Sports Turf Manager
FOR BETTER, SAFER SPORTS TURF. SPRING 2010. VOL. 23. NO. 1

Establishing Turfgrass Without Herbicides: Musings on the Future

Dr. Ken Carey, Department of Plant Agriculture, University of Guelph

In a situation where most effective herbicides are banned for sports field managers, how does a manager establish or renovate successfully? As of yet, there are no easy answers, but prospects may not be entirely hopeless. In this article, I'll provide some approaches that you might keep in mind if you're in this boat. Some are cultural or management principles that you know and apply already. Others are ideas borrowed from systems such as organic crop production where these questions have been faced for years. Hopefully some may be feasible for you, at least on a trial basis, and with the assurance that many of these approaches are being pursued actively in research programs.

Weeds in Establishing Turfgrass

We've always dealt with weed pressure in newly established or renovated turf areas, so turf managers are well aware of some of the things necessary to consider:

Weed seed bank. Most areas that have had vegetation on them, whether turf or other cover, have a bank of weed seeds that has accumulated from weeds on site, or have moved in with wind and water from off-site. This is one of the main problems to deal with. In agriculture (and sometimes in turf management), we may have the luxury of time to repeatedly till the soil, allowing weed seeds to germinate and be plowed down to reduce this seed bank. Knowing what is likely to come up in your situation, either from historical records of the site or first-hand observation, will allow you to anticipate the potential size and detail of the expected problem.

Perennial weeds. In the past, these would have been targeted with non-selective herbicides (e.g. glyphosate) which are no longer available. Again, repeated tilling may reduce this problem, but is probably unrealistic in many turf installation situations.

New rootzone material. Often, installation jobs involve bringing in new rootzone material, topsoil or sand, which has the potential to aggravate a weed problem (if the material is not weed-free), or help solve the problem, by burying it.

OTS HIGHLIGHT
Continued inside on pages 12-13.

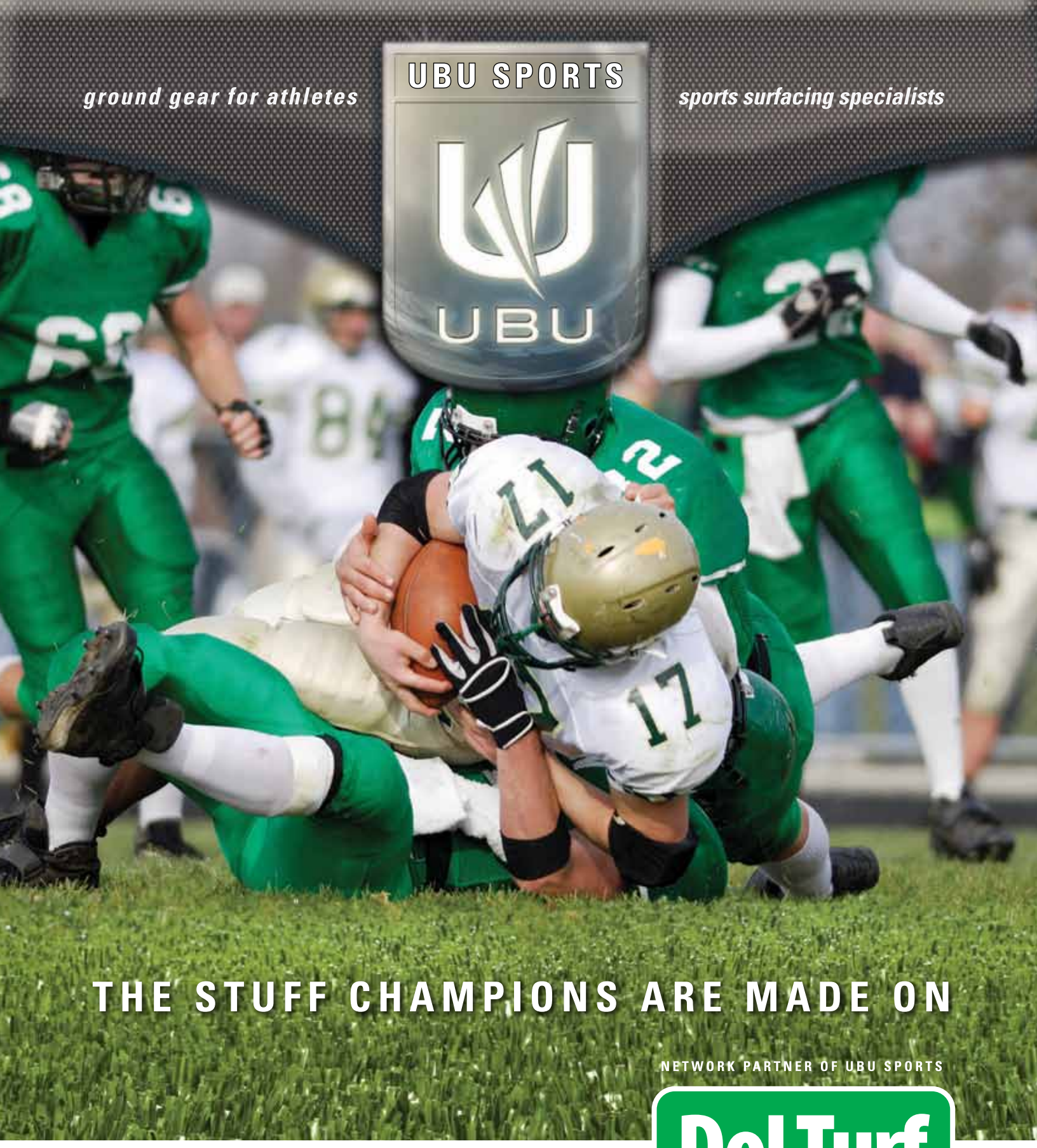
What Are We Replacing?

