Hole Notes

The official publication of the MGCSA

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Vol. 47, No. 9 October 2013

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Upcoming Events

November 20
Assistant's Professional Forum
Pinz in Woodbury
Host Assistant Superintendent
Casey Andrus
Interlachen Country Club

November 22
Pesticide Recertification
TIES Conference Center
St. Paul, MN
Hosted by the MTGF and MNLA

December 4
Annual Appreciation Banquet
Golden Valley Golf and Country Club
Host Superintendent Jeff Ische

January 8
Beer and Pretzel Social
5:00 Until 6:30
Northern Green Expo
Minneapolis Convention Center

January 9
MGCSA Annual Meeting
Minneapolis Convention Center
Host President Scottie Hines CGCS

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November 20, 2013
Pinz, Woodbury

On the cover:
He Is Coming!
You Cannot Escape "Old Man Winter"

The winter blues are headed your way. Are you ready to sing along?

...Even More Content...

Hole Notes (ISSN 108-27994) is digitally published monthly except bimonthly in November/December and January/February by the Minnesota Golf Course Superintendents' Association, 10050 204th Street North, Forest Lake, MN 55025. Jack MacKenzie CGCS publisher. Please send any address changes, articles for publication, advertising and concerns to jack@mgcsa.org.

Presidential Perspective

by Scottie Hines, CGCS Superintendent at Windsong Farm

Well, it is now late October. Many of us are winding down on the 2013 golf season. I hope it was a successful year for you and your respective clubs. In some ways it feels like we just opened up for the season yet, in others, it seems like opening day was two years ago! I guess when you are busy, things seem to just march along at a quicker pace than one realizes. I will leave it to you to decide if that is a good thing or just the opposite.

A ton of things have occurred in the last month or so. Jack MacKenzie, Erin McManus and myself traveled to Fargo, ND to visit with the North Dakota superintendent's group. They are very interested in having some recognition at the national level. Unfortunately, they do not have the required numbers of Class A and SM members to meet the GCSAA's requirements for affiliation. They asked about the possibility of joining with us to have that voice nationally. After some careful consideration, the Board of Directors have decided this can be a win/win. The North Dakota superintendents have the voice nationally, yet retain their identity. We gain members and that directly boils down to more research dollars to the UMN for member driven research. To that end, a letter has been sent to the North Dakota Representative Aaron Porter, Superintendent at Fargo Country Club, offering our position in the merger and a place to be heard nationally. Obviously, this is an ongoing collaboration. An update will be forthcoming when we hear back from our friends in North Dakota.

The Environmental Stewardship Committee is gaining some traction with local and state authorities. John Jaschke, Executive Director of the Minnesota Board of Water and Soil Resources, is taking up our cause and will help facilitate us meeting our goals. John's thoughts are to:

1) Re-package the existing industry MGCSA Water Stewardship Guidelines to be all encompassing and include water, nutrient and pesticide management as well

as any other environmental concerns.

2) Align agency and industry connections to the golf/turf management work going on at the UMN.

3) Evaluate the development of a comprehensive certification program where by participating golf destinations could get greater water use predictability in exchange for dedicated stewardship efforts.

As water and water quality issues are becoming more and more scrutinized, this is our chance to lead the cart not be dragged down behind it…..or worse, run over by it.

Speaking of water quality, the MPCA issued a news release dated October 8 titled: MPCA water quality report for Mississippi River- Twin Cities shows need for improvement. I had mentioned in a monthly column some time ago that I heard some grumblings at the annual GCSAA Government Relations meeting that the Mississippi River would be the next water system to be the target of a clean-up effort similar to that of the Chesapeake Bay. Here we are. If you would like to read the monitoring and assessment report please go to the MPCA's Mississippi River-Twin Cities Watershed webpage: www.pca.state.mn.us/ktqhda9.

It is important for you to understand that this is but one of 80 evaluations being developed in the next 10 years for all of Minnesota's major watersheds. Without a doubt, this will not be the last we hear or see of this.

Please enjoy the last days of semi-warmth. Best of luck getting the leaf clean-up done, blow-outs completed, snow mold applications down and covers on. The light at the end of the tunnel (2013) is just starting to shine.

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In Bounds

by Jack MacKenzie, CGCS

It has been just under two years since retiring from my post as a superintendent and I am often asked the simple, yet complex, question: “Do you miss it?”

Equally simple and complex , my answer: “No, to the concrete realities and yes, to the romance of running a course.”

There once was a time when I saw myself as a golf course superintendent until the day I retired. The challenges of providing optimum playing conditions through inclement weather, increased expectations, economic depressions and political posturing were at once stimulating and rewarding to conquer. Time as the ‘keeper of the green’ upon several courses provided life long lessons never to be forgot.

As hard as I tried in my youth I couldn’t change the weather and finally learned to accept the seasonal patterns and dramatic anomalies as par for the course. Buy good rain gear, use sun block and don’t skimp on winter coveralls tended to be a safe mantra for many years, as I stayed comfortable in the elements. But do I miss the weather variables?

Nope. It was almost always too wet or dry, hot or cold, icy or draughty, windy or humid. I find I do well inside my climate controlled office.

Back in the old days, course management was pretty simple. Hire enough people during the peak season to get the job done. Expectations were lower and the occasional impact upon play the norm. Shoulder month maintenance? Highly unlikely as most players understood the course was pimped up for the prime months of June, July and August when ‘snow birds’ were in town, kids were out of school and scheduled tournaments ran between Memorial and Labor Days.

That changed during the economic boom of the 1990’s. Greater incomes meant more free time and much more disposable cash. Combined, this led to higher demands upon the golf clubs that led to higher dues/fees that led to greater expectations. Greater expectations required more staffing, equipment maintenance and a much higher degree of management. Of course, all of this possible with enough cash.

Then the economic hard times took hold and it was suddenly do more with less followed by more of the same.

For a while this new challenge was invigorating. And then it wasn't. No, I don't miss the "money stretch".

Politics…well lets just say working with golf course superintendents is delightful!

What I miss the most are the subtleties, the nuances, and the casual natural observations that could easily brighten my day.

In the winter, it was the solitude of tromping through the snow, pole saw upon my shoulder, to trim suckers and redirect tree growth. The quiet was often deafening, broken only by the sound of a crow or at times falling snow.

