Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. SPRING 2011. VOL. 24. NO. 1

Is Overseeding With Supina Bluegrass a Viable Option?

Kathleen Dodson, M.Sc., Dr. Eric Lyons, Dr. Katerina Jordan & Dr. Francois Tardif Department of Plant Agriculture, University of Guelph

thletic fields are under significant stress during the playing season, which, in southern Ontario and - most of Canada for that matter, is from the time the snow melts until it falls again. The predominate amount of play, however, is during the spring and fall months when most turfgrasses are slowly breaking from or entering dormancy. Play

verdict is still out on which species are the best ones to use in southern Ontario as each have pros and cons (Table 1, page 13).

Overseeding Options

Traditionally, Kentucky bluegrass (Poa pratensis, which I will refer to as KBG), with its preferred dark green colour and ability to withstand traffic due to its rhi-

The verdict is still out on which turfgrass species are the best ones to use for overseeding in southern Ontario. Traditionally, Kentucky bluegrass has dominated, but what about supina bluegrass?

on already slowly growing grasses results in increased mortality and the appearance of thin or bare patches. These areas leave openings for opportunistic weeds to encroach on the field. A common practice athletic field managers employ to compete with weed invasion is overseeding desirable species into the turfgrass stand. The zomatous growth habit, is used on athletic fields. Although KBG should be the predominant species chosen for establishing newly seeded/sodded fields due to its slow germination rate and the inability of seedlings to establish under trafficked conditions, KBG seed is not recommended as the primary species in overseeding mixtures.

OTS HIGHLIGHT Continued inside on pages 12-15.

Previous studies have examined the use of perennial ryegrass (Lolium perenne L., subsequently referred to as PR) for overseeding into pre-existing fields. Both Elford et al. (2008) and Rossi (2004) found that frequent overseeding with high rates of perennial ryegrass could result in a more uniform stand with fewer bare ground patches and weeds. However, this practice may lead to decreased winter survival rates of the fields since perennial ryegrass is susceptible to extreme weather conditions. For this reason, there is merit in investigating other turfgrass species that could perform well under trafficked conditions.

Supina bluegrass (Poa supina) is native to the European Alps and has been bred ...



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Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. SPRING 2011.

Spring is when you feel like whistling even with a shoe full of slush. ~Doug Larson



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Deadline for Summer 2011 Sports Turf Manager: May 27th.

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Members Only Section

 STA Constitution & By-Laws
 From Our AGM: Executive Manager's Report, Membership Analysis & Financial Statements

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328 Victoria Road South Guelph, ON N1L 0H2 Tel: (519) 763-9431 Fax: (519) 766-1704 E-mail: info@sportsturfassociation.com Web: www.sportsturfassociation.com

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EDITORIAL COMMITTEE

Ken Pavely & Lee Huether

PUBLISHER

Joy Black New Paradigm Communications Tel. (519) 371-6818 E-mail: joy@npc-solutions.com

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STA OFFICE HOURS

Lee Huether is in the office from 9:00 a.m. to 2:00 p.m. Tuesday through Friday. At other times, a message may be left on the voice mail system. Please include the vital information of name, telephone number with area code, and time of calling. The office may be reached at any time by faxing (519) 766-1704 or via e-mail.

President's Desk

BY PAUL GILLEN

s I put pen to paper for this edition, we've just been promised a colder, wetter spring season here in southern Ontario, contrary to the groundhog forecasts. Let's hope nature knows more than science in this case – I think that we've all seen enough cold and snow for this year.

Speaking of cold, we attended the STMA Conference in Austin, Texas in January during which it never got over 38 degrees F (3° C). However, attendance was back to pre-recession levels and they had an excellent array of speakers. Our own Dr. Eric Lyons was on the program and had a standing room only audience to listen to him talk about weed control without chemicals. Even other presenters were encouraging their audiences to attend Dr. Lyons' session. Well done, Eric.



Supporting OTRF. STA Director Ben Tymchyshyn (L) presents our annual donation to the Ontario Turfgrass Research Foundation's Dave Smith at the Ontario Turfgrass Symposium.

While we're on conferences. we've just completed the annual Ontario Turf Symposium at the University of Guelph. This year marks the highest attendance since our return to the university locale. Our sincere thanks to the commercial sponsors, the speakers and the OTS organizing committee for their support and hard work in making this the premier industry event every spring. We will feature highlights from various presentations in this as well as future issues.

As per usual, the STA Annual General Meeting was

held in conjunction with the conference. Welcome to both new and returning Directors (see adjacent page for more details). We said goodbye to Murray Cameron and Bruce Carmen as their time on the board had come to an end. Thank you both for your support over the years. Tennessee Propedo from the City of Hamilton has been elected to serve as vice-president of your association. Meeting attendees endorsed a name revision from the Sports Turf Association of Ontario to the Sports Turf Association in keeping with our incorporation documents. Our mission statement reads: "Dedicated to the promotion of better, safer sports turf through innovation, education and professional programs." The STA constitution and by-laws are available in the Members Only section of the website. Have a look.

Change is in the air and there are some exciting things developing on the association front. We hope to be able to firm them up and make them public later this summer so stay tuned! In closing, a reminder that 2011 membership invoices are in the mail. This is your association – please ensure that those dues are paid promptly! And, a warm welcome to our new Administrative Assistant Cheryl Machan. Please make Cheryl feel welcome as you visit or call into the office.

Sports Turf Association Elects 2011-2012 Officers & Directors

GUELPH, ON. Members of the Sports Turf Association (STA) elected the 2011/2012 officers and directors at the annual meeting held during the recent Ontario Turfgrass Symposium. Newly elected vice president is Tennessee Propedo of the City of Hamilton. President Paul Gillen/AerWay, past president Gord Dol/Dol Turf Restoration, and secretary Andrew Gaydon/Vanden Bussche Irrigation continue in their roles. Returning to the board for a new term are treasurer Rick Lane/City of St. Catharines and directors Bill Clausen/University of Guelph and Jason Inwood/City of Vaughan. Joining the board are new directors John D'Ovidio and David Warden, both of the City of Mississauga.

