ON COURSE

THE MIDWEST ASSOCIATION OF GOLF COURSE SUPERINTENDENTS

July 2012

Midwest Association of Golf Course Superintendents
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INSIDE

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Dr. Doug Soldat, University of Wisconsin, (red shirt, standing) shares his thoughts on foliar fertility and wetting agents during the June meeting at Blackstone Golf Club.

FRONT COVER

For the past two months area irrigation systems have been put to the test. We've only had about half the normal rainfall for the whole year to date and most of it was prior to April. Photo credit: Luke Cella

The Midwest Association of Golf Course Superintendents (MAGCS), founded December 24, 1926, is a professional organization whose goals include preservation and dissemination of scientific and practical knowledge pertaining to golf turf maintenance. We endeavor to increase efficiency and economic performance while improving and enhancing the individual and collective prestige of the members.

The MAGCS member is also an environmental steward. We strive to uphold and enhance our surroundings by promoting flora and fauna in every facet in a manner that is beneficial to the general public now and in the future.

All editorial and advertisement inquiries should be directed to Luke Cella, Publisher, *On Course*. 11855 Archer Avenue, Lemont, IL, 60439. (630) 243-7900 or visit www.magcs.org for rates and requirements. Statements of fact and opinion are the responsibility of the authors alone and do not imply an opinion on the part of the officers or members.

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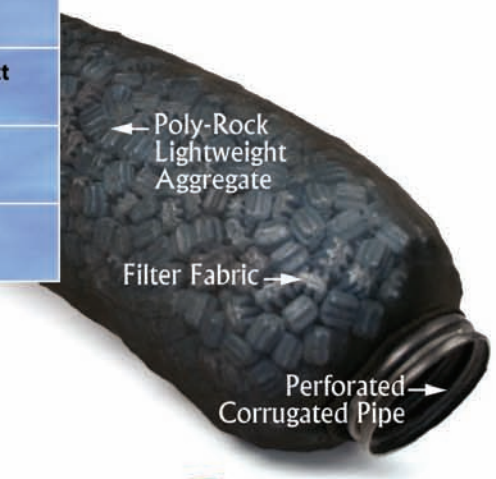

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DIRECTOR'S COLUMN

Dave Groelle, CGCS, *Royal Melbourne Country Club*

Gone Fishing

It's a phrase we're all familiar with and have probably used a time or two. When was the last time you actually went? If you can't remember then it's been too long. As we enter the heart of our season I want to take a moment to remind everyone to find some time for themselves or their family at some point. It is a long season and it is over before you know it. Take advantage of what could be a great way to spend time with family or friends. Go Fish!

Many of our courses have water features that offer some great opportunities for angling. If you have kids it is a great way to spend some time with them. Taking a child fishing is great. There is nothing better than the smile on their faces or the excitement in their voices as they reel in their catch. It also teaches them patience (while waiting for a bite) and that golf courses are environmental havens for wildlife. What is better than going to Mom or Dad's work to fish? Well maybe ice cream afterwards, but you know what I mean. It doesn't cost much either. A Snoopy pole is $15 and usually comes with some basic tackle. The bait you can gather almost any morning from a fairway or tee, especially after a rain. If you can't get out on your course I'm sure you know someone you could call that would be happy to let you out. So now you have a low cost opportunity to spend some time with your kids that they will really enjoy and never forget.

If your kids are older and not interested, what about fishing with some friends. Organize a trip somewhere. I'm guessing it wouldn't be too hard to get a group together to go somewhere peaceful, often times scenic, hang out, fish, and imbibe. Often times there's not much catching, but it makes for some great times creating and building friendships. The memories created will be talked about year after year, and did I mention the food? It's funny how all we need is an excuse to get together and have fun. All it takes is someone to set it up.

So in closing I encourage you to find the time. Find the time to hang out with your kids. Find the time to get together with friends. Maybe it's not fishing. Whatever it is, just do it. The summer is a grind, and at some point we all need a break and a reminder of what it is we work so hard for. Don't let it pass you by. I think I got a bite… **-OC**

Savannah and Larry Flament show off their catch.

Dave's Groelle's son Chase on a recent fishing expedition.

Dylan sporting the fishing shirt with his catch of the day.

Photo Credit: Brooke Groelle

FEATURE I

Jerry Kershasky, *Reinders, Inc.*

Irrigation Water Quality

Charging, Flushing, Pulse Irrigation, Deep Infrequent

Long title, a lot of issues; let's see if I can guide you down a logical path to understanding the terms and possibly answering some of your irrigation water and watering questions. There have been more than a handful of times when I (a now-retired Superintendent of 37 years) have attended educational seminars where the presenting Turf Authority said, 'You (meaning all of us), in the humid Great Lakes Region, where rainfall is abundant, don't have issues with irrigation water. So, don't go spending money foolishly on a water sample analysis or on water and soil remediation products, because you don't need them.'

The first time I heard this, as a young Superintendent, I took these words to be gospel. Besides, who was I to question the message of this Turf Grass Authority? So, I did not sample my water. And really why should I? No previous Superintendent at my 1926-built course had, either.

My thoughts and thought process changed once I had a few wet and dry seasons under my belt. Seemed when we had consistent and timely rains my turf looked great, and so did the roots, but when I had to rely on my irrigation water, my turf slowly declined.

