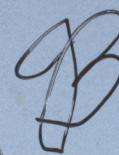


# Green is Beautiful

The Official Publication of Ontario Golf Superintendents' Association

Spring 2012



**Control Your Water –  
Control Your Results**  
**The Importance of Water Efficiency**

**ALSO INSIDE THIS ISSUE:**

**How Dry is My Soil**

**Putting TruFirm Technology to Work  
For the Good of Dendrites**

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PUBLICATIONS AGREEMENT No. 40027105  
Postmaster: Please return undeliverable copies to  
The OGSA, 328 Victoria Rd. S., Guelph, ON N1L 0H2





## Spectacular Turf May Not Be Rocket Science

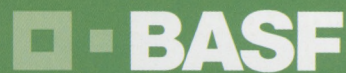
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## PRESIDENT'S MESSAGE



by Doug Breen,  
Golf North Properties

Well that was a strange spring. May weather in March, March weather in April – I can only assume that June will bring a plague of locusts, frogs and golfers. By now, everybody's courses should be as busy as they're going to be, all the staff should be in place and fully trained, and things ought to be running like a well-oiled machine. So let's play some golf.


The OGSA has a number of events planned for the season, and if you haven't been to one in a while, I strongly encourage you to take an afternoon off, and get together with your industry colleagues. It's not really about the golf. It's really about what the LinkedIn crowd refer to as "networking"; and I like to refer to as "group therapy". There's nothing better than finding out that 20 other guys have been having the same struggle that you've been having. And I guarantee that at least one of them will have tried a solution that you never thought of – and will be willing to tell you whether it worked or not. Come on out, you won't regret it.

Your OGSA board has been busy this spring looking at ways that we can more effectively serve you, our members. So if you think we've been sending out a lot of surveys lately, and that board members have been asking a lot of questions, it's because we have been. Thank you to those who have

already completed surveys for us, and thanks in advance to those who will do so in the future. We believe that your OGSA membership gives you the best bang for your buck already, but we're always looking to improve our services even more.

So hopefully the summer won't be too hot, that we'll receive timely rains, and that the golfers will all properly fix their divots and ball marks (I can dream). The dog days of summer are some of the most trying days of our season, but I hope that you can all still find some time to enjoy with friends and family. ■

*Photo submitted by: Mark Prieur, Trafalgar G&CC*



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# Green is Beautiful

The Official Publication of Ontario Golf Superintendents' Association

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Green is Beautiful is published four times a year (November / March / June / August) by Blenheim INK for:



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### Published by Blenheim INK

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The Official Publication of Ontario Golf Superintendents' Association

### ON THE COVER

**Credit Valley Golf and Country Club**

*Photo credit: Jason Hanna*

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OGSA is committed to serving its members, advancing their profession, and enriching the quality of golf and its environment.

### GREEN IS BEAUTIFUL 2012

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## EDITORIAL MESSAGE



by Justin Parsons,  
Engage Agro Corp.

Everybody likes to talk about the weather. It seems to be the default conversation starter in awkward social situations. Perhaps it is because it's the one thing that affects us all. Of course, some people, such as turf maintenance professionals, are affected more than others.

Lately, weather seems to be really throwing a wrench in the works. Last spring we had more rain than we knew what to do with and that was followed by eight weeks of drought-like conditions. Then, of course, we had mid-twenty degree weather over Thanksgiving, followed by a winter that saw only four days with highs below zero degrees Celsius in February. This was in the Toronto area, but in talking to various superintendents, the conditions were similar in other parts of Ontario.

More recently, this spring has been just as peculiar as we all know. However, as unusual as the weather has been over the last several months, rarely do we break records. There is usually some day back in the 1950's that was the hottest and another day back in the 1960's that was the coldest.

In some way, it's comforting to know that the world has seen more extreme temperatures, on any given day, before.

When you think about it though, what is normal? I guess for the purposes of weather, it's what we call 'seasonal' temperatures. But seasonal temperatures are merely a collection of all the temperatures to create an average. It doesn't mean that is what we should expect. It merely means that is what the middle ground is when you average out all the peaks and valleys in temperature over time.

With this in mind, perhaps the weather is no more erratic than it has been in the past. Maybe it just seems that way because we have strayed, albeit for some time now, from what is considered 'seasonal'. Regardless, weather plays such an integral part in the planning and execution of golf course maintenance. It also influences course conditions as much as anything on a daily basis.

This issue features a couple of articles that focus on the basics of turf maintenance; both from an infrastructure standpoint and from a soil science perspective. So, no matter what Mother Nature has in store for us this year, hopefully this information will help, in some way, see your turf through the season. ■



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# WHAT'S NEW

by Sally Ross, OGSA Executive Manager

## GOLF DIGEST RANKING

The OGSA extends their congratulations to St. George's Golf & Country Club for receiving a top-ten ranking as one of the 100 Best Courses Outside the U.S. by *Golf Digest* magazine. Congratulations also go out to the four other Ontario courses that made the list: National Golf Club of Canada (17), Hamilton Golf & Country Club (27), Devil's Paintbrush (72) and Beacon Hall Golf Club (78).

## OGSA: Welcome to Our New Members



Justin Chadwick	Class F
National GC of Canada	
Kevin Collier	Class Supt
RiverBend Golf Community	
Darren Fritz	Class C
Links at Pipers Glen	
Kenneth Hoare	Class D
Indian Hills Golf Club	
Albert Johnson	Class A
Big Cedar Golf & CC	
Robert Kerr	Class S
University of Guelph	
Andrew Lombardo	Class Supt
Wyndance Golf Club	
Paul MacMillan	Class F
Wildfire Golf Club	
Greg McLinton	Class A
Frog's Breath Golf Club	
The Grass Company	Class E
Bill Aimers	
Sylvite Turf	Class E
Doug Hubble and Bill Martel	

## NEWS FROM THE OFFICE

The biggest news from the office is that we should have our new website launched by the time this issue is released. Our new web address is [www.ogsa.ca](http://www.ogsa.ca)

Please note new email addresses for the office staff:

**Sally Ross:** [manager@ogsa.ca](mailto:manager@ogsa.ca)

**Pat Thomas:** [members@ogsa.ca](mailto:members@ogsa.ca)

**Deborah Badger:** [accounts@ogsa.ca](mailto:accounts@ogsa.ca)

The new site gives us more capabilities in terms of managing the membership database, as well as providing a secure payment site. Of course a new site is never without a glitch or two, so if you spot anything strange, please contact us. Your feedback is always appreciated.

The OGSA board has met twice since the Niagara conference and is scheduled to meet again just prior to the release of this issue. The new committee structure was set up and working committees were established.

Planning is now underway with the CGSA for the upcoming joint conference in Toronto next January.

The board also reviewed results from a recent associate member survey which focused on dues structure,

organizational involvement and additional services that the association can offer to the associate members to add value to their membership.

One change that the board did approve, was regarding the Class AA (Retired) memberships, which have always been complimentary and will remain that way. However, any new Class AA retirees will be serviced electronically.

An additional donation to the Ontario Turf Research Foundation was approved.

All OGSA scholarships will now have one submission date and applications will be available year round on the new website at [www.ogsa.ca](http://www.ogsa.ca). Reminders will be sent out periodically.

On behalf of Aurora golf courses, OGSA President Doug Breen recently made a presentation to the public planning committee for the town of Aurora. The council is considering changing the existing tree by-law. It is hoped that Doug's presentation enabled the township to recognize the distinct difference between the business of running a golf course and those by-laws applicable to private residences. If so, this can only assist other municipalities in recognizing that one rule does not fit all. ■



# 2012 OTRF Golf Tournament

Tuesday August 14, 2012  
MAGNA Golf Club, Aurora, ON



For registration information visit: [www.otrf.ca](http://www.otrf.ca)



# CAN/AM Challenge 2012

by Doug Breen, OGSA President

It was raining when I woke up in my hotel in Windsor. It was raining harder when I crossed the Ambassador Bridge. It rained while we were having breakfast, and it rained all the way home – but for four hours on the 30th of April, it didn't rain a drop on TPC Michigan, as the Michigan Golf Course Superintendents' Association (MiGCSA) hosted the annual challenge match against the OGSA.

And gracious hosts they were. The golf course was first rate, the food was excellent, and the fellowship (as always) was beyond compare. The MiGCSA truly are a terrific group to spend a day on the course with. Unfortunately, they weren't gracious enough hosts to let the visiting Ontario contingent bring back the cup. Although many matches (mine included), came right down to the very last hole, in the end, our drought continues, and the CAN/AM Cup will spend another year on the wrong side of the Detroit river.



Left to right: Gregg Matthews, MiGCSA Secretary Treasurer, Doug Breen, OGSA President, Greg Pattison, MiGCSA Vice President.

At dinner, there was a great deal of discussion among the two executives, about what we could do to make next year's event on the Canadian side even bigger and better. Stay tuned for future announcements, but most of all, play some golf this summer – we need to get the cup back in Canada.

The Americans won the event 40 to 20. Closest to the pin winner was Roy Szyndlar and Jerry Richard took home the title for the longest drive. ■

## 2012 Pro/Super Tournament



Winners Jim Rennie, left, and Paul Mickalko, right by Sally Ross, OGSA Executive Manager

The OGSA's annual Pro/Super Tournament was held on May 23rd at the beautiful Georgian Bay Club, hosted by Superintendent Bert McFadden and Head Golf Professional Greg Colekessian.

Rave reviews for the course, service and hospitality were heard from the field of 104 golfers. The big winners were the team from Batteaux Creek, Paul Mickalko and Jim Rennie with a score of -9. Paul, who had a lucky

day as well as a good golf day, won the \$310.00 from the 50/50 draw.