Others currently serving the association are directors Dave Chapman/City of Toronto, Bob Kennedy/Sports Turf Management Solutions, Ken Pavely/Dufferin LawnLife, Paul Turner/G.C. Duke Equipment, Ben Tymchyshyn/MMM Group and Dennis Wale/City of Brantford. Murray Cameron/City of Guelph and Bruce Carman/The Country Day School did not stand for re-election.

New & Returning MEMBERS

Jim Pitman, City of Brampton, ON

Richard Outred, Earthco Soil Mixtures Inc. Concord, ON

Tony Martel, Carpell Surfaces Inc., Granby, QC

Debby Westlake, Vissers Sod Farm, Hampton, ON

Pat Hester, Clintar, Barrie, ON

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Another Successful Turf Symposium OTS Speakers Kim Heck, Sports Turf Managers Association, and Gord Horsman, City of Moncton.

OTS 2011 Attracts Record Number of Delegates

The 2011 Ontario Turfgrass Symposium (OTS) attracted the largest crowd in recent years this past February 23 and 24. Held at Rozanski Hall at the University of Guelph, nearly 500 delegates, speakers and sponsors gathered to participate in leading edge seminars and educational sessions. The Ontario Turfgrass Symposium is an annual event that attracts turf specialists from municipal, sports field, sod, lawn care and golf sectors. Over 30 sessions were offered, providing practical and applied training to turf managers and staff.

Both industry speakers and academics were part of the speaker roster allowing for a very broad range of topics. Delegates had a chance to discuss presentations during networking opportunities at the symposium and the Bullring Social.

Details for OTS 2012 will be available later this summer. Visit www.ots.open. uoguelph.ca or call 519.767.5000 for more information.

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Event Calendar

ASSOCIATION EVENTS ARE HIGHLIGHTED IN GREEN

May 1. Sports Turf Association Robert W. Sheard Scholarship Application Deadline. 519-763-9431, www.sportsturfassociation.com

May 2-5. Sports Turf Association Sports Turf Management & Maintenance Course. University of Guelph, Guelph, ON (during the ORFA Annual Professional Development Program). 519-763-9431, www.sportsturfassociation.com

June 22. Parks & Open Space Alliance 5th Annual Summer Operational Forum. The New Face of Parks & Open Spaces in 2011 St. Catharines Museum & Welland Canals Centre, St. Catharines, ON 519-763-9431, www.sportsturfassociation.com, www.POSAlliance.ca

September 22. Sports Turf Association 24th Annual Field Day. Glen Abbey Community Centre, Oakville, ON Info: 519-763-9431, www.sportsturfassociation.com

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

QUOTABLE QUOTE....

The sport field is a neutral setting that makes everyone feel welcome and allows people of all ages a chance to play. (Excerpt from the City of Nanaimo 2009-2024 Sportsfield Strategy Document. The Turf Line News, Feb/March 2011, Western Canada Turfgrass Association.)

The Sports Turf Association (STA) established a scholarship program in 1993. The STA Robert W. Sheard Scholarship (\$1,000) is funded through STA membership fees and is intended to assist students with the cost of tuition, books and related expenses.



The STA is dedicated to the promotion of better, safer sports turf through innovation, education and professional programs. If you or someone you know could benefit from the Robert W. Sheard Scholarship, please submit an application. Scholarship policies, criteria and an application form can be found online at www.sportsturfassociation.com.



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Member & Facility Profiles JAY TODD, DIRECTOR, PARK IMPLEMENTATION, DOWNSVIEW PARK

Interview with Director Jay Todd

What is your role with Downsview Park? Director, Park Implementation. Downsview Park is a self financing crown corporation of the federal government charged with the task of developing 572 acres of the former Canadian Forces Base Downsview into a self sustaining park and community. Unlike traditional national parks, Downsview is building a park while being a park – a true work in progress.



Jay Todd. Director, Park Implementation. Downsview Park, Toronto.

What kind of team do you work with? What are you and your team responsible for? We have a compact, dedicated team that looks after all aspects of park operations. Being a fledgling enterprise, we have chosen highly specific people to assist in the maintenance and development of the park. Of our four full time staff, we have developed a team with specific talents in turf and turf maintenance, irrigation, native plants and horticulture, and equipment and construction. This crew of four (plus eight seasonal students) maintains the park landscape and is in charge of horticulture, sanitation and events. Also included in this portfolio are 4 indoor artificial soccer fields, indoor beach volleyball, 2 outdoor artificial soccer fields, 1 outdoor artificial football/soccer field, 1 natural

soccer/sports field and up until last

year, 3 ball diamonds, a second natural soccer field and 1 cricket pitch (these five fields were decommissioned as part of the master plan in developing the park).

What is the biggest challenge in your job? Our biggest challenge is opening as much of the park as possible for public use (200 acres of our 572 is the goal by 2012). Over the past few years, we have been removing old military buildings, sculpting the land, creating a 9 acre lake and sports fields at our Sports Centre as well as hosting numerous events and concerts. We are doing all this while making the site safe for patrons.

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

What is the most satisfying part, what makes the job worthwhile for you? At the end of the day, you are one step closer to building Canada's National Urban Park, and while doing this you have a great team with you to reach that goal. We are very team oriented and from the top down, bottom up, everyone is part of that team.

What is the biggest misconception about your job? People hear the word director and they think of a desk jockey or paper pusher. Although I have those responsibilities, I am also a hands-on guy. I am on site on a regular basis with the crew, designers and contractors getting the job done.

