Sports Turf Manager
FOR BETTER, SAFER SPORTS TURF. SUMMER 2010. VOL. 23. NO. 2.

The Benefits of Rainwater Harvesting For Water Conservation

Chris Davies, President, Flow Source Inc.

The ever growing trend of being "green" or "eco-friendly" continues to move at a rapid pace. New technology and more information about products and practices seem to be hitting the mainstream daily. Our industry has already experienced the reduction in pesticides and the focus on water efficiency for irrigation. So why the persistent concern about water in Canada when everyone says we have the most freshwater available in the world? While this may be true, taking a closer look at some hard facts can be illuminating.

World Water Facts

Approximately 70 percent of the world is covered in water: 97.5% of that water is saltwater which leaves 2.5% as freshwater. Of this 2.5%, 68.9% exists in the form of glaciers or permanent snow melt. An additional 30.8% is groundwater including soil moisture, swamp water and permafrost. Therefore, only 0.3% of the world's freshwater is stored in lakes and rivers.

Globally, one billion people do not have access to safe drinking water while 2.4 billion do not have proper sanitation. The addition of chlorine to drinking water has greatly reduced the risk of waterborne diseases.

Currently about 3,800 cubic kilometres of freshwater are withdrawn annually from the world's lakes, rivers and aquifers. This is twice the amount that was extracted as recently as 50 years ago.

Canadian Water Facts

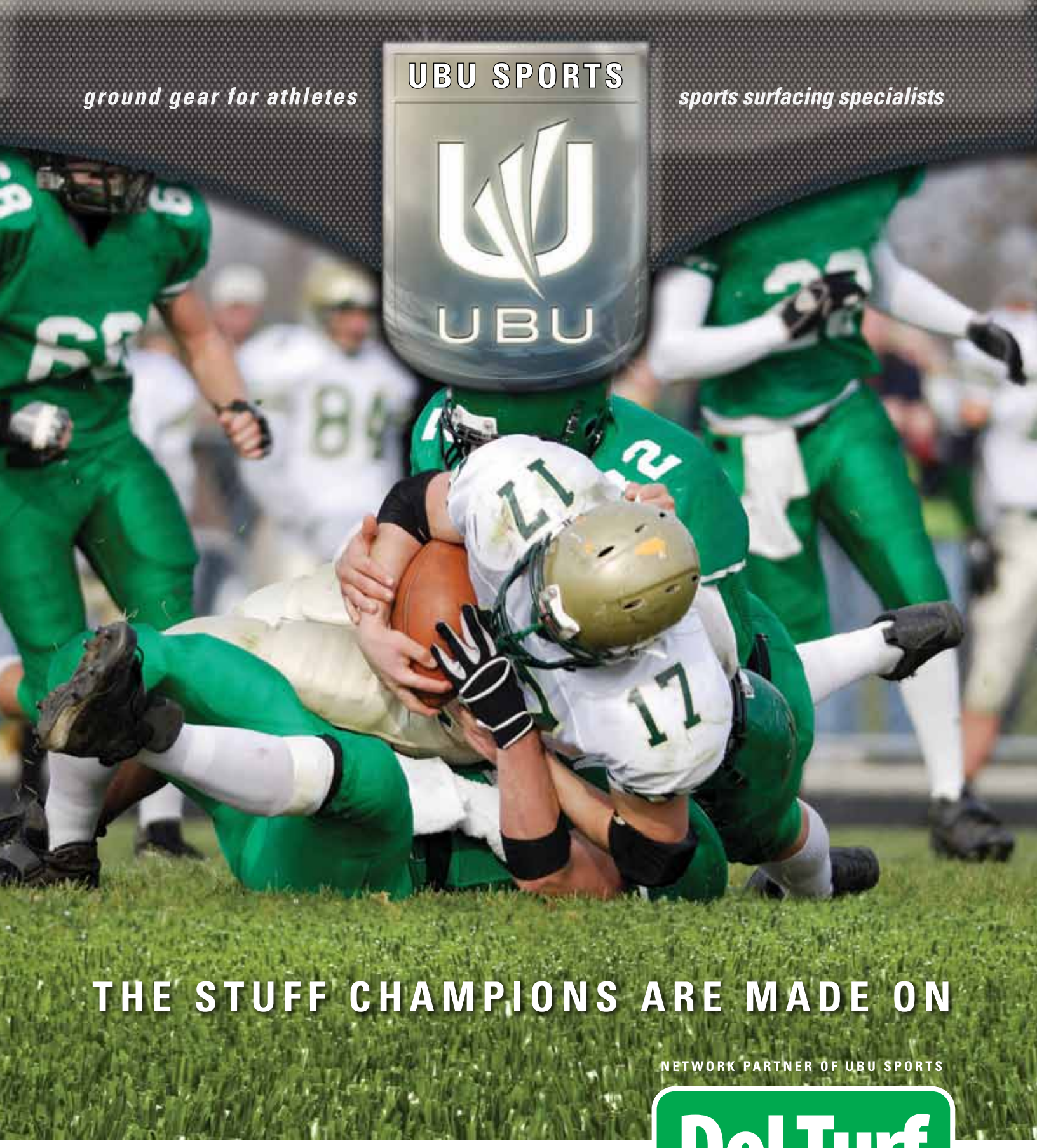
Canada has the largest area of wetlands in the world representing approximately 25% of the earth's total. Our wetlands cover more than 1.2 million km^2, about 14% of our land area. Since 1900, 50% of the world's wetlands have been lost.

In Canada, 9% of the country is covered in freshwater. This represents about 891,163 km^2. Canada has more lake area than any other country in the world. Approximately 60% of the country's freshwater drains north, while 85% of the population lives within 300 km of our southern border with the United States. Only about 1% of the water in the Great Lakes is replenished each year by snow melt and rain. Approximately 8.5 million Canadians rely on the Great Lakes for their water supply. Turn to page 11 for a breakdown of water usage in an average Canadian household. **>>>**

FOCUS ON WATER

Continued inside on pages 10-12.

Inside Features



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Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. SUMMER 2010.

In football, everything is complicated by the presence of the opposite team. ~Jean Paul Sartre

Cape Town Stadium, South Africa
Roger Bosch, MediaClubSouthAfrica.com

Inside this issue...

REGULAR COLUMNS, DEPARTMENTS & SMALL FEATURES

Deadline for Autumn 2010 Sports Turf Manager: September 17.

WHAT'S ONLINE

www.sportsturfassociation.com

STA Membership Directory
Network with your peers!

Michael J. Bladon Educational Link
The complete digital archives of the Sports Turf Manager as well as full subscriber access to Michigan State University's Turfgrass Information Centre.

Turf Trades Employment Board
Advertising a position? Searching for a job? We've got you covered.

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The Athletic Field Construction Manual & Understanding Turf Management.

Sports Turf Manager

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President's Desk

BY PAUL GILLEN

Welcome to the summer edition of the Sports Turf Manager. Like many of you, I am enjoying the very early spring/summer weather and the additional time outdoors. We completed the 2nd offering of the Sports Turf Management and Maintenance Course during the first week of May at the University of Guelph. Special thanks to Dr. Eric Lyons for updating the material and presenting the course on behalf of STA. There were 22 students this year and their enthusiasm and participation was refreshing to watch.

Award Presentation. Eric Lyons receives the Ontario Recreation Facilities Association Award of Merit at the Annual Expo and Awards Presentation, May 3, University of Guelph.

Your association representatives have been busy with the POSA committee developing a course for synthetic turf applications. While the details have yet to be finalized, everything from the decision and selection process to contracting criteria to maintenance requirements and training will be addressed. Check our website for updates.