The second place team was Cobble Beach Golf Links, Jeff and Warren Thomas, coming in with a -7. Despite the tied score, Ray Richards and Andrew Lovell from Mad River edged out Bill McAllister and Josh Doan from Rattlesnake Point taking the prize for third place in the tie-breaker.

Closest to the Pin winners for the superintendents was Andrew Lombardo (Wyndance) and for the pro's was Jeff Czuba (Granite Ridge).

Longest Drive winners for the superintendents was Paul Scenna (Beacon Hall) and for the pro's was Jason Levine (Cambridge Golf Club).

Eight teams shared in the skins pool of \$940.00.

Master of ceremonies Phil Scully presented the prizes to the winners and thanked all staff and the members of the Georgian Bay Club on behalf of the OGSA for an outstanding day. ■

## MARK YOUR CALENDAR UPCOMING 2012 OGSA Tournament & Events

### Presidents' Day

Granite Golf Club  
Monday, July 16th

### Summer Scramble

Springfield Golf & Country Club  
Tuesday, Aug. 28th

### Assistants Tournament

Piper's Heath Golf Club  
Monday, Sept. 24th

### Alex McClumpha

Scarboro Golf & Country Club  
Monday, Oct. 1st

## Guelph Turfgrass Institute

### Summer Research Field Day & 25th Anniversary Celebration

#### DATE:

Thursday  
August 23, 2012

#### EVENT DETAILS:

Morning tours highlighting current research activities followed by a GTI 25th anniversary celebration lunch.

#### FOR INFORMATION:

[www.guelph-turfgrass.ca](http://www.guelph-turfgrass.ca)  
[gti@uoguelph.ca](mailto:gti@uoguelph.ca)  
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### KEYNOTE SPEAKER:

**Sean Foley**

PGA Tour Instructor

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[bgarrett@golfsupers.com](mailto:bgarrett@golfsupers.com)

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# Time to Reflect on Your Rules

**B**ill 168, now known as Section 32 of the Occupational Health and Safety Act in Ontario, became law on June 15, 2010. It represents a significant change in how, and to what extent, both workplace violence and workplace harassment are regulated in Ontario. It also broadens the definitions of workplace violence and places new requirements on Ontario employers.

### **The law defines a series of steps that every employer must take. These include:**

1. Developing written policies that are posted with respect to workplace violence and workplace harassment.
2. Conducting a risk assessment for workplace violence.
3. Developing a workplace violence and harassment program.
4. Ensuring all workers understand that all incidents or threats of workplace violence must be reported to the employer or supervisor.
5. Establishing a protocol for investigating and managing incidents, complaints, or threats of workplace violence.
6. Reassessing policies and programs.
7. Training all workers to understand these policies and procedures.
8. And employers must support workers if they implement a refusal to work where the worker has reason to believe that he/she is in danger of being a victim of workplace violence or harassment.

### **The Act defines workplace violence as:**

1. The exercise of physical force by a person against a worker in a workplace that causes or could cause physical injury to the worker;
2. An attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to the worker; or
3. A statement or behaviour that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.

The act broadens and extends the definition of workplace harassment beyond what is presently covered under the Ontario Human Rights Code. The Human Rights Code has long prohibited harassment in the workplace based on race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, age, record of offences, marital status, family status, or disability.

Traditionally, harassment that was based on other, non-protected grounds was not actionable, unless the employer had extended additional protection by way of policy or it had agreed, as part of the collective bargaining process with a union, to incorporate broader protection in a collective agreement. Bill 168 changes this because it requires employers to treat harassment based on non-protected grounds in the same manner as harassment based on code-protected grounds.

The act now defines workplace harassment as engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome and not already protected under the Human Rights Code.

There are a number of ways that employers can address the issues of workplace violence and harassment to ensure that they are meeting the needs of their workers and the requirements of the law.

The first step is to conduct the necessary surveys (risk assessments) that will determine the potential for violence or harassment in your workplace. Once you have completed the surveys then you must use the information to develop your strategy. There are a number of methods that you may use. Some of these include online training, meeting with individual workers, having discussions at staff meetings, preparing and communicating a policy, and generally ensuring that everyone in the workplace understands workplace violence and harassment.

If you need assistance give me a call. I will do my best to get you on the right track.

I look forward to hearing from you. ■



*Doug Johnson, Consulting, Safety and First Aid Supplies, WHMIS Training  
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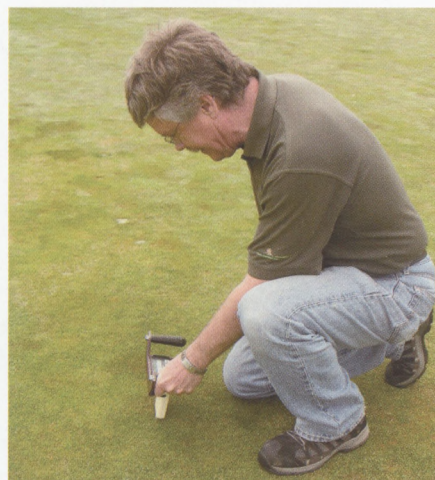
# How Dry is My Soil?

Probably one way to guarantee that we will have a wet summer is to write an article on a tool to better understand rootzone moisture and improve irrigation efficiency. Well, let's tempt fate. That being said, the 2012 winter was one of the driest on record and the spring so far is following in its footsteps. Most golf courses in Ontario had their irrigation systems up and running 4-6 weeks earlier than usual. Localized dry spots were showing up in mid-March and non-irrigated turf in fairways and roughs was not even growing in April due to a lack of soil moisture. A few watersheds are at Level 1 under the Ontario Low Water Response Plan, which means a voluntary 10 per cent reduction in water taking. All that being said, let's talk about a tool that will help you use your irrigation system more efficiently, conserve water, and improve playing conditions. I'm referring to a Time Domain Reflectometry unit (TDR). The probe measures an electrical signal between the volume of soil between two rods and converts it into volumetric water content (VWC). The technology is accurate across a broad

range of soil types, from heavy clay to a sandy loam soil, such as a USGA specification putting green. There are a few different makes and models of portable TDR units available that are easy and quick to use and range from \$500- \$1,300.

### Ground Truthing a TDR Unit

The first thing to do when you purchase this new tool is to develop a data base of soil moisture measurements and compare or correlate the information with visual assessments. These assessments are what you currently use to determine your watering schedule. Measurement readings may be taken before and after an irrigation event of a known length of time. It is important to make sure that you include areas prone to localized dry spots and areas that are the last to wilt. Soil moisture will vary greatly based on soil texture and surrounding environment, so an extensive data base for your own course is a must. This exercise will help to determine what your irrigation threshold is. In other words, how low can you let your volumetric water content go before you schedule an irrigation event.



*Dr. Ken Carey measures volumetric water content with a TDR probe.*

Most experts suggest a range between 15-25 per cent depending on the soil type and the season. Spring is a good time to do the ground truthing because the turf is generally under less stress.

### Where and how many measurements?

Not only do you need to measure every green, but it is important to have enough measurements per green to get an adequate picture of the soil moisture status of the entire



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putting surface. The suggested number of measurements per green range from 9-12 readings. Pay special attention to slopes, elevated areas and low areas on greens. Keeping close track will help determine what areas need hand-watering and a TDR unit will also help determine how effective your hand-watering is. In addition, after you have some initial data, you might be able to group your greens and pick one green from a group to be your "hot spot" or the green you use as a predictor of when irrigation will be needed on the greens that are similar.

### How deep should you measure?

The depth at which you measure moisture has a big impact on the readings. The goal is to measure the soil moisture in the zone where the majority of your roots are. If you are managing annual bluegrass putting greens, the majority of your roots will be in the top 4 cm of the soil. With this in mind, the shorter rods will give you the best estimate of soil moisture available to the turf plants. If you are managing creeping bentgrass putting greens, than it is more likely that you would want to use the 12 cm rods. TDR units come with probe rods of different length rods of 3.8 cm, 7.5 cm and 12 cm. You may want to use the longer rods in the spring when roots are deeper and use the shorter set of rods in the summer when there is considerable root loss due to high soil temperatures.

### How frequent should you measure?

When you are starting out measuring your soil volumetric water content, daily measurements for roughly a two week period will get you familiar with the technology and with what your moisture content threshold is. This, however, might need adjusting seasonally, either because the volume of soil from which the roots are drawing moisture has changed or because the threshold might have

to be higher in the summer when there is increased ET and increased stress. On a hot dry day, greens may go from 25 per cent volumetric water content at 9 a.m. to well below your threshold by shortly after noon and the result will be turf wilt. During the summer, you may want to measure in the early morning and again in the afternoon during a hot, dry spell to make sure that you are programming the irrigation system to replace the water lost.

### Hand Watering Training Tool

Up until now, irrigation scheduling and hand-watering have been considered an art as much as a science. A TDR unit can be a great training tool for a hand-watering crew. It will ensure that all hand-watering is being carried out uniformly by all staff and will greatly improve the playing conditions. Greens can be subdivided into thirds or quarters and can be colour coded according to their hand-watering needs. This will ensure that only that areas that need watering will be targeted and that those areas will receive an appropriate amount.