Why was rain water so good? We did not have Google, back in the day, so I jumped into the truck and drove off to the UWM library to gain some knowledge on rain water. The following is what I learned.

In some locations, rainfall has an acid characteristic. This is caused by nitrogen, sulfur, and some other compounds that are pollutants in the atmosphere. They become dissolved in mist that forms droplets of water during periods of precipitation. Since not all atmospheres are equally polluted with these substances, the amount of acidity varies depending on wind currents, which carry the pollutants in the direction of the precipitation event. Locations in the path of major air movements are most likely to have acid rain when pollutants are carried from sources down wind.

Just as irrigation water that carries calcium and magnesium will tend to reduce soil acidity, rain water tends to increase soil acidity. Rain water, regardless of atmospheric pollution, is acidic. Normal amounts of carbon dioxide in

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the air cause distilled water to be acidic, usually within the range of pH 5.6 - 5.8. This is caused by the formation of carbonic acid when carbon dioxide is dissolved in water. Rainfall through a non-polluted atmosphere has a pH in this range. This non-polluted rainfall is not a major cause of acid soils.

However, rainfall with nitric and sulfuric acid components may have a pH in the low 4.0s; this is acid rain. This is more than ten times more acid than in normal rainfall. At these hydrogen ion concentrations, soils become more acidic. In order to counteract the effect of acid rain, applications of ground limestone are needed.

A couple of notes here: First, smokestack acid scrubbers have greatly reduced the amount of true acid rainfall. Second, if you have been using urea sulfuric acid as an irrigation water treatment and using acid forming fertilizers it would be good to check the pH of your surface mat. Test the thatch layer alone, all by itself, no sand or soil with it. Next, sample separately the 1/2 inch of sand just below that mat/thatch layer. If either or both have become acidic, it may be a good idea to put a couple of pounds of lime down in the spring and fall. This could increase your infiltration rate and also reduce unwanted, accumulating organic matter.

Ok, if rainfall is acid and it is giving me some good looking turf, what's in my runoff pond and deep well irrigation water that causes the turf to decline? Also, who am I going to send the samples to, to have them analyzed? To a lab in Great lakes region, which has little experience testing poor water? Or, to a lab that routinely works with poor water? I choose the latter. In fact, I sent the samples to two people who had a lot of experience with this type of irrigation water and its effect on soils. First, I sent samples to Dr. David York at Tournament Testing lab. At the time, York was working with Karsten Turf, out of Arizona. Currently, his lab is in Valencia, Pennsylvania. The second was to Dr. Ron Duncan, at the time with the University of Georgia. Duncan is co-author with Dr. Carrow of the book, *Salt-Affected Turfgrass Sites, Assessments and Management*.[1] Duncan now has his own company, called Turf Ecosystems, LLC, located in San Antonio, Texas.

Here is his report.[2]

WATER

The major culprit here is the high bicarbonates/carbonates (Nov sample 5.25 meq/l well; 4.6 pond) compared with the Ca (4.2 well; 3.0 pond) and Mg (2.4 well; 2.6 pond). Na levels (0.9 well; 2.3 pond) are not high, but any precipitation of Ca and Mg will not leave sufficient levels to counter the Na, even if it is very low levels of Na. When the highway runoff moves into the pond (March sample), Na levels go up to 5.52 meq/L while your bicarbonate/Ca/Mg levels remain about the same. More and more Na will end up on the soil CEC, decreasing turf performance and increasing management budgets. The fact that the pHc is lower than the normal pH means more precipitation in the upper soil profile, leading to reduced percolation and drainage and more algae problems. Your ECw and TDS levels are good, but the problem is high bicarbonates. The only way to get rid of the bicarbonates is acidification (acid injection, acid fertilizers). This is worthwhile money spent.

SOIL SAMPLES

You need to maintain the following base saturation values:
65-85% Ca
1O-20%Mg
2-7% K
and less than 5% Na

Most of your soil samples are showing low Ca percentages and high K levels. Manganese is too low and needs to be supplemented (manganese sulfate is suggested, since you are low on sulfur too) this nutrient is critical for activating enzyme systems involved in photosynthesis and for disease suppression.



Where CEC is below 4.0 add zeolite to raise the CEC. Try not to let %OM get above 3% since it will hold excess Na. This reflected in the high %Na and low %Ca levels. The only way you get Na off the exchange sites is with Ca amendments. You seem to be maintaining high bicarbonate levels in the soils (+60%) which may be causing some layering and/or percolation problems. Acid fertilizers and removing any bicarbonates in the water are keys to preventing this problem from increasing.

Next, York's analysis of the pond:[3]

IRRIGATION WATER QUALITY ANALYSIS/POND

The analysis shows that the irrigation water has a USDA classification of C3-S1. There are several negative factors associated with this water. The water contains a high level of chlorides, a high level of sodium, a high level of bicarbonates, and a moderately high level of total soluble salts. The pH is alkaline and with the pHc less than 8.4 and less than the water pH, bicarbonates from the water may accumulate in the surface of the soil in the form of magnesium and calcium carbonates when this water is used to irrigate the golf course. If high levels of bicarbonates from the water precipitate on or near the surface of the soil, problems with water infiltration and penetration into the soil can occur. The applications of gypsum, soluble calcium, and humic acid to the soil along with acidification of the water and utilizing a penetrating wetting agent can be used to improve water movement into the soil. Maintaining a balanced soil chemistry and the applications of acidifying fertilizers are also beneficial in countering the accumulation of carbonates in the surface of the soil. Sodium, chlorides, and soluble salts from the water will have a tendency to build in the soil when this water is used to irrigate turf. Applications of granular calcium, soluble calcium, and humic acid will help counteract the accumulation of sodium in the soil. When this water is used for irrigation of golf turf, regular soil tests should be done to insure that sodium, chlorides, bicarbonates, and high levels of undesirable salts do not accumulate to unacceptable levels in the soil.

