Sports Turf Manager

for better, safer sports turf

Summer 2009

VOLUME 22, NUMBER 2

Sand-Capped Fields

See pages 13-17 for an in-depth look at how to use drain tile installation and sand topdressing to develop a built-up sand-capped system over time. Michigan State U investigates this alternative to complete field renovation.

Irrigation & Overseeding of Pesticide-Free Soccer Fields

PETER PURVIS (STATION MANAGER, GTI, U OF GUELPH), PAM CHARBONNEAU (TURF EXTENSION SPECIALIST, OMAFRA) & KEN CAREY (RESEARCH TECHNICIAN, GTI, U OF GUELPH)

A 2009 OTS Highlight Article. Soccer, also known as the "beautiful game," is the most popular sport in the world. It is estimated that 3.5 billion people worldwide either play or watch the sport. Almost 3 million people play soccer in Canada, making it the second most popular sport after ice hockey. Eighty four percent of these players are under the age of eighteen, with the number of soccer-playing kids growing every year. High quality, safe, natural playing surfaces are needed to keep up with the demands of this fast growing sport. With the introduction of Ontario's Cosmetic Pesticide Ban, high quality, weed-free fields will be even more of a challenge to maintain.

In 2008, the Guelph Turfgrass Institute (GTI) joined in the soccer craze by establishing two fields at the research station. Kids and adults from Guelph Soccer, the city's soccer association, enjoyed the fields on a daily basis while we conducted research. This article will outline how our soccer fields came into being, our partnership with Guelph Soccer, and the research we are conducting on these in-use fields.

Bringing Soccer to the GTI

Sports fields have always been part of the vision for the Guelph Turfgrass Institute. Our Long Term Site Plan, written in 1994, stresses that we are "capable of supporting a complex of sporting and park facilities for more active forms of recreation." In the winter of 2008, the idea resurfaced during a discussion of several turf industry professionals, spearheaded by David DeCorso, a local... ➟ page 7

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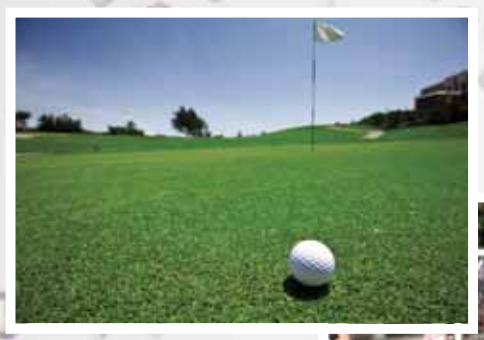

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Field Day 2009

THE SPORTS TURF ASSOCIATION TRAVELS TO THE CITY OF BRANTFORD THIS FALL FOR THE 22ND ANNUAL FIELD DAY

Located just an hour's drive from the City of Toronto, Brantford 'The Telephone City' will host sports turf managers from across the province for the Sports Turf Association's 22nd Annual Field Day, Thursday, September 17, 2009.

Brantford is home to the Alexander Graham Bell Homestead National Historic Site. It was here the great inventor conceived his ideas for the telephone. Brantford is also the hometown of hockey legend Wayne Gretzky. Walter Gretzky will be on hand to welcome us to the Steve Brown Sports Complex at Lion's Park.

The Field Day Committee is in the midst of applying the finishing touches to this year's program. For topnotch education, a mouth-watering chicken and rib BBQ, and the opportunity to network with peers, industry suppliers and 'The Great One's' dad, *Answer the Call of The Telephone City* and visit us online at www.sportsturfassociation.com for all the details as they become available!

The President's Desk – Gord Dol

Summer is here. I trust that all your fields are under control and you are planning for some well deserved vacation time. With the current economic conditions and budget cutbacks, I'm sure everyone is feeling the pressure to do more with less.

Early this year, the Canadian government introduced a large stimulus package, "Canada's Economic Action Plan" (www.wd.gc.ca/eng/11264.asp). Part of this plan is the program known as RInC, the Recreational Infrastructure Canada program. This is a new infrastructure fund that will invest $500 million in recreational facilities across Canada over a two-year period. This national initiative will provide a temporary economic stimulus that will help reduce the impacts of the global recession while renewing, upgrading and expanding recreational infrastructure in Canadian communities.

Projects approved under RInC can receive up to $1 million in federal funding, which normally represents one-third of project costs. These investments in recreational infrastructure will stimulate the economy, create jobs and contribute to the health and quality of life in communities across Canada, now and in the future.

Staying Current

In late 2007 the Board of Directors initiated the development of a new strategic plan for the Sports Turf Association. Eight key strategies were identified and their accomplishment is of a progressive, ongoing nature. In April of this year, we reconvened to regenerate, refresh and refocus the passion that unites all of us who work for the common cause of the STA.

Our mission statement, used effectively, drives the association. We must ensure it is always relevant and reflective of our organization and the environment in which we work. With this in mind, our mission statement has been updated from …*dedicated to the promotion of safe, natural sports turf through education and professional programs* (November 2000) to … *dedicated to the promotion of better, safer sports turf through innovation, education and professional programs* (April 2009).

Note the strategic removal of the reference to 'natural' sports turf. In his article in the Spring 2009 issue of *Sports Turf Manager*, Francois Hebert writes: "Today, synthetic turf has come to be seen by many not as a substitute to natural grass, but as a necessary tool in the sports field manager's arsenal to provide the public with quality playing surfaces."

As the synthetic turf industry grows in Canada, we must provide our members with the knowledge necessary for the construction and maintenance of this technology. To this end, you will begin to see the inclusion of a synthetic turf component in our educational events and print and web resources.

Educational Partnerships

Another one of our strategic planning initiatives is the creation and/or maintenance of partnerships. The Parks and Open Space Alliance (POSA) is a prime example. As I write this column, we look forward to the Alliance's 3rd Annual Summer Operational Forum, June 24 in Oshawa, ON. In April of this year, 16 students participated in the first STA Sports Turf Management and Maintenance Course, one of the three courses required for the Parks and Open Space Professional Training Program – Level I. The second offering will be September 28-October 1 in Petawawa, ON. For details, visit www.sportsturfassociation.com .

Have a safe summer and don't forget the sunscreen! ♦

Autumn Events…

Golfing for Grass
The 2009 Ontario Turfgrass Research Foundation Fundraising Golf Tournament is Monday, September 14th at The National Golf Club of Canada in Woodbridge, ON. For sponsorship and registration details, visit www.otrf.ca .

Field Day 2009
Mark your calendars for the STA's 22nd Annual Field Day, Thursday, September 17th at Lions Park, Brantford, ON. Further details will be provided as they are confirmed. As always, the Field Day Committee is working hard to provide another great day of networking and education.

The Evolution of The "Hat Trick" From Britain to Guelph to Toronto

If you ask any longtime Guelph hockey fan about where the hat trick came from, they'll tell you the term originated within the boards of a Guelph arena.

But, while the Royal City has a major stake in the evolution of the hat trick, there are others who lay claim to bringing the term to hockey.

It was 1947 when the Guelph Biltmore Mad Hatters were revived after a hiatus during the Second World War. The Ontario Hockey Association team (a precursor to the Ontario Hockey League), was sponsored by Guelph-based hat company Biltmore Hats. In the 1950s, Biltmore took advantage of its hockey team sponsorship to market its fedoras and gave them away to league players who scored a hat trick.

Guelph has competition, however, from another hatter who's also laid claim to originating the term.

The late Sammy Taft, who sold hats from his shop in Toronto, rewarded National Hockey League players at Maple Leaf Gardens who netted three in a game.

The story goes that Chicago Blackhawks winger Alex Kaleta walked into Taft's shop, but couldn't afford a hat.

Taft told him if he scored three goals in that night's game against the Maple Leafs, he would give him a hat. Kaleta delivered and then some. He scored not just a hat trick, but four goals in the Jan. 26, 1946 game. Kaleta's performance in that particular game is noted on the Chicago Blackhawks' team website, as well as in *Hockey's Book of Firsts* by James Duplacey, as "the first hat trick with a hat."

The Hockey Hall of Fame in Toronto also credits Taft with bringing the term to hockey in the 1930s, although Kelly Masse, spokesperson for the Hall of Fame, said it's hard to say when the term started being used in hockey.

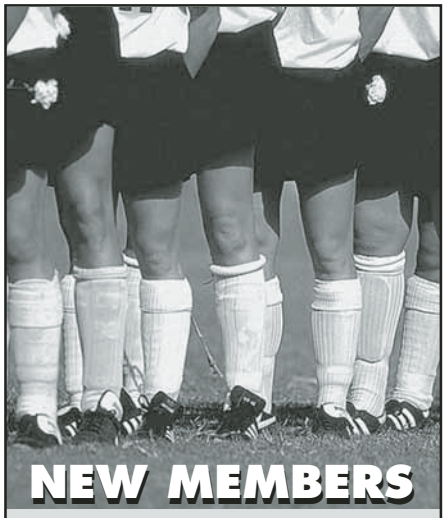
The hat trick has evolved over time. In the 1970s, NHL fans started throwing their ball hats on the ice when a player scored three goals in a game, a tradition that continues in hockey arenas today.