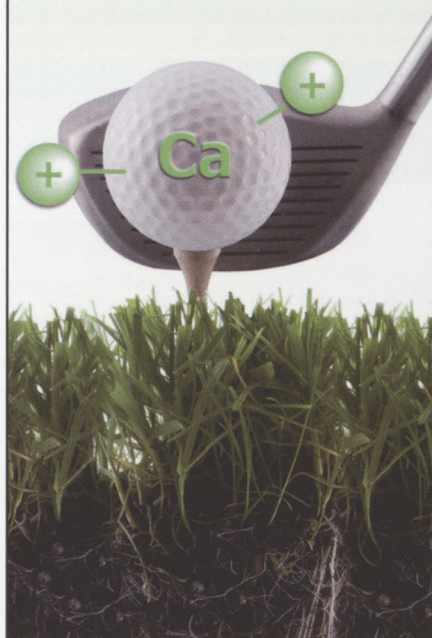
### The Sky is the Limit

Depending how much time you want to invest in monitoring your soil moisture, this tool will help you tweak your irrigation scheduling and hand-watering. Once you have mastered this tool on putting greens, it can also be utilized on larger areas of the golf course, such as fairways. This TDR unit can improve irrigation efficiency and potentially garner cost savings as well. In addition, we have all learned that proper irrigation management is one of the principles of IPM. We now have a very accurate and easy method to use this tool in an IPM program. ■



*Pamela Charbonneau  
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# Basic Soil Testing

By Dan Clarke & Dr. Byron Vaughan

Soil testing is a key component to diagnosing turf problems and nutrient management. Attempting to manage turf without soil testing may result in misapplied products and a decline in turf quality. Perhaps the biggest deterrent to soil testing is finding the time to collect good soil samples. A good representative soil sample should be taken to a 3" depth and contain 12 to 15 soil cores that are mixed thoroughly. For proper evaluation, the soil sample should be sent to an OMAFRA approved soil testing laboratory. Upon laboratory receipt of soil samples, it will normally take two to three days for laboratory results. To help better understand these results, the key components of a soil test report are as follows:

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## Soil pH (pH):

Determines soil acidity or alkalinity. Soils with a pH <7.0 are termed acid. Soils with a pH >7.0 are termed basic or alkaline. Soil pH also affects the availability of many nutrients. Turf prefers a pH between 6.0 and 7.0. Soils with a pH less than 6.0 may need limestone to raise the soil pH. Soils with an alkaline pH can be acidified with sulfur.

## Buffer pH:

Soil pH determines if limestone should be applied while buffer pH tells you how much limestone is needed. The buffer pH test is used on soils with a soil pH less than 6.0.

## Soluble Salts (Electrical Conductivity):

Soluble salts are measured by the soils ability to conduct electricity and is expressed in mS/cm. High soluble salt levels severely affect plant growth. Relative levels of soluble salts are: Satisfactory <1.0 mS/cm and Potential Problems >1.0 mS/cm.

## Sodium (Na):

Soils with high sodium usually have high soluble salts, poor drainage, and/or poor irrigation management. Relative levels for sodium are: Satisfactory <100 ppm and Potential Problems >100 ppm.

## Organic Matter (OM):

Soil organic matter is the by-product of bacteria decomposition of plant residue. Sandy soils and eroded soils are often low in organic matter. Organic matter levels are the highest at the soil surface. Relative levels for organic matter are: Very Low = 0.1-1.5%, Optimum 4.1-6.0%, and Peat >15%.

## Nitrate-Nitrogen (N):

Soil nitrate can easily change in the soil, unlike the other soil nutrients that can build up with excess application. Testing soil nitrate-nitrogen can provide a current "snap shot" of the

soil nitrate status. However, nitrate can change significantly with just one big rain event. Relative levels for nitrogen in the soil are: Very Low <3 ppm, Optimum 10-15 ppm, Very High >20.

## Phosphorus:

The Olsen-Bicarbonate phosphorus test is used to determine soil phosphorous availability. Phosphorous soil test levels can easily increase with excess phosphorous applications. Phosphorous improves root growth, photosynthesis, and overall turf health. Relative levels for the Olsen-Bicarbonate phosphorus test are: Very Low <5 ppm, Optimum 20-40, Very High >75 ppm.

## Potassium (K):

Potassium improves disease tolerance, traffic, and winter hardiness. Sandy soil types are often low in potassium and have challenges holding onto potassium. Relative soil test levels for potassium are: Very Low <50 ppm, Optimum 140-220 ppm, Very High >400 ppm.

## Magnesium (Mg):

Magnesium is a key component of the chlorophyll molecule and many plant enzymes. Soils with a low pH (<5.5) may be low in magnesium. Relative levels for Magnesium are: Very Low <50 ppm, Optimum 270-360, Very High = >750 ppm.

## Calcium (Ca):

Calcium is critical in building cell walls and membranes. Calcium deficiencies are not common when soil pH is >7.0. Soils with a pH <5.5 may be calcium deficient. Relative levels are: Very Low <250 ppm, Optimum 1,800-2,400 ppm, Very High >6,000 ppm.



### **Zinc (Zn):**

Zinc is extracted with the chelate called DTPA. Zinc deficiencies are most common where soil organic matter levels are low and/or there is a high soil pH. Zinc is involved in the synthesis of indoleacetic acid, an important plant growth regulator. Relative levels for zinc are: Very Low <0.5 ppm, Optimum 2.0-5.0 ppm, Very High >10 ppm.

### **Manganese (Mn):**

Manganese is extracted with phosphoric acid. Manganese is involved in the activation of many enzymes that are part of the plant growth process. Sandy soils, high pH, and/or low organic matter contribute to manganese deficiencies. Relative levels for manganese are: Optimum >15.0 ppm and Very High >150 ppm.

### **Copper (Cu):**

Copper is extracted with a chelate called DTPA. Copper is involved in enzyme activation, pigmentation, and protein synthesis. Soils high in organic matter can be prone to a copper deficiency. Relative levels for copper are: Very Low <0.2 ppm, Optimum 1.0-2.5 ppm, Very High >10.0 ppm.

### **Iron (Fe):**

Iron is extracted with a chelate called DTPA. Iron is involved in many biochemical processes. It is required for the formation of chlorophyll in plants. High soil pH and low organic matter will contribute to iron deficiencies. Most soils have significant amounts of iron yet it is unavailable due to soil pH. Relative levels for iron are: Very Low <2 ppm, Optimum 12-18 ppm, Very High >250 ppm.

### **Sulfur (S-sulfate):**

The biggest reserves of sulfur are contained in the soil organic matter. A sulfur test will determine the immediately available sulfate. Soils low in organic matter and/or sandy soils are prone to sulfur deficiencies. Sulfur is a key component of three essential amino acids. Relative sulfur levels are: Very Low <2 ppm, Optimum 12-18 ppm, Very High >75 ppm.

### **Boron (B):**

Boron can be determined by

extracting it with hot water using barium chloride to flocculate the soil. Boron is an anion and therefore is prone to leaching. Organic matter is a key soil component that "holds" on to the boron and reduces leaching. Boron plays a key role in allowing cells to elongate during cell division. Relative levels for boron are: Very Low <0.2 ppm, Optimum 0.6-1.2 ppm, Very High > 3 ppm.

### **Cation Exchange Capacity by summation (CEC):**

The CEC of a soil is an index of a soil's ability to hold all cations (Ca++, Mg++, Na+, K+, H+). Soil clay and organic matter are the two soil components that contribute to the soils CEC. Soils with a low CEC require more frequent fertilization at low application rates. The CEC of a soil is closely related to soil texture. A CEC of 1-8 = Sand, 9-12 = Loamy Sand, 13-20 = Sandy or Silty Loam, 21-28 = Loam, 29-40 = Clay Loam and >40 = Clay or Peat.

### **Base Saturation:**

The base nutrients are calcium, magnesium, potassium, and sodium. The base saturation of a soil is expressed as a relative percentage of the total cation exchange capacity. Each base nutrient is expressed as a percentage of the total amount of cations measured in the sample. Typical ranges for base saturation are: Calcium 65-75%, Magnesium 15-20%, Potassium 2-5%, Sodium 0-5%, Hydrogen 0-5%. Soils with Na% greater than 5% need amendments such as gypsum or elemental sulfur plus leaching to remove excess sodium from the soil.

Interpretation of soil test results falls into two categories, extremes and typical. Soil test results that are very low or very high obviously point out the soil test nutrients that need to be corrected. Usually, less than 5% of the soil samples are extreme interpretations. Results that are typical can provide insight if soil test records are maintained. Comparing historical soil test values for the same sampling location is a very powerful diagnostic tool.

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To use a practical example, consider this: if a middle aged male weighs 180 lbs, we would say the individual is average and nothing is alarming. If you knew that 6 months ago the same individual weighed 140 lbs or 240 lbs, the interpretation would be drastically different. Comparing historical soil test values allows you to see if your soil test values are going up, going down, or maintaining. If your soil test values are going up, it may mean that you are applying more nutrients than the turf needs and if you continue, your soil test levels can become excessive and you may develop new problems. If your soil test levels are going down, this may mean that you are applying fewer nutrients than what the turf is taking up and if you continue you could develop deficiencies. Maintenance tells you that management practices are maintaining steady soil test values and that management practices are in equilibrium with turf removal. ■

*Dan Clarke is a Certified Crop Advisor and is the Business Development Manager at Activation Laboratories in Ancaster, Ontario; Dr. Vaughan is a member of the Soil Science Society of America, American Society of Agronomy and is the Soil Nutrient Manager at Activation Laboratories in Ancaster, Ontario.*

*Basic Soil Testing photos (page 4 & 12) by: Scott White*

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# Ben Ingram

Superintendent at Caledon Woods Golf Club

by Justin Parsons  
Engage Agro Corp.

Unlike so many OGSA members, Ben Ingram's turf maintenance career did not begin in Ontario. Actually, it didn't even start in Canada. Born in Northampton, England, about an hour north of London, Ingram stumbled into the greenskeeping business at age fifteen.