By the time you receive this, the Summer Operational Forum will have just taken place June 23rd at the Hespeler Memorial Arena in Cambridge. This year's theme of "Accessibility in Ontario's Parks and Open Spaces" is timely and should be of interest to everyone in light of the recently passed legislation. We'd like to thank the excellent variety of speakers who provided indepth knowledge on the accessibility issues that we will all have to be aware of moving forward with compliance. If you missed the event, read the article provided by Variety Village's Director of Access and Awareness Archie Allison on page 13.

July is Smart Irrigation Month and thus an opportune time to get updated on this constantly evolving topic, especially in light of numerous municipal water restrictions and usage issues. This issue's cover article on rainwater harvesting by Chris Davies provides a solid background as to why the usage of non potable water is a key step for future sustainability.

The 23rd Annual STA Field Day has been confirmed for Thursday, September 23rd, in Cambridge. Reserve the date and plan to participate. More details will be coming out shortly so watch for them online.

We have been included in a Sports Turf Managers Association committee to examine and define the role for STMA in the international sports turf marketplace. It's exciting to be associated with the high caliber of expertise that has been assembled for this study. Stay tuned for updates on our progress. And finally, stay cool – and safe – this summer. Talk to you in September.

Ontario's Cosmetic Pesticides Ban

"As we move into the first full year under the pesticide ban here in Ontario, it's been interesting to follow the editorials and letters to the editor (in Maclean's magazine and the National Post in particular) condemning the 'weed infestations' on the sports fields that children are playing on, and looking at the longer term implications that the loss of 'turf' will mean in the future. In this issue, we've included excerpts from a panel discussion held at this year's OTS. Representatives from the cities of Waterloo, Oshawa and Mississauga analyzed the impact of the ban thus far in their region. On the research front, OMAFRA's Pam Charbonneau discusses recent findings on the effectiveness of an iron chelate herbicide for broadleaf weed control." *By Paul Gillen*

New Members

Andrew Fairley, Town of Oakville, ON

Brett Mosley, City of Barrie, ON

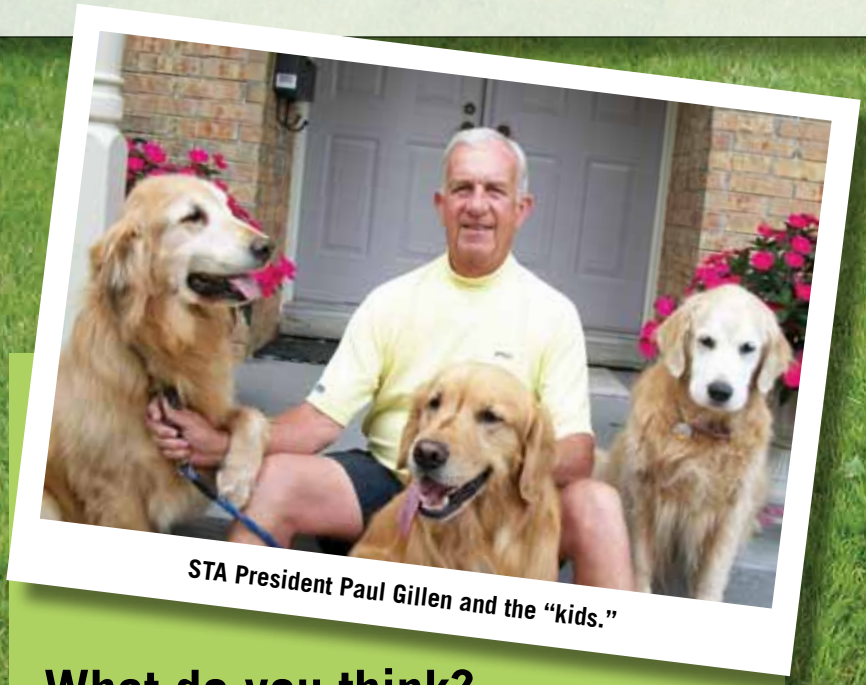
Kevin Holmes, Toronto, ON
The MBTW Group

Gary Durnan, Town of Ajax, ON

Al Kuronen, City of Welland, ON

Dan Cossette, Paul Donnelly, Joe Imbesi
Barry Pyper, City of Ottawa, ON

Bernard McGovern, Linden, AB
Certified Irrigation Design Consultants Inc.



STA President Paul Gillen and the "kids."

What do you think?

It's year two of Ontario's pesticide ban legislation. We are asking you, our members, to comment and provide feedback on the remedial methods that have been successful in keeping your facilities "safe and playable." Send us an email to info@sportsturfassociation.com (Subject: Pesticides Ban). We'll post your replies online.

Book September 23rd now and we'll see you in Cambridge this fall.

STA Field Day 2010

Sports turf managers from across the province will come together where the Grand and Speed Rivers converge for the STA's 23rd Annual Field Day on Sept. 23. Located off Highway 401 just west of Toronto, Cambridge boasts a mix of urban and rural settings. A vibrant industrial, cultural and tourism services hub, the city has recreational amenities that include 12 community centres, 4 public libraries and 1,000 acres of parks with 141 sports fields.

The Field Day Committee is in the midst of applying the finishing touches to this year's program. For topnotch turf education and the opportunity to network with peers and industry suppliers, plan to join us at the Hespeler Optimist Park/Memorial Arena/Beehive Hall. Visit www.sportsturfassociation.com for all the details as they become available.

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Optimist Park, 2010 Field Day Location

Previous Field Day Images

Event Calendar

ASSOCIATION EVENTS ARE HIGHLIGHTED IN GREEN

July 1. Implementation of the HST. Info: www.cra.gc.ca/harmonization

August 19. Guelph Turfgrass Institute Research Field Day
Guelph, ON, www.guelphturfgrass.ca

September 20. Ontario Turfgrass Research Foundation Annual Fundraising Golf Tournament, Bayview Golf & Country Club, Thornhill, ON, www.otrf.ca

September 23. Note new date & location! STA 23rd Annual Field Day
Cambridge, ON, www.sportsturfassociation.com, 519-763-9431

If you have an industry-related event you'd like publicized, contact Lee at 519-763-9431, info@sportsturfassociation.com.

QUOTABLE QUOTE....

The way of the world is meeting people through other people. ~ Robert Kerrigan

POSA UPDATE

www.POSAlliance.ca

The Parks and Open Space Alliance (POSA) continues to move forward strengthening parks and open space practitioners through professional development, recognition and advocacy.

With the offering in May of the core course components of the Parks and Open Space Professional Training Program Level I, we anticipate the soon-to-be-received applications for the first recipients of this coalition certificate program. Check the criteria to determine if you are eligible at www.POSAlliance.ca.

It will only be a matter of time before we recognize recipients of Level II given the many opportunities for educational credits available from both the Alliance and its partner associations. Check the Alliance and partner websites for education and professional development opportunities which provide the necessary educational credits, such as the recent Summer Operational Forum.

PARKS AND OPEN SPACE ALLIANCE

Additional Alliance workshops addressing the topics synthetic turf and understanding the supervisory role are under development. We'll keep you posted as the particulars are confirmed!

Partner Websites

VISIT US ONLINE AT....

- **www.ontarioparksassociation.ca**
- **www.orfa.com**
- **www.sportsturfassociation.com**

Member & Facility Profiles

THE SPORTS TURF MANAGER VISITS YORK UNIVERSITY

Up Front With STA Member Tim Haagsma

What is your role with York University? I'm Manager of Grounds, Fleet and Waste Management.

What kind of team do you work with? I have 3 supervisors that report directly to me. Under them, there are 39 full time unionized staff, 3 part time staff and 14 summer students.

What are you and your team responsible for? I am responsible for the maintenance of the grounds (roughly 550 acres), including 6 sportsfields and 4 baseball diamonds, as well as all waste management at the university. I am also responsible for the procurement and maintenance of the fleet to support these services.