What is your educational/employment background? My love of the outdoors and the environment led me into the field of horticulture. I'm a graduate of the Niagara Parks Commission School of Horticulture, which was truly the best experience and education of my life. Over the years, I upgraded my education through various courses at the University of Guelph, Centennial College in Scarborough and the Ontario Municipal Institute. This led me to various positions within the City of Scarborough and the City of Toronto to Director of Parks and Recreation with the Township of Scugog to my present position as Director at Downsview Park. I'm also involved with the Ontario Parks Association as Director, and belong to numerous other associations like STA and ORFA.

Tell us about your family. I live in Port Perry, a great little community north east of Toronto, with my wife Catharine and my two children. Kaitlin attends Georgian College and James... >>



MEMBER PROFILE CONTINUED

... works in Port Perry. I don't how I got to this stage but I'm far too young to have children this old!

What do you enjoy doing outside of the workplace? Hobbies, favorite past times? I know it may not sound healthy, but I find with the industry I'm in that my hobbies mostly revolve around my work. I belong to the North American Native Plant Society and the Toronto Field Naturalists. I speak to many different groups and although I don't have a lot of time for it, I do like to volunteer in the community and travel. How has the industry changed and in what direction(s) would you like to see the industry, as a whole, move towards? I have real concerns over the artificial turf industry and the speed at which these fields are being installed across Ontario. I know all the good reasons why we are installing synthetic turf fields but I also know that a well constructed, well maintained and well managed field can perform the same as artificial and in the long term, have better results for both the players and the environment. What do you consider to be the biggest benefit of being a member of the STA? I find there is a great network of people in the association that you can call, get some advice, bounce around a few ideas and know that you have a solid group of professionals who can assist you in your decision making.

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.



A CLOSER LOOK AT DOWNSVIEW PARK

Name, location of facility and general information. Downsview is a Canadian national urban park situated on 572 acres in the heart of Toronto. This multifaceted park, including the Downsview Park Sports Centre, offers 80 acres of indoor and outdoor sports fields and also caters to basketball, beach volleyball, squash, racquet ball, rock climbing and green go-carting just to name a few activities. We also house the Canadian Air and Space Museum and have a new 200 acre park with a 9 acre lake, trails, urban forest and urban agriculture in the construction phase. As part of our master plan, we are also developing five sustainable communities.

What types of sports fields are on site? Presently we have 2 artificial FIFA designed soccer fields, 1 CFL football/soccer field, 1 natural soccer field, 4 indoor fields (104'x165'), indoor floor hockey and 2 indoor beach volleyball courts.

How many employees are involved with turf care at this facility? We have a 4 person park maintenance crew who look after the sports centre facility and the rest of the park and 4 administrative staff who look after permitting and day-to-day operations of the Hangar facility which is part of the sports centre.

How many acres of turf are maintained at this facility? How many acres of sports turf? Maintained turf sits at about 250 acres. Of that, approximately 12 acres comprise our event centre, 40 acres our developing urban forest, 10 acres are sports fields and the remainder is under construction.

What percentage of this acreage is irrigated? Approximately 2% of the site administered by a two waterwheel type of irrigation.

What is the primary type of turfgrass? Name of varieties. We are using two mixes: 1) 25% Chicago II Kentucky bluegrass, 25% NuBlue Kentucky bluegrass, 35% J-5 Chewings fescue and 15% Top Gun perennial rye; and 2) 33% Top Gun perennial

ryegrass, 33% Top Gun II perennial ryegrass and 34% Goal Keeper perennial ryegrass.

Is yearly overseeding part of your sports turf maintenance program? We began our overseeding program in 2009 using a slit type seeder. We seed both spring and fall and mid-season if needed.

How many times do you fertilize? As needed. We perform soil analysis throughout the season, but in general treat our sports fields and event centre 3-4 times, and general park areas once a year.

Do you aerate? Topdress? We have a heavy clay/loam soil and compaction is always an issue, so we aerate 4-6 times or more if needed. We try to topdress, but this usually only happens in localized areas.

The Pesticides Ban. Comments. Because we are a federal facility, we do not fall under the provincial ban. That said, we are working towards being a sustainable site and use little or no pesticides. The only chemical we do use (under 10L) is glyphosate. Over the past two years, we have been using and testing organic fertilizers, mycorrhizae and other natural controls and nutrients.

Are community user groups involved or have they been involved in the construction/maintenance of this facility? In what manner? We have regular meetings with the community and as needed ones for special projects.

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? The Hangar Operations staff permit our facility with close to 9,000 hours on our indoor fields and 2,800 hours on our outdoor fields. We host over 150,000 event goers at our event centre.



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Is Overseeding With Supina Bluegrass a Viable Option?

Kathleen Dodson, M.Sc., Dr. Eric Lyons, Dr. Katerina Jordan & Dr. Francois Tardif Department of Plant Agriculture, University of Guelph

OTS HIGHLIGHT Continued from our front cover.

and used as a turfgrass in Germany since the 1930s (Stier, 1998). The German name Lägerrispe, which translates in English to "where the cows lay," reflects the ability of this grass species to withstand tremendous traffic pressures and still thrive (Sorochan and Rogers, 1998). *P. supina* is a turfgrass that has fallen out of favour in North America mainly due to its lime green colour and numerous dark seed heads in the spring as both of these characteristics are at odds with the aesthetic needs of sports field managers (especially in the United States).

With the changing attitudes towards turf management, *P. supina* appears to be an ideal candidate for highly trafficked and shaded turf areas. Supina bluegrass' growth strategy is what ecologists refer to as a competitive-ruderal. Competitive ruderal plants have a high capacity for biomass production and can quickly fill in a disturbed area within the plant community (Grime, 1977). Supina bluegrass tends to grow laterally with a dense canopy, while also producing numerous seed heads that enter into the soil seedbank and colonize other disturbed areas of the field (Sorochan and Rogers, 1998). Its aggressive, stoloniferous growth habit, relatively late fall dormancy and early spring green-up make it an ideal candidate for competing with early germinating spring weeds. One such weed, prostrate knotweed (*Polygonum aviculare* L.) is becoming a more common weed on athletic fields in southern Ontario.