At the time, he was finishing what would be the equivalent of high school here in Ontario. With just a three week co-op placement left in his schooling, it was suggested by a teacher that he spend it at a nearby golf course. With no better ideas in mind, Ingram decided to give it a shot. "I went there for three weeks and just loved it. I felt like this was something I could see myself doing."

Since there were no turf specific college programs in England that

Ingram could apply to, he decided to enroll in a general horticultural program to help provide a foundation for a career in golf course maintenance.

Over the next four years, Ingram would complete his schooling, a National Diploma in Amenity Horticulture with a Sports Turf Option, and start to gain a great deal of practical experience. He worked at a turf farm, a golf course, did a grow-in at another course and worked for the biggest turf supplier in Europe.

The best experience he had though, during his college years, was the time he spent working on a golf course in Switzerland during the summer months. His summer placement was at the Golf Club Gstaad Saanenland and it was located right in the Swiss Alps, 1,400 meters above sea level. Ingram would start at the end of April and work until mid-September, then he would head back to school. "I loved



it," Ingram says without hesitation. "It was magic." He liked it so much that he went back for two more years.

In the winter of 2001, after his schooling was complete, Ingram decided to take some time off and visit a friend from school that had moved to Toronto. After working with people from all over the globe in Switzerland, he had a keen interest in seeing what life was like in other parts of the world. It was here that his turf career in Ontario would take root.

While on this trip, Ingram was introduced to Bill McAllister, who, at the time, was the superintendent at Cherry Downs Golf and Country Club in Pickering. The following April, with some help from McAllister, Ingram became an employee on the Cherry Downs greens staff. When McAllister took the superintendent's job at Rattlesnake Point Golf Club in Oakville the following September, he asked Ingram to come with him. "I have a lot of respect for Bill and he had taught me a lot, so when he asked, I said, 'yeah, I'm there'."

...continued on page 16

## IN THE HOT SEAT

Q – Favourite major  
A – British Open

Q – Favourite piece of  
turf equipment  
A – Toro 648

Q – Favourite golf designer  
A – Robert Trent Jones Sr.

Q – Ultimate foursome  
A – Manny Pacquiao, Lionel Messi,  
Tiger Woods

Q – Lowest round and where  
A – 81 at Caledon Woods GC

Q – Favourite movie  
A – Goodfellas

Q – Favourite meal  
A – Chicken Madras Curry  
or Mum's Sunday Roast

Q – What's playing on your iPod  
right now?  
A – Kasabian – *Velociraptor!*

Q – Rate your home lawn on a scale  
of one to ten (1 worst, 10 best)  
A – 1.5 – Its more dandelions than  
bluegrass.



It was here that Ingram really started to hone his skills as a manager, especially in 2006 when he became the assistant. The 45-hole facility carries up to 90 staff during peak season, so organization and planning become critical skills for success. This experience would no doubt help to prepare him for his first superintendent's job at Caledon Woods Golf Club. Ingram started in March of 2008 and has been there ever since. He has really enjoyed his time with Clublink and says that they have treated him very well.

When he is not at the golf course, Ingram enjoys playing both league football (soccer) and softball. He also spends a lot of time watching North American sports and, of course, his favourite football club, Arsenal. We won't mention his hometown team Northampton Town FC, who have dropped to the fourth tier in England's football league.

Having worked on both sides of

the Atlantic Ocean now, Ingram recognizes a lot of differences between turf maintenance here and in the U.K. Ingram feels that for turf professionals, the schooling in England is a lot different than here in Canada. "Over there, there's a golf course associated with every school, so my school had a golf course on it... it's very practical based." As part of the curriculum, you work with the head greenkeeper. You cut greens and pins and get a sense of what the day to day operation is like. However, from a theory standpoint, Ingram admits that the schooling here is a little stronger.

Once you are part of a crew full-time, the biggest difference is the size of the staff. "A greenkeeping staff over there might be setup with seven greenkeepers and five of them are educated guys," Ingram says. Indeed, the crews are small, or 'compact' as Ingram puts it, but you do everything. The tough part is, since almost everyone on a golf course

has some kind of turf education, there is a pecking order and, with limited positions, there is not much room for advancement. "It's tough," says Ingram. "You have to put your time in."

Although that is no different than here, Ingram feels that golfer expectations sure are. "This fascination with green speeds over here just isn't the same back home. The comments I hear over here always have to do with the greens." The other thing that isn't a high priority in England is golf carts. "Everyone walks back home. Like when I first saw a beverage cart here, I thought 'what the heck is that'," he says with a chuckle.

With his family still living in England, he admits it can be hard only seeing them at Christmas. But he is settled here in Ontario and has really enjoyed the last ten years he has spent here. "I've learned how to grow grass here in Southwestern Ontario and Canada is pretty much home now." ■



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**Golf Course Superintendent:**  
Phil Scully

**Assistant Superintendent:**  
Dan Brousseau

**Equipment Manager:**  
Troy Fisher

**Horticulturalist:**  
Nicole Cain

*Hole #1*

*Photo credit: Kevin Kobzan*

## COURSE PROFILE

### About the Course

Granite Golf Club is nestled between the untouched beauty of the Oak Ridges Moraine and the gently rolling countryside. It combines the best features of Scotland's oldest links with all the advances of a truly modern golf course.

**Established:** 2000 (9 holes), 2001 (18 holes)

**Original Architect:** Thomas McBroom

**Type of Club:** Private

**Size of Membership:** 470

**Number of Holes:** 18

**Number of Rounds Annually:** 17,000

**Practice Facility:** Driving range, five practice holes

### Biggest Maintenance Challenge

Balancing the high level of expectations from the membership on a daily basis without compromising long-term turf health.

## A CLOSER LOOK

### What You Need to Know

**Predominant Grass Type:** Bentgrass

**Predominant Soil Type:** Clay

**Type of Greens:** California

#### Recent or upcoming construction:

We are going to be building a dedicated Short Game Academy this season. This project will offer the membership a world class practice facility providing golfers with a state of the art academy to fine tune their short game. Construction begins in July with a projected opening date of June 2013.

**Course Length:** 4,822-6,909, yards

**Size of Property:** 275 acres

**Size of Greens:** 3.4 acres

**Size of Tees:** 2.3 acres

**Size of Fairways:** 25 acres





# Control Your Water – Control Your Results

*By Colleen Tocci, Marketing and PR Manager for the Performance Nutrition Division of LidoChem, Inc.  
(formerly Marketing Services Specialist, Aquatrols)*

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*“You will never know the worth of water till the well is dry.”  
– Thomas Fuller (1732)*

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While our wells are not yet dry, globally, water use is a topic of ongoing discussion and scrutiny. In much of the public eye, golf courses ‘waste’ too much water and many feel regulations on water use should be implemented. In 2008, when the Great Lakes Water Compact (an agreement between Canada and the United States) was signed, one requirement, in order to limit diversion of water to areas outside the Great Lakes Basin, was that each US state and Canadian province bordering the Great Lakes must develop a water conservation program to show commitment to using water wisely. As a result, even if you live in a bordering province, it is important to use water efficiently.

As an industry we have invested millions of dollars upgrading irrigation systems; remote controls, installing new and improved ‘precision’ heads for maximum control of irrigation water and numerous other upgrades. But how many evaluate Irrigation Efficiency (IE)?

## **Irrigation Efficiency**

Irrigation Efficiency measures how well water requirements of turf are met with irrigation practices. Evaluating this can reduce overwatering (and under

watering) of our turf; which saves water, electricity and promotes healthier turf.

There are three main requirements to ensure good irrigation efficiency:

1. Uniform application of water by your irrigation system  
– Distribution Uniformity (DU)



*Above and feature image demonstrate a catch basin test.*



2. Proper application of water from your irrigation system at a rate that is not too much for the soil to accept (to prevent runoff).
3. Applying enough irrigation water to bring the active rootzone up to field capacity and no more, unless you are leaching the soil.

### Distribution Uniformity (DU)

Uniform application of water during irrigation is difficult to achieve. While your system may be set to apply 1/4 inch of water, that 1/4 inch may not go out evenly. Sprinkler head spacing, high or low system pressure, tilted sprinkler heads, and clogged or worn nozzles are a few of the items that can affect it. The *Irrigation Association Golf Irrigation Auditor Manual* (for rotary sprinklers) identifies a DU greater than .8 as excellent, .7 as good, and anything below .55 is poor – your irrigation system needs help!

Poor DU can also be a result of too much (Figure 1) or too little water in irrigated areas. Trying to prevent overwatering on areas of heavy irrigation can leave other areas of weaker coverage too dry. This is one of the most common causes of poor DU. Turf managers strive for good irrigation efficiency with a good DU number and a uniform wetting front in the soil. This ideal scenario is achieved with the proper amount of water to wet the soil to the depth of the active rootzone. (Figure 2)

### How do I measure my DU?

An irrigation audit is the way to determine your DU. “An irrigation audit is something that every superintendent should take time to do,” says Larry Lennert, North Central Turf Territory Manager of Aquatrols Corporation. Lennert is a former U.S. golf course superintendent and has a master of science in soil science from the University of Wisconsin-Madison. Lennert presented a webinar entitled *Control Your Water – Control Your Results* via TurfNet in 2010 and 2011 on this topic.

An irrigation audit is a simple exercise. Catch containers are placed in an irrigated area (greens 15 feet spacing, fairways 25 feet spacing). Regardless of the

area measured, a minimum of 24 catch containers are needed to achieve accurate results. Although any type of container can be used, they must be identical and deep enough to prevent water from splashing out. Lennert suggests numbering containers with a permanent marker before placing containers on the area to test. Making an overhead ‘map’ of the area and placement of containers allows you to refer back to the container location after you collect water and review the data.