There are three types of herbicides which are used to deal with three different sets of problems in establishing turf (and for which we need alternative solutions):

Nonselective herbicides (e.g. glyphosate). These allow us to kill perennial weeds (and unwanted grass) prior to establishment.


Town of Oakville

Inside Features



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Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. SPRING 2010.

I believe a leaf of grass is no less than the journey-work of the stars. ~Walt Whitman

SPORTS STA TURF ASSOCIATION

Inside this issue...

REGULAR COLUMNS & DEPARTMENTS

Stay tuned for details on our September Annual Fall Field Day!

WHAT'S ONLINE

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Sports Turf Manager

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STA OFFICE HOURS
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President's Desk

PAUL GILLEN TAKES THE HELM

This is the first issue of the New Year and spring, we hope, is just around the corner. As per usual, the 2010 Ontario Turfgrass Symposium (OTS) was a great success with an accomplished line-up of speakers dealing with a variety of timely topics relevant to the "new" pesticide-free environment. This edition includes follow-up articles on two of the presentations. Our thanks to the sponsors, the OTS committee, and the speakers for their time and energy in making this such a valuable program.

The Annual General Meeting of your association was held on February 17 in conjunction with the OTS. The new Board of Directors is pictured on page 8. We said goodbye and thank you to board member Grant Mckeich and welcome new board members Ken Pavely, Ben Tymchyshyn and Dennis Wale.

Gord Dol stepped down and becomes past president. During his four years at the helm, Gord's energy and leadership was invaluable in redefining our strategic direction (including a new mission statement) and keeping pace with the evolving and ever changing conditions of our industry. He also presided over the publishing of the Athletic Field Construction Manual as well as the introduction of the Level 1 Sports Turf Management & Maintenance Course. It was during his tenure that STA became the first international affiliate to be recognized by the Sports Turf Managers Association in the US. We're all pleased that Gord will continue with the board, albeit in a different capacity, and we look forward to his guidance and mentoring.

We also said goodbye to long-time board member and past president Jane Arnett. Jane's well deserved promotion and additional responsibilities at the Town of Oakville have resulted in time constraints that compromised her ability to participate on the board. In recognition of all of her efforts on behalf of the STA, Jane was awarded an Honorary Life Membership. Thanks, Jane, for everything that you've done for the association – we will certainly miss you.

As we move forward in a new decade, your Sports Turf Manager publication has been upgraded to full colour throughout. We hope you like the new look and always welcome your comments and suggestions. As well, STM is now fully digitized and available online via the STA website.

This spring, the board reviewed the STA Scholarship Program and we have made a few revisions to the application criteria. One change is that the deadline for submissions is now May 1 to coincide better with other scholastic programs. More details can be found on page 7 in this issue.

Be sure to mark your calendars for the Sports Turf Management & Maintenance Course at the University of Guelph starting May 3, the Summer Operational Forum with the Parks and Open Space Alliance (POSA) at Cambridge June 23, and the 23rd Annual STA Field Day in September. Visit our website for more details as they become available.

Lastly, a reminder that your 2010 membership invoices have been mailed out. Please support your association and arrange to have the renewals back to us as soon as possible. Until next issue, remember two key words – SAFE and PLAYABLE.

"We are faced with yet another challenging year. On the positive side, winter in most parts of the country was milder than normal which should result in less turf damage going into the spring. However, the general lack of snowfall may result in moisture conditions that are less than optimal. Let's hope that spring rainfall and warm temperatures give the grass, as well as construction projects, a strong start to the summer. For those of us in Ontario and BC, the harmonized sales tax commences July 1. This will add as much as 8% to previously exempt goods and services. While the impact of this initiative will be positive for manufacturing and small business, it will add significantly to our industry costs, particularly in the areas of utilities and insurance. The full impact may not be experienced until next year, but already constrained budgets are getting another hit beyond our control. Vigilance and due diligence are going to be tested again this year. The economy, generally, seems to be improving and this is positive for the revenue side of our industry. However, as federal stimulus money begins to run out toward the end of the year, we need to be aware of how this will affect us going forward." *By Paul Gillen*

New Members

Steven James Arnprior, ON
James Landscaping Co. Ltd.