Tim Haagsma. Manager of Grounds, Fleet & Waste Management, York University

What is the biggest challenge in your job? Budget cuts! We are constantly working on ways to increase productivity and efficiencies while balancing harmonious labour relations. Additionally, the intensification of our campus landscapes (converting from large areas of turf to elaborate plantings) is a major challenge. Upper administrators do not understand the additional workload involved with this. Finally, the elimination of pesticides to help control weed problems, especially on our turf and gardens, has been a significant setback.

What is the most satisfying part, what makes the job worthwhile for you? Completing a project on time and on budget!

What is the biggest misconception about your job? That it's easy! Ha! This is a good question! I guess it would be that I like to sit around in my office all day; meanwhile, I much prefer to be out in the field.

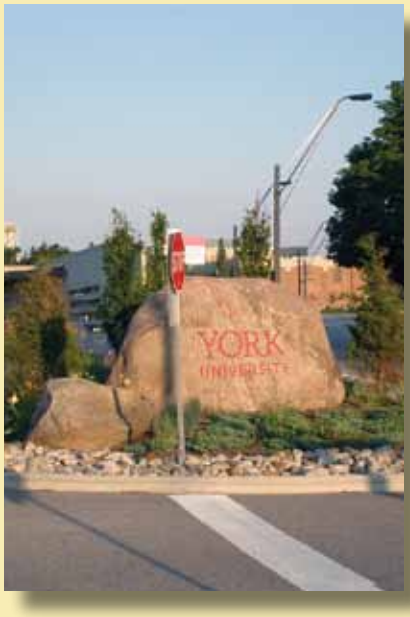
What is your educational/employment background? I received my B.Sc. (Agr) with a major in entomology and minor in international agriculture from the University of Guelph in 1988 and started to work at York University in the Grounds Department the same year. I worked my way up from groundskeeper to lead hand and then horticulturalist prior to becoming manager in 2003.

Tell us about your family. I'm married to Julie and live in King City happily maintaining my two acres of solitude!

What do you enjoy doing outside of the workplace? Believe it or not, gardening is one of my favourite past times. I am an avid cyclist and love to get away on fishing trips – the more remote the better!

How has the industry changed and in what direction(s) would you like to see the industry, as a whole, move towards? I have seen many changes over the years, especially the shift away from pesticide usage, as well as a major increase in liability concerns. I would like to hope that we will end up with a more sustainable vision in the future for how we maintain our landscape.

What do you consider to be the biggest benefit of being a member of the STA? Easy access to information for our local turfgrass industry.



If you are interested in being featured in this column, please contact Lee Huether at the STA office.

Photos courtesy of John Wilson.

YORK UNIVERSITY, KEELE CAMPUS, TORONTO

What types of sports fields are on site? Five playing fields, including one event stadium, as well as four baseball diamonds.

How many employees are involved with turf care at this facility? 30.

How many acres of turf are maintained at this facility? 180. **How many acres of sports turf?** 25. **What percentage of this acreage is irrigated?** 10% of the total maintained.

What is the primary type of turfgrass? Generally Kentucky bluegrass, though we overseed our sportsfields with the following mix: 50% IQ perennial ryegrass, 25% Accent perennial ryegrass and 25% Goalkeeper 2 perennial ryegrass. Our general turfgrass overseed mix is currently 40% perennial ryegrass, 30% creeping red fescue and 30% Kentucky bluegrass.

Is yearly overseeding part of your maintenance program? For sure! **How many times do you fertilize?** General campus, twice/year. Sportsfields, four times/year. **Do you aerate? Topdress?** Yes to both.

Are community user groups involved or have they been involved in the construction/maintenance of this facility? No, although the sportsfields are rented out as a revenue generating strategy.

How many hours per year are the fields permitted? This is dependant on the particular field and the activity being proposed. In general, I would estimate each field is used approximately 600 hours, with 300 hours on our main event field. **Who permits them?** The Athletics Department.

Are the fields ever closed during the season to give them a rest? Generally, each field is closed for approximately six weeks to allow major renovations on a rotational basis.

How much input do you have in the amount and timing of use? This decision is made by the Athletics Department, in consultation with me. Generally they understand when I explain to them that the quality of the field is in direct correlation with the use (or overuse) of the field.

The Benefits of Rainwater Harvesting For Water Conservation

Chris Davies, President, Flow Source Inc.

FOCUS ON WATER

Continued from our front cover.

What is Rainwater Harvesting?

Rainwater harvesting is the gathering, or accumulating and storing, of rainwater. This can be done in many ways ranging from small residential barrels to large industrial systems. Rainwater is used worldwide for drinking water, domestic water, water for livestock, and water for irrigation. In Canada, we have some restrictions regarding its use. Currently we are allowed to use rainwater internally in a home or business to flush toilets, and externally for irrigation and general cleaning. Many committees and focus groups are working with the Canadian Building Code to adapt further uses such as laundry and potentially someday, showers and dishwashing.

Why Use Rainwater Harvesting?

Rainwater usage has increased steadily due to the shortage of freshwater and the cost of municipal water treatment. Many have chosen to use non potable water for applications where potable water is not required. Water shortage concerns across North America have become more public in the last few years. The common water bans for irrigating lawns and washing vehicles continue throughout municipalities across Canada during summer months and more severe circumstances are now being seen.

In 2006, the town of Tofino, British Columbia, had to force their community's businesses to shut down due to water shortages. Water was being used from a backup reservoir and a boiling water alert was issued due to water quality. In 2007, groundwater levels in southwestern New Brunswick reached such a low that the Environment Minister had to issue water conservation recommendations so that local wells did not become completely depleted. The 2007-2008 drought in Georgia saw Lake Lanier reach new record lows dropping approximately 20 feet below the norm. All of these figures are indications that the two largest users of water in the world (United States and Canada respectively) need to make water conservation a priority.

This growing concern has broadened the focus to look at the costs of providing treated water to homeowners and businesses. In January 2008, a study for Ontario's

Independent Electricity System Operator (IESO) released information based on 145 municipalities across Ontario. These 145 municipalities represented about 72% of Ontario's population. The study revealed that 33% of the dollars spent on electricity in Ontario were going to the treatment and pumping of water and sewage. Figure 1 shows the breakdown of this usage which totals $680 million dollars annually. Therefore, over $224 million is spent each year on water in Ontario alone.

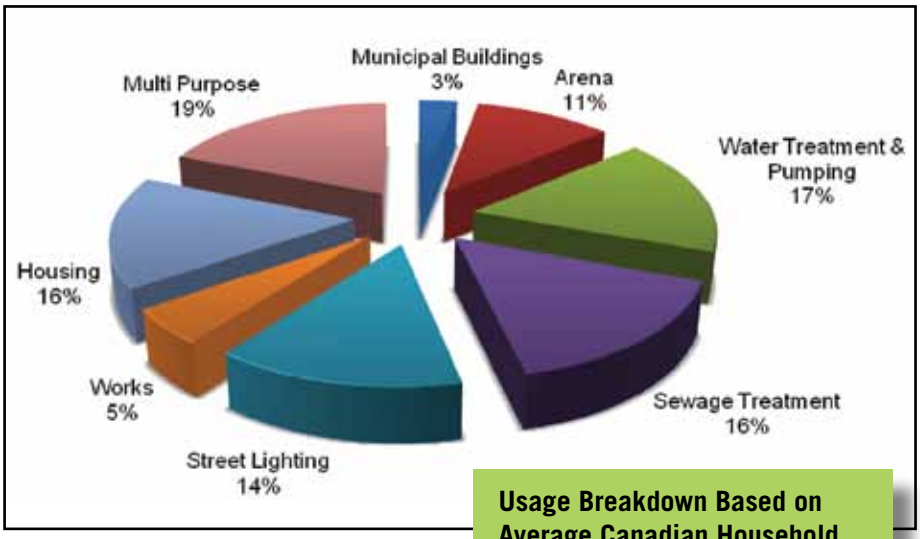
Sewage is included in this discussion because rainwater is classified as storm water sewage and therefore becomes a cost to the municipality for treatment. Urban growth will continue to present challenges to municipalities to keep up with the growing demand for water.