Houston, I have a problem.

An article by Carrow, Duncan, and Huck[4] reinforces the above recommendations. It came out in 1999, twelve years after I had started my irrigation water acid treatments and acid fertilizer program with the help of Dr. Tom Lubin, Chemistry Professor at Cypress College in southern California. The article talks about four situations that limit water infiltration into soils. I'm going to refer to two of these. The first is less likely to occur in the Greater Chicago area and the second one more likely. This is because of the water sources most of us use for irrigation and the calcareous, high pH sands we topdress with.

First, and less likely to occur: Moderate to high Na, high bicarbonate/carbonate.

High bicarbonate or carbonate content in irrigation water reacts with Calcium and Magnesium to precipitate insoluble lime. Even if the irrigation water contains little Ca or Mg, the bicarbonate and carbonate will react with any soluble Ca or Mg in the soil to precipitate lime. This greatly reduces the effectiveness of applied gypsum or S-source + lime (to create gypsum) by reacting with soluble Ca/Mg released from these amendments to form less soluble forms. This leaves excess soluble Na to increase the ESP (exchangeable sodium percentage) on the soil CEC sites without soluble Ca or Mg available to inhibit this process.

Under these conditions, even modest levels of Na can cause sodic soil formation with structure deterioration and, therefore, a reduced infiltration rate. Treatments of the irrigation water with acid to evolve the bicarbonate and carbonate off, as carbon-dioxide gas plus water, is highly desirable, because it allows any Ca and Mg in irrigation water to remain soluble and displace Na from the soil CEC sites. Treatment

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allows soil-applied amendments to be more effective in producing relatively soluble Ca, rather than being precipitated as lime. When irrigation water is acidified with a sulfur-based acid or a sulfur generator, it is important to effectively utilize the S to form gypsum. This can be achieved by adding lime to the soil surface periodically. Calcareous soils have free calcium carbonate that can serve as the lime source. However, over time the free calcium carbonate at the surface may become depleted, resulting in a reduction in the water infiltration rate. In this situation lime should be applied to the surface to maintain a Ca source at the soil surface to react with the S source.

Second, and more likely to occur: High Calcium/Magnesium high Bicarbonate/Carbonate.

In this situation, the water contains unusually high Ca/Mg and bicarbonate/carbonate concentrations, but Na is absent or at low levels. As the bicarbonate/carbonate reacts with Ca/Mg, insoluble lime precipitates, often in the surface 1/4" to 1/2" of soil. It is not unusual to add 25-50 lbs. of lime per 1000 sq. ft. to turfgrass growing on acid soil. This may cause us to question whether lime formation from irrigation-water constituents really reduces infiltration and, if so, how. When limestone is applied, it is discrete particles, rather than a sheet-like layer at the surface, as occurs with irrigation water sources. Especially on sands, which have a low surface area, calcite coatings can form on particles and start to bridge between particles and fill the pores. This could create conditions where sealing of the surface would be possible and would cause reduced

water infiltration. However, sufficient calcite to adversely affect water infiltration would accumulate primarily under a combination of conditions such as:

- Sand soils with limited particle size surface area would be more susceptible than fine-textured soils.
- Irrigation water with unusually high bicarbonate and high Ca/Mg concentrations.
- Reliance on light, more frequent irrigation rather than deeper, less frequent applications. Light, frequent irrigation would favor deposition of the calcite at the surface under high ET conditions, while deeper, less frequent irrigation would favor calcite deposition near the depth of normal irrigation water penetration.
- An arid climate where high water use would result in considerable annual additions of calcite.
- A long growing season, including any winter overseeding period, that would result in high total water use over a year.

In humid regions, calcite buildup at the surface would be less likely, because the rainfall (low bicarbonate, Ca, Mg) would tend to dissolve calcite or at least move it deeper and disperse it throughout the soil profile. Also, annual additions of calcite would be lessened, because irrigation would be less frequent.

When the above combination of conditions favors calcite accumulation within the surface zone, is acidification of irrigation water a solution? The answer is yes, but not necessarily the best choice. For example, on some golf courses only the sand-based greens may show a decrease in infiltration, while the finer-textured areas do not. Treating the irrigation water for the whole golf course would not be necessary. In a contrasting example, the problem of high bicarbonate with high Na causes sodic conditions that adversely affect all soils. Acidification of the water for all areas of the golf course with that problem would, therefore, be important. In addition, a calcite layer is essentially a physical barrier to water infiltration; it could also be broken by periodic cultivation. The use of acidifying fertilizers, like ammonium sulfate or applying elemental S to the turfgrass surface, are an alternative. These would aid in dissolving the calcite layer by changing it into more soluble and mobile forms such as gypsum and lime.