The spring, with rushing snow melt, stimulated all of my senses as dormant smells awoke, warm sun danced upon my skin, the first robins cleaned the remaining crab apples, dried and likely fermented, and patches of green grass peaked through the left over blanket of white. Soon the troops would be welcomed back for another season of chasing perfection.

Summer-time heralded sun rises, cool dew, rainbows, ducklings, thunderstorms, camaraderie, the orchestrated magic of fine turf management, attaining a peak in perfection, and the internal pride of job completion only to be recycled the following day.

Splashes of reds and oranges upon the blue waters of ponds and creeks with a background of healthy and brilliant green, colored my world in the fall. The summer staff was finally gone and the full timers could enjoy the peace. Projects were to be done, maintenance based on frost delays and "bed-time" schedules implemented. The intensity of agronomics put to rest for another year.

When I ponder my past, I do reflect upon my time as a superintendent and acknowledge that those were some mighty fine years. On balance, and in spite of some bumps in the road, I truly loved my job as a 'keeper of the green'. A great venue, exceptional and dedicated industry friends, pride and the ability to "work out of doors" allowed me to maintain my sanity even during the most challenging of times.

I have landed upon a vocation of equal enjoyment, and feel very fortunate to have done so. The rewards of the job are different, but still gratifying, the challenges much less physical but comparable in logistic planning. And when my soul yearns for an injection of peace, I take a break, grab my staff Sadie and Nugget, and go outside for a little walk about. As it is fall now, I am eyeing up trees to prune, logs to split, leaves to mulch and gardens to put to bed… hmmm, and I still love every minute of it.

Pre-registration closes on November 13, 2013

Assistant's Professional Forum

November 20, 2013
Pinz Oakdale
7520 32nd St N, Oakdale, MN 55128
Host Assistant Superintendent: Casey Andrus

Leadership Skills for the Golf Course Agronomist

Following the morning program will be a lunch and bowling. Attire for the day is casual.

7:30 - 8:00	***Registration***
8:00 - 9:00	***Maximizing Your Leadership Potential***
	Steve Randall, GCSAA Regional Director
9:00 - 10:00	***From Hayward to Hong Kong and Home Again***
	Sam Bauer, UMN Extension
10:00 - 10:30	***Networking Break***
10:30 - 11:30	***Teeing Up Your Leadership Style***
	Ted Schick Corplearning
11:30 -12:00	***Filling Your Basket***
	Jack MacKenzie CGCS, ED MGCSA
12:00 - 2:00	***Brat Bar and Bowling!***

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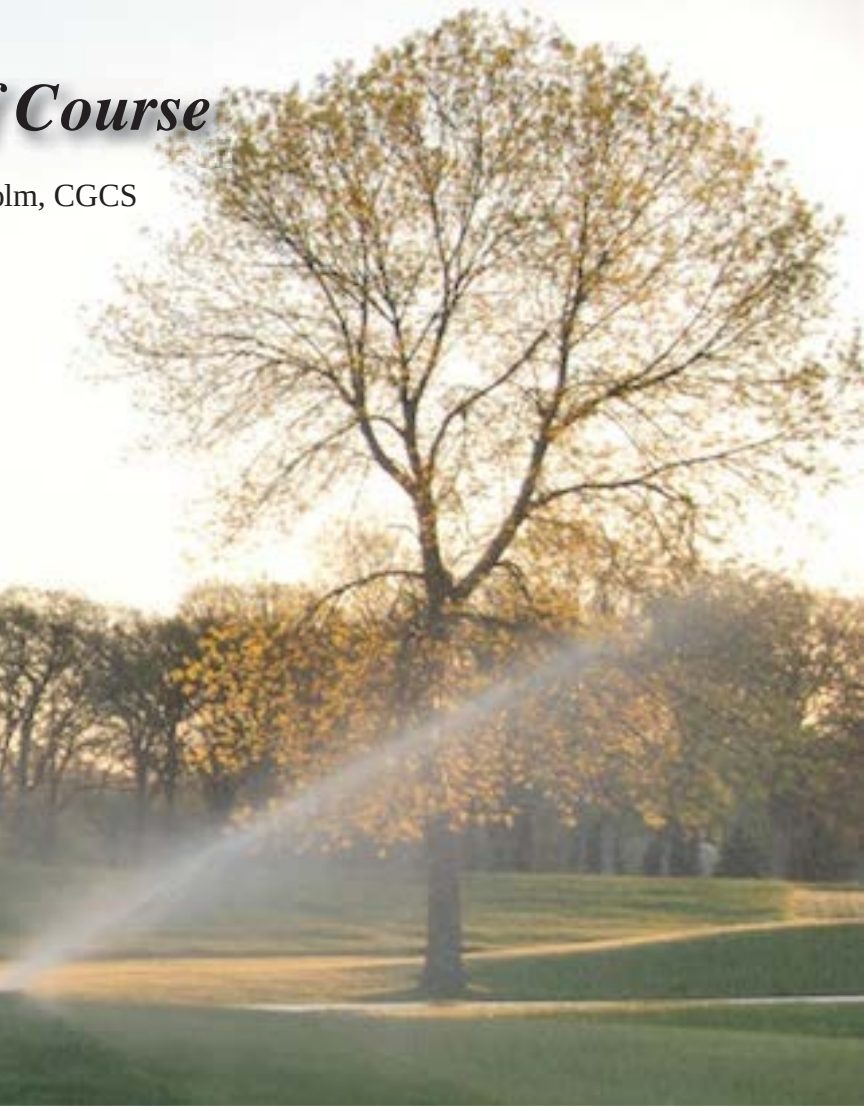
Taking Your Pulse; Maintaining the Heart of Your Golf

By E. Paul Eckho

As fall turns to winter, many of your thoughts turn to warm spaces and relaxing places. Good for you. I, however, would like to turn your thoughts back to your irrigation system. Now is a good time to think about the life blood of your turf, and how it is serving or dis-serving you. Maintenance and evaluation of your system should be ongoing. For many superintendents, the only time they worry about the system is when it fails, rather than being proactive.