After containers are placed on the area being tested, run the sprinklers for a set period of time. It is best to run the test at night, when you run an irrigation cycle for your entire course. This allows you to collect water under the same conditions – flow rates and pressures – that you normally have in the field, giving more realistic data.

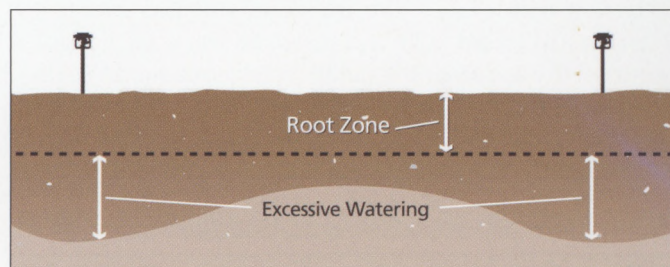


Figure 1: Depiction of irrigation resulting in poor DU and excessive watering

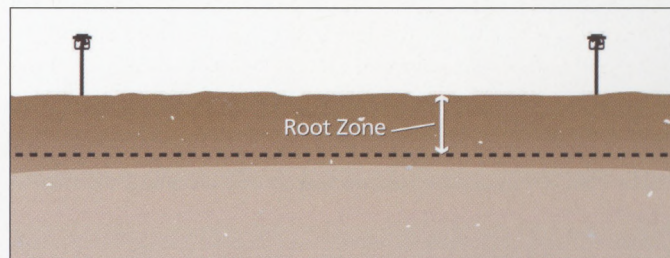


Figure 2: Depiction of irrigation sufficiently watering the entire field with good DU and Irrigation efficiency

Figure 1 and 2 courtesy of Rain Bird Corporation

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After the irrigation cycle runs, measure and record the volume of water (ml) collected in each container. To determine the average, add up the total volume of water collected and divide it by the total number of catch containers used. You also need to determine the average of the lowest 25 per cent container volumes. These “low quarter” (LQ) container volumes generally represent the weakest areas of irrigation system coverage. If all these calculations seem overwhelming, Lennert has developed an excel spreadsheet which calculates the data for you (note: data is in US Std) and is available at: [www.aquatrols.com/turf/golf/?LOCALE=CA](http://www.aquatrols.com/turf/golf/?LOCALE=CA).

If your study results in a low DU, there are several things that you can do to improve it. Make sure irrigation heads are the correct size for the area being covered. Are they properly/evenly spaced? Check your nozzles; if they are worn, replace them. If the irrigation system pressure is not correct, or your pipes are not the right size you will need to correct them.

Many new irrigation systems and technologies have been designed to overcome low DU. However, for many with older systems, the lack of efficiency is built into the sprinkler head itself.

In addition to DU, proper application of irrigation water is essential to good irrigation efficiency. Some may irrigate by the gallon, minute, or others by the inch. Regardless of your nightly irrigation goal, your irrigation system Precipitation Rate (PR) varies with your DU, so you really can't be sure of the PR unless you measure it. The irrigation audit can be used to measure PR as well. Use the water collection data (Vavg), the irrigation run time when the water was collected (tR) and calculate the area (length x width) of the opening/top of the “catch containers” (CDA).

### Irrigation System Precipitation Rate

- Area of catch device mouth (CDA) – multiply length x width of catch container opening (in<sup>2</sup>)
- Average catch volume (Vavg) – Same as used for DU (ml)
- Test run time (tR) – record irrigation run time during water collection period (min)

Once all the information is collected, you can calculate the PR (net):

$$PR_{net} = 3.66 \times V_{avg} / tR \times CDA$$

(\*Conversion factor for ml/min to in/hr).

Determining the PR will reveal how long you need to irrigate to apply your desired amount of water. For example, if your PR is 0.5 inches per hour, you need to irrigate 30 minutes to apply 0.25 inches per cycle.

Lastly, the amount of water needed to bring the active rootzone to field capacity is required. This can be determined with the use of time domain reflectometry (TDR) technology; a fast and reliable way to determine soil moisture levels. There are a variety of TDR handheld soil moisture meters that can be used anywhere on your course.

Measuring the amount of water in the rootzone helps you identify field capacity and wilt point. Field capacity is a measure of water holding capacity of a soil. It is defined as the amount of water that the soil can hold against the force of gravity. Wilt point is the level of soil moisture where there is not enough water available in the rootzone and visual moisture stress (wilt) occurs. Identifying this allows you to determine if you need supplemental or hand watering on an area that is not getting efficient irrigation.

Okay, you have performed an irrigation audit, reviewed the data and improved your irrigation system accordingly, now the irrigation water will do what it is supposed to do and will infiltrate uniformly, right? Maybe not. While making improvements to your irrigation system is paramount, the system can only get water to the surface of the soil. Where that water goes is determined by conditions of the soil. If there is a thatch/mat layer, or a sloped area water may not penetrate and run off. Beyond that, any amount of water repellency in the soil profile that prevents water and solutes from freely entering the soil will prevent applied water, no matter how efficient the irrigation system, from uniformly wetting the rootzone.

Water movement issues and the cause of water repellency is a subject for a different article. If you have taken the time and effort to evaluate your irrigation system, and have spent money to modify it accordingly, you owe it to yourself to make sure applied water gets to the rootzone. Research has been conducted over the past 50 years identifying the best ways to overcome water repellency. Some of these issues are physical in nature and can be treated and prevented by following a simple program including soil surfactants. There are different types of soil surfactants. Before you select a product, be sure to choose the appropriate material for what you are trying to achieve. Ask for research and information about the products that you are planning to purchase to ensure that you get what you expect from them, and make the most of your water and irrigation system. ■





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# Using New Technologies to Solve Old Problems

by Eric M. Lyons, Associate Professor  
University of Guelph and Mike Stasiak, Senior  
Research Associate

Golfers love trees. In some cases it seems some golfers prefer trees to good playing conditions. Many people fall in love with the game of golf because it allows them to go out and experience nature and beautiful landscapes without having to drive 3 hours to a cottage. Indeed, the local golf course is right in the middle of their town or city. Unfortunately trees and healthy turf is a combination we often do not see.

With the increased pressure to reduce pesticides and implement IPM programs, tree management has become an essential part of any long-term golf course management plan. Trees cause a number of issues including



Figure 1. An example of a fan installed to increase air movement.

restricted air movement. However, the biggest issue with trees is shade. The effect of shade is twofold. First, the plant does not get enough sunlight and therefore photosynthesis is limited. The lack of carbohydrates or energy (the

product of photosynthesis) restricts growth (primarily root growth), making the plants more susceptible to drought, further limiting photosynthesis. In addition, the plants become more susceptible to both abiotic stressors and disease pathogens further weakening the turf. The second effect of shade is a change in the way that turfgrass plants grow. The light that does make its way through a tree's canopy have different wavelengths than full sunlight. Plants can sense this change in light quality and change their growth habit accordingly. While turf in full sunlight actively tillers, shaded plants will grow more upright and allocate more of their energy into growing taller in order to avoid the shade. The grass is never able to outcompete the surrounding trees for light.

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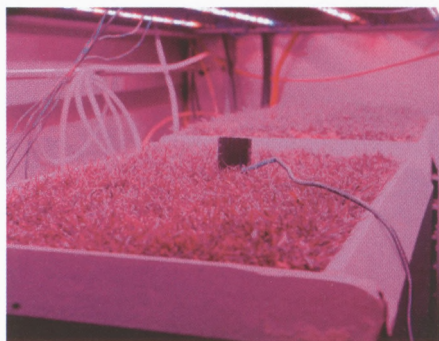


Figure 2. Turf boxes growing in the hypobaric chamber under a combination of red and blue LED lights. The black object is a light sensor that measure light intensity (PAR).

The desire to have both trees and high quality turf has led to some interesting ideas, including the installation of large fans to increase air movement. Fans may or may not reduce leaf wetness and reduce the disease pressure, but they definitely do not address the lack of photosynthesis due to the low light levels. They also can be very intrusive, limiting the enjoyment of the beauty of the landscapes (Figure 1).

One research project being conducted at the University of Guelph looks to solve the issues surrounding the lower photosynthesis rates in shaded areas. The project is a collaboration between the Controlled Environment Systems Research Facility at the University of Guelph, turfgrass scientists at both U of G and Penn State, and Per Aage Lysaa from Lumigreen AS. This is a company that is interested in the development of a product for the golf course industry. The study is exploring the use of LED lights for supplementing turfgrass growth. The idea of providing supplemental lights to increase photosynthesis is not a new idea. The greenhouse industry has been providing supplemental light to increase production for many years. The issues surrounding the implementation of these systems on golf courses has been that the lights used to create excessive heat are not very energy efficient and they would be hard to move and store away during play. The advantage of the LED lights is that we can select LED lights that emit only the wavelengths of light crucial to photosynthesis thus increasing the energy efficiency and portability while reducing the heat produced.

The research to this point has focused

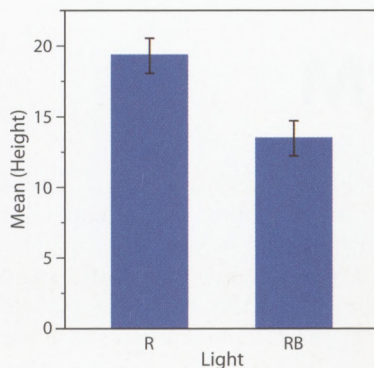


Figure 3. The average height of plants grown with only red LED lights (R) and red and blue LED lights (RB). The taller plants represent a less desirable growth habit indicative of poorer light quality.

on determining the efficiencies of light delivery to turfgrass and on creating an optimal combination of wavelengths that promotes both photosynthesis and the desired growth habit of the grasses.