CHARGING, FLUSHING

Prettyman and McCoy[5] explain "Charging and Flushing High-Sand Greens." This article should be read and reread to get a general guideline on water requirements to fully charge a green's root zone. It also explains the amount of water needed to accomplish the leaching fraction and complete flush defined by the volumetric water percent content readings of precharge, charge, and full flushing. Be aware the eaching requirements, for the purpose of moving salts out of the root zone area, are usually a smaller percentage of the leaching fraction, usually by a magnitude of 10-25 percent. The best way to get a handle on requirements for your greens is to get both a chemical analysis of your soil and a physical analysis of an undisturbed soil plug, cup cutter size. Send it to a lab to test for infiltration, percolation, bulk density, drainage, total pore space, and organic matter content.

PULSE IRRIGATION

The best explanations I have read on pulse irrigation to move salts out of the root zones came from Carrow and Duncan[1] (Chapter 8, Leaching of Salts and Water Management) and from Danneberger[6]. Here is a bit of information from both.

During droughty periods salts can accumulate in the root zone area causing stress to the plant. Salts can move up into the root zone through the process of evapotranspiration and capillary rise. Capillary rise occurs when irrigation or rainfall is insufficient in moving salts down or out of the root zone.

Surface and Subsurface cultivation: spiking, needle tining, HydoJecting, DryJecting, core and hollow tine aerating, deep tining—to name most, but not all—are essential in effective salt leaching. Irrigation practices should focus on moving total soluble salts downward. For this reason light, frequent irrigation is not recommended because salt buildup is rapid. Capillary action can cause salts to rise from the subsurface into the root zone. Cool season grasses are very susceptible to salt injury in the summer. If frequent irrigation is needed because of a shallow root system, frequent leaching will be required if rainfall is not timely or adequate. But if the weather is hot and humid, the leaching requirement should be only slightly more than the ET rate to avoid oxygen-depleted root zones. Hot humid conditions are NOT the times for charging and full flush operations!

Note: From Vargas at the MSU Turf Diagnostic Lab[7], "We often find over 1000 ppm of salt in the upper inch of samples sent to our lab for disease identification. Salt level that high in the upper inch of sand on a green will result in the green wilting and possibly dying."

Pulse irrigation events are short irrigation periods ranging anywhere from 5 to 30 minutes, depending on what the surface can infiltrate without runoff or ponding. Pulsing puts out anywhere from .08" to .4" water per cycle with dry intervals between 45 minutes and 2 hours. This pulsing is much more effective because pulse irrigation allows water to flow through the soil as unsaturated flow, which moves in a more uniform downward and lateral motion and occurs through the micropores. This is much more effective than heavy continuous watering which results in ponding. Ponding is saturated flow, which occurs mainly through larger macropores, resulting in inadequate leaching of the micropores.

When initiating a pulse irrigation program try to time it with a rain event to take advantage of the rain water quantity and quality.

A couple of other comments here: First, a USGA green, a California green with internal drainage, or even drainage lines that were installed in a pushup green (like a XGD install) allow you a significantly better chance of flushing your greens than without internal drainage.

Second, deep and infrequent irrigation started at the beginning of the season coupled with an aggressive cultivation and sand topdressing program will produce a deep root system that can survive and even thrive in some otherwise poor quality environments. A great read here comes from Miller's, "You Can Grow Better Turf with Less Frequent Watering."[8] Read this article each year in September, right after the summer stress period, and again in March, right before you fire up the irrigation system.

Seems like it is hard to break old irrigation habits, so it is good to have good information to read and reread before formulating your turf management and irrigation plan for the season.

Test your water and your soil. Without that information it is difficult to form a strong agronomic plan. **-OC**

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FEATURE II

Bruce Schweiger, *Midwest Turf Products*

The Stories You Guys Tell

Okay, so I was strong armed into writing an article for On Course. *I have been a member for just "a few" years and with every incoming President we all read the same appeal, "Be an active member and please write something for our magazine!"*

As many other writers have wondered, I ponder the same. What to write about? I could pen something on soils, pathology, fertility, growth regulators, or life above the cheddar curtain. As this arm twist happened over the winter months, I took especially good notes when making course visits and the topic just sort of unraveled.

Over these many years as a Superintendent and Sales Representative there has always been one thread that never changes: the stories from the course. I would like to share a few of the good ones with you, to make sure as the summer rolls along, that you know you are not out there all alone. And, yes these events are true but the names have been changed to protect the innocent.

We all are aware, winter golf does happen in the upper Midwest, some years more often than others. This particular day followed cold weather followed by unseasonable warm days in the 50's. A superintendent, I'll call him Steve, was looking at a spring project and thought this would be a great opportunity to get a jump on the planning. Out we go to look at the course and make some much-needed plans. On the way out we passed by the range and he saw that all of the rubber tees used in the mats were missing. He had just put them out the day before. As we approached the first tee we noticed a group were using the rubber tees for their balls.

When we approached the group, Steve mentioned the great idea of the rubber tees and the response went something like this, "Well we would like to take credit for such a good idea but the group in front of us suggested it when they heard our portable drill was low on charge and we would not be able to get a tee in the ground. They said go to the range and take the rubber tees. One of our guys said that would be stealing, they said not to worry about it the pro shop has hundreds of replacement tees and this happens all the time."