In coming articles I will try to walk you through all of the things that you need to consider and how to go through the process. There are a number of professionals that can help in this evaluation process. Irrigation consultants can be hired for a fee to evaluate your system and give you recommendations. Their fees are usually based on how much information you want. Irrigation sales professionals often will be willing to help you evaluate your system. They of course are looking to sell you product, so it might be worth it to speak to all of the available manufacturers and see the different options.

olm, CGCS



Fellow professionals can also be a good source; they may have experienced a problem that you should be looking for.

WATER QUALITY

For simplicity sake I will start at the water source and work our way out. So, what is your water source? Do you have a well, municipal water, holding pond, river, lake or stream? What is the quality of the source? Does it need additional treatment before you try to irrigate with it? Does it have algae in it during portions of the year? Have you ever sent out a sample to know what the quality is? How much is available to irrigate in a specified time period? All of these are things you should be considering about your irrigation water since all of them will affect the quality of the turf you irrigate with this water. Many of the problems found with your water source can be corrected.

There are filtration systems that can be customized to help take out many different kinds of particulate matter. Whether you have sand, muscles, or any other particle problem, there are solutions. Likewise, if you have a pH issue there are solutions to help adjust the water to a desired pH that will help you maintain better turf. If algae are a problem there are a number of options, chemically as well as aeration and other non chemical solutions to help you clean up the water you are providing to your turf.

When was the last time you saw the intake pipe to the system? Is it clogged with debris, is the pond silted in, both correctable problems. Much like the computer saying, ‘garbage

in, garbage out', we have bad water in, bad water out. If you know the limitations, a solution can usually be found to improve the situation and thus make your life, and you turf-grass, a whole lot better.

PUMP STATION

Now that you know the condition of your water supply, time to think about the next step in the system, your pump site. As I mentioned earlier, there are a number of sources to help you evaluate and maintain your pump site.

The pump site is the heart of the irrigation system. If you can't pump the amount of water the system is designed for, you will not experience the performance you are looking for. How long has it been since you serviced the pumps? Typically the impellers of a centrifugal pump should be inspected after they have been in use for 5 years and replaced if there is significant wear. If you are pumping water with a large amount of particulates like sand this time frame should be reduced. You may not have noticed that you have lost pump capacity since it goes away so slowly, but once you put in a new impeller, you will be amazed at how much water and pressure you have been missing.

Do you have a leaking seal on the impeller shaft? This will cause wear on the shaft as well as increased cycling of the pumps. In fact, any type of leakage anywhere on the pump site will increase the cycling of the pumps, which will put severe stress on the pump site as well as the piping of the system.

Are your pumps correctly sized for the output you are looking for? Correction of this is a little more difficult since it will entail purchasing

new pumps and sometimes new motors as well, but it can significantly change the performance of your entire system, without changing the piping on the course.

Do you have a hard start, soft start, or VFD? Do you know what the differences are and how they affect the system and your electrical consumption rate? As electricity costs rise, the need for evaluation of the pump site and its control system becomes increasingly important. Many times the costs for better motor controls can be offset with reduced electric rates and subsidies from your electric company, making an upgrade a more viable option.

These are but a few of the major items that need to be looked at when evaluating your system. In future articles we will look further the system at piping, heads and control systems. Please remember that evaluation and maintenance of the irrigation system is not a onetime thing, but rather an ongoing concern if you are to be able to rely on the system when you need it most.

E. Paul Eckholm, CGCS, is a former golf course superintendent with over 25 years of experience in golf course management and is currently an irrigation specialist at Yamaha Golf and Utility. Paul has been working with numerous manufacturers of irrigation products for the past 15 years on product development related to water use reductions. Paul currently holds a number of certifications in irrigation technologies.

All photographs were taken by Erin McManus, Superintendent at Medina Golf and Country Club.

NORTHERN GREEN EXPO

Have you heard about the speakers at Expo this year?

January 8, 9 & 10, 2014

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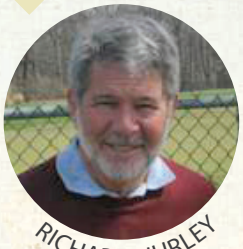
Explore the latest trends in turf disease identification and treatment options.

BRUCE CLARKE

Join me at the 2014 Expo for a discussion on putting greens including managing collars and green speed.



RICHARD HURLEY

My opening keynote at the 2014 Expo will help you jumpstart your year with new leadership techniques and teamwork strategies.

JOHN KENNEDY

Take a look back at 2013 with a golf course "year in review."

BOB VAVREK

Have you considered the significance of plant/soil/water interactions? I'll explain why it's so important.

DOUG SOLDAT

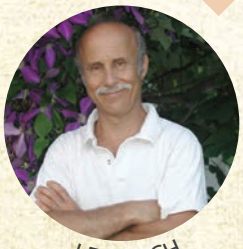
Let's dive into the latest in turf insects and control options.

CHRIS WILLIAMSON

Want to learn about turf management at Target Field? Join me for a first-hand perspective.

LARRY DIVITO

What is "Maintenance Weed-Free Gardening", and how do you do it? Join me at Expo to find out.



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Ahead of the Pack

By Connie Forten of Forten Consulting

As budgets tighten but the demand for high levels of service increase, the snow and ice management industry is stressed to do more with less. We no longer have the luxury of time to melt from the "top down"—a slow and expensive process, both economically and environmentally. Our melting should be targeted at the pavement surface. Anti-icing—"bottom up" melting—will weaken the bond between ice and pavement, and allow quicker success in snow removal.

Which of the following proactive steps can you incorporate into your snow and ice management plan? Whatever you decide, make sure it is documented in your winter maintenance policy—and

that both your crew and clients are informed.

Anti-icing in advance of the storm. By monitoring the weather and applying a small amount of liquid deicer before the snow, the bond between the snow and pavement will be weak. Plowing will be more successful, and the amount of chemicals needed to hold the site post-storm will be reduced. Liquid de-icers, although commonly chloride-based, are 70% to 80% water. Any time a liquid product can be used instead of or to reduce the amount of granular product, it will speed up operations. It will also lower the total amount of salts applied and help protect our water.

Aggressive mechanical removal starting at the first snowfall. If you have a 2-in. trigger policy, you may arrive and the snow has already been driven on and is compacted. Long hours of scraping and salting are needed. The best policies synchronize mechanical removal with the start of a storm. With a proactive plowing policy, more time will be spent plowing in the beginning, but less time and chemicals will be needed in the long run.