In order to optimize the LED array, four boxes of turf were placed in the hypobaric growth chamber under different LED lights (Figure 2). The research has shown that lights in the red spectrum are the most efficient for photosynthesis and an optimum efficiency of light levels to energy can be determined. Finally, we were able to determine the need for blue LED lights because of the change in growth habit that occurs when only red LED lights are included in the array. The grass grows more upright and shows the shade response common for turfgrass in shaded environments (Figure 3).

Eventually these results will be incorporated into the manufacturing of portable light systems. These systems will be used to help turf in shaded areas recover more quickly by providing light throughout the night. The system can then be packed up and stored out of sight during the day when golfers are present. While trees will never be good for turfgrass health, there may be a solution that will allow turfgrass and trees to survive together on our golf courses in the future. ■



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# Wound Up In IPM

by Greg Brown, Assistant Superintendent  
Essex Golf and Country Club

Ever since Integrated Pest Management (IPM) was introduced into our industry, the only topic people have had on their

minds is how this legislation is the worst thing since the Leafs not winning the cup for the last forty-five years. With the many regulations and guidelines we must follow as part of the IPM process, it seems as if it is a full time job keeping up with these

requirements and the mountains of paper work that result. I feel as if every conversation I have had with fellow industry professionals at some point has found its way onto the topic of IPM.

With this in mind, I believe we have our brains wrapped around IPM far too much. Why don't budget cutbacks get us worked up as much as IPM does? What about the price of gas or how taxes continue to rise? It seems as if everyone is ready to protest IPM, yet we sit back and continue to watch the price of gas and the cost of other necessities rise. Sure, it doesn't sit well knowing that other industries can apply the same chemicals we use, yet they are not subject to the same restrictions and documentation.

To be honest, I am more upset about the fact that I have to sit in my front yard with a hook knife pulling dandelions for hours upon hours, than I am about having to fill out scouting reports multiple times per week. Between the superintendent, assistants, technician or a foreman and, with a little time spent each day, IPM requirements can easily be met. If we put as much effort into the completion of the IPM process as we do into complaining about it, we would be far better off than sitting there figuring out how to skim by with just completing the basics. I believe we need to work with these regulations in hopes that more restrictions aren't introduced into our industry, which would certainly cause additional headaches.

Although I do not enjoy sitting at my desk crunching numbers to figure out active ingredient totals of each product, nor do I agree with all the IPM regulations that have been placed upon us, I do believe we should embrace this process and do our best to adhere to the regulations that have been instituted. By doing so, we may be able to change society's negative beliefs in regards to our impact on the environment. ■

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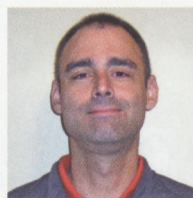


# GTA Assistant's Meeting

On April 30th, I was fortunate to attend the GTA Assistant's meeting at Weston Golf and Country Club. The brainchild of both Dave Patterson and Colin Young, Assistants at Magna Golf Club and Beacon Hall Golf Club, these meetings are typically held monthly during the golf season and hosted at a different venue each time. "Colin and I had this idea a couple of years ago," said Dave during his opening remarks. "The goal was to have a forum to share ideas, knowledge and to learn from what each other is doing. Where this is going to lead to, I don't know." The meeting, held in the club house, was impressive in both content and organization. Before the meeting was held, attendees were asked to submit topics of conversation and an agenda was prepared to keep the meeting focused and from running long.

Once adjourned, a site walk of the construction project at Weston brought upon by the Metrolinx Air Rail Link was headed by course Assistant Matt Legg. Those who didn't mind putting up with the light rain or didn't have to beat traffic, were treated to an impressive view of the

scope of work needed to widen the train tracks bisecting the second and third hole. I must say, as an observer only and after what I saw, construction must be a recession-proof business. A tour of the maintenance facility concluded the walk and meeting. Weather permitting, prior meetings included a round of golf at the host club. All in all, this is not only a great educational event, it is an excellent way to become familiarized with a neighbouring golf course and an excellent networking opportunity. I highly recommend any assistant contact either Dave or Colin and participate. Make no joke, this is for real. ■



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# TruFirm Technology Goes Beyond Tournament Prep

**T**ruFirm, a system developed by the United States Golf Association (USGA), is a valuable tool that allows golf course superintendents to measure and analyze the relative firmness of various playing surfaces on the golf course. It is simply a hammer system where you raise the handle and drop it and the measured depth of indentation (in inches) is stored in a hand-held computer with GPS. This information can be uploaded to a PC for further analysis. The hammer force is supposed to emulate a 7 or 8 iron shot from roughly 150 yards from the green. The USGA has been using TruFirm to gauge the firmness of putting surfaces, fairways, and bunker sands at every U.S. Open since 2005.



### Why Measure Firmness?

Similar to green speed, the firmness of a particular green or how receptive it is to shots, is usually a discussion point. No two golfers share the same opinion when it comes to firmness. Some will say, "Can we get them a little firmer?" While others may say they are "firm enough" or "too soft". The ability to measure and quantify firmness takes away the guesswork and speculation of how firm or soft a particular playing surface is. It also allows for accurate measurements to be conducted and recorded over time to aid in monitoring progress in cultural programs.

Moreover, firmness of approaches is something that is commonly overlooked. One of the tougher shots in golf is hitting to a front pin with a firm green that has a soft approach.

In most cases we put a lot of effort into managing the organic content of our greens with frequent aeration, verticutting and topdressing while not implementing the same program on the approaches. TruFirm would be an excellent gauge to measure progress in this area.

However, in certain cases, the receptiveness of a green may have little to do with green firmness, and may be more result of course design. For instance, golfers hitting from a downhill slope and trying to stop the golf ball on the green that slopes away may look to blame the green's firmness as opposed to the design. This situation can be confirmed with the TruFirm measurements to deflect criticism of course management.

### Taking Measurements

All the measurements are stored in the hand-held computer, so it's easy to make your way around the course quickly because you do not need to write everything down on paper. On the data screen you would select date and time, then the hole number, then the area (whether it's a green, tee, fairway, bunker or a custom area). A green, approach or other playing area is usually broken down into 9 data squares from front, middle, and back across left, middle



*Handheld device eliminates tracking data with pen and paper*



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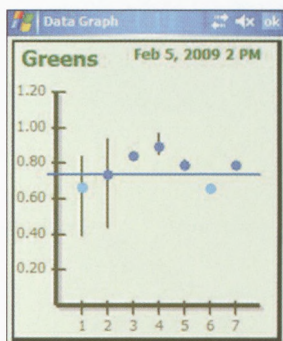
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and right. Readings are started by clicking on one of the data squares of your current location on the green then raising and dropping the hammer and clicking accept on the reading.



Above is an example of the data graph comparison report available with a TruFirm system.

### Informative Reports

The reports provide a geographical comparison from one area to another and from one green to another. The data from the measured firmness will not only give you the days reading, but will also show you how things are progressing, either for an average for the whole course or for an individual area. The PC reports make it easy and quick to visualize with the

customizable colour coding which represents various levels of firmness.

This information can identify where certain playing areas are being overwatered and/or where you may have excessive organic matter built up. As water and cultural practices are implemented, the TruFirm system can be used

to monitor progress and enable program adjustments.

In bunkers, the TruFirm could be used to quantify the potential for buried lies after placement of new bunker sand. This would indicate whether further compaction is warranted.

### Coming to a Course Near You?

I spoke to Matt Pringle the inventor of the TruFirm System from the USGA this week. He said there is a more affordable version of the TruFirm coming to market by the end of the summer. Instead of \$7-8,000, this system will be available for \$2,000. This is a much better price point which may make it a viable option for golf courses looking to help monitor the progress of their cultural practices.

For additional reading on approaches and using the TruFirm, check out: <http://gsr.lib.msu.edu/article/gilhuly-dont-4-27-12.pdf> ■



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# Some hazards are obvious

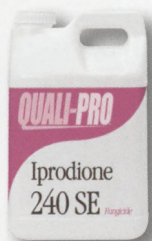


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# Wrappers, Table Talk and Things

While visiting with John McLaren, Equipment Technician at Credit Valley Golf and Country Club, I noticed something that I'd seen a thousand times before at every marina I pass on the way to the cottage – blue shrink wrap. Only this time it wasn't covering a bow rider or some hopped up ski boat, it was wrapped securely around a turf vac and a topdresser. What a simple, inexpensive way to protect a piece of machinery that you have to store outdoors. It wasn't until I saw it in use out of its 'normal' environment that it occurred to me that using it to aid in winter storage of some equipment was an option. Look around as you move about your day, keep an open mind and you never know what you may come across that you might be able to use at your facility. Visiting your neighboring courses is a great way to stay in touch and see what they may have come up with at the same time. Thanks for the tour John.

During a lunch break at the Turf Care seminars in Nottawasaga this past February, the only superintendent at my table of equipment technicians took the opportunity to ask how often we went out on the course daily to check conditions. The response was a unanimous "daily". He expressed that he was having some difficulty in getting his technician to do just this. Now let me begin by stating straight up that I'm not really big on going out in the rain anymore – okay, I never have been – or the cold for that matter and there are a few of you out there who I'm sure will gladly attest to this. But you just cannot monitor your mowers quality of cut from the shop door. Luckily, at our club, the first five holes loop around past the shop and if I give the mowers a bit of a head start in the morning, I can be out and back over those five holes, usually having seen every mower out there before the first mower roars past the shop. You must encourage any of your techs out there who may have 'other' things to do, to take the time to get out there and really have a look at how the mowers are cutting. They all cut perfectly on the bench but once they leave the shop, well, I'd rather not dwell on it.