Upon hearing this Steve said that they did not have any replacements and could they just share one and replace it once their round was complete. Thankfully they agreed. Steve then made it a point to tactfully correct the group in front of them.

On we went out to see the area around a par three he had plans to re-work. As we arrived, there was a group playing the hole, they had hit so we started to walk around as they walked to the hole. Upon their arrival one player found his ball ten feet out on the ice. Everyone continued to do their thing not paying attention to him any longer until we all heard the commotion as this player fell through the ice as he went to pull his ball back to the shore. Yes he had gone out on the ice to get his $2.00 golf ball. Everyone ran to the shore and told him not to panic and crawl back to shore. This worked well except he was freezing. He then asked where his ball was and a fellow player told him that when he knocked it back to shore it hit the frozen bank and careened even further out onto the lake. Steve jumped into help mode and brought his cart over to get the guy back to the clubhouse as fast as possible. There was no room for the lowly sales rep so I was elected to pull his clubs back to the clubhouse. As I was about half way back Steve came and picked me up. At the clubhouse he said dump the clubs and let's get out of here fast. As we drive away I asked how the guy was doing? Steve said they got a few towels and arranged a chair close to the fire to warm up the golfer and he said thanks and proceeded to ask for his rain check since he had only played a few holes. Steve was afraid the pro was going to kill him and did not want to be a witness. Things only a golfer could ask for!

Spring always brings a few irrigation stories. Bill gives me a call one morning and asks if I will be in the area anytime that day to look at his fifteenth green. He was very assertive, so I was able to re-arrange my day and head there shortly thereafter. When I arrived we headed out to see the fifteenth green where he explained a head must have broken during the winter. The head was tapped to a two-inch line and broken at the swing joint and the system was fully charged. The right third of his green was a huge turf bubble raised about four to six inches. We headed back to the shop to get something to relieve the pressure. When we returned the bubble had burst and ripped a rather large hole in the

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green. This should be the end of story, but no, I had told Bill to just let it dry out and as soon as you can walk on the area, relay the sod, roll and topdress it back to normal. The next day he calls me and says it is still not dry, so he waited until the next day to attempt to repair the area. The next day came and the area was still wet. At this point he discovered his irrigation tech had not turned the valve completely closed. The fun continues! It dried out and everything was fine.

I was on a very special trip with John to take a few soil samples. As we were walking off the eighteenth green we heard a tone and he said your phone is ringing. I informed him that I had left my phone in the truck. We listened and agreed it was coming from the toolbox in the back of his cart. When John opened the toolbox the ringing became much louder and the frantic search for the origin continued. We finally found the culprit tucked neatly away in his glove. At this point it became hilarious, John pulled out the ringing object shook it, said a few select words, hit it with his hand (it did not stop), threw it down hard on the cart path, many times (it did not stop), stomped on it (it did not stop), finally he beat it with handle of the soil probe several times and it finally died. Imagine the sight of John pummeling this object with me laughing out loud and the entire episode right in front of the clubhouse, it was a sight to see. When I quit laughing I had to ask what had just happened? He explained that yesterday he had taken the day off to be a good dad to take care of his sick son and the crew had found a few security devices from some retail clothing store along the road, that had been cut off from stolen clothes. When the crew brought them into the shop they discovered that periodically the alarms would go off. You guessed it. The crew then proceeded to hide them in his office, in his closet, in the club truck and finally on the toolbox of his cart. Oh, to be loved by your crew.

The last, Phil and I were heading out on the course, when we walked out of the shop to get in the cart, there was a mouse sitting right in front of us. We watched the mouse for a moment and you could see his ears moving and we thought it would scamper away. Phil slowly approached the mouse and hit it with a broom, the mechanic immediately started to laugh, it soon became apparent that the mouse had been dead all the time. It was placed there as a joke on us. The mechanic knew I was coming and had tested the prank and found there was just enough breeze to make the mouse appear alive.

I think I have taken up too much of your time. I am sure as you were reading this you had thoughts of the funny things that you have had happen to you. Next time you are with your peers, share, laugh, don't hold back, and enjoy the foibles of your life. By the way, these stories are very fresh in my mind because these are just a few from 2012. Have a great season and laugh a little and share your stories, who knows when I will have to write another article. **-OC**

JULY 2012

THE BULL SHEET
John Gurke, CGCS, *Associate Editor*

Welcome to our newest member:
Justin Olmstead, SM, Glen Flora Country Club

I am writing this as I look at the forecast for the next week to exceed 90 degrees every day, with a bonus 101 degrees on its way in just two days. Oh, and still no rain, and this on top of the already-in-the-books 13 days of 90+ degree days. I'd tell you my hose has road rash from dragging it around the course all day every day, but that might be getting a little personal. Here's to hoping our courses, and more importantly, ourSELVES have survived intact thus far. This tree took a more defiant approach, seemingly sticking its tongue out at Mother Nature and saying, "Bring it on, b@#%&ch!" It will pay. Oh yes—it will pay.

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DATES TO REMEMBER

July 10 – The 12th Annual John Buck Memorial Golf Outing and Scholarship Fundraiser at Bartlett Hills Golf Course in Bartlett, IL, **Kevin DeRoo** host.

July 12-15 – John Deere Classic at TPC Deere Run in Sylvis, IL.

July 13 – Deadline to register products for disposal through the IDOA's Pesticide Clean Sweep Collection program. Go back to last month's issue for details on what you've likely missed as you are reading this after the deadline.