Smart location of snow piles. Snow piles are full of salt and debris. You cannot recover the salt, but you can recover the debris. Place piles on a hard surface that can be swept in the spring. Do not use grass areas, ponds or wetland for snow storage. Consider the location and slope of the storage site. Can you place the pile where snowmelt will not run across the parking lot, causing refreeze problems? Property assessment. Persistent ice slicks or trouble spots, often on sidewalks, are caused by poor drainage. Document these areas and discuss them with your client. Repairing these problems in the summer can help lower the risk for slip and falls.

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Education. As our tools and techniques change, invest time in educating your clients and your crew. Help them understand new reasons and practices for being proactive. People are more comfortable with what they have done or seen for years. New practices shouldn't just appear—they should be explained upfront, managing everyone's expectations for a smooth complaint-free winter season.

Our winter maintenance practices over the past 50 years have accelerated the amount of salt entering our freshwater systems. Although salt is a useful, affordable de-icer, it is a permanent pollutant to our freshwater systems. We should challenge ourselves to manage snow and ice most efficiently with the least amount of salt. In the cold-weather states, lakes, rivers and aquifers are showing increased salinity. By integrating proactive practices into your operations, you will help your customer, your business and our lakes and rivers.

Pre-treatment will make your life easier and surfaces safer for your patrons.
photo, Ken Rost

Freezing Rain Adds to the Headache!

By Dale Keep, Ice and Snow Technologies

In the snow and ice management business, freezing rain is normally the most difficult form of precipitation to deal with because of the large amount of moisture and the extremely high rates of dilution for deicing chemicals applied. While the resulting ice layer resembles a black ice condition, it is different in that there is a continuous addition of ice to the surface.

During severe storms, continuous deicer applications are often applied (often without success) in an attempt to stay ahead of the ice. Given this tactic, contractors must consider the level of service requirements of the contract and the amount of ice expected while developing a plan. Due to the high rate of dilution to the deicer(s) applied during the freezing rainstorm, typically large amounts of deicers are required to maintain or often regain bare, wet conditions.

Freezing rain scenariosFreezing rain falls on clear, dry pavement. Under this scenario, a liquid pretreatment is a good start. It will slow the development of ice on the surface and may give you time to mobilize and reapply before ice formations start. Retreat as necessary with dry or pre-wetted solid deicers to maintain or achieve the desired level of service.

Freezing rain falls on snow- or ice-covered pavement. Under these conditions, if quick removal is desired, a heavy application of dry or pre-

wetted solid chemical is needed ahead of the freezing rain. This would be followed by further treatment as necessary with dry or pre-wetted solid deicers. In extreme freezing rainstorms, a combination of deicers and plows may be needed to remove the ice when the storm is over.

A difficult task

In addition to the high dilution rate and large quantities of deicers typically required to battle freezing rain, there is a high risk of melt and refreeze, unless the storm ends with the surface temperatures rising.

Predicted storm severity, time of day, deicer availability, inventory, cost of multiple applications, customer expectations, and the reality of the situation should all be considered when developing a storm-fighting strategy.

In severe storms, when ice forms and the storm continues, there is a high probability that it may not be possible to manage it with chemicals. I have experienced ice storms during which we started out using chemicals only to be forced to park equipment until the storm was over. Regardless of the approach to control it, freezing rain is the ultimate challenge; and there may be times—regardless of contract or intentions—when reality will dictate the ultimate plan and the results.

What's the difference?

Recently while sitting in an airport,

people were talking about freezing rain and what to do as a homeowner and a driver. It quickly became clear that they were not talking about freezing rain, but rather were talking about ice pellets or sleet. This common misconception, and the difficulty in managing different precipitation, makes the subject worthy of some definitions:

Snow. Solid precipitation in the form of minute ice flakes that occur below freezing.

Snow pellets (graupel). White, opaque, approximately round ice particles between 2 and 5 mm in diameter that form in a cloud either from ice crystals sticking together or from accretion (the growth or enlargement by gradual buildup).

Ice pellets (sleet). Transparent pellets of ice that measure 5 mm or less in diameter.

Freezing rain/drizzle. Rain or drizzle that falls in liquid form and then freezes upon striking a cold object or ground. Both can produce a glaze coating of ice. Freezing rain is the result of warm air sandwiched between layers of cold air.

The thickness of the warm air layer will dictate which form of precipitation formed:

If the warm air layer is thin or nonexistent, precipitation will start as and remain snow.

A warm air layer that is somewhat thicker will allow snow to partially melt and refreeze as snow pellets.

As the warm air layer thickens, snowflakes will almost completely melt and then fall into a thick layer of cold air resulting in sleet. When the warm air layer is thick enough to fully melt the snow and the lower cold air layer causes the water droplets to become super-cooled, the rain freezes when it strikes the ground. It can also be the case that the ground is still frozen, which will give the same effect—a layer of clear ice.

The record depth for freezing rain is at 8 inches, set in Idaho in January 1961.

Dale Keep owns Ice & Snow Technologies, a training and consulting company based in Walla Walla, WA.