Due to these circumstances, many citizens and corporations have decided to make a difference and take a more sustainable approach to water usage. This is where rainwater harvesting can make an impact. Rainwater is a natural source of water that provides an on site supply for all non potable uses approved by the government.

With deteriorating pipe networks in many cities across Canada, on site water sources have many benefits. By eliminating the need for city water, the pressure on municipal water lines is reduced as the property can use rainwater for flushing toilets and outdoor uses. Rainwater harvesting not only reduces mainline requirements saving the city overhead dollars but contributes to a better water source for plants and turf. Rainwater is collected and stored at a warmer temperature which reduces shock to the plant from cold city water. Rainwater also provides a chemical free water source which is a healthier option for the plant being irrigated.

Storing rainwater reduces water runoff in sewer piping. This reduction prevents the overflow of sewers and flooding during large precipitation events. This directly affects contamination of homes, lakes and rivers by keeping sewage contained in the piping network. Less sewage also reduces the need for treatment which saves municipalities chemical, manpower and electricity costs. Lastly, the decreased flow on the piping network lowers usage which can contribute to fewer pipe breaks, maintenance and longer life of the sewage system.

Figure 1. Average municipal water consumption by usage (Ontario).



Usage Breakdown Based on Average Canadian Household

35%	Bathing & Showering
30%	Toilets
20%	Laundry
10%	Kitchen & Drinking
5%	Cleaning

What Makes a Rainwater Harvesting System?

Rainwater harvesting systems are made up of several components and can be customized for each project. Some systems are very simple and have only a tank with a screen, but still require monitoring and maintenance to keep them functioning with efficiency. Others are very complex and have electronics that monitor factors throughout the system. Here is a description of each component:

Source. This is the area from which the water is to be collected during a precipitation event. A source can be a small home, large industrial building or the entire area of a soccer field. It is becoming common practice today to use the area of an artificial turf field as a collection area and channel the water through the drainage system into a holding tank for use on a nearby natural turf field. This is a very effective option as the amount of rain collected from one field doubles the water available for the field to be irrigated. Therefore if a site gets 1/2 inch of rain, the natural field will receive that watering first and then have approximately the same amount stored for the next irrigation cycle.

Pre-filter. Pre-filtration is used to collect debris before it reaches the tank so that the storage tank does not get full of sediment and has its full capacity available for water storage. Filters come in many forms. A basket filter is the simplest and usually least expensive form of filtration, however it requires more maintenance. Cascade and Vortex filters are other options that are commonly used for larger systems as they can filter greater amounts of water from large collection areas.

Storage. This is the holding unit for the filtered water collected from the source. Storage units can come in many forms, sizes and shapes. There are two main options for storage units, above ground or below ground. Above ground units are usually in the form of a tank that is made of a material that will withstand UV exposure and have an option of colours to match the

JULY SMART IRRIGATION MONTH

Visit www.irrigation.org/SIM for more information on programs & iniatives.

Top. Installation of an underground rainwater harvesting system. **Above.** Typical above ground rainwater harvesting system

area where it will be located. These units are common in smaller applications and are seasonal in Canada due to our freezing climate in the winter. Underground storage can come in many forms as well. The most common are tanks or a modular system that uses structural blocks and a liner to hold the water. Due to the need for excavation, underground systems are normally larger and have the advantage of being buried out of sight. Storage units can come in a variety of materials including concrete, fiberglass, plastic and sometimes steel.

Pump. Pumps allow water to be transferred from the storage unit to the location where the water is required. Pumps are customized for each project according to need. The most common pumps used are submersibles that are placed in a storage unit or centrifugals that are outside the storage unit.

Water is fast becoming a commodity in the same league as oil and will likely become much more highly regulated in the future.

Treatment. Some systems require water treatment from the storage unit. This is usually done when the rainwater is being used in an indoor application. UV filters that kill any bacteria that may be present are the most commonly used.

Backup. A backup is an electronic or mechanical valve that is connected to an alternative water source such as a municipal line or well to provide water to the storage unit when rainwater is not available.

Control. The most advanced rainwater harvesting systems can have a control that monitors water levels, filters, pumps and treatment. These are not always used but may become a regular option as the industry evolves.

Sustainability

Water affects the climate, the survival of humans and wildlife (plants and animals), and is one of our most precious resources. So how do we use it effectively and efficiently in the turf industry? Most sports fields are located near a facility that can be used as a source. Arenas, schools, maintenance buildings and even artificial fields act as catchment areas for rainwater harvesting. Irrigation is 100% a non potable usage of water and therefore can be a more sustainable resource for your facility. Irrigation is not the only avenue for rainwater use. Many new facilities are using rainwater internally for lavatory needs. The Green Building Council's L.E.E.D. (Leadership in Energy and Environmental Design) program allows points to be earned by recycling rainwater. This is a growing standard for new and renovation construction and may be a target for your next project.

Water is fast becoming a commodity in the same league as oil and will likely become more regulated in the future. Be a part of a sustainable future and embrace the changes coming to the irrigation industry. Use recycled rainwater as your water source.

Chris Davies is President of Flow Source Inc., www.flowsource.ca, email chris@flowsource.ca. Visit www.ene.gov.on.ca/en/water/opportunities/index.php for the Proposed Water Opportunities and Water Conservation Act. The website address for the environmental registry is http://news.ontario.ca/ene/en/2010/05/leading-the-world-in-water-innovation-and-conservation.html.

Variety Village: Promoting Access and Inclusive Participation

Archie Allison, Director, Access and Awareness

Variety Village is a world-renowned sport, fitness and life skills facility for people of all ages and abilities. Beginning as a vocational school for young adults with physical disabilities in 1947, Variety Village was recognized and built as a leader in creating opportunities for people with disabilities. In 1981, Variety Village evolved as one of the only accessible sport, fitness and training facilities for children with disabilities. Today, we support 6,300 members of all ages and abilities (physical, developmental, medical, socioeconomic) as an inclusive and accessible sport, training and life skills facility.

Variety Village has always been an integral part of the movement for inclusive environments and healthy active living opportunities. Community leaders from around the world join us to explore accessibility ideas and options to promote access, awareness and inclusive practices.

"Built Environment Standards" are an important initiative to create inclusive environments for people with disabilities. They present a valuable learning opportunity for individuals, communities and organizations in creating access for everyone. The proposed built environment standards address areas including parking, entrance/exits, signage, parks and trails.

Internal Initiatives

Variety Village continues to evolve and learn to meet the needs/interests of the community. Built environment features to support our commitment to access include:

- an underground heating device on the pathway and entrance area to melt snow/ice for mobility and safety
- multiple parking areas for individuals with disabilities at the entrance of the building
- an automatic door entry to assist visitors and members
- large hallways to provide access to individuals moving in both directions simultaneously

POSA HIGHLIGHT

Coverage from Cambridge, June 2010.

- spacious and unobstructed areas with high ceilings
- wheelchair accessible washroom and change areas for men, women and family
- a facility orientation for interested members and guests

Important Considerations

The built environment should recognize and support people with disabilities to create opportunities for participation in

your programs/services. Note that it is important to also consider varied weight, height, mobility, communication and safety design in your planning.

Here are a few areas for consideration regarding the built environment in your community or facility:

1) An increase in membership creates additional needs for accessible parking.

2) Standard regulation sizes for door frames offer minimal standards only; athletes who use sport wheelchairs for training or competition may use tires cambered (for speed and agility) at 42 inches or 106.7 centimetres. In order to accommodate these individuals, door frames need to be increased to a minimum of 42-46" and should not have dividers between them.