No matter when the term was adopted for hockey, however, the hat trick actually originated in the sport of cricket.

The popular British team sport has existed for centuries, but the first formal rules were written in 1744.

The first use of the term hat trick in cricket was in 1858, and its use is recorded in the Extended Oxford Dictionary. HH Stephenson, of the All-England Eleven, was awarded a hat after taking three wickets in three balls, or in other words, he hit the wicket behind the batter three times in three consecutive bowls.

— excerpts from "Guelph's Tricky Claim" by Janet McLeod, Guelph Mercury, Mar. 21, 2009



NEW MEMBERS

Welcome to the STA!

Phil McNeil
City of Airdrie, AB

Kara Gibbons
The Toro Company
New Hamburg, ON

Marisa MacKay
City of Brantford, ON

Angelo Capannelli
Hutcheson Sand & Mixes
Huntsville, ON

Dave Cambridge & Dianna Clarke
City of London, ON

Dave Boehmer
City of Guelph, ON

Bill Anderson
University of Guelph, ON

Sean Jordan & Ken McLeod
Nutrite, Cambridge, ON

EVENT CALENDAR

September 14
Ontario Turfgrass Research Foundation Fundraising Golf Tournament
The National Golf Club of Canada
Woodbridge, ON
www.otrf.ca

★ SEPTEMBER 17 ★
Sports Turf Association 22nd Annual Field Day
Lions Park, Brantford, ON
www.sportsturfassociation.com

September 28 to October 1
POSA Parks and Open Space Professional Training Program–Level 1 Sports Turf Management and Maintenance Course
Petawawa, ON
Info: 519.763.9431
www.sportsturfassociation.com

★ NOVEMBER 1 ★
Sports Turf Association Robert W. Sheard Scholarship Application Deadline
Info: 519.763.9431
www.sportsturfassociation.com

Contact the STA office if you have an event you'd like to advertise in the *Sports Turf Manager*.

Industry Alert: Cell Phones & Personal Entertainment Devices On The Job

The Parks and Open Space Alliance (POSA) continually monitors issues and legislative changes that may impact green space operations and industry best practices. These alerts are offered jointly to the members of OPA, ORFA and STA in hopes of collectively improving worker and community safety through awareness and compliance.

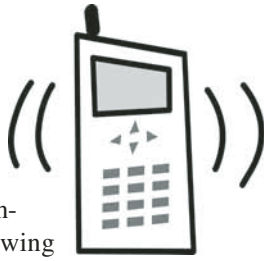
1) As part of its ongoing commitment to Health and Safety issues, POSA encourages all members to consider the implementation of a policy regarding use of electronic communication and personal entertainment devices as part of their internal safe driver and equipment operator training initiatives.

Attention Employers! Policies regarding use of electronic communication and entertainment devices should be implemented as part of all safety and training initiatives.

In September of 2008, the Ontario Medical Association released a report indicating "that cell phone use (regardless of whether it is hands-free or hand-held) has a significant impact on the driver's cognitive functions, visual concentration, the speed at which they can process information and, as a result, their reaction time."

Employees operating any kind of machinery while using telephones, text communication or entertainment devices would suffer from similarly reduced abilities and as a result could potentially face an increased exposure to hazard and risk of injury through error or distraction.

As an example, the Town of Blue Mountain has now endorsed a proposal to restrict the use of Personal Audio Equipment which requires the use of head/earphones such as personal CD/MP3 players in certain work areas. POSA strongly suggests that all members consider endorsement of a similar policy in their respective Health and Safety programs as a measure to help protect all employees, employers, workers and clients alike.



2) On April 22, 2009 the Ontario Government passed the following amendment to the Highway Traffic Act:
Section: 78.1 (1) No person shall drive a motor vehicle on a highway while holding or using a handheld wireless communication device or other prescribed device that is capable of receiving or transmitting telephone communications, electronic data, mail or text messages. (2) No person shall drive a motor vehicle on a highway while holding or using a hand-held electronic entertainment device or other prescribed device the primary use of which is unrelated to the safe operation of the motor vehicle.

A reminder to all that breaches of this new regulation may result in personal driving penalties and/or fines that will be the responsibility of the worker and may impact vehicle operator insurance premiums.

Information Links

- Legislative Assembly of Ontario: http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&BillID=2099&detailPage=bills_detail_the_bill
- Occupational Health and Safety Act: http://www.elaws.gov.on.ca/html/statutes/englishelaws_statutes_90o01_e.htm#BK21
- Canada Safety Council: http://www.safety-council.org/info/traffic/cellular.html
- Ontario Medical Association: http://www.oma.org/media/news/pr080914.asp

PARKS AND OPEN SPACE ALLIANCE

OPA Ontario Parks Association "Protecting Tomorrow Today" · ORFA Ontario Recreation Facilities Association Inc. · Sports Turf Association

IRRIGATION & OVERSEEDING OF PESTICIDE-FREE SOCCER FIELDS

PETER PURVIS (GTI, U OF GUELPH), PAM CHARBONNEAU (OMAFRA) & KEN CAREY (GTI, U OF GUELPH)

Continued From the Front Cover. ... golf course superintendent. They believed that it was time to bring some publicity to the Guelph Turfgrass Institute by including public use of the site, as well as providing in-use fields for research.

It seemed natural to then talk with Guelph Soccer, since they have been promoting and developing soccer in Guelph since the early 1960s. Guelph Soccer has close to 5,000 members and is growing rapidly; they were very happy at the prospect of having several more fields at their disposal. In the spring of 2008, aided by several members of Guelph Soccer, we found a suitable section of turf at the GTI and mapped out the area for our two "mini fields" (each about 37 m x 63 m). The turf was thin, weedy and had significant winter injury – a perfect scenario for our upcoming research.

The fields were used extensively by Guelph Soccer's "Under 10" rep teams and by their Centre of Excellence Player Development Program, starting in early May and running until early October. On weekends, adult recreation league teams and house league tournaments were commonly found at the GTI. The partnership with Guelph Soccer was excellent. Allan Gould, Executive Director, was easy to work with and always accommodating. The association and its members respected the station and the research plots and we could conduct research on in-use fields. It was a win-win situation.

Adding the Research Element

One focus of our research was to examine irrigation and water-use efficiency. Irrigating efficiently is essential in light of municipal watering restrictions and bans. As Dr. Bob Sheard once wrote, "Water is money. Use it wisely. Excessive use is damaging to the environment. Insufficient use is damaging to the grass."

In this experiment, we irrigated each field with a different protocol. One field was irrigated three times each week with 10 mm of water delivered at each irrigation. This "conventional" method simulated a field irrigated using an automatic timer set to turn on at regular intervals. Often turf managers will use this method to simplify their maintenance practices.

TABLE 1. ESTIMATORS FOR PAN EVAPORATION BASED ON OBSERVED WEATHER CONDITIONS (TAKEN AT 1:00 PM)

Sun	Temperature	Humidity*	Wind**	Estimated Pan ET (mm)
Full	>23° C	Low	High	8.0
			Low	7.5
Full		High	High	7.0
			Low	6.5
Full	<23° C	Low	High	6.5
			Low	6.0
Full		High	High	5.5
			Low	5.0
Cloudy	>23° C	Low	High	5.0
			Low	4.5
Cloudy		High	High	4.0
			Low	3.5
Cloudy	<23° C	Low	High	3.5
			Low	3.0
Cloudy		High	High	2.5
			Low	2.0

* Low humidity = clear sky, unlimited visibility; High humidity = smog, haze, fog
** Low wind = leaves and small branches moving; High wind = tree tops moving