Prostrate knotweed is an annual weed that is typically associated with areas of high traffic and compacted soils. Due to its low-growing prostrate growth habit and patch-forming long stems, it can be a tripping hazard causing unsafe playing conditions. This weed is particularly dominant because it begins to germinate early just as temperatures start to increase in the spring. This is where supina bluegrass comes in as a potential competitor for germinating prostrate knotweed seeds.

Expense & Future Potential

Supina bluegrass is relatively expensive seed, with an average price of \$12-15/kg (\$25-35/lb), as most of it is produced only in Germany. It is a small statured plant and requires different seed produc-

tion systems than the typical system of the Pacific Northwest of the United States where most of our grass seed is produced. Currently there are only two cultivars of supina bluegrass available on the market, but recent research from Pecettie and colleagues (2011) has led to the recent collections of new germplasm from the Italian Alps. These samples are currently being stored and classified for increasing the genetic diversity of this species. This means that there is hope for future cultivar choices that may be more drought tolerant, darker green and/or more affordable.

Overseeding Trials

Currently there are two studies underway examining the efficacy of overseeding with supina bluegrass at the Guelph Turfgrass Institute. The first is examining the idea of companion overseeding which would allow a turfgrass manager to fill in the bare spots of turf with a fast germinating species (PR), while still being able to add in a more wear tolerant but slower germinating species over time (supina bluegrass). The second study is looking at the viability of overseeding solely with supina bluegrass and comparing it to perennial ryegrass on in-use fields in southwestern Ontario.
 Table 1: Characteristics of grass species that can be used for overseeding in Ontario.

(?) = Unknown or more evidence needed

Characteristics	Kentucky Bluegrass (Poa pratensis)	Perennial Ryegrass (Lolium perenne L.)	Supina Bluegrass (Poa supina Schrad)
Traffic tolerance: established	High	Moderate	High
Traffic tolerance: seedlings	Poor	Moderate	(?)
Vegetative reproduction	Rhizomes	None	Stolons
Self-seeding	No	No	Yes
Germination speed	Slow	Fast – 1wk	Slow
Cost of seed	Expensive	Inexpensive	Expensive
Spring green-up	Cultivar dependant	Cultivar dependant (?)	Early
Dormancy	Late	Early	Late
Colour	Dark green	Dark green	Lime green
Temperature tolerance	Good	Susceptible	Good



Figure 1. The SISIS wear machine developed by SISI and STRI is equipped with cleats on rollers. The rollers have differential slip in order to tear the turf and cause cleat damage, similar to athletes playing. (Photo: Alex Porter)

Figure 2. Plots having received (A) no overseeding, (B) overseeding once at full rate (1x/season) and (C) overseeding at 1/3 of the rate (3x/season) on June 20, 2010.

Figure 3. Plots having received (A) no overseeding, (B) overseeding once at full rate (1x/season) and (C) overseeding at 1/3 of the rate (3x/season). Last seeding date was September 14, 2010. Photo taken on October 12, 2010.

The companion overseeding trial is evaluating five seeding rates, seeding frequencies, and height of cut in order to determine the optimum method of introducing and maintaining a field overseeded with supina bluegrass. Keeping in mind the current expense of supina bluegrass seed, creating an overseeding companion program may provide turfgrass managers with a viable way of overseeding with high amounts of seed to maintain a uniform field while introducing supina bluegrass into the turfgrass sward. The seeding rate of PRG was maintained constant while five different rates of supina bluegrass were used (Table 2). Comparison of the impact of overseeding once per year to overseeding the same amount of seed three times per year is also being evaluated. The trial is being maintained at two different heights of cut, 3.8 cm (1.5 in) and 7.6 cm (3 in), to determine the ideal height for playing

fields overseeded with supina bluegrass. All treatments are being compared with a non-overseeded control at both mowing heights.

The overseeding rate trial is currently underway at the GTI research station. Traffic is applied with a SISIS wear machine (Fig. 1) to simulate six football games per week on the research plots. The plots are evaluated monthly for species composition, quality, colour and density.



Table 2. Overseeding rates of perennial ryegrass and supina bluegrass.

Seeding Rate	Perennial Ryegrass	Supina Bluegrass
1	6 kg/100m ²	0 kg/100m ²
2	6 kg/100m ²	0.5 kg/100m ²
3	6 kg/100m ²	1 kg/100m ²
4	6 kg/100m ²	2 kg/100m ²
5	6 kg/100m ²	4 kg/100m ²

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Figure 4. The weed seed cycle: green arrows represent potential seed flow patterns. Adapted from Buhler, D.D. et al., 1997.



Preliminary Results

Initial results indicate that overseeding does help with overall uniformity of the turf sward; however, frequency of overseeding seems to play a major part in maintaining that uniformity. One month after the first overseeding, the overall wear is more prevalent in the plots that received no overseeding. Plots that received overseeding had very little wear and mean turfgrass species counts of 99% (Fig. 2). What is interesting is that the three-time treatment at this point had only received one third of its scheduled seed total. However if we fast forward to the end of the season, the one time overseeding treatment has more wear and 96% turfgrass species coverage (Fig. 3). So the take-home message is that overseeding does work, but being able to do it more frequently would be more advantageous to the overall quality of the sward.

As turfgrass managers, we need to consider that our sports fields are part of a larger ecosystem. Nature provides a diverse array of plant species that may establish during a disturbance. If we can find a turf species that mimics a weed's strategy for establishing in disturbed areas, overseeding can allow the desirable species to compete with the naturally occurring weed seed in our turfgrass swards.