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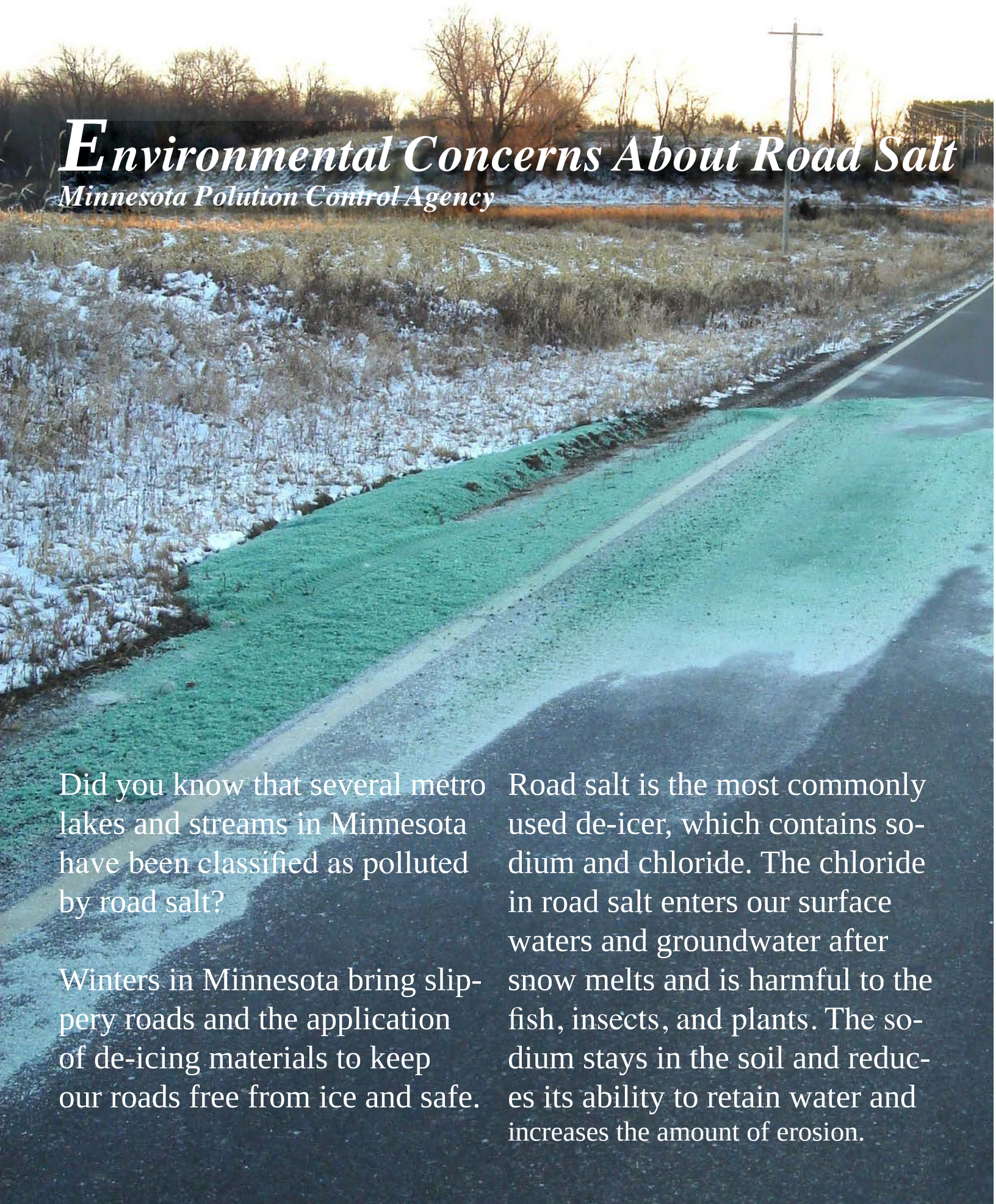
Environmental Concerns About Road Salt

Minnesota Polution Control Agency



Did you know that several metro lakes and streams in Minnesota have been classified as polluted by road salt?

Winters in Minnesota bring slippery roads and the application of de-icing materials to keep our roads free from ice and safe.

Road salt is the most commonly used de-icer, which contains sodium and chloride. The chloride in road salt enters our surface waters and groundwater after snow melts and is harmful to the fish, insects, and plants. The sodium stays in the soil and reduces its ability to retain water and increases the amount of erosion.

Too much salt results in costly damages and serious environmental consequences.

While progress in Minnesota has been made in these areas, there is still much work to do in order to meet water quality standards and achieve a high level of road safety. In 2010, the MPCA more than doubled the number of waters that are listed as impaired for chloride.

A study conducted by the University of Minnesota determined a chloride mass balance for the Twin Cities Metropolitan Area (TCMA) and found that approximately 78% of all chloride generated in the TCMA is being retained in the TCMA. This includes all of the main sources of chloride: chloride from road salt, wastewater treatment plants, water softeners, and other industrial sources.

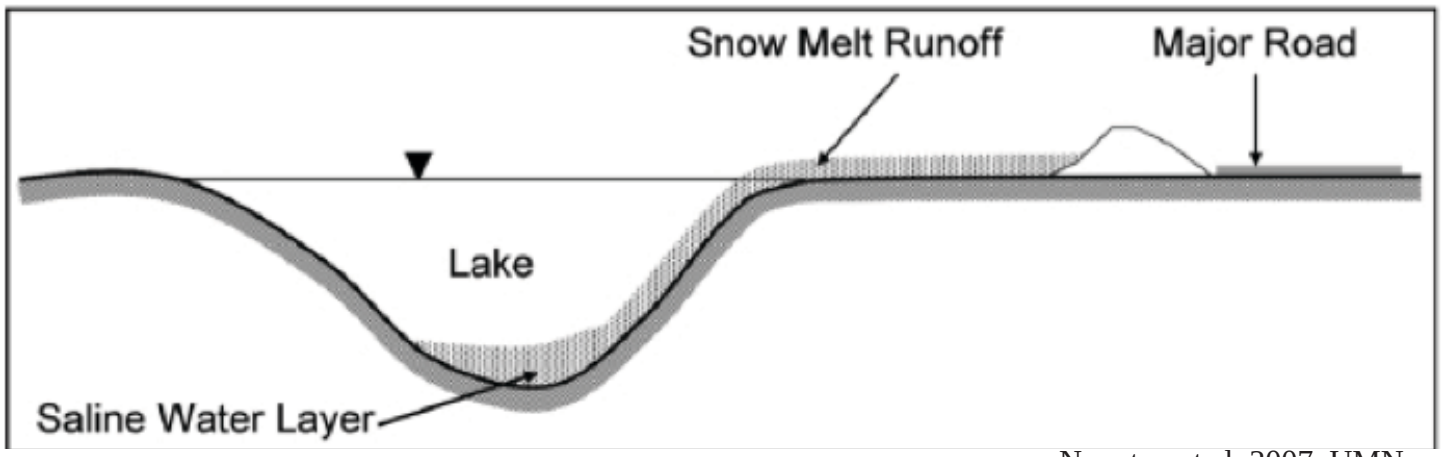
Chloride is a conservative ion (meaning it moves with water without being broken down or lost). Once the chloride is in the water, the only known technology for its removal is reverse osmosis through massive filtration plants, which is not economically feasible. This means that chloride will continue to accumulate in the environment. A high chloride concentration in both the aquatic and terrestrial environment has some of the following implications for human consumption, aquatic life, and plant life:

- At high concentrations chloride is toxic to fish and insects
- At lower levels chloride can negatively affect the fish and insect community structure, diversity and productivity
- Direct road salt splash can kill plants
- Sodium in the road salt destroys soil stability, decreases the soils ability to infiltrate water, and can increase soil erosion.
- Some animals living near or relying on chloride polluted waters are sensitive to road salt

While research does exist that identifies the negative impacts that chloride and specifically road salt has on the environment, there are still many unknowns. Continued research will help us to better understand how chloride interacts with the environment and therefore how to properly manage our water resources.