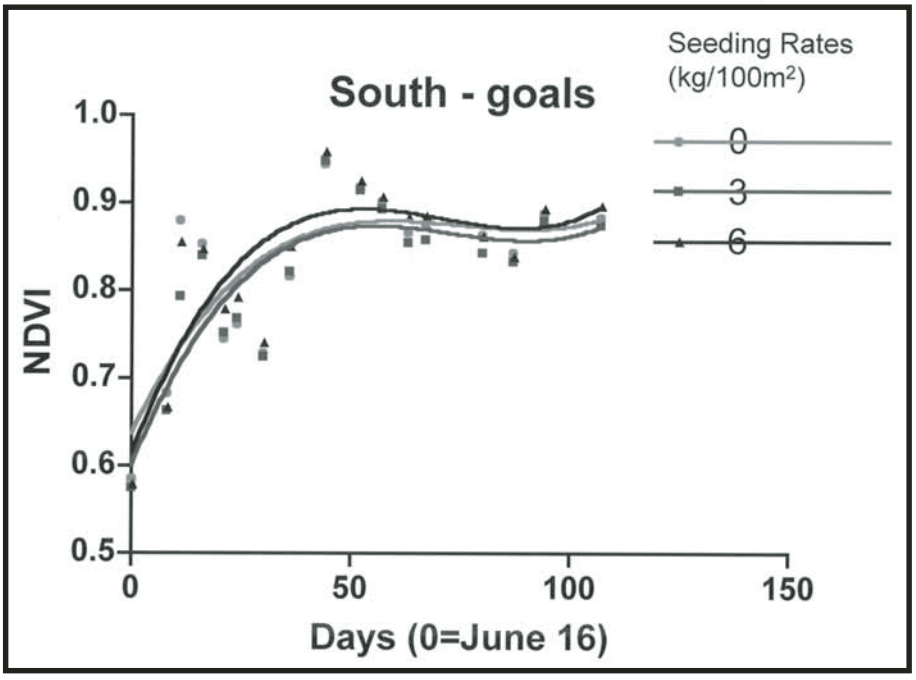


FIGURE 1. Greenseeker data for the south soccer field goal mouth area. NDVI stands for Normalized Difference Vegetation Index and is an indication of the quality and density of the turf stand.

The second field was irrigated according to a model developed by Terry Gillespie from the University of Guelph with modifications by Bob Sheard. This model is based on evapotranspiration (ET), which is the combination of water lost through transpiration from the leaf surface and lost through evaporation from the soil surface. Water is applied according to plant need and not on a set schedule. To estimate ET, daily weather readings are taken (Table 1) and the ET values entered into a water budget spreadsheet (Table 2). You can then determine when to irrigate and for how many minutes based on the estimated moisture capacity of the soil. It is generally accepted that watering should occur when 50% of the water available to the turf is lost through ET.

Unfortunately, 2008 was not an ideal year to conduct irrigation research. In fact, it was a year of record-breaking rainfall in most of Ontario.

Unfortunately, 2008 was not an ideal year to conduct irrigation research. As you may recall, last summer was very wet and rainy. In fact, it was a year of record breaking rainfall in most of Ontario. We did, however, get some data during a dry period in late June and early July (Table 2). In this 19 day period, we irrigated seven times and applied 70 mm of water when the schedule was predetermined and only twice with 40 mm of water using the evapotranspiration model. Despite using almost half the water when using the evapotranspiration model, there were no differences in turf density and quality between the two irrigation protocols. Even during this short period, there was considerable water savings using ET with no decline in turf quality.

As mentioned earlier, the turf on our fields was initially thin and sparse with extensive winter injury. Therefore it was only natural that a second research focus was to examine the effects of overseeding on turf density and quality. Overseeding is the practice of seeding a

TABLE 2. WATER BUDGET FROM THE GUELPH TURFGRASS INSTITUTE BETWEEN JUNE 23 & JULY 11, 2008

Date	Sun/ Cloud	Temp.	Humidity	Wind	Estimated ET	Rain (mm)	Irrigation (min)	Irrigation (mm)	Soil Moist. Capacity(%)	Conv. Irrig. (mm)
23/06/2008	cloudy	LT23	high	calm	2	53	-	-	100.0	10
24/06/2008	sun	LT23	high	calm	5	0	-	-	93.8	-
25/06/2008	sun	GT23	high	high	7	0	-	-	85.1	10
26/06/2008	cloudy	GT23	high	high	7	0	-	-	76.5	-
27/06/2008	cloudy	GT23	high	calm	7.5	3	-	-	72.9	Rain - 0
28/06/2008	sun	GT23	low	calm	7.5	0	-	-	63.6	-
29/06/2008	cloudy	GT23	high	high	7	17	-	-	87.3	-
30/06/2008	sun	GT23	low	calm	7.5	0	-	-	78.0	10
01/07/2008	sun	GT23	low	high	8	0	-	-	66.6	-
02/07/2008	sun	GT23	low	high	8	0	-	-	55.2	10
03/07/2008	cloudy	LT23	high	high	7.5	6	-	-	55.9	-
04/07/2008	sun	GT23	low	calm	7.5	0	120	20	80.9	10
05/07/2008	sun	GT23	low	calm	7.5	0	-	-	70.2	-
06/07/2008	sun	GT23	low	high	8	0	-	-	58.8	10
07/07/2008	cloudy	GT23	high	high	3.5	3	-	-	59.5	-
08/07/2008	sun	GT23	low	high	8	0	-	-	48.1	10
09/07/2008	sun	GT23	low	high	8	0	-	-	36.6	-
10/07/2008	sun	GT23	low	high	8	0	120	20	60.9	Rain - 0
11/07/2008	cloudy	GT23	high	calm	3.5	25	-	-	100.0	-
							TOTAL: 40			**TOTAL: 70**

desirable turf species into established turf to thicken the stand and fill in bare spots.

On each field, 12 plots were established (each 2 m x 14 m) located in the high traffic areas just outside the goal mouths and in the centre of the field. We applied three overseeding treatments on three dates (June 16, July 16 and September 11, 2008). The treatments were: 1) no overseeding; 2) overseeding at 3 kg/100 m^2 each date (for a seasonal total of 9 kg/100 m^2); and 3) overseeding at 6 kg/100 m^2 each date (for a seasonal total of 18 kg/100 m^2). We overseeded with perennial ryegrass (*Lolium perenne* L. 'Fiesta 3') using a drop spreader. Prior to overseeding, the fields were core aerated and the cores were drag-matted to break them apart.

Fields were fertilized with a seasonal total of 200 kg N/ha (Agromart 24-4-10) and mowed at a height of 5 cm, three times per week. Weed counts were taken regularly throughout the season. We also measured turfgrass density and quality using a device called the Greenseeker. This device detects reflection of light at a wavelength of 660 nm (where chlorophyll absorbs) and at 770 nm (a reference wavelength), to produce an index which is correlated with chlorophyll content, photosynthetic activity, canopy cover and other parameters of turf health.

The Greenseeker data (Figure 1) shows that turfgrass density and quality generally increased throughout the season. At times, the highest rate of overseeding tended to produce the best quality turf although the results were not consistent. It is likely that there was limited stress on the turf due to the wet season and therefore all the grass, regardless of treatment, grew well.

Of interest to all soccer players (and their parents!) is the hardness or softness of the playing surface. We measured field hardness using a device called a Clegg

Hammer. This simple yet effective device consists of a weight which is dropped down a vertical guide tube. The digital readout gives an indication of the hardness or softness of the field. There was little difference in Clegg Hammer readings between treatments and fields. Both fields were generally soft and spongy, mainly due to the rainy weather.

The results of our preliminary irrigation and overseeding research were less promising than we had hoped due the effects of the wet season, therefore we plan to continue studies on the soccer fields in 2009. This season we will modify the evapotranspiration model to reduce water usage even more. We will also add slit seeding at the three different seeding rates to determine which method is best at providing a thick turf stand all season long.

Above: Measuring surface hardness with a Clegg Hammer.

As this is being written, soccer nets and corner flags are being set in place and field boundary lines repainted. We look forward to another year of enthusiastic kids playing soccer at the Guelph Turfgrass Institute coupled with more exciting research. ♦

FIGURE 1:
PHOMA MACROSTOMA
ON CANADA THISTLE

PHOMA MACROSTOMA: A BIOHERBICIDE IN THE MAKING

K.L. BAILEY (AGRICULTURE & AGRI-FOOD CANADA, SASKATOON) AND S. FALK & S. LOMBARDO (THE SCOTTS COMPANY, MARYSVILLE, OH)

A 2009 OTS Highlight Article. A good stand of turfgrass provides numerous benefits that contribute to our quality of life. When weeds invade our lawns, parks and golf courses, they disrupt the vigour, uniformity and aesthetics of established grass. Weeds are also a major source of pollen, which contributes to allergies and other irritations. Integrated weed management systems emphasize prevention of weed problems by maintaining vigorously-growing lawns with a combination of biological, chemical, cultural, manual and mechanical methods. However, pesticide bans in some municipalities and provinces across Canada have reduced the options available for weed control.

Bioherbicides are an alternative weed control option to traditional herbicides that are permitted to be used where herbicide bans are in effect. Bioherbicides, often made from naturally-occurring fungi or bacteria found on plants or in soil, can suppress weed growth and development, or result in weed mortality. There are opportunities for commercial applicators, farmers and homeowners to use microorganisms for biological weed control in agriculture, forestry and turfgrass situations.