Looking at the weed seed cycle shows that weeds are such great competitors due to the fact that they typically produce large amounts of seed, including seeds that are able to carry over into future growing seasons (Fig 4.). Supina bluegrass is known for its ability to self-seed during its first two growing seasons. It is also able to dominate turfgrass swards within three years when seeded in proportions as low as 10% supina (Sorochan and Rogers, 1998).

Current evaluation of the soil seedbank of the overseeded rate trial plots are showing that overseeding with *Poa supina* does cause the seeds of this species to be stored in the soil at much higher rates than perennial ryegrass seed. This may indicate that during the upcoming spring there will be more opportunities for supina to become established in the field rather than the early germinating prostrate knotweed.

The second supina bluegrass study began September 2010 on the in-use soccer fields at the GTI (Fig. 5) and will be continued on other in-use fields in the surrounding area over the next two growing seasons. These trials will examine the feasibility of overseeding with supina bluegrass alone, and examine the viability of this kind of overseeding program in southern Ontario.

While the current research at the GTI is an exciting examination of a new overseeding opportunity for turfgrass managers here in southern Ontario, it is important to remember that until our research on this little known species is complete, using supina bluegrass is likely not your best option at this time. However, current research has shown that overseeding with the relatively inexpensive perennial ryegrass seed will continue to provide uniform, playable and safe athletic fields. It is also important to try to remediate some of the underlying conditions that lead to invasions of prostrate knotweed and other weeds in the first place - specifically compaction. Remember that there is no silver bullet in turfgrass management that will cure all problems, however with a combination of well-timed cultivation activities and overseeding we can still provide safe, green fields for our athletes both young and old to enjoy for years to come.

Written by Kathleen Dodson M.Sc., Dr. Eric Lyons, Dr. Katerina Jordan and Dr. Francois Tardif. Kathleen would also like to thank Dr Ken Carey and Alex Porter for all their help with her experiments thus far.

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What is the Future for Corn Gluten Meal Based Products for Controlling Weeds?

Dr. François Hébert & Dr. Eric Lyons, Department of Plant Agric., University of Guelph

n 2010, we began a number of trials with the objective of evaluating the efficacy of corn gluten meal (CGM) and its liquid derivate (hydrolyzed corn gluten meal) as a pre-emergent herbicide. Corn gluten meal is the protein fraction of corn extracted from the wet-milling process and is used mainly for animal feed. Unlike FiestaTM and Organo-solTM, CGM is not a new product on the market. In the early 1990s, scientific research found that CGM inhibited root elongation of many broadleaf weeds like dandelion (*Taraxacum officinale*), white clover (*Trifolium repens*), Canada thistle (*Cirsium arvense*), smooth crabgrass (*Digitaria ischaemum*), catchweed bedstraw (*Galium aparine*), curly dock (*Rumex crispus*), purslane (*Portulaca oleracea*), redroot pigweed (*Amaranthus retroflexus*) and giant foxtail (*Setaria faberi*). The solubility of this product was poor, which limited broad

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scale application due to the large amount of this product required to ensure efficacy¹.

Researchers discovered that the protein fraction of gluten meal was responsible for the inhibition of root elongation of plants



and decided to further develop the technology to increase its efficiency. They found that hydrolyzed corn gluten meal (HCGM), which is prepared with a proteinase from a bacterial source, had a higher inhibitory activity to the root growth of germinating seeds than CGM and is highly water soluble making it more adequate for a broad scale use. With new regulations, it is imperative to develop weed management alternatives for turfgrass managers in Ontario and this has renewed the focus on biological herbicides like CGM and HCGM.

A number of trials were implemented in 2010 to test the efficacy of both CGM and HCGM as a pre-emergent herbicide. We began with a simple greenhouse experiment to test the effect of those products on germination and survival of both weed



and grass species. On the field, we wanted to test the efficacy of corn gluten meal and hydrolyzed corn gluten meal in a turf establishment and on an existing turf stand. For all the experiments we have tested two rates of both CGM and HCGM (label and 2x rate) and compared these products with a positive control (Bensulide) and a negative control where only water was applied.

Greenhouse Experiment

We found a significant decrease of survival rate after germination for all weed species for the CGM treatments, but there was no difference between application rates. Six weeks after seeding, survival rate and germination in the corn gluten meal treatment, compared to the control, was 58% **Photo 1.** Corn gluten meal, greenhouse experiment. **Photo 2.** Air sprayer, field experiments. **Photo 4.** Clover cover in the overseeding experiment. Notice the darker green colour in the gluten meal (2x) plots.

grasses, neither product reduced survival rate after germination of grass except for Kentucky bluegrass (*Poa pratensis*) seeded one week after treatment application.

Grass Establishment

In the field, three grass species were seeded: Kentucky bluegrass, perennial ryegrass and a fine fescue mix (*Festuca spp.*) on a bare tilled and leveled area. Corn gluten meal was applied by hand and hydrolyzed corn gluten meal was applied

Researchers discovered that hydrolyzed corn gluten meal, prepared with a proteinase from a bacterial source, has a higher inhibitory activity to the root growth of germinating seeds than corn gluten meal and is highly water soluble.

lower for prostrate knotweed, 92% lower for dandelion, 74% lower for white clover and 85% lower for black medic. However, the low dissolution rate of corn gluten meal could have limited the physical space available for seed germination (Photo 1). For the hydrolyzed corn gluten meal, we did not find any suppressing effect. For with an air sprayer at a rate of 20 ml per second (Photo 2). We did two experiments, one in the spring and one in the summer of 2010. For the spring trial, we found a reduction of weed cover for the CGM treatment regardless of the amount applied for fine fescue. But even if the reduction was statistically significant, there was a



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substantial amount of weed cover even if the grass cover was also higher (Photo 3). The weed suppressing effect of CGM and HCGM treatment was not noticed either on Kentucky bluegrass or perennial ryegrass seeded plots. Both gluten meal types did not reduce turfgrass germination for the species studied. The same results were found in the summer trial; both gluten meal types did not reduce turfgrass establishment and were not efficient as a weed suppressor (Photo 3).