July 14 – MAGCS Family Night Picnic and Kane County Cougars game at Fifth Third Ball Park in Geneva, IL.

July 17 – NWIGCSA/ITF Golf Day at Timber Pointe Golf Course in Poplar Grove, IL, Tyler Reiches host.

July 20 – Deadline for nominations for GCSAA's 2012 Col. John Morley Distinguished Service Award.

July 28 – Forest Preserve District of DuPage County's annual public auction at the Fleet Services Complex at Churchill Woods Forest Preserve in Lombard, IL. More to follow.

July 30 – Deadline for photograph submissions for the Superintendent's Best Friend 2013 Calendar presented by TurfNet and sponsored by BASF. Send submissions to lsalinas@turfnet.com.

July 31 – Wisconsin GCSA Summer Field Day at the O.J. Noer Center in Verona, WI.

August 1 – Deadline for photograph submissions for the Lebanon Turf 2013 Dog Days of Golf Calendar. Call 800-532-0090, ext. 253 to learn how to shoot your dog.

August 1 – Deadline for the Daconil Action Tough Turf Video Contest. May's Bull Sheet has all the info if you're still thinking of entering. Or if you've already disposed of your May issue, you can go to www.ToughTurfVideoContest.com.

August 20 – The Annual CAGCS founders Cup golf event at Lake Shore Country Club, **Jeff Frentz, CGCS** host.

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Oh, and the National Oceanic and Atmospheric Administration (NOAA) came out with this happy news: The U.S. continues to shatter previous, long-standing heat records, according to a report released last month. In its "State of the Climate" report, NOAA found that the first five months of 2012 were the warmest January-May period on record for the U.S. Yippee.

And here's more fun stuff to mull over during a drought—the U.S. Geological Survey (USGS) recently published a remarkable image helping us appreciate the true preciousness of water. We've all heard the oft-quoted statistic stating that 70% of the Earth's surface is water-covered (most in the form of oceans). Though it sounds like a lot, if all that water were gathered up, it wouldn't take up as much space as you'd think. And if you're more concerned with fresh water—as we all are—then the story gets even scarier. This image gives you an idea. Sorry, but if I were here to make you laugh, I'd tell stupid jokes.

Q: What do you call **Andy Weadge** and **Andy Dauksas** when they're playing **Dave Braasch**'s course?
A: Glen Erin Andrews. Oops—I think I just told a stupid joke…

On the 28th of this month, the Forest Preserve District of DuPage County will hold its annual public auction in Lombard. Approximately 300 items will be auctioned, including police confiscated items, vehicles, surplus equipment, and retired golf course equipment. Viewing of all items will take place from 7 to 8:00 a.m., with registration beginning at 7:30. The auction begins at 8:30 with the small stuff, followed at 11:00 by the larger items. For a list of items and all the rules, go to www.dupageforestauction.com.

Happy 50th Anniversary to Precision Laboratories of Waukegan, IL. The company, founded in 1962 by Jim Wohlner, has been manufacturing spray pattern indicators, adjuvants, and surfactants for golf courses as well as the agriculture industry for the same number of years that I have existed, which makes it very special.

The American Society of Golf Course Architects held its 66th Annual Meeting in Chattanooga, TN in May. If you can mentally picture an entire hotel filled with walking, talking red plaid couches, you have correctly imagined what that meeting looked like. They did do some business as well, electing Bob Cupp as their next President. Also, five members advanced to Regular member status, including MAGCS member **Doug Myslinski** of Jacobson Golf Course Design, Inc. Congrats, Doug!

There has been some recent career movement in the MAGCS ranks. Among them, **Michael Kudrna**, former assistant at Eagle Brook Country Club is the new superintendent at Tanna Farms. **John Ekstrom** has returned to his roots, accepting the assistant's position at Jackson Park GC and leading the staff at the South Shore courses in Chicago (under the management of Billy Casper Golf). Also, Adam Crissey, former superintendent at Broken Arrow GC is the new assistant at Bryn Mawr Country Club, replacing **Brendan Dolan** who left to join his family's business in Chicago. Furthermore, **Tim Valicka** has left McHenry Country Club for the assistant's position at Stonewall Orchard Golf Club. Finally, **Frank Heery**, former superintendent at Westmoreland Country Club has left the area to take on the Director of Golf Course Operations at Mediterra Country Club in Naples, FL. The best of luck to you all.

Reinders, Inc. and Spring Valley recently announced that Reinders is the exclusive master distributor of Spring Valley branded fertilizer and ice melt products for Wisconsin as of June 25, 2012. Additionally, Reinders is now an authorized Spring Valley distributor in Illinois, Minnesota, Iowa, Michigan, N. Dakota, S. Dakota, Kansas and Missouri.

Bill Vogel, CEO of Spring Valley L. and Craig Reinders, President of Reinders, Inc.

Our sincerest condolences go out to **Harry Lovero** and his family on the passing of his father Harry Lovero Sr. on June 4th.

