.”

He says IPM and local scouting are the “tried and true method,” but adds a warning caveat, “We need to take it a step further and utilize and/or develop regional programs to provide a wide data base to track pests so we can be prepared.”

Superintendents around the country are also on the alert and ready to meet their enemy at the gates.

“Here in Atlanta, we had almost no winter last year which was good for rounds of golf but made for some interesting adjustments agronomically,” says Anthony Williams, director of grounds at Stone Mountain Golf Club by Marriott in Stone Mountain, Ga. He reported his area is 10 inches behind normal rainfall and it appears that many pests he does not generally see as issues are building populations way beyond IPM thresholds.

“I was at the putting green the day before Thanksgiving and a mole cricket crossed the sidewalk as I was evaluating the green. We seldom see mole crickets this far north. I utilized an effective biological control for this one mole cricket but it is a sign of the times. He adds, “Now more than ever the successful superintendent must be vigilant through active scouting and monitoring critical benchmarks as Mother Nature changes the scheduling and execution of our core programs.”

On Long Island, N.Y, an area hit hard by Superstallond Sandy in mid-autumn, Brian Benedict, superintendent at The Seawane Club in Hewlett Harbor, N.Y., is concerned with the annual bluegrass weevil. “Although it’s an older pest it seems like we are losing ground to resistance to selective insecticides. We had a huge infestation in 2012 and I attribute that to a mild 2011-12 winter. I am actually hoping for a big freeze this winter desiring to kill off the insects.”

Paul Brandenburg, superintendent at Furman University Golf Course in Greenville, S.C., reports several pest concerns as 2012 ended.

“We ultra dwarf guys, some of us dealt with pink snow mold last year and that was new and definitely weather related. Mini ring (a strain of rhizoctonia) is always a concern. Sod webworm is always a concern. Most of us spray preventively for spring dead spot and fairy ring.” In bent grass, dollar spot, brown patch and pythium remain the big concerns and pythium volutum seems to be on everyone’s radar, he adds, perhaps due to more prolonged heat and humidity in the area.

Dr. John Inguagiato, assistant professor of turfgrass pathology at the University of Connecticut in Storrs, takes a pragmatic approach to the issue.

“Predicting next year’s turf disease challenges can sometimes be about as accurate as a reading from a carnival psychic. As we all know, disease outbreaks, particularly foliar ones, are largely dependent on the weather conditions before and during infection. Therefore, it is difficult to accurately forecast what diseases are going to be problematic next year.”

Dr. Jim Kerns, turfgrass pathologist at the University of Wisconsin in Madison, concurs. “It is very difficult to predict what diseases or insects will be problematic next year,” Kerns says. “Diseases in particular are governed by the environment and we have no idea what next year will hold for us. Ultimately we continue to see issues with dollar spot, anthracnose and pythium root diseases. However, next year may hold a different set of problems.”

Says Dr. Gwen K. Stahnke, extension turfgrass specialist at Washington State University in Pullayup, believes that because it was so dry this past season in many areas of the country, if areas of a course were not watered, superintendents may have more problems with weeds in those areas where open areas were created. “It is an ideal place for annual bluegrass or moss to invade during the winter.” She reports that several areas of the country have entered microdochium patch weather, and that disease will be popping up from now until the rain stops in July, most likely.

“I have seen a lot of adult crane flies on our research farm, so people should be monitoring areas where they have had problems in the past, or watch areas where they were watering in August through September and it remained wet. That is where the eggs were laid. Also monitor the feeding of birds. They actually cause more damage than the crane fly larvae themselves. The crane fly larvae will feed over the winter, so monitor and treat in February if there is a severe problem.”

She adds that during late October, the state of Washington had its first outbreak of a disease called rapid blight that was first found in California in 1995 and identified at the University of Arizona in 2002. The causal agent was found to be an aquatic organism called labyrinthula terrestris. The organism is associated with saline irrigation water and an accumulation of salt in the soil. It is not temperature dependent and the symptoms look very much like microdochium patch.