Follow these simple tips to protect our water!

There are many ways to reduce salt use while maintaining high safety standards.



Novotny et al. 2007, UMN

- Shovel. The more snow and ice you remove manually, the less salt you will have to use and the more effective it can be. Whether you use a shovel, snow blower, snow plow, or ice scraper, get out there as early as you can and keep up with the storm. You may even decide that salt isn't needed.
- 15°F is too cold for salt. Most salts stop working at this temperature. Use sand instead for traction, but remember that sand does not melt ice. Use the reference table below to apply the correct product for the conditions.
- Slow down. Drive for the conditions and make sure to give plow drivers plenty of space to do their work.
- Be patient. Just because you don't see salt on the road doesn't mean it hasn't been applied. These products take time to work.
- More salt does not mean more melting. Use less than 4 pounds of salt per 1,000 square feet (an average parking space is about 150 square feet). One pound of salt is approximately a heaping 12-ounce coffee mug. Consider purchasing a hand-held spreader to help you apply a consistent amount.
- Sweep up extra. If salt or sand is visible on dry pavement it is no longer doing any work and will be washed away. Use this salt or sand somewhere else or throw it away.
- Watch a video. This video, produced by the Mississippi River Watershed Management Organization, provides tips to homeowners about more environmentally friendly snow and ice removal: Improved Winter Maintenance: Good Choices for Clean Water. http://www.youtube.com/watch?v=qc8Y-_Nmfmo
- Share a brochure. Read and pass along Nine Mile Creek Watershed District's brochure about residential snow and ice care. You can find it on Nine MIle Watershed District's education page. http://www.ninemilecreek.org/EDUCATION/EducationPrograms.asp

- Check out other resources. If you are responsible for snow and ice removal somewhere other than your home, please check out our training and resources tab.

Know about the salt product

Salts can range from simple table salt to calcium chloride. Salts are used because they are able to decrease the freezing point of water. Whatever product you chose, make sure you know at what temperature it stops working. We recommend using the table below as labels may be misleading. Note that pavement temperatures are usually warmer than air temperatures. To find out the pavement temperature near you, search the Road Weather Information Service, http://www.rwis.dot.state.mn.us/.

Calibrate your equipment and know where you are applying your snow and ice removal chemistries. ***photo Ken Rost***

Winter Parking Lot and Sidewalk Maintenance

Key Information Needed:

- Pavement Temperature (it will be different than air temperature)
- Parking lot area (or drive lane distance) = Length x Width
- Amount of material your truck or sander delivers at each setting and speed.

Use less! About one tsp. of salt contaminates 5 gallons of water.

TIPS:

- De-icers melt snow and ice. They provide no traction on top of snow and ice.
- Anti-icing prevents the bond from forming between pavement and ice.
- De-icing works best if you plow before applying material.
- Pick the right material for the pavement temperatures.
- Sand only works on top of snow as traction. It provides no melting.
- Anti-icing chemicals must be applied prior to snow fall.
- NaCl (road salt) does not work on cold days, less than 15º F.

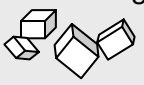
Help protect our lakes, streams, wetlands, and drinking water!

Use best practices for winter maintenance.

Melt Times for Salt (NaCl) at Different Pavement Temperatures

Pavement Temp. ºF	One Pound of Salt (NaCl) melts	Melt Times
30º	46.3 lbs of ice	5 min.
25º	14.4 lbs of ice	10 min.
20º	8.6 lbs of ice	20 min.
15º	6.3 lbs of ice	1 hour
10º	4.9 lbs of ice	Dry salt is ineffective and will blow away before it melts anything

Pick your material based on lowest practical melting temperature, not eutectic temperature which is often listed on the bag.



Melting Characteristics	
Chemical	**Lowest Practical Melting Temp.**
$CaCl_2$ (Calcium Chloride)	-20º F
KAc (Potassium Acetate)	-15º F
$MgCl_2$ (Magnesium Chloride	-10º F
NaCl (Sodium Chloride)	15º F
CMA (Calcium Magnesium Acetate)	20º F
Blends	Check with manufacturer
Winter Sand/Abrasives	Never melts—provides traction only

Variables affecting application rate

Increase rate:	*Decrease Rate:*
Compaction occurs & cannot be removed mechanically	Light snow or light freezing rain
There is a lot of snow left behind	Pavement temperature is rising
	Subsequent applications

Minnesota Pollution Control Agency

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LTAP Minnesota Local Technical Assistance Program

GGP General Growth Properties, Inc.

October 2010 revision File available at www.pca.state.mn.us/roadsalt

Deicing Application Rate Guidelines for Parking Lots and Sidewalks

These rates are adapted from road application guidelines (Mn Snow & Ice Control Field Handbook, Manual 2005-1). Develop your own application rates using the guidelines as a starting point and modify them incrementally over time to fit your needs. The area should first be cleared of snow prior to applying chemical.