3) Is the building/facility conveniently located and is it appealing to the senses? Sight: is it attractive/recognized as an accessible facility? Sound: are there distractions in/outside the facility like construction or competing/overshadowing structures? Smell: are there aromas from gardens, strong scented fragrances? Touch: are the wall textures rough, textured, clear of ornaments? Are there obstructions or protruding columns?

4) Is the facility built with access in mind? Does the built environment support the environment, health and safety, the needs and interests of the public, and is it built to be affordable?

Analyze The Environment Yourself

Finally, take a few minutes to think about how you perceive your built environment and how it affects your attitude, perception and interest. If you do not have any accessibility issues, think about the challenges that may be present for those who do. The bottom line is that the built environment can determine participation in a facility or organization.

For more information on ideas for inclusive and accessible initiatives, please contact Variety Village at 416-699-7167 TTY: 416-699-8147, www.varietyvillage.ca.

Editor's Note: Archie Allison was one of the featured speakers at the recent Parks and Open Space Alliance (POSA) Summer Operational Forum addressing Accessibility in Ontario's Parks and Open Spaces.

Variety Village

Wheelchair Accessible Sports Venues for Children With Disabilities

ACCESSIBLE SPORTS VENUES are bringing new meaning to the commonly used phrase "level the playing field." Besides incorporating the idea of fair competition, where no advantage is given to either team, these venues also level the playing field – literally – making America's favourite pastime accessible to all.

Over 100 accessible baseball fields service over 80,000 children with disabilities across the United States, including Puerto Rico. Each custom-designed field uses cushioned, rubberized turf to help prevent injuries, wheelchair-accessible dugouts, and a completely flat surface to eliminate any barriers; the bases and mounds are painted on.

"The design removes all obstructions," says Diane Alford, executive director of Miracle League, the nonprofit organization that created the first accessible field in a suburb of Atlanta, Georgia, 10 years ago.

The idea began in 1997 when a local youth baseball coach invited a disabled child who was cheering on his younger brother during games to join in. The following year, the Miracle League was formed to provide opportunities for all children to play baseball, regardless of their abilities.

Equality in Rules

To equal the playing field, the Miracle League created new rules: every player bats once each inning; all base runners are safe; every player scores a run before the inning is over; and the last batter up gets a home run. And to make the game a community affair, local volunteers from youth groups such as Boy Scouts and Girl Scouts, church groups, parents and other children team up with the players to serve as 'buddies' to assist them on the field. Finally, to ensure the game is fun rather than competitive, each team and each player wins every game.

Leveling the Playing Field

Unfortunately, simply creating new rules of play didn't solve the accessibility challenges. "We quickly recognized that the reason most children with a disability don't participate in sports is because of the venues rather than the rules of play," says Alford. **>>>**

The Miracle League

Playing on the same grass fields and with raised mounds and bases as the other community baseball teams presented potential safety hazards – not to mention additional challenges – to blind players and those on crutches or walkers or in wheelchairs.

After a lot of research and fundraising, including partnership with local Rotary clubs, the Miracle League found a type of rubber that would make the playing field safe, latex-free and provide the right surface for the ball to roll rather than stop, yet not bounce up and hit someone. The initial complex opened in April 2000. With 100 players from among the 50,000 children with disabilities in metro Atlanta, it soon got national attention.

The Disability League Grows

When Lisa Kensington learned about the Miracle League through HBO's Real Sports, she immediately undertook the creation of an accessible field for her community outside of Denver, Colorado. Teaming up with Foothills Parks and Recreation, the Jason Jennings Adaptive Field opened in the spring of 2006 under the name of Sports Made Possible.

"We opted to change our name from Miracle League to Sports Made Possible to better reflect our mission," says Kensington. While Kensington has been involved with other major fundraising efforts prior to this one, she says that Sports Made Possible has been the most fulfilling project she's ever done.

"It's a win-win game for everyone involved," says Kensington. "The buddies get to build a relationship with a disabled child, and the children get to build relationships with other community members."

The Miracle League hopes to service over 1.3 million children with disabilities through 500 accessible fields by 2012. Already 40 more fields are under construction with another 50 in some stage of development.

Article by Lori Batcheller, reprinted from www.disaboom.com, March 2008. For more information, visit www.miracleleague.com and www.sportsmadepossible.org.

BMO Stadium Goes Natural

THE ONTARIO TURFGRASS INDUSTRY IS ABUZZ over the permanent conversion of BMO Stadium from synthetic to natural turf. Comprehensive articles are available in both the March and April/May 2010 issues of Turf & Recreation magazine. Photos courtesy of Zander Sod.

Winning the Turf War. Synthetic or Natural? The Discussion Continues.

Alison Brownlee, Journalism Student, Humber College

The synthetic turf of the past may have been greener than its natural predecessor, but it sure wasn't kinder. Once the pariah of all athletic surfaces, the first-generation "carpet-on-cement" turf developed in the 1960s chewed up athletes and spat them out. Sprains, tears, concussions and turf burns were the fate of soccer, rugby, baseball, football and field hockey players who dared to take on these plastic playing fields.

Since its first appearance in the Houston Astrodome in 1965, synthetic turf has come a long way. Now, even some multimillion-dollar varsity stadiums popping up across Ontario aren't being built around natural grass.

Of the 30 OCAA colleges and universities, Trent, Redeemer and Algonquin have switched to synthetic. While the remaining colleges have natural sports fields, both Cambrian and Centennial say they are considering artificial turf in the near future.

These fields are nothing like their first-generation predecessors. Professional teams such as the Toronto Blue Jays, New England Patriots and Tampa Bay Rays use similar fourth-generation synthetics.

In 2005, Trent University took a risk and installed an artificial field; a move athletic director Bill Byrick says was the best choice he could have made for his athletes.

"Our natural grass field was pretty rough," says Byrick from his office in Peterborough. He says the worn and tired field became a safety issue. "A lot of cleats were getting stuck in the mud and after every fall late in the season, players would have cuts from the frozen dirt."

After extensive research and long conversations with the University of Ottawa and Algonquin College – two schools that already had synthetics – Trent installed a state-of-the-art plastic fiber field filled with tiny rubber pellets.

Jason Smollett, marketing manager for international artificial turf supplier FieldTurf Tarkett, says the newest versions' artificial fibers are more durable than grass, and the pellets, which are bits of cryogenically frozen tire, provide a cushion of support for athletes, lessening joint pain caused by running and falling.

Smollett says this fourth-generation synthetic turf has surpassed natural grass in safety, durability, performance and consistency.

A recent study, funded by FieldTurf and conducted by Dr. Michael C. Meyers at Montana State University, tracked 465 college-level games played on both natural and artificial fields. The study found 7% fewer injuries occurred on FieldTurf's surface, with 12% fewer concussions, 6% less lower joint trauma and 16% less ACL and associated tissue trauma.

Overall, the study found 19% fewer substantial injuries and 22% fewer severe injuries occurred when playing on the company's newest artificial turf. Nonetheless, some athletes still prefer natural grass.

During the 2010 Ontario Turfgrass Symposium at the University of Guelph, Bob Hunter of Maple Leaf Sports and Entertainment said Toronto FC's previously synthetic BMO Field will be completely refitted with natural grass for the 2010 soccer season.

"Players were complaining about it," said Hunter. "There is this perceived issue relative to wear-and-tear on the body. I think there's a recent study that came out that says it's absolutely a bunch of bull ... [But] we wanted to put in [natural grass] to bring a higher level of professionalism and credibility to our team."

He noted 13 of the 16 North American professional soccer stadiums have natural grass and several European teams, including AC Milan, refuse to play on artificial turf. The BMO field project cost about $62.9 million and involves 82,000 square feet of natural grass.