Dr. Stahnke says, “As we use more re-
cycled water with more salts for irrigation, we will need to be aware of the build-up of salts in the soil. Normally, the PNW gets at least one flush of rain to move the salts through the root zone naturally. This is not something we need to be alarmed about, just something we need to monitor. Rapid blight affects most grasses with the exception of creeping bentgrasses, slender creeping red fescues and alkaligrass. Irrigating with clean water before salts build up will solve the problem. There are several fungicides that will control this pest.

Kerns: “There are a few new problems out there. John Kaminski is doing some nice work on a disease called thatch collapse, which is somewhat like a fairy ring disease. Of course bacterial diseases have been a hot topic lately, but most of the research right now clearly shows that this issue is related to extreme heat stress. Thus combating heat stress is probably the best way to combat this particular bacterial disease. Nematodes are a major issue because we have an extremely limited supply of effective nematicides. Nematode issues are not new, but they are becoming an emerging problem because we relied heavily in the past on conventional nematicides like Nemacur.”

Keith Happ, senior agronomist for the USGA’s Mid-Atlantic Region, is hoping for a “real” winter in the Mid-Atlantic Region. “Last year’s mild winter was a blessing for golf but resulted in a few issues that are not normally a problem for turf managers in our region. Scouting and testing this season will be very important,” he says.

He agrees turfgrass management issues are becoming bigger concerns for a majority of superintendents... everywhere.

“Annual bluegrass weevil, for example, used to be a problem only in the Northeast. Now it is a concern in the Mid-Atlantic and North Central region. Same for nematodes. It was something you would read about on warm season grass down South. We have turfgrass management issues that overlap regions now. We deal with many of the same maladies that other region do. As the saying goes, if it is going to occur, it will happen in the Mid-Atlantic region.

Okay, enough of this doom and gloom. There are ways to combat any pests that may cause problems in the future.

Says Happ, “Control procedures and products applications are becoming much more specific. While this is a BMP there is also the concern of resistance. We already have documentation/confirmation of weevil resistance to pyrethroid insecticides. We had our first confirmation in the Mid-Atlantic region of grey leaf spot on tall fescue. Ryegrasses have been developed and selected for tolerance to the grey leaf spot fungus but they are not resistant. Sustainability is going to hinge on research and continued development of grasses that will perform under wide ranging environmental conditions.”

He advises superintendents to “test, scout and sample,” adding, “Be preventative but don’t act before you are sure what the issue is. For weevil control, for example, we have great growing degree models that help target product applications. We have a number of phenotypic indicators as well that help get the most from control procedures. We can’t just put the intended application on the calendar anymore and assume that the date selected for treatment will provide the expected result. Site specific applications may be more the norm rather than blanketeting the property with an application for insect control.”

The best approach to predicting what diseases are going to be problematic in the future is to reassess the disease history on a course, Dr. Inguagiato says.

“Recall what diseases were most prevalent and where on your course over the past few years. Consider site factors such as poor drainage and air movement or soil pH that may predispose those locations to a particular disease. If those conditions have remained the same, or worsened, chances are you will likely see disease in those same spots next year.”

Fungicide resistance continues to be an important factor influencing fungal pathogens’ ability to cause disease. Dollar spot, anthracnose, gray leaf spot, and microdochium patch (in the Pacific Northwest) are all diseases where the causal agent has been found to be resistant to single-site mode of action fungicides. Rotating among these materials and tank mixing with multi-site fungicides remains an important strategy to delay further resistance issues.

Many improvements to correct site conditions can be made during the offseason. Soil testing and adding amendments, installing drainage, removing trees and other actions now will help minimize conditions favorable for disease development next summer.

“It is very difficult to predict what diseases or insects will be problematic next year. Diseases in particular are governed by the environment and we have no idea what next year will hold for us.”