Pavement Temp. (ºF) and Trend (↑↓)	Weather Condition	Maintenance Actions	Application Rate in lbs. per 1000 square foot area			
			Salt Prewetted/ Pretreated With Salt Brine	Salt Prewetted/ Pretreated With Other Blends	Dry Salt	Winter Sand (abrasives)
>30º↑	Snow	Plow, treat intersections only	0.75	0.5	0.75	not recommended
	Frz. Rain	Apply chemical	1.25	1.0	1.5	not recommended
30º↓	Snow	Plow & apply chemical	1.25	1.0	1.5	not recommended
	Frz. Rain	Apply chemical	1.5	1.25	1.75.	not recommended
25 - 30º ↑	Snow	Plow & apply chemical	1.25	1.0	1.5	not recommended
	Frz. Rain	Apply chemical	1.5	1.25	1.75	not recommended
25 - 30º ↓	Snow	Plow & apply chemical	1.25	1.0	1.5	not recommended
	Frz. Rain	Apply chemical	1.75	1.5	2.25	3.25
20 - 25º ↑	Snow or Frz. Rain	Plow & apply chemical	1.75	1.5	2.25	3.25 for frz. rain
20 - 25º ↓	Snow	Plow & apply chemical	2.0	2.0	2.75	not recommended
	Frz. Rain	Apply chemical	2.5	2.0	3.0	3.25
15º to 20º ↑	Snow	Plow & apply chemical	2.0	2.0	2.75	not recommended
	Frz. Rain	Apply chemical	2.5	2.0	3.0	3.2
15º to 20º ↓	Snow or Frz. Rain	Plow & apply chemical	2.5	2.0	3.0	3.25 for frz. rain
0 to 15º ↑ ↓	Snow	Plow, treat with blends, sand hazardous areas	not recommended	3.0	not recommended	5.0 spot treat as needed
< 0º	Snow	Plow, treat with blends, sand hazardous areas	not recommended	4.5	not recommended	5.0 spot treat as needed

To determine the amount of material needed, take the application rate x parking lot area / 1000 ft^2 . ***Example:*** Given a 300,000 sq. ft. parking lot and an application rate of 1.5 lbs/1000ft^2 1.5 x 300,000 = 450,000 450,000/1000 = 450 lbs (nine 50 lb. bags).

Anti-Icing Guidelines

These are a starting point only. Adjust based on your experience.

Condition	Gallons/1000 sq. ft.		Other Products
	$MgCl_2$	Salt Brine	
1. Regularly scheduled applications	0.2 - 0.4	0.3 – 0.6	Follow manufacturers' recommendations
2. Prior to frost or black ice event	0.2 - 0.4	0.3 – 0.6	
3. Prior to light or moderate snow	0.2 - 0.4	0.3 – 0.8	

CAUTION: Too high an application rate may result in slippery conditions or tracking.

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Who Is New From the U To You?

At a recent MGCSA Research Committee meeting Dr. Angela Orshinsky, a new turf pathology asset to the Association was introduced. The Committee is excited about the opportunities that are ahead.

Angela Orshinsky, Ph.D., joins the Department of Plant Pathology as an extension assistant professor. Her research will focus on two components of an effective IPM program: early diagnosis of disease and the implementation of biological control strategies to manage diseases and weeds.

Angela will collaborate with extension educators, government agencies and industry personnel to implement an education program that will provide timely and accurate updates on diseases of importance to Minnesota's horticultural industry including fruit and vegetable growers, the turf and grounds foundation, master gardeners, and the Minnesota nursery and landscape association.

Dr. Orshinsky's interests and research goals include integrated pest management (IPM) practices aimed to reduce agricultural inputs by preventing the introduction and spread of plant pathogens, by early pathogen detection, and by implementing sound cultural and biological practices.

"It is my mission to provide the horticultural community with the tools and knowledge that they need to implement IPM programs that are effective, economical, and have a minimal impact on our environment," Orshinsky's brief UMN biography read. "My research interests focus on two components of an effective IPM program: early diagnosis of disease and the implementation of biological

control strategies to manage diseases and weeds. As part of my research program, DNA-based diagnostic tools will be developed and used to conduct pathogen surveys.

These surveys will assess the potential for disease outbreaks across Minnesota so that the appropriate management plans can be initiated. The other aspect of my research program is the study of biological control organisms including their mechanisms of action, secondary metabolite production, and the impact of cultural practices on the fate of biocontrol organisms and naturally occurring microbial communities. The results of my research will directly contribute to the knowledge and tools available to the horticultural pathology extension education program."

As a welcoming gesture, the MGCSA has matched funding from the MTGF to provide Orshinsky with start up grant funding totaling $60,000 over the next three years. Less than eight weeks into her new position, Orshinsky has applied for, and hopes to get, funds from the GCSAA EIFG to match the MGCSA funding to study and develop a rapid response identification technique for Rhizoctonia and Waitia patch. Her background in DNA research leads her to believe that rapid molecular diagnostic tools may be applicable to other diseases as well. It is hoped that by increasing the speed and accuracy of pathogen identification, many turf diseases will be controllable through cultural practices and result in fewer or more targeted chemical inputs.

Dr. Orshinsky's contact information
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The Wee One Tournament, Peers Hel

By Dave Kazmierczak, CGCS

A glorious cause deserved a glorious day.

That was the feeling of all involved at the 4th annual Wee One Tournament held at Brackett's Crossing Country Club on Monday October 7th 2013.

Under perfect blue skies and comfortable 65 degree temperatures some 131 golfers showed up to enjoy a day of golf, food and drink but more importantly, help raise funds for the Wee One Foundation, a charity supporting the golf course industry's personnel with needs due to medical hardship.

Superintendent Tom Proshek and his staff had Brackett's Crossing in terrific shape for the four-man scramble format and conditions were ideal for low scoring.

While the ultimate goal is never to have to distribute any of the funds raised, there was not one person in attendance that didn't feel good about raising over $21,000 dollars to support this year's recipient Eric Peters, Superintendent of North Links Golf course in Mankato, Minnesota and his family.

Peters was diagnosed with cancer in March of 2013 in multiple areas of his body, and has been undergoing treatment ever since.

With his wife, Diane and children Kirsten, Megan and Maxwell looking on, Peters expressed his gratitude to all who have helped him and his family through his journey to recovery. He also expressed his resolve to overcome his illness and return to a normal life. Eric was overwhelmed by the sup-

port he has received from industry and the Wee One Foundation.

The Wee One Legacy began in 1985. Four friends traveled to Scotland on a golf trip. The caddies were making wagers as these golfers stood on the tee. One caddie declared, "My money's on the wee one!" The "wee one", Wayne Otto, CGCS, passed away October 21, 2004 losing his battle to cancer. Wayne had dedicated his life to the betterment of the golf maintenance profession he loved and the individuals who shared his passion.