Remember last month when I wrote about Prairie Bluff GC's Kevin Bauer, who was a finalist for TurfNet's Technician of the Year Award? Guess what? Kevin isn't a finalist anymore—he's the WINNER! Kevin has been maintaining the equipment at Prairie Bluff, as well as at the Lockport Township Park District, including its fleet of police vehicles since 2006,

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working alongside MAGCS members **Luke Strojny** and **Kenny Shepherd**. Reinders' Whitey Anderson presented the award on behalf of Toro, and Kevin's father Don was a surprise attendee for the great day. As the winner, Kevin receives the Golden Wrench Award as well as a weeklong training session at Toro's Service Training center at the company's headquarters in Bloomington, MN. Congratulations Kevin!

Photo credit: Pam Hutton.

Luke Strojny, Kevin Bauer, and Kenny Shepherd bask in the glory.

Q: Where do **Mike Moran, Steven Kellerman** and **Ryan Tully** have breakfast after setting their courses up on a Sunday morning?
A: Harborside International House of Pancakes.

I know—you've laughed yourself silly already, right? I do that. **Keith Krause** does it more, though. Go right now to www.iturf.org and click on the video he did to promote the 2013 Turf Conference. Whatever your reasons turn out to be, you'll laugh. And then you'll want to call Keith and ask if everything's ok with him. That's all I have to say about that.

Indian Hill Club has inspired some of the golf industry's most memorably hysterical moments. Caddy Shack, which was based on events that took place on those very grounds featured the likes of Ted Knight, Chevy Chase, Bill Murray, and arguably the greatest stand-up comic ever in Rodney Dangerfield. Hysterical movie, right? Has the club's current superintendent kept this legacy alive? Does **Dave Schlagetter** have a secret life? Is he actually moonlighting as the latest, greatest stand-up comic? You decide…

Louis CK

Dave Schlagetter

The person whose shoes I'm still trying to fill—former long time Bull Sheet editor **Fred Opperman**—recently checked in with news of the goings-on in Bozeman, Montana where he now lives. Fred is rewriting the definition of the word "retirement," as he keeps busy doing volunteer work for Habitat for Humanity, as well as designing and installing the landscaping at his church, along with serving on several committees while also doing wood projects in the winter for family and friends. And when Fred has some free time, he can be found on the mountain trails hiking, or in a kayak paddling, or in his waders fly fishing, or any other form of outdoor recreation. I've said it before, I'll say it again—THAT's retirement with an attitude! Thanks for checking in, Fred, and keep enjoying all that down time.

The last month was quite the opportunity for MAGCS members to get their names and efforts in print in the industry publications. *Golf Course Industry* magazine featured **Bob Lohmann**'s article "Think Big" about how golf courses can be a solution to their communities' water mitigation problems as well as **Bruce Williams** taking the opposite and unfamiliar seat as interviewer when he spoke with Olympic Club's Pat Finlen on "Hosting the U.S. Open." *GCI* also gave U of I's **Dr. Bruce Branham** some ink in its article "The Dirt on Soil and Bio-nutrition." *TurfNet* found MAGCS members prominently featured in its many venues, including **Dave Schlagetter** and **Chuck Barber** going back and forth on the TurfNet.com Forum about wetting agents, **Joel Purpur**'s and **Steve Cook**'s blogs on their Blog Aggregator feature, and **Bryan Stromme** and the seven Chicago Park District courses under his and Billy Casper Golf's direction in John Reitman's article "Family Ties." *Golfdom* editor Seth Jones wrote of a memorable moment he shared with **Mike Bavier**, recounting when Mike approached him at the GIS earlier this year with a gift—a copy of the May, 1967 issue of *Golfdom* he'd found on his bookshelf. **Dan Dinelli** and **Tom Lively** were interviewed in *Golfdom*'s June issue in an article by Beth Geraci called "Plant Progress," which documents the huge improvements to plant health that have taken place in the past 30 years. Way to get the word out, guys.

Stay tuned for the rollout of Environmental Institute For Golf's (EIFG) new national campaign aimed at generating resources to address the shortage of funding for turfgrass research. Expanding on the Carolinas GCSA's Rounds 4 Research program, the program will generate funds through securing donated rounds of golf (defined as a foursome) by facilities and then making them available to the public through an online auction. Since 2009, the Carolinas program has generated nearly $350,000, and this national drive is expected to expand significantly on that. Might be a good idea to start promoting the idea at your facility now—research in our industry has been drastically cut, yet is essential to our livelihoods and to the facilities we care for. Donating a foursome can only help.

In related news, **Dan Dinelli, CGCS** reports that his visit with representatives of the We Are Golf coalition to Washington D.C. this past spring bore fruit. Through the group's efforts, Congressman Robert Dold is now cosponsoring HR2718—the Disaster Tax Relief Act, which provides funds to businesses affected by weather disasters. This act would include golf courses as eligible businesses for relief (which were previously not included). That is important news for us, and shows what hard work and perseverance can accomplish. Great work!