—Jim Kerns, University of Wisconsin
SUSTAINABLE SOILS

Dr. Rattan Lal, with The Ohio State University’s School of Environment and Natural Resources, and a globally recognized expert in soil science, says the key step toward sustainability rests with sustainable soil management.

“Sustainable soil management is the engine for economic, environmental and social sustainability,” Dr. Lal says.

While there’s a growing interest in the concepts and philosophy of sustainability, there’s a lack of clear direction concerning what to do about it.

It seems the landscape is the best place to begin walking down the path of sustainability. This means managing landscapes from the planning, design and management point of view. Note, I didn’t say “turfgrass management” or “golf course management.” The foundation for a sustainable landscape management is the soil on which a landscape is grown and managed. The soil should be the main, first focus within any landscape.

As a wildlife biologist I always focused on wildlife and biological diversity. It took me awhile to appreciate that soil – healthy soil – is the most diverse habitat on Earth.

As a wildlife biologist I always focused on wildlife and biological diversity. It took me awhile to appreciate that soil – healthy soil – is the most diverse habitat on Earth.

Regionally and beyond. A sustainable landscape serves as a champion and advocate of sustainability.

The ISC has adopted, with Dr. Lal’s blessing, the following 10 Principles for Sustainable Soils. They encourage every golf course adopt these as guiding principles for sustainable golf landscape management:

PRINCIPLE 1: Soil degradation is a biophysical process, but driven by social, economic and political forces. Minimizing degradation and enhancing restoration depends on addressing the human dimensions that drive landscape misuse.

PRINCIPLE 2: The landscape stewardship concept is important only when the basic needs of people and businesses are adequately met.

PRINCIPLE 3: When managing a landscape you cannot take more out of the soil than what you put in it without degrading its quality.

PRINCIPLE 4: Poor quality soils cultivated with improper inputs produce marginal plant responses and are not sustainable.

PRINCIPLE 5: Plants cannot differentiate between organic and inorganic inputs therefore it is a matter of logistics in making nutrients available in sufficient quantity, in the appropriate form, and at the right time for acceptable plant growth and optimum quality.

PRINCIPLE 6: The poor management of soil organic matter results in the loss of carbon just as if it were burned on the surface and wasted.

PRINCIPLE 7: Soils can be a source of carbon extraction or a sink for carbon storage, depending on how the soil is managed. If used as a sink, the soil has the capacity to store 3 gigatons of carbon a year, translating into a reduction of 50 parts per million of carbon dioxide over the next five decades.

PRINCIPLE 8: Even the most elite plant varieties developed through biotechnology and genetic engineering cannot extract water and nutrients from the soil where they do not exist. Improvements in quality can only be realized if landscape plants are grown on well-managed soils.

PRINCIPLE 9: Improved soil management is the engine of economic development in all communities because it enhances the lifestyles of those who live, work, or play in each community. Try to imagine a community with no plants whatsoever.

PRINCIPLE 10: Traditional landscape management knowledge and modern innovations go hand-in-hand. One cannot solve current landscape issues without the other.
For me, 2012 has been a year spent bouncing back.

My bouncing process all started on Dec. 20, 2011 when I was walking my dog, Putter. We were crossing a neighborhood street when a pickup truck darted around a car, turned left and smashed into me. I first bounced off the pickup hood, and then I bounced off the pavement. I then bounced down the road in an ambulance and spent the next 51 days bouncing between three hospitals.

Since my release, I have been home bouncing back to my old self both physically and mentally. I can honestly say, without my family, friends and professional colleagues I would not have made it.

Following the accident, I remember none of the first eight days. On the morning of Dec. 20 I purchased my airline tickets to the 2012 GCSAA Conference in Las Vegas, emailed Pat Jones and told him I was looking forward to spending some time in the GCI booth at the Golf Industry Show. Then I took Putter for a walk.

The next thing I remember it is Dec. 28 and I’m at the University of Colorado Hospital. According to my wife, Penny, and our four adult children, the first several days were very touch and go.