Presently, the number of bioherbicides commercially available in Canada is fairly limited. But innovative research by public institutions and industry partnerships for new product development will bring more biological control projects to fruition, such as the project between Agriculture & Agri-Food Canada and The Scotts Company to develop the naturally-occurring fungus *Phoma macrostoma* for broadleaved weed control in turfgrass.

Government scientists discovered *Phoma macrostoma* on Canada thistle plants growing in Alberta, Saskatchewan, Ontario, New Brunswick and Nova Scotia (Figure 1). The fungus only caused small, insignificant lesions when sprayed onto leaves, but when added to soil, emerging Canada thistle plants came up white. Host range studies were conducted to determine which weed and non-target plant species were susceptible to the fungus. Weeds such as Canada thistle, dandelion, scentless chamomile, white clover and chickweed emerged white and died when the fungus was pre-emergently placed in the soil. However, there was no bleaching or mortality on weeds like green foxtail or wild oats. Among the non-target plant species, broadleaf plants such as canola or lentil were affected, but monocot plants like wheat, barley, oat, millet, canaryseed and grasses were unaffected.

To test whether biological control would work in the field, methods were developed to grow *Phoma macrostoma* in the laboratory and formulate it as a granule or powder for broadcasting to the soil surface. Conceptually, the granules would either be applied together with grass seed to establish a weed-free lawn (Figure 2)

FIGURE 2A: UNTREATED

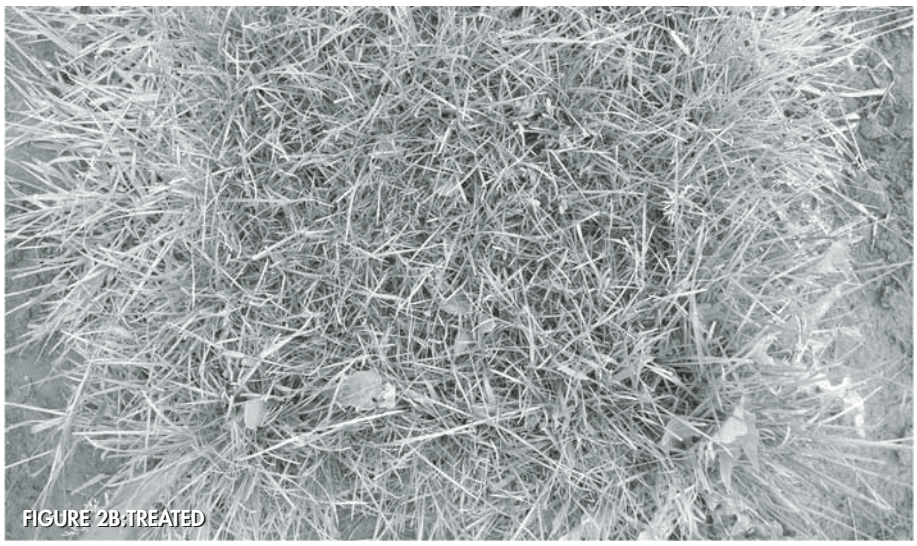


FIGURE 2B: TREATED

TABLE 1. DANDELION CONTROL (%) AT 28, 56 AND 84 DAYS AFTER APPLICATION (DAA) OF *PHOMA MACROSTOMA*, GUELPH, ON

Rate	% Dandelion Control at 28 DAA	% Dandelion Control at 56 DAA	% Dandelion Control at 84 DAA
1 x	83 ab	92 a	92 a
1/2 x	76 abc	72 ab	76 abc
1/4 x	51 cde	52 bc	52 bcd
1/8 x	48 de	26 cd	41 d
0 x	0 f	0 d	0 e

There are no significant differences among treatments followed by the same letter within a column. (P=0.05, Duncan's multiple range test)

or be broadcast over turfgrass and soil to prevent new weed emergence and kill previously established weeds. Field tests were conducted at several sites and over several years to determine efficacy and application parameters such as the lowest effective dose (Table 1), number of applications needed, timing of the application during the growing season, and weather conditions affecting efficacy.

It was also important to monitor the behaviour of the fungus in the environment to provide information on persistence, dispersion and survival for the assessment of environmental risk. Using genetic markers specific to the fungus, it was shown that *Phoma macrostoma* had limited mobility in the soil and its presence declined with time such that it was not detectable after one year. There were no persistent effects on susceptible crops such as peas the year following the first application.

The bioherbicide has limited soil mobility. Research showed that its presence declined with time such that it was not detectable after one year.

As the research continues, it becomes more apparent why R&D partnerships are necessary for achieving success in biological control. There are five major categories for which sufficient information must be acquired in order to determine if an organism has potential to be an effective and safe bioherbicide. These categories are concerned with the characterization and biology of the organism, the interaction of the organism in the environment and associated environmental risks, the commercialization aspects of production and formulation, the toxicological safety towards human and animals, and the regulations that govern the research process and final product registration.

The partnership between Agriculture & Agri-Food Canada and The Scotts Company has addressed the biological, environmental and toxicological aspects with *Phoma macrostoma* for use in turfgrass, and are currently working on the final development and commercialization stages to bring this innovation to the marketplace. ♦

IMAGE 3

USING DRAIN TILE INSTALLATION & SAND TOPDRESSING TO DEVELOP A BUILT-UP SAND-CAPPED SYSTEM OVER TIME

ALEXANDER KOWALEWSKI, JAMES R. CRUM & JOHN N. ROGERS, III., CROP & SOIL SCIENCE DEPARTMENT, MICHIGAN STATE UNIVERSITY

High school athletic fields constructed on native soil relatively high in silt and clay are incapable of providing adequate drainage during periods of heavy rainfall. This, in combination with heavy use, will result in turfgrass failure, reduced traction and stability, and compaction, which will only worsen infiltration and future turfgrass health and vigour. Current solutions to this dilemma include complete field renovation. However, these processes are very costly (all figures that follow are in USD) and render the athletic surface temporarily unusable.

For instance, renovation costs range from $600,000 to 1,000,000 for a synthetic field; $400,000 to 600,000 for a conventional sand-based athletic field with a 30 cm sand-based root zone over a 10 cm gravel layer and a subsurface drain tile system (Image 1, pg. 14); or $200,000 to 300,000 for a sand-capped system with a shallow (10-15 cm) sand-based root zone directly over the underlying native soil and a subsurface drain tile system (Image 2, pg. 15).

These staggering upfront prices are not an option for school systems with minimal budgets and high annual use requirements. A possible alternative to complete renovation is the installation of a subsurface drain tile system and subsequent sand topdressing applications, providing a built-up sand-capped system over time. A built-up sand-capped system, which can be done in four simple steps for $53,400-99,000 [price includes irrigation system installation ($15,000), 2-6 m drain tile spacing ($60,000-14,400, respectively), and 5 cm sand layer ($24,000 for labour and materials)], would provide high schools and other municipalities with a cost effective solution to impeded field playability that does not interrupt field use for an extended period of time.

Above (Image 3): Water Management Inc. cutting drain lines and installing drain tiles, Intramural Field, Michigan State University, East Lansing, Michigan, July 2008.

IMAGE 4

IMAGE 5

The concept behind the built-up sand-capped system is to combine the advantages of the sand cap system (drainage and sand root zone playing surface) while providing almost uninterrupted availability. The idea is to cut drains in the existing field running lengthwise, put drain tile in the lines, and back fill with pea stone and then sand, or coarse sand alone (Image 3, pg. 13 and Image 4 pictured above).

If the existing field does not already have irrigation, installation of an irrigation system prior to drain tile installation is necessary at this time as turfgrass grown on a sand-based system requires regular watering. It is also important to correct any low (wet) spots in the existing slope by leveling them with topsoil; soil removed during drain line installation would be appropriate for this task. Subsequent repair to any irrigation line damage is necessary.

An aggressive sand-based topdressing program would begin during the summer with a "specific high sand-based material" (approximately 90% well-graded sand sized particles). Sand topdressing would be coupled with an annual field renovation program (including reseeding, cultivation, etc.). During this period, it is also important to regularly clean and maintain irrigation heads to prevent sand from damaging the system. The topdressing stops in early August to allow settling prior to usage in the fall. During the first year, the sand may not reach the level necessary to prevent saturated surface conditions, particularly in low lying areas. However, the drain tiles will prevent standing water from developing, providing a system that is better than the original. The next spring, the topdressing process would begin again to add the rest of the material, further increasing drainage capacity. The end result is a well drained, stable, sand-based field for a fraction of the cost required for other renovation processes.