Attending some technician's seminars this past winter has also given me the opportunity to catch up with some colleagues on the topic of what to use when you paint your shop floor. It is a topic with many posts on the IGCMA web forums so here is the consensus; like anything, you get out of it what you put into it. A new concrete floor must cure before any type of 'paint' is applied, so check with your installer on that. Some with new floors choose to "seal the crap out of it" as one fellow on the forum put it. "Think carefully" he says, "before you decide to paint a new floor because once you have gone that route, you will have to stay with it." Once you make your decision though, clean the floor thoroughly as preparation is the key to a successful job. New or old, you will have to remove any greasy residue, dirt or old loose paint. Treatments are available to help with this too, but I have found that a good scrubbing or two with some TSP and a stiff bristle brush and a good mopping will do just fine. Some I've spoken to have had rather expensive 'professional' treatments done to their shop floors and they generally last a little longer than the commercially available epoxy type treatments that I have had reasonable success with. But they all eventually wear, flake and will come up, especially if the floor is exposed to high traffic, damage or water. Sounds like every shop floor you've ever seen doesn't it? So do your research because each facility's circumstances and conditions are different and, as always, talk to your colleagues and find out what has or has not worked for them. ■



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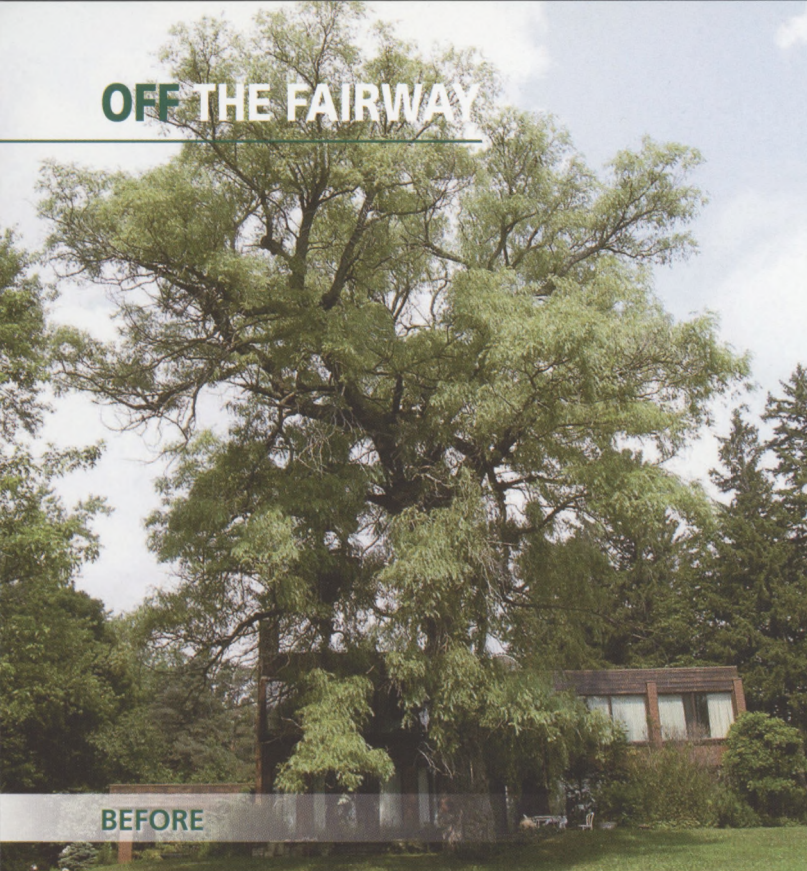
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**BEFORE**



**AFTER**

*Pictured above is a large willow, determined through an assessment to be a risk, before and after strategic pruning to reduce that risk.*

*Photo credit: Philip van Wassenae, B.SC., MFC, Urban Forest Innovations*

## For the Good of the Dendrites

I love trees, as I'm sure many of you do as well. They are survivors and they have amazing stories to tell. Imagine being near a centuries old oak tree and hearing its story. Years ago I found myself in the middle of Sherwood Forest in England doing just that. I was standing in front of the Major Oak, the supposed gathering place of Robin Hood and his Merry Men. I'm not going crazy and I'm not making this up. Although I can't speak for the legitimacy of the legend, that tree was definitely real. Twenty-three tonnes and at least 800 years of realness. If only trees could talk.

Over the past year or so I've had the pleasure of attending several tree-related seminars and lectures. During one talk on creative design, designer Gary Smith spoke about dendritic patterns (think of the silhouette of a tree in winter) and how they are found both in river systems and our own circulatory system - the lifeblood of our ecosystems and our own bodies. I don't believe that's an

accident. Trees are the lifeblood of our forests and our cities. Getting outside the confines of where to plant the marigolds and how to keep the pesky squirrels from massacring my crocuses has not only been a refreshing change, it has reminded me of a few things and has given me some new things to think about. Things that give me hope, because with the right attitude, the right understanding and the right tools, we have incredible power to preserve and do well by these dendrites. Trees are survivors and trees are resilient, but trees are no match for a chain saw determined to cut them down.

### Valuing the Benefits of Trees

Trees contribute to aesthetically beautiful landscapes, they provide shade on a hot day, and they contribute greatly to the oxygen we breathe. They do all these things and so much more. They reduce storm water runoff, provide habitat for an incredibly diverse range of wildlife

(even those pesky squirrels need a place to lay their head), they improve air quality, reduce air conditioning costs, and increase property values. Studies show that trees have a positive effect on both the physical and psychological well-being of people. The key point here is that the benefits trees provide to the environment increase exponentially as the trees age. The oldest trees house the greatest percentage of biodiversity. That means that no number of perfectly planted new saplings can replace a healthy 80-year-old maple that's just been cut down.

How do these benefits translate into money? Two companies in the U.S. have developed a web-based tool to do just that ([www.treebenefits.com/calculator](http://www.treebenefits.com/calculator)). Based on tree species and trunk diameter, it places an approximate dollar value on the benefits a tree provides on an annual basis. This is a good step in learning to quantify and understand how much trees provide to their environment.



## Conservation Arboriculture

Conservation arboriculture recognizes the importance of old trees and how important it is to manage them in a balanced and natural way, taking the whole ecosystem into account. As a tree ages, it becomes shorter and more stout and the root system becomes shallower. It is natural for a tree to become hollow, and hollow does not necessarily mean the tree is unsafe or not structurally sound.

Yes, trees fall on cars and they fall on bridges and other infrastructure, causing a lot of headaches and expense. Sometimes they fall and kill people, but this is extremely rare. Trees can create risk and tree owners have the responsibility of managing that risk. Assessing tree risk should be systematic and based on tolerance. For example, a tree in the middle of a forest is going to have a much higher tolerance for risk than a tree in a high traffic area such as your clubhouse entrance.

I will describe this method of assessment in an example that comes from the experience of Philip van Wassenae, Conservation Arborist from Urban Forest Innovations. One of his clients had been told they had to cut down a large willow that was close to their house because it was a risk. This client loved the tree and did not want to cut it down. So Philip and his team proceeded to assess the tree. Methods for risk evaluation include a visual assessment to look for decay and structural weakness. A hammer test can determine if the tree is hollow. Sonic tomography provides a clearer picture of what's going on inside the tree and is less invasive than drilling. A pull test revealed that this particular tree did indeed pose a significant risk. But this did not mean that the tree needed to be cut down. Strategic pruning was done to reduce the crown so that the tree was once again stable. It is still there five years later. Other techniques that may be used to preserve a tree include root zone therapy and cabling. Dynamic cables allow for natural movement,

whereas static cables do not allow natural movement and the bolting can initiate decay within the tree. Unfortunately, there are occasions where a tree is unsafe, the risk is high, and it cannot be preserved. In these cases the tree needs to be cut down.

## Things that We Can Do to Preserve Our Trees

- ▶ **PRUNE CAREFULLY:** Although limbing up is a common practice, it interferes with the natural aging process. Trees rely more on their lower branches as they age, and cannot do this if they've been removed. Also, consider crown reduction and thinning before removing a tree that's creating problems for your turf.
- ▶ **PROTECT DURING CONSTRUCTION:** Construction wreaks havoc on trees, compacting the soil and damaging top growth. Build barriers to protect trees during construction.
- ▶ **MULCH OUT TO THE DRIP LINE:** This will protect the trunk from damage from equipment, reduce the need to limb trees up, and reduce vehicular traffic around the base of the tree (therefore reducing compaction).
- ▶ **PLANT FOR THE FUTURE:** When planting trees, choose locations that give enough buffer to cart paths and greens so the tree can reach its full potential without causing other problems.

- ▶ **PLANT FOR THE LOCATION:** Choose a tree species that will thrive in the location you have chosen.
- ▶ **PLANT CAREFULLY:** Ensure trees are not planted too deeply (trunk flare should be showing) and that their trunks are not mounded high with soil or mulch.
- ▶ **LESS IS MORE:** 5 trees planted and well maintained are better than 20 trees planted and neglected.

So I hope I've been able to give you something to chew on. And who knows, maybe a few centuries from now tourists will be flocking to visit a grand old tree and reading about the "Legend of the Superintendent and his Merry Grounds Crew".