The MAGCS June meeting was held on a warm Tuesday the 19th at Blackstone Golf Club in Marengo, IL with **Andy Perry** hosting. The education for the day was provided by University of Wisconsin-Madison Assistant Professor and UW Extension Specialist Doug Soldat, who spoke on Foliar Fertilization Fundamentals and Wetting Agents (a synopsis of which you can read in this issue). The golf course was in fabulous condition, thanks to Andy and his staff, and the competitors who braved the heat were rewarded with a great time on a great golf course. Winners of the 2012 Dom Grotti Championship were **John Nelson** and **Arne Nordenson**, edging out **Don** "too heavy of a" **Cross** to carry for Jacob Miskiewicz who were runners up. **Jacob Miskiewicz** did retain the Class C Championship. Non-competitors walked away with some

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fine MAGCS merchandise as a scorecard raffle ensued after the official hardware was handed out. **Lohmann Companies** (Blackstone was designed by Bob) donated a Kindle Fire and a Taylor Made R11 Driver and **Todd Quitno** sold raffle tickets during the event, netting over $900 for the MAGCS Scholarship Fund. If you haven't played Blackstone yet, put it on your list for when things slow down – a good solid, challenging course, designed for all – and bring a putter stroke too. Thanks to our sponsors: **Arthur Clesen, Inc., Aerial Images Photography, BASF, Burris Equipment Company, Chicagoland Turf, Layne-Western, Nels J Johnson Tree Experts, Reinders, Inc** and **Syngenta Professional Products.**

MULLIGAN:

In the June 2012 issue we mistakenly published a feature article that needs to be corrected: The article pertained to the use of mercury seals in submersible well pump motors and the banning of such seals in new motors beginning July 1, 2012. The article stated that "owners will no longer be allowed to purchase, repair, or reinstall the type "H" motor with a mercury seal". After verifying these facts with the IEPA, the authorized Flowserve/Byron Jackson dealer in northern Illinois has informed MAGCS that the part of the author's statement above is untrue…Any existing Byron Jackson Type H submersible motors CAN be reinstalled, as long as the mercury seal is not repaired or replaced.

If you have any questions or concerns, or would like clarification from the motor manufacturer's dealer representative, please call Tom Healy at Layne Christensen – Aurora, IL (630.897.6941).

[ed note: Thanks Tom for bringing that to our attention. To his knowledge, there are only 11 or so of these motors in use in our area. If you are unsure if you have one, give Tom a call and he will be able to help you find out.]

EQUIPMENT FOR SALE:

Turfco SP-1530-TM Topdresser. 2002 model, excellent condition, mounts to John Deere ProGator with auxiliary hydraulics. Price reduced from $3,200 to $2,700. Call **Dave Braasch** at 608-757-2328.

-OC








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EDUCATION REVIEW

Charles Anfield, CGCS, *Heritage Bluffs Golf Course*

June 2012

Andrew Perry and the Staff of Blackstone Golf Club had the course in outstanding shape to host the MAGCS June Meeting. The education "hot topics" for the day were ***Wetting Agents and Foliar Feeding****. Dr. Doug Soldat of the Department of Soil Science from the University of Wisconsin-Madison made the trip south to make the presentation.*

Foliar fertilization is a commonly practiced method for fertilizing turf. It has become more and more of a "go to" method as lighter rates of nutrients can be applied with less chance for growth flushes. Foliar applications are intended for absorption through the plant leaves stomata. Most of the nutrients that are absorbed are actually absorbed through cracks around the stomata. Dr. Soldat explained the stomata are normally closed during the day when people are typically spraying their nutrients. Only about ½ of the fertilizer is absorbed this way. The other half is washed off and absorbed through the roots. Differences in spray volumes, additives of surfactants and adjuvants can also affect leaf absorption. "It's all about the nitrogen. I do a lot of soil samples and I rarely find any significant fertility deficiencies. Most micronutrients are readily available in the soil. Urea is one of the best, most efficient sources of nitrogen. I recommend using low spray volumes and low rates." Studies have proven minimal volatization loss of nitrogen. I asked Dr. Soldat if he was drinking Dr. Rossi's "Kool-Aid". His reply was negative. "I would never drink that stuff."

So what affects absorption? Humidity, pH, chelating agents and environmental factors can be significant influences. "Chelation is often a misunderstood concept. The word chelation is from the Latin root, meaning claw. Chelation requires two or more separate molecular bonds. Chelating agents are very pH sensitive. Dr. Soldat recommends lowering the pH of the tank mix to 6 or below for maximum benefits.

Localized dry spots have been very common this spring and summer. Many people have been applying wetting agents with the hope that this will help "cure" the dry spots. Those localized dry spots are caused when the soil is allowed to dry down and organic material coalesces around the soil particle, creating a barrier that either has to be re-wetted or removed. Sand is a relatively very large soil particle and seems to be the most susceptible. A clay soil particle is much smaller and less susceptible to this process.

"Wetting agents are typically all marketing, and very little technical information is provided with each product. Formulations are proprietary and not listed as active ingredients on the label," Dr. Soldat explained.

A penetrant is typically used at lower rates or injected into the irrigation system. Adjuvants in the wetting agents can make this product more effective. The goal is to reduce surface tension. At this time there is not enough data on specific wetting agents to make any recommendations. One complaint of wetting agents is the feeling of "squishy" or soft turf with continual use. Dr. Soldat theorizes that the products combine with the waxy organic coating of the plant, furthermore they can bind up organic matter, creating the softness.

Solutions to hydrophobic spots are hand watering, use of surfactants and monitoring soil moisture using probes.

"I highly recommend everyone to purchase a soil moisture probe and use it. Monitor moisture for an optimum of around 10-12% and avoid reaching critical levels." Dr. Soldat stated.

Thanks very much Dr. Soldat on this timely information and if you have any extra rain from up north, would you please send it on down? Doug can be reached for further questions or comments at djsoldat@wisc.edu. **-OC**

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