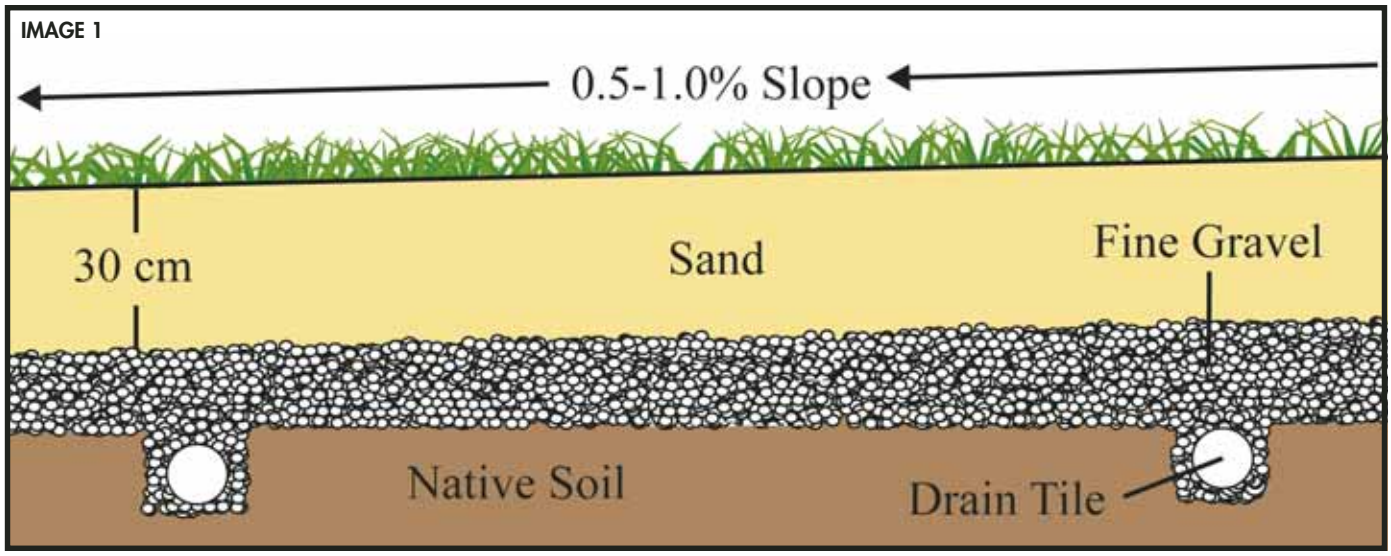
The built-up sand-capped system will not only reduce the annual repair costs required for a native soil field, but also reduce the initial cost of field renovation. To install the drainage and backfill a field with 2 m centres (would have approx. thirty 122 m x 10 cm drain lines @ $13-16/linear metre) would cost $48,000-60,000 installed, while a field with 4 m centres would cost $22,400-28,000, and 6 m centres would cost $14,400-18,000. Then

Below (Image 1): Conventional sand-based athletic field schematic.

Top Left (Image 4): Water Management Inc. backfilling lines with a sand-based root zone material, Intramural Field, Michigan State University, East Lansing, Michigan, July 2008.

Top Right (Image 5): Cady traffic simulator, designed at Michigan State University, East Lansing, Michigan, for simulation of athletic field traffic.

IMAGE 1



topdressing would begin on the field during the summer with each centimetre of material costing about $4,800 (120 tonnes of sand for $3,200 and $1,600 for labour).

However, a number of questions arise when considering the built-up sand-capped renovation procedure, such as what is the optimum topdressing regime capable of accumulating an adequate sand layer without being detrimental to turfgrass vigour and wear tolerance? Can athletic field use continue throughout the topdressing regime? And, what is the optimum drain tile spacing in combination with sand topdressing depth, accumulated over time, necessary to prevent prolonged saturated field conditions which would otherwise compromise stability?

A series of research projects were initiated in the spring of 2007 at the Hancock Turfgrass Research Center, Michigan State University, East Lansing, Michigan, to explore the feasibility of a built-up sand-capped system. Objectives of this research were threefold: 1) to evaluate the effects of cumulative sand topdressing rates on the fall wear tolerance of a cool-season turfgrass stand; 2) to determine the effects of traffic applied during the topdressing regime on the fall wear tolerance of a cool-season turfgrass stand; and 3) to establish drain tile spacing, in combination with sand topdressing, necessary to improve drainage characteristics, wear tolerance and surface stability of a cool-season turfgrass stand.

FIGURE 1: EFFECTS OF ANNUAL TOPDRESSING RATE ON COST (LABOUR AND MATERIALS) AND FIELD STABILITY.

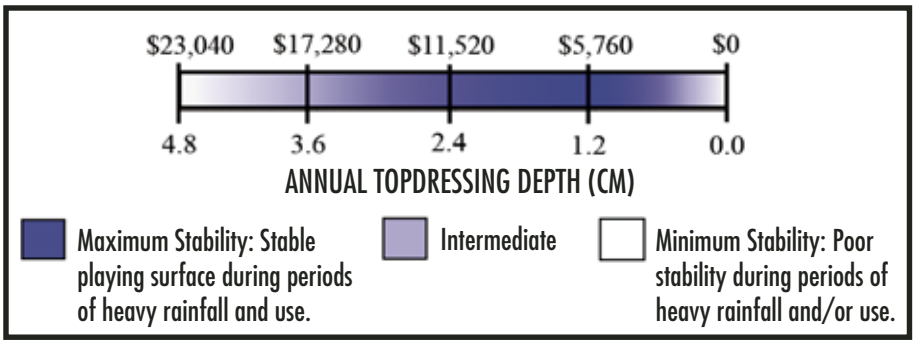
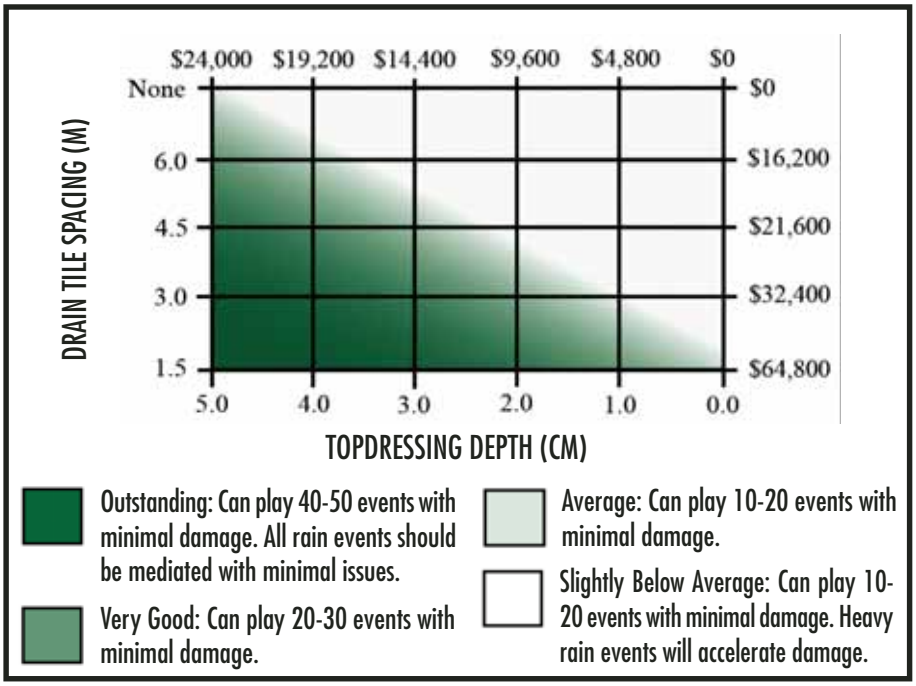
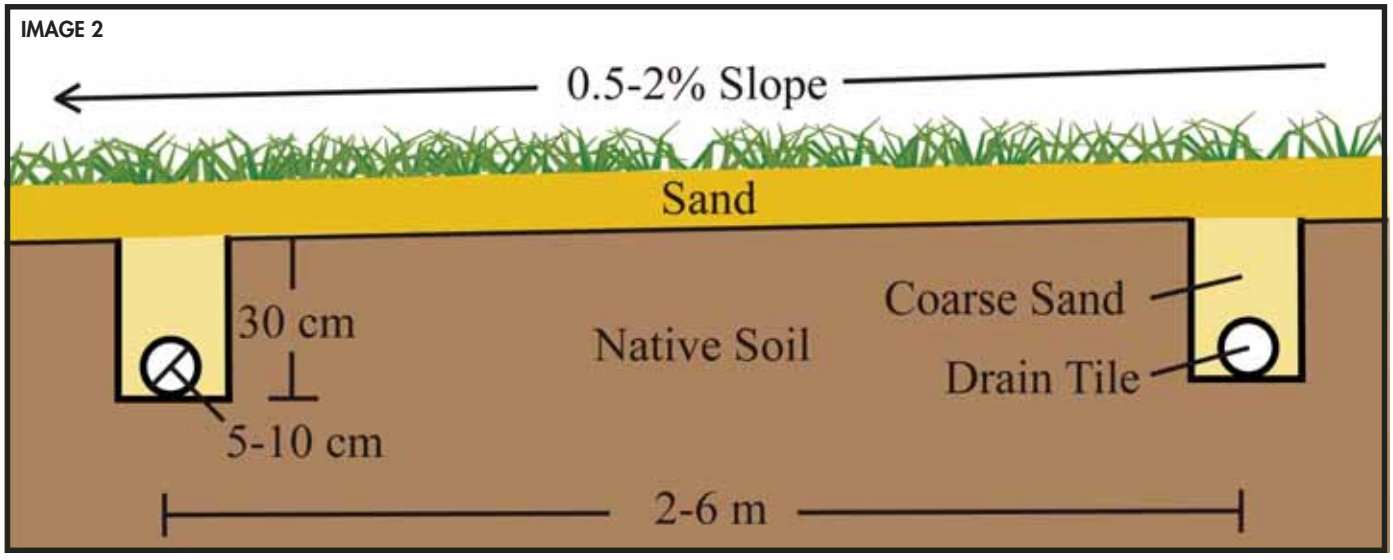