Some OCAA players have their own reasons for choosing natural grass. David Lambden, captain of the Humber Hawks rugby team, says the variability of natural turf makes it more fun. "Every once in a while you get those rainy, stormy days when the field's just completely muddy, and in my experience, those have been some of the [most exciting] games we've ever had," says Lambden. "Part of the fun of it is the different possibilities."

Lambden also says games can be more strategic, with teams using the quirks of their natural grass home field to their advantage. With synthetic turf, though, he says a field's character disappears.

"There are no variables," says Lambden. "You don't get the dips and bounces, it's just the same."

And members of the St. Lawrence Cornwall women's soccer team say artificial turf infill can wreak havoc on performance.

As defender Joanna Buhr recalls, "Sometimes there are too many pellets in an area and your foot slips back." Fellow defender Kayla Laframboise adds the smooth surface of artificial turf can cause rolled ankles and slips when pivoting, while grass creates enough friction to pivot freely and control slides.

"And you don't get rubber in your underwear," says forward Sarah Tyrell, to a wave of laughter from her teammates.

But regardless of preconceived notions, synthetic fields are becoming more appealing for their low maintenance. The biggest barrier for OCAA facilities is cost.

Jim Galbraith, a founding member of Ontario's Sports Turf Association and the supervisor of grounds maintenance for the University of Western Ontario, says natural grass fields cost $100,000 to $150,000 for a soil-based field and $250,000 to $300,000 for a high maintenance sand-based field.

According to Frank Erle, Ontario Recreation and Facilities Association member and stadium manager at Western, building an artificial field "from scratch" costs about $1.5 million. Resurfacing can cost around $750,000. Erle says synthetic fields are expected to last 10 years, while Galbraith says natural fields are theoretically permanent.

"Grass fields have always been seen as the best to play on," says Galbraith. "Unfortunately, as more people play on them, they thin out and technically self-destruct when it gets really wet at the end of the season."

But both Galbraith and Erle say they appreciate a beautifully maintained natural field. "If it was pristine, there's no question you'd want to play on grass," says Erle. "But there's no guarantee you're going to get that 365 days a year."

Above. St. Lawrence Cornwall's Kim Lebrun poses on the turf field. Photo courtesy of author Alison Brownlee.

As for Trent's field, director of athletics Byrick says he expects to get 12 years out of his turf. He says it's used for varsity, campus rec and community sports and has held up through it all.

Because of Ontario's debilitating winters, the comparative maintenance costs and an increasing interest in sports, Smollett holds that artificial turf is the future – for all levels of sport.

"Whether it's here, or the other side of the world, there's no question synthetic turf is the best choice."

Reprinted from Sweat Magazine, April 15, 2010, www.sweatmag.com. Sweat magazine is an award-winning magazine produced biannually by the final year journalism class at Humber College in Toronto since 2000. The publication is student-run and written, published by the Ontario Colleges Athletic Association, and distributed to OCAA campuses all over the province.

Pesticide Ban Impacts: Three Municipalities Provide Perspective

Mark Dykstra, Director of Environment and Parks, City of Waterloo
Bill Slute, Manager, Parks and Environmental Services, City of Oshawa
Andy Wickens, Manager, Parks and Forestry, City of Mississauga

The revised regulations under The Pesticides Act which eliminated the "cosmetic" use of pesticides in Ontario came into effect on Earth Day 2009. Municipalities have now had one full season to adapt to the changes in operations which have resulted from the new legislation. This article provides perspectives from three different municipalities as to the impacts and costs of these changes.

City of Waterloo

For Waterloo, what are the true costs of the pesticide ban? This is an interesting question for a city that has a strong knowledge and service-based economy. Waterloo is a community of 120,000 people that has 814 hectares of green space. If you have visited Waterloo, you may have experienced RIM Park that offers a major indoor recreation facility, a mix of multi-use fields and baseball diamonds, a golf course (Grey Silo) and an abundance of natural areas along the Grand River.

Understanding and investigating the questions surrounding pesticide use began for Waterloo some 30 years ago when both citizens and staff recognized that routine grounds maintenance practices were both fiscally and environmentally undesirable. Alternatives were explored and researched. The result was a Plant Health Care Program designed to work with nature, not against it. It encouraged creative deployment of horticultural practices and recognized that we are working with living plants/organisms, not sterile mechanical

Mowing, Town of Oakville

OTS HIGHLIGHT
Coverage from Guelph, February 2010.

For more on alternatives to pesticides...

Turn to page 25 for recent research findings on fall applications of an iron chelate herbicide on broadleaf turf weeds.

products. The program included the same elements that so many communities are now using today: monitoring/scheduling, mowing, fertilizing, aerating, topdressing, overseeding, irrigating, dethatching, alternatives, and education and training.

The outcome of Waterloo's efforts can be demonstrated by the fact in 1979 we sprayed 36% of our greenspaces. By the year 1993 it was down to 0.5%, and today, of course, we do not spray at all in accordance with the ban.

Table 1 summarizes the base program costs (excluding overheads) for the City of Waterloo in 2008 on non-irrigated and irrigated multi-use fields and on an irrigated baseball field. The pesticide ban has had minimal impact on our most recent years operating budgets as we have programmed the cost into our operations since the 1980s.

We continually monitor, inspect and renovate our turf. We look for alternative ways of doing things including sand injection, utilizing a Blec sandmaster, building fields to recommended standards, and investing in artificial turf fields.

The Plant Health Care Program at the City of Waterloo has been successful as a result of the involvement and commitment of staff, redefining how we work, political will, citizen involvement, and requesting the necessary budget when opportunities were available. In doing so, the pesticide ban has had a minimal effect on City of Waterloo operations.

City of Oshawa

Oshawa has 150,000 residents. The city maintains 126 parks comprising 953 acres (maintained parkland), 50 rectangular fields, 54 ball diamonds, 7,766 linear metres of landscape buffer strips, 67 shrub/perennial beds and 91 annual beds.

Oshawa instituted a Pest Management Program, approved by Council, in 2003. This was put in place as an alternative to a pesticide ban and had the goal of reducing or eliminating the use of pesticides while

Table 1. A summary of base program costs (excluding overheads) for the City of Waterloo in 2008 on irrigated and non-irrigated multi-use fields and on an irrigated baseball field.

Maintenance Activity	Non-Irrigated Multi-Use Field	Irrigated Multi-Use Field	Irrigated Baseball Field
Inspections	$100	$100	$100
Spring Repairs & Divot Overseeding	$525	$650*	$400
Aerating	$275	$400	$300
Fertilizer & Soil Amend.	$800	$800	$600
Topdressing & Overseeding	$3,500	$3,500	$600
Mowing	$400	$800	$1,000
Irrigation	-	$500	$500
TOTAL	**$5,600**	**$6,750**	**$3,500**

*Includes crease overseeding and turf blanket

Table 2. Additional costs incurred by the City of Oshawa due to alternative practices under Ontario's Cosmetic Pesticides Ban.

2009	Cost	Items
Agricultural & Botanical	$57,500	seed, fertilizer, topdressing
Alternatives	$50,000	mycorrhizae, corn gluten, alfalfa, worm castings, kelp, gypsum ...
Vegetation Control	$62,400	vinegar, mulch

Table 3. Costs for cultural practices, labour and equipment, City of Oshawa.

Year	Core Aer.	Slit Aer.	Overseed	Topdress	Fertilize	Alternatives	TOTAL
2006	$8,270	$15,537	$11,402	$4,400	$27,132	$32,863	**$99,640**
2007	$3,237	$10,252	$25,137	$14,474	$25,620	$24,310	**$103,030**
2008	$3,336	$11,827	$25,248	$6,142	$42,892	$12,206	**$101,651**
2009	$6,597	$12,000	$17,695	$2,500	$20,414	$23,410	**$82,616**

maintaining quality turf. As a direct result of this program, an additional $400,000 was added to the base budget to cover equipment, facilities, three additional staff, materials, and education and outreach. Because of this, Oshawa was well prepared for the 2009 pesticide legislation and the impacts were less than they may have been otherwise.