In addition to a broken back, crushed pelvis, broken shoulders and a partially torn off ear, I had a severe head injury and serious internal injuries.

Those first several days were especially hard on my family who were with me as I struggled through severe pain and several surgeries. I was very fortunate my son, Corey, is a physician at the University of Colorado Hospital. He was there every day and helped the medical staff make sure all the right decisions were made as they decided how to treat my injuries.

I am also happy to report I never saw the bright light. They often say, “don’t look at the light,” when you come close to checking out. I never saw the light, so I was either never that close to checking out or the bright light is an emergency room legend. I am not sure which.

As I think back on 2012, my journey back to health has been both difficult and memorable. My wife Penny has been the best caregiver ever, as have been my kids and their two spouses. My friend Steve Cadenelli, another GCSAA past president, flew out from the east coast four times to spend time with me. My daughter Casey kept....
They often say, "don't look at the light," when you come close to checking out. I never saw the light, so I was either never that close to checking out or the bright light is an emergency room legend. I am not sure which.

everyone up to date through Caring Bridge. My daughter Jesse moved home to help take care of Penny while she took care of me and my other son Lane wrote the previous article for GCI on my accident and helped manage the bills and legal issues involved with the accident.

As I sit at my desk now and write this article I am happy to report that I'm feeling pretty good.

Although I'm not completely back physically, I have played some golf. Putter is always reminding me when it is time for a walk and I started coaching my team of 5 and 6 year olds again in soccer.

Coaching soccer to 5 and 6 year olds is not only great physical therapy but is happy mental therapy, also. I have also been active again in my local superintendent's association and involved in several other professional and community activities.

I am so grateful for the many cards and letters I received and the financial support I got from my many friends in the golf industry, my local chapter, the Colorado Golf Foundation, GCSAA, the Wee One Foundation and several others.

I look forward to the coming holiday season and I am thankful just to be here to share this special time with family and friends. I look forward to attending the 2013 GCSAA Conference and Golf Industry Show in San Diego. I especially look forward to getting back in touch with many of you.

Finally, I plan on bringing the "Old Sage" back to GCI for the occasional Sage Advice column and industry-related article. The old brain seems to be working pretty well these days, so I feel it's time to put it back to work.

I would like to take a moment to thank everyone so much for your caring support during this difficult year.

Lastly, I look forward to a great 2013 and I intend to keep bouncing in the right direction for a long, long time into the future. GCI
CAPILLARY CONCRETE BUNKER LINER

Martin Sternberg, CGCS, at the Torrekulla Golf Club in Gothenburg, Sweden, has been a certified golf course superintendent for 20 years, a golf course owner and a golf course builder for 27 years. Sternberg invented Capillary Concrete (CC), a U.S. patent pending porous bunker lining material that is working quite well on golf course bunkers in Europe. CC comes in 1-cubic-yard tote-type bags that are placed in a cement mixing-type machine, water is added then it is placed in the bunker in piles and then shoveled and raked to a 2-inch depth. Each bag covers about 150 square feet. This material is unique because it forms a firm but resilient base material in the bunker that is completely porous allowing water to drain through it into the subsurface drainage piping. CC holds bunker sand on the slopes, helps keep weeds to a minimum and

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virtually eliminates washouts of soil into the bunker sand and it also keeps the drainage gravel and piping from getting contaminated.

The cost is about $2.25 (USD) per square foot or about $375 (USD) per 1-cubic-yard bulk-size bag that are shipped from North Carolina. The installation process takes about 3 to 5 hours per 1,000 square foot depending on where the produce is mixed, size, shape and slope of the bunker.

Jacques Leonard, superintendent, at the Golf de Nancy in Pulnoy, France, says: “We installed CC on all of our 49 sand bunkers this year, which is just short of 3,000 square meters on our 18-hole golf course and it is working real good. We have good bunker design with little water from the outside and we have perfect results now.”