Existing Turf & Overseeding

In this study, we applied CGM and HCGM, as well as Bensulide, on an existing turf and we seeded one weed (white clover) and one grass (perennial ryegrass) 0, 2, 4, and 6 weeks after treatment application. The weed cover measurements revealed a significant effect of CGM at 2x label rate on white clover cover, especially two to six weeks after treatment application with more than 60% reduction compared to the control plots (Photo 4). A similar trend was found for CGM applied at label rate but the difference was not statistically significant. Surprisingly, Bensulide did not reduce white clover cover. All herbicide treatments did not reduce (or increase) perennial ryegrass cover. In fact, we measured a very low amount of this species (below 5%). The efficacy of CGM and the low germination of perennial ryegrass could be due to a reduction of water application on the field during the trial to prevent leaching of the hydrolyzed corn gluten meal.

Conclusion

Our different trials indicated that CGM could be an efficient product to control white clover germination on existing lawns. We also discovered that hydrolyzed corn gluten meal did not affect turfgrass establishment but had no suppressing effect on broadleaf weeds in an establishment scenario. Further research is needed for this product, especially the timing of application and issues with solubility need to be addressed. As mentioned earlier in this article, CGM can be an interesting alternative to control weeds, but its use



should be preferred for home lawns due to the high amount of product needed and its method of application. Finally, the lack of weed control by CGM when establishing turfgrasses requires further research and development to find other alternatives for establishing turf.

¹Bingaman and Christian 1995, Christian 2001, Daily et al. 2002. Funding provided by Environmental Factor, Agricultural Adaptation Council, and the Ontario Ministry of Agriculture Food & Rural Affairs.







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Personal Branding For The Sports Turf Manager

Kim Heck, CEO, Sports Turf Managers Association, Lawrence, Kansas

What in the world is personal branding? Your personal brand is the combination of your experience, skills and talents that distinguishes you from others who do the same work as you. This is very important when you are seeking and competing for another job. For those who are not in the job market, leveraging your personal brand is equally, if not more important. It helps you to increase your value to your employer, which results in greater opportunity for compensation and job security.

ike a retail brand, your personal brand encourages those who employ you to trust your ability to deliver quality field conditions within budget and on time. Your personal brand is a promise of what your employer can expect from you, so that when the unexpected happens – weather, pests, equipment failure – your personal brand is what saves you.

It's a given that you do a good job, but if you are not consistently telling or reminding people about the good job that you do, it is not top of mind. Your good work goes unrecognized. This doesn't mean that you brag, but personal branding helps to create a specific plan to gain recognition and respect. There are six attributes that contribute to your brand – competencies, personality, relationship management, leadership style, strengths, and weaknesses.

Attribute 1. Competencies.

Let's start with competencies. These are the knowledge, skills and abilities that make you unique. Are you certified? Have a well-tooled IPM program? Excellent budget management? Competencies are focused on what you know and how you apply it to your job.

Attribute 2. Personality.

Your personality is another contributing quality. How does it help or hinder your

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personal brand? The key is to look at the positive attributes of your personality. If you are laid back – your ability to remain calm and not get rattled, especially in a crisis is very positive. If you are wound tight, the decisiveness of that attribute will serve you well. Friendly or shy? If you are friendly, your verbal skills can shine and it is easy for others to like you and listen to what you have to say. If you are shy, you could really hone your written communication skills and be known for your

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thoughtful and analytical approach. No matter what your personality – there are positive attributes that you need to define, include in your plan and figure out the best way to leverage them.

Attribute 3. Relationship Management.

You all manage down – staff and crew management – but how well do you manage up? Managing up means that you understand how to meet your boss's expectations. Relationship management also includes your network. Reach out and connect with those outside of your department, at all peer levels. Your brand is also affected by your staff. This includes their attitudes, care of equipment, courtesy to athletes, coaches and fans. As their leader, be sure you create a climate for learning and listening. Be respectful when they speak, and be a cheerleader and a coach. When you help them succeed, you succeed.

Attribute 4. Leadership Style.

Leadership styles are learned. Model the behavior of those whom you admire. You are known by the company you keep. Your friends, your business associates, and your staff all contribute to your brand. Be sure to associate yourself with credible people. Any hint of being associated with someone with poor ethics or morals can cast a shadow on you.

Attributes 5&6. Strengths & Weaknesses.

Finally, your strengths and weaknesses are integral to your personal brand. Of course everyone has weaknesses, and it is important to work on improving them, but spend more time on building your strengths. You aren't trying to change who you are in developing a personal brand strategy, but you won't be successful if you try to be someone who you are not. So how do you identify those strengths that add value? You can use a very simple tool called a feature/benefit model. For the work that you do, there is a corresponding benefit. The benefits define your value, and your value is your brand. For example, do you deliver your work on time, every time? That's the feature; the benefit is that your employer, athletes and fans get dependable reliable field set up and ready-for-play conditions. What about anticipating problems before they become crises? That's the feature; your employer benefits by saving money and time by having you on their staff.

Promotion.

The next step after you have identified your brand attributes is to promote yourself. The first step is visibility. There is virtually no limit to the ways you can be seen. How visible are you to your athletes, fans and coaches? Do you stay behind the scenes Maybe your facility is ready for a field renovation and the article has an excellent check list to be sure all stakeholders are engaged. Look at this as career karma: the more you give the more you get in return.