The Wee One Foundation was developed as a tribute to Wayne to assist golf course management professionals (or their dependents) who incur overwhelming expenses due to medical hardship without comprehensive insurance or adequate financial resources. Through the Foundation's work, Wayne's legacy will never be forgotten.

Although the event was shadowed by a somber situation, everyone enjoyed the opportunity to be a part of a peer's need. From the new Wee Putt Challenge to the brat and taco stands to the distribution of door prizes, the event was festive and participants chose to celebrate life in general. Everyone was a winner that day.

Some, more than others, as the group did recognized a Hole In One made by Mike Carlson and the team Kazmierczak, Lesmeister, Thompson and Rasmusson blew the field away with a score of 53. Make plans to attend next year's Wee One Tournament and challenge Team Prestwick for bragging rights.


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2013 Fall Shoot Out
You Should Have Been There!

39 members of the MGCSA braved the threatening rain to enjoy a day of fraternity, education and sport shooting on October 14th at the Minnesota Horse and Hunt Club. Although on the radar, the inclement weather held off until the drive home following the Fall Shoot Out. You should have been there for a break from the fall routine.

Erin McManus, an acclaimed hunting enthusiast and Superintendent at Medina Golf and Country Club, began the day with inside instruction and tips on how to shoot a variety of shotguns. This knowledge was then taken to the field where Charles Fischer, John Spaulding and Tim Wicklund joined Erin in the shooting stand for more personal and "live" direction. All of the day's participants listened intently for knowledge to enhance their own abilities.

Big Winners of the Day!!! Chad Braun, Equipment Technician at Prestwick Golf Club, won the Benelli Shotgun Raffle and Scottie Hines took home medalist hitting 49 of 50 targets. Congratulations guys.

In advance of the predicted rain, the group hustled back to the Hunt Club for a buffet of cold cuts and chips. Delicious! Dessert was a drive to sell more Raffle Tickets as well as Big Board spaces. The proceeds from these two season long fund raising efforts are contributed to the Research Fund to be used in Member Initiated Research at the University of Minnesota.

Following sponsorship recognition Scottie Hines, CGCS and Prsident of the MGCSA pulled for a number of prizes as well as the Benelli Shotgun winner, Chard Braun. The lucky Equipment Technician from Prestwick Golf Club was thrilled to win yet another shotgun to add to a pair he had won earlier this summer at another fundraiser. "This one is the nicest and my new favorite," he said after receiving the finely crafted shotgun.

Chad led the way to the leaf littered series of shooting stations for an afternoon of LOUD fun complete with the smell of cordite. Fun was had by one and all. The champion team of the day was Scottie Hines, Mike Kelly, Tom Schmidt, Erin McManus and Jeff Pint.


STATION
#12
STATION
#2
#8

Within the Leather

by David Kazmierczak, CGCS

Anybody who knows me knows I am a football fanatic. Come fall, for good or bad, I become consumed by the game. Whether its high school, college or pro ball, I simply cannot get enough of all that is football, and I know that I am not alone. But why? Why am I so obsessed by football?

It has been said that football mirrors life. The game is a parallel of many aspects of the ebbs and flows of everyday existence if broken down and analyzed in that way. I'm not sure about all that, but as I wrote this column with the game on, I started thinking about the parallels to our lovely profession and here is what I came up with.

First off is the obvious fact that football is the ultimate team sport. It takes 11 guys a side, working together in every detail of play to be successful. If there is even one player acting alone of not following the scheme, offense, defense or special teams, the whole system breaks down and success is unachievable.

Now think about your crew at the golf course. If you have one guy not showing up to work, not doing what he needs to do in the field, not following instructions the entire operation overall will not be able to achieve the ultimate goal of the best golf course it can be. Get a couple bad apples on the crew and it can turn into a real mess!

Football is played during every season, and in every kind of weather. It is played on grass, or a grass-like surface. There is a smell to a football field that if you have played the game you know very, very well. The field, practice or game, is like a second home. The guys you play with on your team become your brothers of sorts. Like family.

Now think about your golf course. I have been outside in every kind of weather there is working on a golf course. Wind, hail, snow, sleet, heat, humidity, it doesn't matter. You still have a job to do and together with your crew, you get it done. Just like football. The course and its surroundings are your home away from home. Your assistants and your crew become your friends, your brothers (and sisters) of a sort.

The hierarchy of a football team is exactly that of a golf course. It is

said that all football head coaches are hired to be fired. It's just a matter of how long it takes. While that isn't exactly true of golf course superintendents, thankfully, there are definite similarities. There are a certain number of football teams. There are a certain number of golf courses. Each has only one head guy. The head guy has (normally) two assistants or main coordinators. The underlings want to be the head guy, but have to wait for a position to open. It takes extreme cohesion for the management team of both to run a successful operation, and it takes long hours of hard work to pull it off.

I think the greatest similarity of the two, however, is the fact that both football and golf are sports, and they are sports that are followed or played so passionately by so many people. Because of that, most people think they have a firm grasp of the complexities of running a golf course, because they play, or how a team should be run, because they watch football. That's where the trouble begins.

The truth is, as we in the superintendent business know, there is a heck of a lot that goes into running a successful operation at a golf course that the average golfer will never be privy too or often understand. This is exactly the same as football.

As I watch the local team struggle I am quick to offer my two cents as to what the problem is, what should be done, and pump my chest out in exclaiming that they are awful and here is what should be done. Really? How is that any different than some random golfer or a member that complains about this or that on the golf course but has no clue as to the why or how the conditions are what they are?

I hear opinions from just about everybody when it comes to the golf course. I hear just about everybody offer opinions on their football team; same thing. It is a good thing because that means that person is engaged and cares about either the golf course or the football team in question. But the next time you rip your squad's coach for a decision or call for the quarterback's head, think twice about your own situation. I think you will find quite a similarity.

Now, to be sure, a football coach is probably making more money than the average course superintendent, and functions in a greater spotlight, but if you break it down, they are just like us. Football is just like golf course management. Maybe that's why I'm so attracted to both. If you enjoy the game, enjoy the season.