CC is currently being tested in Florida and there are no superintendents who I know of using this product in the U.S. Still, there sure is a lot of interest in it.

Want more Terry?

Check out a recent webinar “The Best of Travels with Terry” where Terry presents some of the best superintendent and mechanic ideas he’s seen in his travels. Enter bit.ly/VCHTga into your web browser to access this extra content.
that is seriously close.

Getting 0.39 inches (1 cm) away from your subject is the primary reason I don’t recommend the clunky DLSR cameras for shooting turf. The small body of the point and shoot allows you to get right into the canopy and capture the subject effortlessly. This is great for trying to get close to the plant to identify signs of the pathogen for digital identification. This works for any fungus that produces fruiting bodies, such as gray snow mold, anthracnose, and red thread.

**SHOOTING FOR A PROPER DIAGNOSIS.** So you received that perfect camera for the holiday and you mastered the macro function during the winter by taking pictures of spiders in your shop. Now you’re ready to road test that camera. Capturing images for a disease diagnosis is a multi-step process.

Proper identification of any turfgrass disease requires a clear visualization of the symptoms as well as the signs of a pathogen. The same holds true for an insect pest as well, although identifying those critters usually relies on the macro mode to capture a close-up of the insect.

What I look for three images in a digital diagnosis. I like to see a broad spectrum view of the problem area. Think about a standing position shot of the entire section of the green, tee, or fairway impacted by the problem. This not only gives me some information about the site (Is it surrounded by trees? Is it in a low lying area?), but also provides me a wider view of the problem.

Next, I like to see an image taken from the standing position, but that gets a closer perspective of the symptoms. Think of this shot as those you see where the tips of the photographer’s shoes make it into the picture. As you get really good you can even eliminate those from the view. Finally, it is back to the Macro mode mentioned previously. Get down close and get an image of either a lesion or some other symptoms on an individual plant or even find a sclerotia or some other sign of the pathogen. Get one of those and a diagnosis may be confirmed with 100 percent certainty.

**SAVE YOUR MONEY AND PRACTICE.** As with any hobby or skill, it takes practice and patience to get the best shot. Be sure you take the time to learn the various functions of your camera and the settings that will get you the best results. Practice shooting during the winter months until you’re confident that can translate that experience into the field. Once you’ve developed the skills and techniques to capture the best quality images, you will realize that spending thousands of dollars on expensive equipment isn’t necessary.

Feel free to send your images to Turf Diseases on Facebook, Twitter or via email (upload@turfdiseases.org) to get a second or even third set of eyes on the problem. 6CI

The offseason also provides an opportunity to re-evaluate fungicide programs and make adjustments for next year. Regional 30-year weather averages can be helpful for developing a baseline fungicide program. Select fungicides to cover more than one disease and be sure to rotate and tank mix modes of action. Several new fungicides, including a new multi-site fungicide, have recently become available, with more coming soon.

Kerns adds, “The most important thing is to focus on plant health. In order to make your plants more tolerant of stresses don’t limit nitrogen, manage the water using soil moisture meters, conduct the key cultural practices such as light, frequent topdressing and venting.”

With regard to nematodes and bacterial diseases, these problems are related to physiological stress, Kerns says. Consequently, anything to limit stress will limit problems associated with these two organisms.

“Things like light, frequent topdressing, venting, alternating mowing and rolling, raising mowing heights slightly, maintaining a consistent supply of nitrogen, etc. will all help to limit stress and in turn limit problems associated with nematodes, bacteria and other fungal pathogens as well,” Kern says.

He concludes, “I take a very simplistic approach to turfgrass management. What does the plant need? Basically light, food, water and air, so how can we ensure that the plant has access to these necessities? By employing the cultural practices listed above and potentially evaluating the microclimate too.” 6CI

John Torsiello is a freelance writer based in Torrington, Conn. and a frequent GCI contributor.
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(continued from page 20)

double grain, or lateral grain, not to mention the precious "Poa here at Pebble Beach that grows toward the setting sun." Turfgrass does not have a photosensitive response to the sun. We are three decades removed from Johnny's heyday as a player, and someone needs to explain to him that agronomic practices have improved dramatically.