Bottom Line.

Everything that you do – or don't do – contributes to your brand. Do you return phone calls and emails in a timely manner? Are you on time for meetings? Do you make yourself available to field users for feedback? What does your ring tone say about you? Your brand is substance and style.

Being a sports turf manager, your world is full of projects. Projects are a fantastic way to showcase your brand and enhance your reputation. Projects have delivera-

The next step after you have identified your brand attributes is to promote yourself. Look at this as career karma: the more you give the more you get in return.

and hope that no one asks a question that you need to answer? Or are you front and centre, meeting and talking with people explaining your craft?

There are many other ways to be visible. Volunteer to give a presentation to your management team or at an industry conference. Teach a class at your local community college or start by being a guest presenter. If you are a better written communicator than a presenter, write an article for your facility newsletter or your association. Community newspapers are always seeking materials, so contact an editor and write an article. This sets you up as the expert so that when they need information on water quality, drought, pesticide ban issues, etc., they come to you.

If you aren't a writer or a presenter, you do read! A way to attain more visibility with your employer is send him/ her articles of pertinence. Forward them electronically or send a copy with a note explaining why you think the employer would find the information of interest.



bles, timelines, budgets, teamwork – all of which, if successfully met, help you to stand out.

You are in charge of your brand. If you don't pay attention to it, no one else will. Personal branding can be the key to your success – however you define success. You have the brand power to set the course for the future you want.

Sources. Career Distinction, William Arruda & Kirsten Dixson; The Brand Called You, Tom Peters.



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What is in a Word? Actually, A Lot!

R.W. Sheard, Professor of Soil Science (retired) University of Guelph

et's take 'density' for example – the choice of its meaning can have serious implications in the construction of an athletic field. A scientist defines density as mass per unit volume. The standard is the density of water which is one gram per cubic centimetre. All other materials are related to this standard. Organic materials have a density of less than

one; hence they float on water. Sand particles have a density which averages 2.65; hence they sink rather rapidly in water.

Engineers and agronomists differ rather widely on their interpretation of the meaning of the word 'density,' which can have very significant effects on athletic field construction and the future performance of the field. In the engineering concept of the word, 'density' of a soil material is measured in terms of Procter Density – defined as that density which can be achieved when a series of samples of the soil are compacted under standard laboratory conditions over a range of moisture contents. As the moisture content is increased, the *dry* density (the density expressed on a moisture free basis) increases to a moisture content beyond which the dry density decreases due to the high water content causing the soil to become plastic. Generally the desired density for engineering construction is 95% of this maximum, i.e., 95% Proctor Density.





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To achieve the required Proctor Density under field conditions, the soil is sprayed with water and compacted by a roller or other mechanical compacting device. To determine if the desired density that was measured in the laboratory has been achieved, an *in situ* measurement of density and water content is made with a portable nuclear density meter.

Standard Proctor Density is designed to achieve maximum load bearing capacity and to minimize pore space, thus minimizing water movement through the soil. Densities in the order of 2.0 g/cm³ are obtainable. At this density, the total pore space in the soil would be 25%. This porosity restricts the movement of water in the soil and provides the engineering characteristics of the soil desired for building and road construction. The non-capillary pore space through which air and gravitational water movement would be a minimum.

In the agronomic concept of soil, 'density' is considered to be the density of the soil in its natural state and is called the apparent density of the soil. It is determined by inserting a metal ring of known volume into the soil, removing the ring plus enclosed soil, determining the dry weight of the soil contained in the ring, and reporting the results as g/cm³. The optimum soil density for plant growth is 1.33 g/cm³ which will have total porosity of 50%. At this porosity, water and air will move freely through the soil pores and root proliferation will be optimal. At apparent densities of 1.7 g/cm³ or greater, root growth will be greatly restricted.

The total porosity of the soil in its natural state is divided into pores of two sizes based on the flow of water. Both are important in good plant growth. The larger pores, through which water flows due to the forces of gravity, are known as macro pores or noncapillary pores. The smaller pores, through which water moves by capillary forces, are known as micro pores or capillary pores. In general, during compaction the removal of macro pores is greater than micro pores, therefore the influence on drainage is greater than the influence on available water for plant growth.

In the design of the subgrade and root zone for an athletic field, it is essential that the architect understand the difference between the two concepts of density. The specifications written for the construction should be reviewed carefully to ensure that

The engineering concept of soil density is the complete antithesis of the agronomic concept of soil density; the former designed to minimize porosity and the latter to maximize porosity. If the engineering concept is applied to the design of the subgrade and root zone, the field is doomed for failure.

Water movement through macro pores is relatively rapid and it is through these pores that drainage water flows and air is contained when all the drainage water has been removed. It is essential for plant growth that the macro pores are drained as rapidly as possible and air returns to the soil. Furthermore, it is essential to remove this excess water due to its significant effect on lubricating the soil particles, allowing them to move into closer association through compaction from athletes' feet and maintenance equipment.

Movement of water through micro pores is relatively slow and is the source of the majority of water used in plant growth. all references to density and compaction are using the agronomic concept; otherwise the field is doomed to failure.

In summary, the engineering concept of soil density is the complete antithesis of the agronomic concept of soil density; the former designed to minimize porosity and the latter to maximize porosity.

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manufacturer of spraying equipment for the agricultural industry in the Niagara region of southern Ontario. Stens, an Ariens company, is headquartered in Jasper, Indiana, and has been producing a parts catalogue since 1970. Stens supplies aftermarket parts to the green industry, outdoor power equipment and golf markets worldwide.

Rittenhouse is widely known in the landscape and green industry for manufacturing quality spray rigs and equipment; in addition to offering high quality tools, parts and customer service. By including aftermarket lawnmower and handheld power equipment replacement parts, Rittenhouse will become a one-stop-shop for landscapers and other green industry professionals.