FIGURE 2: EFFECTS OF DRAIN TILE SPACING AND TOPDRESSING DEPTH ON THE COST OF INSTALLATION AND WEAR TOLERANCE.



Below (Image 2): Sand-capped athletic field system schematic.

IMAGE 2



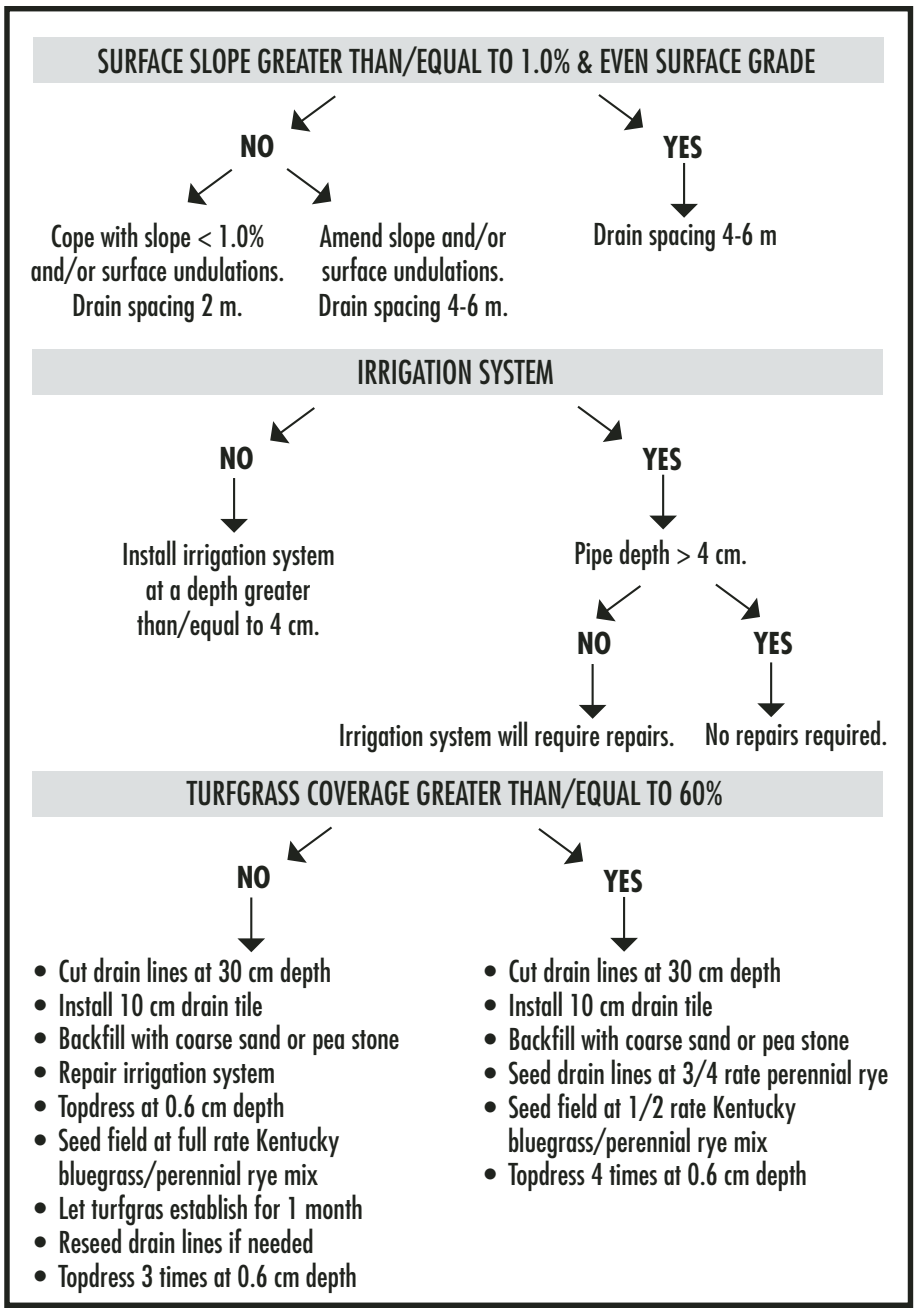
All research was conducted on a 90% *Poa pratensis* – 10% *Lolium perenne* mixture established from seed on a compacted sandy loam soil with a 1% surface slope in relation to drain tiles. The turfgrass established for these projects received summer sand topdressing applications applied over a five week period at a 0.6 cm depth per application, then simulated athletic field traffic was applied using the Cady traffic simulator in the subsequent fall for two consecutive seasons (Image 5, pg. 14).

Topdressing rate results obtained from this research suggest that when topdressing is used to develop a sand layer over an existing native soil athletic field, a conservative topdressing regime, 1.2 cm applied over a five week period in the summer, will provide field managers the greatest results, wear tolerance and surface stability in the subsequent fall (Figure 1, pg. 15). Results also suggest that if a spring re-establishment prior to the initiation of sand topdressing is required, restricting summer traffic will provide the best results in the subsequent fall.

Findings from this research also indicate that if spring re-establishment is not required, effects of summer traffic will be inconsequential to turfgrass wear tolerance and surface stability characteristics in the ensuing fall. As little as 1.2 cm of sand topdressing ($5,760) was shown to substantially reduce the surface moisture content of a native soil athletic field, implying that this cultural practice alone could substantially improve the drainage characteristics of a native soil athletic field.

Regarding drain tile spacing in combination with sand topdressing, results suggest that as topdressing is being accumulated from a 0.0 to 2.4 cm depth in the first year, the 2.0 m drain tile spacing will provide the greatest overall drainage, wear tolerance (ground cover) and surface stability (shear strength and surface hardness) characteristics. However, the 4.0 m drain spacing provides drainage and surface stability characteristics equivalent to the 2.0 m drain spacing. These findings indicate a drain tile spacing of 4 m, which will substantially reduce installation costs ($22,400-28,000), is adequate to provide sufficient drainage and stability when 2.4 cm of sand topdressing ($11,520) has been applied (Figure 2, pg. 15).

FIG. 3: RENOVATION FLOW CHART DESIGNED FOR MAKING RENOVATION DECISIONS BASED ON A VARIETY OF FIELD CONDITIONS, PRIOR TO INSTALLATION OF A BUILT-UP SAND-CAPPED SYSTEM.



As topdressing depths were accumulated from 2.4 to 4.8 cm in the second year, minimal wear tolerance and surface stability differences were observed, suggesting that the effects of drain tile spacing on wear tolerance and stability are minimal once 4.8 cm of topdressing has accumulated. These findings suggest that if 4.8 cm of sand topdressing ($23,040) has been accumulated and an adequate surface slope is available (greater than/equal to 1%), drain tile spacing can be increased to distances of 6 m or greater. Drain tile installation at 6 m spacing would cost approximately $14,400-18,000. It is important to note that substantial surface runoff was still collected from the control treatment after 4.8 cm of sand topdressing was accumulated, suggesting that drain tiles are still required for the removal of surface runoff from low lying areas (Figure 3, above). ♦

TOWN OF OAKVILLE

THERE'S A NEW GAME IN TOWN. KNOW THE LIMIT & WORK WITHIN IT!

PAM CHARBONNEAU, TURFGRASS SPECIALIST, OMAFRA

The title says it all. There are new limitations on how you manage your sports fields. Part of the struggle at the moment is knowing what can and can't be done. The second part of the struggle is to figure out ways to work within the new Pesticides Act and regulations and still maintain safe, healthy sports fields. This article is going to focus on what we can do to maintain healthy turf and also to make you aware of some of the research that began this summer that will address some of the knowledge gaps that we have when operating in an environment without pesticides. The focus of this article is on minimizing weeds in sports fields.