For pure enjoyment I highly recommend reading 'Meetings with Remarkable Trees' and 'Remarkable Trees of the World' by Thomas Pakenham. If you're a tree lover already, you'll love these books. If you detest that majestic tree that's parasitizing your favourite green, these books might just change the way you look at trees altogether! ■



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# Five Years Ago Today

The Board of Directors in 2007 were: **Sean DeSilva** (pres), Coppinwood, **Robert Burrows** (past), Banff Springs, **Jeff Stauffer** (vice), Credit Valley, **Randy Booker**, Otter Creek, **Jeff Alexander** (sec), Parry Sound, **Chris Andrejicka**, Essex, **Jarrold Barakett**, Deer Ridge, **Doug Breen**, Golf North, **Rob Gatto**, King's Forest, **Scott Heron**, Bigwin Island, **Jennifer Pendrith**, Kawartha and **Randy Twyman**, Taboo. **Dorothy Hills** was the Executive Manager and **Pat Thomas** and **Deborah Badger** were the office staff.

**ON THE MOVE:** **Keith Bartlett** moved to St. Georges and **Greg McFarlane** took over at Thornhill. **Nicholas Bell**, moved to Muskoka Highlands, **Steven Holmes** to Rosedale, **Jay Weiss** to Maple Downs, **Jason Dowling** to Northern Dunes, **Gary Stadnek** to Westview, **Brian Taylor** to Knollwood, **Randy Booker** to Otter Creek, **Brian Carver** to Mystic Ridge, **Tyler Ruest** to Dalewood, **Anthony Frake** to Cranberry Resort, **Michael McCarthy** to Glen Eagle and **Robert Burrows** to Banff Springs. **Chris Nelson** from Markland Wood left for Plant Science Inc. and was replaced by Owen Russell.

**MILESTONES:** Zander Sod Company Ltd. celebrated it's 50th anniversary.

**EVENTS:** The OGSA Conference and Trade Show was held on January 17-19 at the Sheraton Centre chaired by **Jeff Stauffer**, Credit Valley. **Gordon Witteveen** won the William Sanson Distinguished Service Award and **Allen (Whitey) Jones** received his 50 year OGSA members plaque. The following were presented with 25 year membership plaques: **James Moore**, Puslinch Lake, **Gord Nimmo**, Sawmill Creek, **Bruce Burger**, Lakeview, **Rod Hermitage**, Ag Turf, **Don Crymble**, Markham Green and **Sean Evelyn**, Cedarhurst.

**ACHIEVEMENTS:** Congratulations to **Andrew Hardy**, assistant superintendent at Pheasant Run Golf Club, this year's recipient of the Hugh Kirkpatrick Bursary and to **Aaron Weinberg**, winner of the 2007 OGSA Turfgrass Education Award.

Congratulations to OGSA member **Paul Dermott** who was named recipient of the John B. Steele Distinguished Service Award at the CGSA Fall Field Day in Whistler. Congratulations to **Blake McMaster**, Royal Montreal, on being named Canadian Superintendent of the Year for 2007 and also for hosting a very successful President's Cup.

The Ontario Turfgrass Research Foundation was proud to announce that more than \$30,000 was raised for turf research at the 2007 OTRF Fundraising Tournament on August 20th. The event was held at the Georgian Bay Club in Collingwood hosted by **Bert McFadden**.

**Thom Charters**, from Bayview, was the low gross winner.

**TOURNAMENTS:** The Spring Field Day was held at Ariss Golf Club hosted by **Rick Lane**. Low gross for 1st flight was **Chris Andrejicka**, Essex, and low gross 2nd flight winner was **Dave Schemelefski**, Ontario Seed Co.

The Can/Am Tournament was held on April 30th at the Ambassador Golf Club hosted by **Dave Cours** and **Tom Brydon**. The low Canadian team was **Thom Charters**, Bayview and **Wayne Rath**, Magna with a 65.

The Pro/Super Tournament was held on May 22nd at Devil's Pulpit Golf Course hosted by **Ken Wright**. The winning team was from Credit Valley Golf and Country Club, **Jeff Stauffer** (68).

The President's Day Tournament was held on July 3rd at Coppinwood Golf Club hosted by **Sean DeSilva**. The winning team was from Weston, **Rob Ackermann**. The McClumpha Memorial Tournament was held on October 1st at Peterborough Golf Club, hosted by **Greg O'Hearn**. The low gross winner was **Gary Stadnek**, Westview, with a 79. The George Darou Trophy was won by **Bill Sikes** with an 81.

The 1st Annual Seniors Tournament was held at Mono Hills Golf Club on July 17th hosted by **Doug Suter** and **Alan Beeney**.

**IN MEMORY:** We regret to announce the passing of **Graydon Goff**, formerly of Turf Care, **Ernie Amsler**, Angus Glen, **Jay Lavis**, Dol Turf Restoration and **Frank Kuypers**, Shawneeki Golf Club. ■



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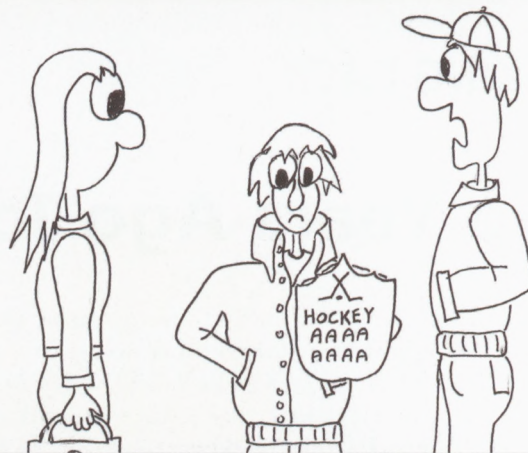
# Golf Parents

by Doug Breen, Superintendent  
GolfNorth Properties

My kids play pretty much every sport known to western civilization. Hockey, lacrosse, golf, football, and various equestrian pursuits, are all being performed right now. They've also played rugby, basketball, volleyball, and wrestled for their schools. It seems like each sport is rife with insane parents who are living vicariously through their children. Yet each sport thinks, that while they're perfectly justified in berating officials and publicly eviscerating their own children, that the parents in other sports are completely out of control. Football parents will have their ten year old in the weight room, while they criticize hockey parents for making their kids be on the ice twelve months of the year. Rugby parents think football is unnecessarily dangerous, and vice versa. Since I spend a disproportionate amount of my time in arenas, on sidelines, and in gyms – I've begun analyzing the behaviour of the parents with kids in competitive sports, and it may surprise you to hear, that the parents who have their kids in tournament golf, are actually some of the worst.

Everyone assumes that hockey parents are the most unstable – and they just might be. For some reason (which is totally lost on me), many of these delusional parents are convinced that their kid has a chance of making it to the NHL, despite the fact that little Johnny is on the third line of his house league team in Nowhere, Ontario. And if you think that little Suzie's parents are any less deluded, you're sadly mistaken. They all believe that there's a big fat NCAA Division I scholarship waiting for her after high school – even though she has a 55% average in grade seven, and can't skate backwards. They are certainly the loudest, and are apparently oblivious to the fact that boards and glass make all of their sage advice completely impossible to hear – yet they bellow away unabated. A lot of this 'coaching' stems from the fact that 90 per cent of Canadian men honestly believe that if they were in control of the Leafs, that things would be different.

Generally speaking, football dads are quite a bit less vocal. Mostly because they really don't know the rules of football very well (or know the NFL rules, but not the Canadian version), and after being corrected by one of the moms on the sidelines a couple times, they get pretty quiet. Football moms, on the other hand, are truly a sight to behold. They yell the most vile, hateful



"Well, we used to play Octuple A hockey, but he had a pretty good season, so he's trying out for Decituple A."

stuff you can possibly imagine – and there's no glass or boards to block the sound. We can hear them 65 yards away on the bench. And if their kid gets hurt, then they go completely squirrely. Last fall in London, one of our slotbacks laid a very hard block on a London linebacker, so his mom ran onto the field, and started whaling on our 14-year-old, very confused, receiver.

No one in Canada knows the rules of Rugby. Not even the kids playing it. Sometimes the coaches barely know the rules. As a result, the crowd sits in stunned silence, trying to figure out what's going on – winning or not. It's so quiet, that you can actually hear the referee explaining the game to the players. The only voice breaking the silence will be one or two guys, always recent immigrants from someplace where rugby is a big deal, who scream unintelligible things about "getting into the ruck" and such.

At horse shows, everyone is very proper, and whisper in hushed tones. They will say unbelievably cruel things about you, your horse, your family history, your vehicles, your job, and your clothes – but you'll never hear a word of it. They'll politely smile and tell you how well you did, and go back to slugging you, once you're out of ear shot.

Which brings me to tournament golf parents. They often exhibit the worst traits of all of these groups. They honestly believe that their children have a good chance of getting a US scholarship, followed by a career on the Pro Tour. They also believe that they could have done so too, but they didn't get the opportunity that they're giving their kids – which leads to the worst kind of vicarious living. They "caddy" at tournaments, where they dole out bad advice, and brow beat the kids relentlessly for 18 holes, often followed by a trunk slamming tantrum in the parking lot. Their understanding of the rules of golf is generally poor, and they will often enter into heated arguments with GAO rules officials. And the horsey crowd has nothing on golfers, when it comes to condescending and back stabbing.

I once watched a father yelling and swearing like a trucker at his 8-year-old daughter, as he literally threw her clubs into the trunk of his Audi. Meanwhile, she was crying because "losers don't get to have chicken fingers" – she had come third. But she three-putted on the 18th green, right in front of a guy whose cousin used to date an NCAA golf coach, so that's only reasonable, right? I see that some kids' tours have actually banned parents from caddying, and I know of one where the parents aren't allowed within 150 yards of their offspring until the round is over. It appears that golf will be the first to actually address the issue of overbearing parents in competitive sport – but don't kid yourself, we certainly have a long way to go. ■

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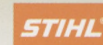
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