The new pesticide legislation resulted in some additional costs to Oshawa related to alternate practices. These are summarized in Table 2.

In order to better focus efforts to promote healthy turf, Oshawa engaged the Guelph Turfgrass Institute to carry out a $50,000 study. This provided for a comprehensive report and included recommendations for:

- Procedures
- Monitoring techniques
- Fertilizing schedule based on soil tests
- Maintenance schedule for compaction, overseeding and topdressing
- Field use (open/close dates)
- Education and outreach programs
- Equipment purchases
- Drainage improvements
- Development standards
- Provision for skilled staff
- Staff training

A summarized report was provided for user groups.

The City of Oshawa has implemented use of a number of alternative products to replace traditional pesticides. These include:

- Calcium powder for compaction
- Corn gluten to prevent weed germination
- Compost: nutrients, bacteria, fungi
- Worm castings: nutrients, bacteria, fungi
- Crumb rubber to prevent damage
- Granular and liquid fertilizers
- Gypsum to prevent salt damage, compaction
- Kelp for nutrients
- Seed: endophytic, sun/shade, rhizomes, perennial rye (fast germination but clumps)
- Topdressing to match native soil
- Horticultural vinegar (hard surfaces)

Table 4. Typical costs for a rectangular field, City of Oshawa, 2009.

Item	Quantity	Product	Man Hours	Equipment	TOTAL
Soil test	1/year	$15	$5	$20	$40
Aerate	2/month	n/a	$130	$120	$256
Overseed	2/year	$1,440	$78	$100	$1,618
Fertilize G*	1/month	$560	$364	$231	$1,155
Fertilize L**	1/month	$500	$364	$231	$1,095
Compost	1/year	$20	$156	$100	$276
Grass cutting	1/week	n/a	$348	$1,363	$1,711
TOTAL					**$6,151**

* G, granular ** L, liquid

Table 5. Cost comparisons for hard surface treatments, City of Oshawa.

	Product Cost	Wages & Equipment	TOTAL
Roundup 2007	$1,000	$7,428	**$8,628**
Vinegar 2009	$12,000	$11,643	**$23,643**

Table 6. Modified practices due to the pesticide ban, City of Mississauga.

Location	Existing Practice	New Practice
Specialized Horticultural Beds	Pesticide treatment to deal with diseases, fungus etc.	Class 11 pesticides
Shrub & Perennial Beds	Hand weeding, mulching	No change
General Parkland	Periodic cultural practices	No change
Minor Fields	Periodic cultural practices	No change
Lit Irrigated Fields	Cultural practices, spot spraying	Cultural practices, periodic resodding
Baseball Warning Tracks	Roundup	Roto tilling; alternate surface
Boulevards	Bi-annual spraying	Cultural practices, Class 11 pesticides
Hard Surfaces	Bi-annual spraying	Class 11 pesticides
Forest Infestations	Treatment as needed (e.g. BTK)	No change
Invasive/Harmful Plants	Treatment as needed	No change, MNR approval required

In addition a number of cultural practices have been used

- 3" cutting height
- Overseeding & topdressing
- Fertilizing (granular and liquid)
- Aerating (core and solid tine)
- Soil tests
- Monitoring of fields and customized maintenance based on conditions

Costs for these cultural practices are shown in Table 3. Because of the previous Pest Management Program, the pesticide ban did not significantly change these costs. Table 4 illustrates the practices and costs for a typical high end grass field in Oshawa.

While overall implications and costs have been minimal, the pesticide ban has had major impacts on how Oshawa treats hard surfaces. Standard practices include the use of horticultural vinegar for downtown areas every two weeks, including treatment of warning tracks, tennis courts, intersections, walkways and sidewalks. Monthly newspaper ads were used in place of posting signs. Incremental costs for hard surface treatments were $1,875 monthly ads, $11,000/year product and $12,800/yr wages, equipment for a total of $25,675. Cost comparisons are provided in Table 5.

City of Mississauga

Mississauga Parks and Forestry serves 700,000 residents. The city has 500 parks (includes greenbelts and woodlands), 253 sports fields, 138 ball diamonds and 250,000 street trees. In 1995, Mississauga Council approved a policy which resulted in a 95% reduction in pesticide use. The policy included:

- No pesticide use for general parkland
- Spot spraying only for sports fields
- Use for high end horticulture
- Use for hard surfaces and boulevards
- Use for harmful/invasive plants

In addition, Mississauga proactively initiated increased development of artificial fields (currently have six). The 1995 changes also resulted in increased hand weeding of beds, more mulching, and the institution of cultural practices similar to those used in Oshawa. As a result of the 2009 provincial legislation, some operational practices have been modified. These are summarized in Table 6.

As noted previously, cultural practices (fertilizing, aeration, topdressing and overseeding) have been embedded in our operating budgets since the mid 1990s so the pesticide ban did not impact operating costs from this perspective. The average cost for a major lit field remains at $8,700. It is anticipated however that major turf renovations may be required eventually for some fields. This would represent a periodic cost of $200,000.

A major impact of the 2009 legislation has been changes in the maintenance of baseball warning tracks. This job now requires six staff for 2-4 hours. Previously, using Roundup, one staff person could treat a warning track in an hour. This represents incremental labour costs of $500 per diamond per treatment.

Another cost increase that has to be budgeted for is hard surface maintenance. Treating twice per year with horticultural vinegar results in incremental costs of $50k. Lastly, the impact on specialized horticulture like roses and rhododendrons has yet to be determined, though no major problems have surfaced as of yet. Overall, the history of pesticide policy in Mississauga put the city in a good position to deal with the new provincial legislation

Conclusion

All three municipalities implemented pesticide reduction programs prior to the *Cosmetic Pesticides Ban Act*. As a consequence, many of the practices and alternative products to allow for effective maintenance under the new legislation were already in use. So while there were incremental costs in some specific areas, impacts were not as severe as they might have been.

All Ontario municipalities and other turf managers will need to continue to adapt to the changing "tool kit" available to them as a result of legislative changes. It is hoped that research and innovation on the part of turf managers will allow for more effective alternative products and practices for the future.


City of Mississauga

Visual Observations

Figure 1 (inset). Brown dandelion leaves 48 hours after Fiesta™ application.

Figure 2 (main photo). Blackened leaves of narrow-leaf plantain 48 hours after treatment with Fiesta™.

Efficacy of Iron Chelate Herbicide for Turf Broadleaf Weed Control

Pam Charbonneau, Ontario Ministry of Agriculture, Food and Rural Affairs

Objective

To evaluate the efficacy of fall applied iron chelate for control of broadleaf weeds in turf.

Experimental Design/Methods

Plots were located in a turf research area at the Guelph Turfgrass Institute, Guelph, ON. The site is an area of established turf (a mixture of Kentucky bluegrass and turf-type perennial ryegrass infested with dandelions, black medick, narrow-leaved plantain and other lawn weeds). Turf was maintained as a low maintenance turf with weekly mowing at 6 cm, no supplemental irrigation and fertilized once a year with 0.5 kg N/100m^2.

Table 1. Treatments.