Turf Management Basics

We are now forced to focus on the basics of turf management to have sports fields with minimum weed cover. The tools that we have at our fingertips are not new. They are:

- turfgrass species selection
- turfgrass cultivar selection
- mowing
- fertilizing
- irrigating
- aerating
- overseeding

Turfgrass Species Selection

Most recommendations for sports fields in Ontario suggest 100% Kentucky bluegrass (sodded fields) or 80:20 mixtures of Kentucky bluegrass and perennial ryegrass. With sodded fields there is the opportunity to incorporate the more traffic tolerant perennial ryegrass species through an overseeding program. Without herbicides in our toolbox, do we need to investigate other turfgrass species to help us achieve sports fields with minimum invasion from weeds? Is it time to look at species like *Poa supina* or tall fescue for sports fields in Ontario?

Turfgrass Cultivar Selection

In this current climate of managing sports turf with a pesticide ban, knowledge is power. It isn't only important to select the correct species composition for your sports field, it is also important to select the best cultivars. A lot of work has been done by researchers at Rutgers University to characterize Kentucky bluegrass cultivars and there is a summary of the information in the *Sports Turf Manager* Vol. 22, No. 1 "Understanding Turfgrass Species for Use on Athletic Fields & Recreational Areas" by Paul Stevens. This information is very useful. The groups are divided according to growth type (compact, aggressive), colour, density and stress tolerance. There is not reliable information on traffic tolerance or resistance to broadleaf weed invasion. Currently all of the National Turfgrass Evaluation (NTEP)

tests apply a broadleaf herbicide to establish weed free plots.

The Guelph Turfgrass Institute has a Kentucky bluegrass trial underway at the moment. It could be very valuable to look at how these cultivars resist broadleaf weed invasion and how they stand up to wear. Dr. Jordan and Dr. Lyons have a dwarf Kentucky bluegrass trial at the Guelph Turfgrass Institute that was established in 2008 that is looking at the effects of various mowing heights, wear, divot recovery and weed invasion. This information could prove to be very useful for turfgrass managers to help them select Kentucky bluegrass cultivars that will stand up to wear and will also resist weed invasion.

To my knowledge, this type of information is not available for perennial ryegrass cultivars. Similar to the Kentucky bluegrass trials, the NTEP ratings for perennial ryegrass look at quality, spring green up and resistance to some common diseases. In addition, it is more important than ever to consider using endophyte enhanced perennial ryegrass seed in your overseeding program to reduce the likelihood of losing your sports field to a turf insect pest. The good news is that NTEP has announced that for cool season turfgrass trials seeded in the fall of 2009, they will be testing for drought and traffic tolerance. For more information, visit their website at www.ntep.org.

Mowing

Mowing does have an impact on weed invasion in turf. This is particularly true for crabgrass invasion. Studies on tall fescue (Dernoeden et al., 1993) showed mowing at 3.5" (9 cm) gave 100% control of crabgrass plants. At 2.5" (6 cm) there was a 40% reduction of infestation of crabgrass. Studies have shown that at excessively low mowing heights there is an increase in invasion of dandelion and clover. A demonstration trial that was conducted over a five year period at the Guelph Turfgrass Institute showed an interaction between mowing height (4 and 8 cm) and year on broadleaf weed invasion, suggesting that there was an interaction between the amount of rainfall and timing of the rainfall on weed invasion at the different mowing heights. The suggestion is to mow as high as possible for the intended use of sports fields.

Fertilizing

Supplying turf with adequate nitrogen fertilizer has a big impact on weed invasion. Fertilizer applied in the spring to thin turf provided a 70% reduction in crabgrass control. In the demonstration trial mentioned earlier in this article, percent broadleaf weed coverage in the fertilized plots was reduced from 50% to between 5-10% over the five year study just by applying 2.0 kg of nitrogen (N) per 100 m^2 per year. Supplying sports fields with a balanced fertility program based on a

GREG SNAITH, ENVIROIRRIGATION

soil test for phosphorus and potassium and roughly 2.0 kg of nitrogen (N) per 100 m^2 per year will go a long way in helping to prevent weed invasion.

Irrigating

Regular irrigation of a sports field to keep the turf growing vigorously throughout the growing season helps the turf outcompete weeds. If a field is allowed to go dormant during a dry summer, it is more susceptible to broadleaf weed invasion.

Aerating

We know that aerating has a positive effect on turfgrass by reducing thatch, soil compaction and improving rooting. Compaction has an effect on weed invasion. Many weed species out-compete turfgrass in compacted sites. Many highly compacted areas of a sports field will only support the growth of prostrate knotweed and annual bluegrass. On moderately compacted sites, plantain is more competitive than turfgrass.

Sports fields need regular irrigation to keep turf growing vigorously. This helps turf out-compete weeds. If a field is allowed to go dormant during a dry summer, it is more susceptible to broadleaf weed invasion.

Elford et. al. 2008, showed in the non-irrigated, non-overseeded plots, dandelion populations were much higher than in the non-irrigated overseeded plots. Interestingly, clover was more of a problem in the irrigated fields. Excessive irrigation can increase the likelihood of invasion of annual grassy weeds such as annual bluegrass. Information on irrigation using a water budget method to determine irrigation timing and quantity can be found in *Sports Turf Manager* Vol. 19, No. 2 "Water in the Bank" and *Sports Turf Manager* Vol. 20 No. 2 "Use it or lose it" by Dr. Terry Gillespie and Pam Charbonneau, respectively.

A minimum of aeration twice a year is recommended in the spring and fall. On heavily used sports fields, this could be done monthly to keep turf healthy and help it out-compete weeds.

Overseeding

Research into overseeding with perennial ryegrass as a means of suppressing or preventing broadleaf weed invasion has been investigated in Scandinavia, the United States and in Ontario. In athletic fields in Denmark, vertical mowing plus overseeding and topdressing resulted in a significant decrease in weed populations (Larsen et al., 2004). In the *Sports Turf Manager* Vol. 17, No. 1, Chinery et al. summarized some work that he had conducted in "Heavy Repetitive Overseeding" and noted an increased turf density with heavy repetitive overseeding of perennial ryegrass; however the quantification of weed populations were not included in these studies.

Elford et al. (2008) found that overseeding three times a season in May, July and September at 4 and 8 kg/100 m^2 significantly decreased perennial weed cover (specifically white clover) in the irrigated trial and dandelion in the non-irrigated trial at the Guelph Turfgrass Institute. He also noted an increase in perennial ryegrass in all plots which received an overseeding treatment.

Currently Available Weed Control Options

Under the Pesticides Act and Regulation 63/09, in Ontario the products that can be used on weeds in sports fields are corn gluten meal, acetic acid and *Sclerotinia minor.* Corn gluten meal is labelled for the inhibition of crabgrass, dandelion and white clover. Our experience with it shows that it may need to be used for several seasons to be effective. It does not, however fit in well with an overseeding program because it will inhibit germinating ryegrass seedlings.

Acetic acid can be used to spot treat weeds. It needs to be applied to young growing weeds and may require repeat applications. *Sclerotinia minor* is effective under a very narrow set of environmental conditions (18-24º C and high relative humidity). It must be irrigated within 12 hours and the turf or weed canopy needs to be kept moist for several days for it to be effective. There are also non-selective weeding tools available from various suppliers that rely on super-heated water or propane flames that can kill weeds.

Future Research

Last summer at the Guelph Turfgrass Institute, an overseeding and irrigation study was conducted on in-use soccer fields. This study combined core aeration and overseeding with a drop spreader at 0, 3 and 6 kg of perennial ryegrass per 100 m^2 in May, July and September. This study will continue in 2009 with the addition of slit-

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seeding of perennial ryegrass at the three rates (see the "Irrigation and Overseeding of Pesticide-Free Soccer Fields" article in this edition of *Sports Turf Manager*).

In addition to the above mentioned trial, the Ministry of the Environment is funding a three year study conducted by Tardif, Jordan and Lyons, University of Guelph. The overall goal of this project is to provide the turfgrass industry with the knowledge to provide safe athletic fields and home lawns without the use of traditional herbicides:

Objective 1: Determine the optimal mixtures (Kentucky bluegrass and perennial ryegrass proportions), timing and method of overseeding allowing best weed suppression and highest turfgrass cover.

Objective 2: Determine the efficacy of seeding versus sodding, with or without traditional or alternative (exempted) herbicide applications, for the establishment of new turf.

Objective 3: Determine best combination of site preparation and seeding methods to reduce weed encroachment during turfgrass rehabilitation.

Objective 4: Determine the efficacy of sodding Kentucky bluegrass or fine fescues compared to overseeding fine fescues or fine fescues into Kentucky bluegrass for the establishment of low maintenance turf.