"Rittenhouse has always been recognized for great products and outstanding customer service. Adding Stens products is a natural progression in serving our customer base," said Marketing and Business Development Manager Aaron Rittenhouse.

Stens is universally known for their outstanding customer service, quality products and fair pricing. "Stens is a great fit for Rittenhouse as both companies share similar values," adds Rittenhouse. Initially, Rittenhouse will add 1,000 Stens SKUs to their sprawling ecommerce website. Over time, says Rittenhouse, that number will increase.

All of the parts Rittenhouse is carrying will be compatible with the biggest brands in the commercial lawnmower and outdoor power equipment industry. The main focus, for the moment, will be on consumables such as lawnmower blades and belts, air and oil filters and replacement engine parts. There will also be more complex parts available such as hydro gears and clutches. As always, these parts can be purchased through Rittenhouse's secure state-of-the-art ecommerce website: www.rittenhouse.ca.

Note: Industry press releases are a benefit offered to annual advertisers. Contact the office for details.





Distributed by: Plant Products Co. Ltd., 1-800-387-2449; Plant-Prod Québec, 1-800-361-9184; MGS Horticultural Inc., 1-519-326-9037; Evergro/Westgro, 1-800-663-2552

Smart Grass Cutting With Toro's Quad-Steer™

TURF CARE. We're taking productivity in a whole new direction and seriously advancing the way you cut grass with Toro's Groundsmaster 360 Quad-Steer[™]. The all-new Toro Groundsmaster 360 reinvents the way a mower performs. This machine utilizes revolutionary Quad-Steer all-wheel steering to maximize productivity. It climbs hills without slipping, makes 180 degree turns without tearing turf and hugs turns or side hills while mowing in total comfort. Save time without sacrificing quality. Intuitive controls and unparalleled maneuverability turn work into play. Available in 2WD and 4WD models and with an all-season safety cab. Contact Turf Care Sales Representatives Paul Cooper at 905-715-6797 or Gavin Worden at 905-715-6285 for more information.



New Line of Turf Seed From Plant Products



THE SELECTUS™ BRAND line of seed products, created to provide new and innovative seed solutions for turf professionals and general agriculture, has been introduced by Plant Products Co. Ltd. "With this initiative, Plant Products has become a direct source of seed products from the breeder to our

customers," said Harold Van Gool, Vice-President, Business Development. "It is this, plus the many years of collective know-how in sourcing and recommending top grade solutions that defines the Selectus seed brand. Our new state-of-the-art blending facility for Selectus seeds reflects Plant Products' commitment, attention to detail and reputation for quality that our customers depend on. Plant Products is one of the most experienced companies in the turf supply business. The addition of this new line of turf seed products makes perfect sense for us and our customers." Plant Products is located in Brampton, Ontario. Call 905-793-7000 or visit www.PlantProd.com.

Neudorff's Non-Selective Weed Control Option

FINALSAN®. Neudorff, a leader in the development of low risk pesticides, introduces FINALSAN, an ammoniated soap of a fatty acid. This fast acting, low risk, non-selective herbicide is currently registered for use within flower and vegetable gardens



for spot treatment in lawns and around small fruits and fruit trees. In addition to being effective in cool weather, it does not stain hard surfaces making it ideal for controlling vegetation including moss and algae around and on buildings, sidewalks, fences, bark mulch, driveways, patios and gravel. FINALSAN has no harsh fumes and is non-corrosive making it easier on equipment. For sales support contact Ken Pavely, Dufferin Lawnlife, at 519-939-6063, and for technical support contact Tim Tripp (Product Manager-Neudorff) at 519-803-3261.

GTR TURF FORMS EXCLUSIVE NEW PARTNERSHIP WITH SHAW SPORTEXE

SINCE JULY 2010, two of the top companies in the artificial turf industry have teamed up to create one of the strongest product and service offerings ever combined. Shaw Sportexe, a leading synthetic turf company in North America, has signed an exclusive partnership with GTR Turf, an international synthetic turf contractor with more than 13 years of industry experience and a stellar reputation for efficient and quality installations.

Under the new alliance, GTR will exclusively install the entire Shaw Sportexe line of products in the Eastern Canada region. GTR will also work with Shaw Sportexe to install products in Eastern U.S. regions and other Canadian provinces.

"We are very excited to be partnering with such a powerful brand in the synthetic turf industry," commented Luc Ruchon, CEO and President of GTR Turf. "By teaming up with Shaw Sportexe, we will ensure organizations within the Canadian market are getting not only the best service, but the best product. I am expecting great success with this partnership going forward."



With over 18,000,000 square feet of artificial turf installed internationally, GTR is a leading independent synthetic turf contractor. Started in 1997 by CEO and President Luc Rochon, GTR has quickly become one of the most efficient installation solutions on the market. With installations in more than 10 countries worldwide, GTR has considerable expertise and experience with clients of all sizes, including municipalities, sports organizations, professional teams, colleges and universities. Visit www.gtrturf.com.



Seriously advancing the way you cut grass.

- Call Call

The all-new Toro Groundsmaster 360 reinvents the way a mower performs. Powered by a 36 hp (26.8 kW) Kubota 4-cylinder diesel engine, this machine utilizes revolutionary Quad-Steer all wheel steering to maximize productivity. Climb hills without slipping. Make 180° turns without tearing turf. Hug the turns or side hills while mowing in total comfort. Save time without sacrificing quality. Intuitive controls and unparalleled maneuverability turn work into play. But this is no toy. It's a performer in every sense of the word. A higher quality of cut, speed and efficiency, lasting dependability. Surprisingly, the world's most exhilarating mower is also the most efficient. The Groundsmaster 360 is the science and the art of mowing, a sensory experience you simply have to feel for yourself. Call your Turf Care Representative today.

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