Treatment	Active Ingredient Rate (mL/m^2)	Product Rate (mL/ m^2)
1. Weedy check		
2. Par III (2,4 D, mecoprop & dicamba)	0.55 mL	0.55mL/30mL water
3. Fiesta™ (lowest label rate)	8.6 mL	200 mL*
4. Fiesta™ (highest label rate)	17.2 mL	400 mL *
5. Fiesta™ (2x the highest label rate)	34.4 mL	800 mL*

* volume of 1 part Fiesta™/24 parts water mixture/m^2

The treatments were 1) three different rates of Fiesta™ (active ingredient iron in the form of FeHEDTA, 4.43%) Neudorff Canada, 2) Par III (a commercially available three way broadleaf herbicide consisting of 2,4 D, mecoprop and dicamba) applied at label rate and 3) a weedy check for a total of five treatments (see Table 1). Fiesta™ was diluted with one rate (1 part Fiesta™ with 24 parts of water and the diluted product was applied at 3 different volumes). The volumes of diluted product were 200 mL/m^2, 400 mL/m^2 and 800 mL/m^2. Each treatment was replicated four times in 2 x 2 m plots in a randomized complete block design. Percent cover of each weed species (dandelion, black medick, narrow-leaved plantain, clover and mouse-eared chickweed) was recorded in each plot at 7, 20 and 34 and 203 days after treatment on Oct. 16, 2009, Oct. 29, 2009, Nov. 13, 2009 and April 30, 2010 respectively. All measurements were analysed by the appropriate statistical analyses.

Application of the Treatments

The 200 mL/m^2 and 400 mL/m^2 rates of Fiesta™ and Par III were applied using a CO_2-powered bicycle sprayer at 20 psi. The 800 mL/m^2 of 1 part Fiesta™/24 parts water was applied using a standard 4 L watering can. All treatments were applied on Oct. 9, 2009.

Efficacy Assessments

Efficacy assessments were made Oct. 16, 2009, Oct. 29, 2009, Nov. 13, 2009 and April 30, 2010 at 7, 20, 34 and 203 days after treatment (DAT). Four randomized point quadrats measuring 60 cm x 60 cm with 25 points in each quadrat (points 10 cm apart) for a total of 100 points in each plot were used to record estimated percent broadleaf weed cover of dandelion, black medick, narrow-leaved plantain, broad-leaved plantain, clover and chickweed per plot at each assessment date.

Weed cover of each of the weed species mentioned previously was also measured prior to the start of the experiment on Oct. 5, 2009. Only data on percent dandelion, percent narrow-leaved plantain and black medick will be presented. The percentages of broad-leaved plantain, clover and chickweed were too low to give significant differences and will not be presented in this report.

Results and Discussion

Visual Observations. Observations made within 24 hours of applying Fiesta™ showed that the turf responded to the iron by greening up. This green up lasted the entire duration of the experiment, including at the final rating on April 30, 2010. Within 24 hours of applying Fiesta™, the leaves of dandelions and black medick turned black and within 48 hours the leaves appeared brown and shriveled (Figure 1). The lower leaves of narrow-leaved plantain turned black within 48 hours but the smaller newer leaves at the centre of the rosette remained green and healthy (Figure 2).

More trials are now underway at the Guelph Turfgrass Institute on Fiesta™ rates, timing (spring applied vs. fall applied) and with and without re-application. By the end of the 2010 season, we should have a much clearer idea of how well this product works.

Dandelion. For dandelions, all rates of Fiesta™ reduced the % dandelion cover to < 1% by Oct. 16, 2009. All the Fiesta™ rates were not significantly different from each other but were significantly better than the weedy check and the Par III at reducing % dandelion cover. By Oct. 29, 2009, the % dandelion cover increased to 2.25, 2.75 and 3.5 % for the 200 mL, 400 mL and the 800 mL Fiesta™ rates respectively, but these rates were not significantly different from one another or from Par III, but they were significantly better than the weedy check. By Spring 2010 there were no significant differences in % dandelion cover between the weedy check or any of the Fiesta™ rates showing almost 100% re-growth of the dandelions. The only plots with significantly fewer dandelions in the spring were the Par III treated plots.

Black Medick. The % black medick cover was also less than 1% for all of the rates of Fiesta™ by Oct. 16, 2009 and all the Fiesta™ treated plots were significantly better than the Par III at that date. The % black medick cover had increased by Oct. 29, 2009 to 5.75, 1.25 and 2.75 for the 200 mL, 400 mL and 800 mL rates of Fiesta™ respectively. The % black medick of the 400 mL rate was significantly lower than the 200 mL rate but not significantly different than the 800 mL rate of Fiesta™ rates for that date. There was significant re-growth of the black medick also. The most significant re-growth was at the 800 mL and the 200 mL rate. This is probably an interaction between the application method and the application rate. The 200 mL rate was the lowest rate and was applied with the pressurized bicycle sprayer with good coverage. The highest rate had more product applied but it was applied with a watering can and the coverage was not as good. By Nov. 13, 2009, there was significant re-growth with the 200 mL rate. The other Fiesta™ rates (400 mL and 800 mL) had less re-growth and did not differ significantly from each other. By spring 2010, the % black medick cover of all the Fiesta™ plots had increased. The 200 mL and 400 mL rate were not significantly better than the control but the 800 mL rate was significantly better than the weedy check with 5% black medick coverage.

Narrow-leaved Plantain. The effect of Fiesta™ on narrow-leaved plantain was slower than for dandelions and black medick. At the last rating in the fall (Nov. 13, 2009), all of the Fiesta™ treatments and Par II were significantly better than the control. By the spring, the % narrow-leaved plantain in all the plots, including

the weedy check was down from the start of the experiment, so there is something about the growth habit of narrow-leaved plantain. It is at its largest in the fall and plants are smaller the following spring, regardless of whether they have been treated with Fiesta™ or Par III. At the spring rating there was no herbicide effect due to either Fiesta™ or Par III.

Conclusions

The new broadleaf herbicide Fiesta™ (active ingredient iron in the form of FeHEDTA, 4.43%) provides a very quick defoliation of dandelion and black medick in a mixed stand with turf at all rates applied in this experiment. When applied as a broadcast application it also results in the greening up of the turf. All of the Fiesta™ rates showed some re-growth of dandelions regardless of which of the rates were used (200 mL, 400 mL or 800 mL). By the following spring the % dandelion cover was back up to the same level as at the beginning of the experiment for all of the Fiesta™ rates used in this trial. The Fiesta™ label does state that you can "repeat once in 4 or more weeks." In this experiment, Fiesta™ was not re-applied because the application in early October did not allow time for a re-application before the onset of winter.

The re-growth of black medick was significantly higher by the last rating date in 2009 for the 200 mL rate. By the following spring, only the 800 mL rate had lower % black medick cover than the weedy check. The 200 and 400 mL rates had re-growth equal to the weedy check. Again, the second application that is allowed on the label at 4 or more weeks after the first was not applied, so this experiment does not shed any light on how well the Fiesta™ would work at controlling black medick with 2 applications 4 weeks apart.

The situation with the narrow-leaved plantain was a bit different than the dandelion or black medick. The Fiesta™ did not result in a quick defoliation. Instead, the % narrow-leaved plantain cover decreased at each rating date for all of the Fiesta™ rates and decreased more quickly than in the plots treated with Par III. By the spring, the % narrow-leaved plantain was almost completely gone from all of the plots, including the weedy check. This indicates that the growth habit of the narrow-leaved plantain is such that it is slow to re-grow in the spring regardless of whether it has been treated with a herbicide or not. Again, a second application was not applied and the results may be quite different with a second application.

More trials are underway at the Guelph Turfgrass Institute on Fiesta™ rates, timing (spring applied vs. fall applied) and with and without re-application. There are also trials underway that follow tagged individual weeds (dandelions, black medick, narrow-leaved plantain, broad-leaved plantain and clover) that have been treated with Fiesta™ to evaluate re-growth. By the end of the 2010 season we should have a much clearer idea of how well this product works.

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STM EDITORIAL CONTENT

Opinions expressed in articles published in the "Sports Turf Manager" are those of the author and not necessarily those of the STA.

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