The Ministry of the Environment has also partnered with the Agricultural Adaptation Council (AAC) to fund research and innovation on alternatives to the use of pesticides for cosmetic purposes. The program is called CUPRI – Cosmetic Use Pesticides Research and Innovation Program. They are calling for proposals from for-profit, academic institutions, university researchers and not-for-profit sectors. A call for proposals was issued in May 2009 and a second will be issued in December 2009. For information on this program, visit www.adaptcouncil.org (the AAC website).

Suffice to say that turf managers need to follow the basics of turf management to help minimize weed populations in sports fields. Turf researchers and extension staff also need to go back to basics and investigate how these practices work without the pesticide tools that were available in the past. We also need to help validate and fine tune how some of these new products are used and how to make them work better. There is work to be done on selecting turfgrass species and cultivars for their ability to out-compete weeds. Hopefully, the answers will be forthcoming with all the effort focused on managing turf without pesticides. ♦

Turf managers need to follow the basics. Sound turf management practices help minimize weed populations in sports fields. Turf researchers also need to go back to the basics now that pesticides are banned.

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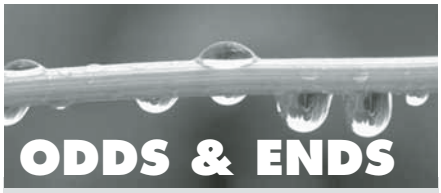

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Display membership plaques are available in executive engraved walnut for $50 plus S&H and gst. To order, contact Lee at the STA office.

Autumn 2009 Submissions
If you have something you'd like to submit for the next issue, please forward it to the STA office by September 4, 2009.

Editorial Content
Opinions expressed in articles published in *Sports Turf Manager* are those of the author and not necessarily those of the STA, unless otherwise indicated.

STA Facility Profile

Steve Brown Sport's Complex/Lion's Park Auditorium • City of Brantford

1. Name, location of facility.
Steve Brown Sport's Complex/Lion's Park Auditorium, 12 Edge Street, Brantford

2. General info regarding the facility.
The Lion's Park Recreational Complex was officially opened on December 28, 1971. It was built with the financial assistance of the Lion's Club to replace the former outdoor skating rink on Market Street South, which had to be vacated for the first stage of the Brantford Expressway. Steve Brown Sport's Complex is part of/adjacent to Lion's Park. The arena is a single pad with an auditorium. The site also has a seven lane (recently re-surfaced) certified track. In 2002, the sports field areas of the park were re-named in honour of local volunteer Steve Brown. Steve was very active with Brantford Bisons Football and many other sports groups.

3. What types of sports fields are on site?
- 1 signature soccer field
- 1 Class A soccer field
- 1 Class B soccer field
- 1 Class A Baseball Diamond
- 2 Class B Baseball Diamonds
- 1 outside ball hockey (privately owned)

4. How many employees are involved with turf care at this facility?
For day-to-day mowing operations, we have 3 staff cutting this area as part of their regular rotation. This includes a trimmer, a striper for playing surfaces, and another mower for the perimeter cutting. We don't have any staff dedicated to this facility exclusively. We also have other staff who are involved in irrigation management and performing cultural practices such as fertilizing, aerating, seeding, etc.

5. How many acres of turf are maintained at this facility? How many acres of sports turf?
The facility is 40 acres, approximately 30 in turf and 15 in sports turf.

6. What percentage of this acreage is irrigated? Of the 6 fields, 3 are irrigated.

7. What is the primary type of turfgrass? Name of varieties.
As this is a well-established facility, the turfgrass is older mixed varieties. We do

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PARKS & RECREATION

use an overseed mix of perennial ryegrass as part of our overseeding program. The soil and turfgrass at this facility is exceptional so the need for overseeding is minimal.

8. Is yearly overseeding part of your sports turf maintenance program?
As mentioned above, the soil quality at this site is exceptional so the only need for overseeding is to repair worn areas on the soccer fields. The goalmouths are sodded every fall.

9. How many times do you fertilize?
The facility is fertilized completely once per season. The playing surfaces are fertilized 3 times per season.

10. Do you aerate? Topdress?
The facility is aerated once per season completely and the play surfaces are aerated 3 times per season. Topdressing is done as part of the repair/renovation process.

11. Prior to the Cosmetic Pesticides Ban Act had your municipality banned the use of pesticides?
Prior to the Cosmetic Pesticides Ban Act, we did not have a local ban on pesticide use. We were and still are firm supporters of the IPM Program. We now have one less tool in the toolbox and have concerns with the impact that this ban will have on the municipality. However, we have accepted the fact that traditional pesticides are not available to us and have started looking to the future and viewing this challenge as a chance for us to be creative and move forward with some new ideas and procedures.

12. Are community user groups involved or have they been involved in the construction/maintenance of this facility? In what manner?
We have had groups involved in supporting the construction and upgrades at many of our facilities. At Steve Brown, we have had a score clock on one of the ball diamonds and lighting on one of the soccer fields donated by user groups.

13. How many hours per year are the fields permitted? Who permits them? Are the fields ever closed during the season to give them a rest? How much input do you have in the amount and timing of use?
We don't have a limit on the hours these fields are permitted. They are available May 1 to October 1 and beyond this date with special permission. The Manager of Arenas and Fields issues the permits. We have very good relationships with our user groups, which allows us to be able to close fields to allow for proper renovation. For example, the 'A' soccer field at this facility is very heavily used. We have delayed the opening in spring or closed it early in the season or early in September to allow for proper regeneration. The teams understand and are good with moving to other fields short-term. Beyond that, we work around the scheduled games during the season for any additional maintenance on the field. All staff involved with our sports fields meet on a regular basis to discuss field allocations and field closures. ♦

We were and still are firm supporters of the IPM Program. Although we now have one less tool in the toolbox, we accept the fact that traditional pesticides are no longer available to us and accept the challenge!

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STA Member Profile

Dennis Wale • Foreman of Horticulture & Turf • City of Brantford

1. What is your role with the City of Brantford?

My title is Foreman of Horticulture & Turf with the Parks & Recreation Department.

2. What kind of team do you work with?

I work with a team of qualified and dedicated staff that ranges from longtime/fulltime staff, experienced seasonal workers and enthusiastic students. At present, we have 2 leadhands, 2 gardeners, 2 journeymen, 1 apprentice, 2 operators, 20 students and 18 seasonal staff.

3. What are you and your team responsible for?

We are responsible for the following: 12,000 sq ft greenhouse complex growing approximately 250,000 annuals and various specialty crops; planting all of the municipality's floral displays; both indoor and outdoor landscaping; and maintaining over 500 acres of turf, over 50 km of trails, and all roadside grass cutting. We also do the majority of our training for job specific responsibilities.

4. What is the biggest challenge in your job?

Being able to provide quality service throughout the municipality. Our facilities are across the city so travel time as well as wear and tear on equipment is a challenge. Another challenge is providing the proper orientation and training for 38 seasonal and student employees.

5. What is the most satisfying part, what makes the job worthwhile for you?

The positive impact the department has on the community from the quality sports fields, beautiful trails and the floral displays across the municipality.

6. What is the biggest misconception about your job?

I think the biggest misconception is that City employees don't work hard. Our staff are among the hardest working and dedicated I have ever encountered.

7. What is your educational/employment background?

I started with the City of Brantford as a student in 1978. I was offered an apprenticeship and have been here ever since. I have apprenticeships in horticulture nursery/greenhouse worker, landscape/greenskeeper with the Ministry of Skills Development, and horticulture landscaper with the Ministry of Colleges and Universities. I also have a certificate in business management skills from the Ontario Management Development Program (OMDP) along with several distance education programs in horticulture.

8. Tell us about your family.

I have been happily married to my lovely wife Margaret for 27 years. Margaret is the Coordinator of Student Services at Mohawk Brantford. We have 2 adult children. Amy, 26, is a teacher and our son Michael, 23, is an apprentice sheet metal mechanic.

9. What do you enjoy doing outside of the workplace? Hobbies, favourite past times?

I like to keep active. I enjoy curling and am a member of the Brant Curling Club. I run and compete in various races (10 km to 26 km) throughout the season. I also enjoy recreational cycling.

10. How has the industry changed and in what direction(s) would you like to see the industry, as a whole, move towards?

The changes I have noticed are more emphasis on quality turf, i.e. better use of cultural practices, and more focus on training and safety for all staff – particularly our students and seasonal staff. The efficiency of the equipment available has provided opportunities to get more done with what we have. I think that it's important that the industry as a whole continue to partner with related organizations in order to better reach and inform all of our professionals.

11. What do you consider to be the biggest benefit of being a member of the STA?

I find networking with members very useful, and appreciate the training and resource opportunities provided by the STA. ♦

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