The envelope, please. The winner of the inaugural Grainy Awards is Johnny Miller. Congratulations, and best of luck to all the other contestants. But if these same candidates are still on the ballot next year, golf has bigger problems than my opinions. GCI
to cover the cost of prescriptions and other costs so that their costs are fixed.

**EXTENDED CARE.** As we are living longer lives there has been a surge in extended health-care facilities. Many of these facilities offer varying levels of assistance. The first level is known as independent living in which an individual can have their own townhome or apartment in the complex. Meals may or may not be included in the plan. Assisted living is in similar units but those people require help with getting around, personal hygiene and medications. Nursing care is provided based on the requirements of the individual.

At some point when a person needs significant care they would then move to the nursing home connected with the extended care facility. Each move is typically to a smaller room but increased attention for the resident.

There is a cost associated with extended care and it varies widely. Plans vary widely in that some require ownership with normal costs being $200,000 to $300,000 to buy your unit. Additional expenses for a couple would be between $4,000 and $8,000 per month depending on your meal plan and individual needs reflected in the level of care you require. The most important thing to consider here is that you should plan ahead for those costs at the final stage of your life.

**HOBBIES.** Once we get through all the financial ramifications of retirement then everyone should consider what they will do with the extra time they are now afforded. Superintendents are pretty unique in the hours required for them to do their jobs. It is not uncommon to work seven days per week and 60-plus hours per week. That does not leave a lot of time for hobbies and other activities outside of the workplace.

I watched retirement firsthand when my father retired after a great career as a superintendent. I followed him as the superintendent on that job and learned a lot from that experience. The first thing was for my parents to take an extended vacation to Florida and enjoy five months of golf and relaxing. When spring rolled around most snowbirds head back home and my parents joined that migration. So once back in the Chicago area I found my father showing up at his former club just about every day. When you do something for 45 years it is hard to get it out of your blood. During the course of that summer we got things into a routine and my father would hit balls at the range for an hour or two, then ride the course with me mid-morning and we would have lunch together and he would head home. I valued that time we spent together, but it also taught me that we all need a place to go after retirement and a plan for things we want to do.

In discussing this subject with GCSAA Past President, Jerry Faubel, CGCS, he expressed how important it is to have hobbies. Jerry has a business that takes up a small amount of his time. But most of his time is utilized in his enjoyment of fishing and hunting. He likes to hang out with friends at his local shooting range and have coffee and share stories. Hobbies fill the gap—and in some cases emptiness—for guys who have devoted most of their life to their golf courses.

**THE HORIZON.** Once you see retirement in the near future you will be happy to take care of all the little things that need to be done around your house. Vacations will be more frequent and much more relaxed. You have worked all your life to get to this point, so be sure you know what the future has to hold.

Play golf, enjoy your family, watch the grandkids grow up and plant that garden you have always been thinking about but never had the time to tend. Focus on the important things. Fill your time with hobbies, and if you don't have any, then no better time to start enjoying some different things. Imagine having the time to read a book a week.

Enjoying your retirement will be predicated on your prior planning to ensure you will have your financial house in order. With a well thought out plan all your dreams can become a reality. **GCI**

Bruce R. Williams, CGCS, is principal for both Bruce Williams Golf Consulting and Executive Golf Search. He is a frequent **GCI** contributor.

**IRRIGATION** continued from page 32

The survey showed water costs had doubled or more in 29 locations and tripled in three locations over the last 12 years.

As a large water user, keep your eyes and ears open, have a backup plan for your water supply and be a good steward of water. As I always say, track your water use so you can document what you need to maintain the golf course as opposed to someone telling you what you need and, therefore, what you can use. Be diligent and stay informed.

And the largest rate increase winners: Atlanta, Ga. (233 percent), San Francisco, Calif. (211 percent), and Wilmington, Del. (200 percent). **GCI**
**RUNNING SCARED**

When I was in journalism school, I once included a line in an article that stated something stupidly obvious (e.g., "The ice was very cold"). My professor struck it out and wrote "NSS" next to it and gave me a D or something. I asked him the next day what NSS meant and he explained I'd written a "No Sh*t Statement." In short, it's something you read or hear that makes you say, "No sh*t."

Well, here's a NSS: Things today are not what they once were in our happy little industry.

We are collectively paying the price for the big party we had for about 20 years when we all blithely bought into the idea that golf would grow forever. Now, we find ourselves slightly screwed in so many ways.

I’ll offer two more NSSs as proof:

- **There are far too many courses.** There are still nearly 15,500-plus courses competing for about the same number of rounds (and less revenue) despite 150-200 closings a year. If I found a magic lamp and the genie inside offered to grant me three wishes, I would ask him to make about 2,500 of the worst-run, worst-conceived and worst-financed courses vanish and solve this problem instantly. (Then I'd ask for $1 billion and infinite supply of Ben & Jerry’s "Chunky Monkey"). But, since there doesn’t appear to be a magic solution to the oversupply problem, it’s something we’ll need to live with and manage through for at least another decade.

- **There are way more potential superintendents than there are jobs.** The churn rate on jobs is, by my estimation, lower than it’s been in decades. In the good-old, bad-old days, idiots were building courses as fast as possible and people left good jobs for better jobs with some frequency. Now, a super is likely to be in the same position for 10 years. That’s partly because there aren’t any new jobs, partly because fewer supers seem to get fired on whims these days, and partly because you are hankering down and sticking with a mediocre or bad job.

But that means, at best, maybe 1,200 real superintendent jobs a year come open at any type of facility (by my estimation, about a quarter of all courses are family-run, pitch-and-putt type deals, or others operated without a turf pro). And only maybe a third of those are really good jobs that pay well and offer some measure of career reward. That means there are about 400 real jobs a year in play. If you’re trying to stay local – as most are – the number of opportunities gets very small, very quickly.

And then there’s the delicate matter of age. I turned 50 this year and many of the guys that I "grew up with" in this industry are about that age now, too. They’ve largely been successful, moved up the ladder and many have even been in their “dream job” for 10-15 years. They’re comfortable, making six-figures and well-established at their facility. Maybe too well-established.

Unfortunately, dream jobs turn into nightmares when the boss utters those dreadful words, “We’ve decided to make a change.” It may be money. It may be stupidity. It may be because the super has simply worn out his welcome. Could be lousy weather, lousy communications skills, lousy politics, lousy new GM…it’s just a lousy deal.

It seems to happen most often to my friends in the 50-something category. Too often, they never hear the bullet. It comes out of the blue for them even if others around them sensed it for months. You get comfortable or you just choose to ignore the warning signs. Either way, you’re unprepared.

I’ve asked tons of “mature” superintendents about the fear factor lately. Are they running scared? Some will smile quickly and say, “Nope…I’m good.” I worry about those guys.

Others will admit they are…and they’re not taking anything for granted. They stay around the club more. They pay attention to little things to make sure small stuff doesn’t turn into big problems. They manage budgets to the penny. They keep their ear to the ground to listen for the muffled jungle drums of member discontent.

Either way, it sucks. Either you’re compartmentalizing and ignoring the risk or you’re doing your job from a position of fear.

This isn’t me writing about some big megatrend in golf. This is me telling you to be very self-aware right now. Measure your strengths and weaknesses carefully. Honestly assess your position with your employer. Here’s one more NSS: Unless you have naked pictures of your boss with a sheep, you cannot assume you have total job security in today’s climate.

But, all that said, running scared is no way to go through life. If you believe you bring value to your position, act like it. Making decisions based on fear is no way to make decisions. Don’t let that dictate how you work and live. The safe thing is not always the right thing.
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