Matt Fokkens Fort Erie, ON
Niagara Christian Community of Schools

Bernie Henderson Elginburg, ON
Unity Sod Farm Ltd.

Tom Gerlich Williamstown, ON
CMAC Services

Jay Barner Parksville, BC
Island Sport Turf

Todd Cox Mississauga, ON
Centaur Products Inc.

Richard Reed Orangeville, ON
LawnLife

Tom Margetts New Hamburg, ON
Innovative Agronomics Inc.

Phil Mete Caledonia, ON
Haldimand County

Dan Coote, Warren Hoselton, Roger Macklin, Doug Smith, Ernie Strong
City of Toronto, ON

The Presidents. Gord Dol (left), now past president, hands over the STA gavel to incoming president Paul Gillen at our AGM in February.

What do you think?

While working with the committee last year on the Sports Turf Management & Maintenance Course, I was reminded yet again of the wealth of knowledge and experience that we have within our membership. As an association, I think that we do a fair job of sharing and transferring these assets (Field Day, OTS, etc.), but I would like to see it expanded even more. This magazine and the website are well read and provide an excellent communication base, so let's expand them to include some dialogue on issues that are timely, relevant and interesting. Let me initiate this by asking for your input on the following – how will the new HST impact your costs and budgets? Share your outlook and reaction by emailing info@sportsturfassociation.com (Subject: HST). We'll post your replies online.

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Event Calendar

ASSOCIATION EVENTS ARE HIGHLIGHTED IN GREEN

May 1. STA Robert W. Sheard Scholarship Deadline.
Info & application: www.sportsturfassociation.com, 519-763-9431

May 2-7. Ontario Recreation Facilities Association 55th Annual Professional Development Program. University of Guelph, ON, www.orfa.com

May 3-6. STA Sports Turf Management & Maintenance Course.
University of Guelph, ON, www.sportsturfassociation.com, 519-763-9431

June 23. Parks and Open Space Alliance Summer Operational Forum.
Cambridge, ON, www.POSAlliance.ca, see page 30 for further details

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

September. STA 23rd Annual Field Day.
Details: www.sportsturfassociation.com, 519-763-9431

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

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

STA SCHOLARSHIP

May 1 Application Deadline

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.

Association News

JANE ARNETT AWARDED HONORARY MEMBERSHIP

Your Board Officers & Directors

MEMBERS OF THE SPORTS TURF ASSOCIATION elected the 2010/2011 officers and directors at our annual meeting held during the recent Ontario Turfgrass Symposium. Newly elected president is Paul Gillen of AerWay. Gord Dol/Dol Turf Restoration Ltd., president from 2006-2009, now serves as the immediate past president. Andrew Gaydon/Vanden Bussche Irrigation continues as secretary of the association. Returning to the board are directors Dave Chapman/City of Toronto, Bob Kennedy/Sports Turf Management Solutions, and Paul Turner/G.C. Duke Equipment Ltd. Joining the board are directors Ken Pavely/Dol Turf Restoration Ltd., Ben Tymchyshyn/MMM Group and Dennis Wale/City of Brantford.

Others currently serving the association are Rick Lane of the City of St. Catharines/ treasurer, and directors Murray Cameron/City of Guelph, Bruce Carman/The Country Day School, Bill Clausen/University of Guelph, Jason Inwood/Town of Vaughan and Tennessee Propedo/City of Hamilton. Jane Arnett/Town of Oakville retired from the board in 2009 and Grant Mckeich/Town of East Gwillimbury did not stand for reelection.
"This is an exciting time for the STA as we look to grow into the future. We are fortunate to have very knowledgeable and dedicated people serving on the board. I look forward to working with them and learning from them as we work hard to fulfill the needs and mandates of our membership," said incoming
President Paul Gillen.

2010/2011 STA Board of Directors. Front left to right: Lee Huether, Paul Gillen. Middle L-R: Andrew Gaydon, Paul Turner, Murray Cameron, Ben Tymchyshyn. Back L-R: Jason Inwood, Ken Pavely, Bill Clausen, Rick Lane, Bob Kennedy, Gord Dol. Absent from photo: Bruce Carman, Dave Chapman, Tennessee Propedo, Dennis Wale.

A TRIBUTE TO JANE

VIVACIOUS, INTELLIGENT, charming, dedicated – the dictionary lacks the words to adequately describe Jane Arnett.

The STA constitution and by-laws state that an Honorary Membership may be granted to an individual, nominated by the membership, and approved by the STA Board, in recognition of outstanding contributions to the sports turf industry. Jane fully satisfies that requirement.

Andrew Gaydon, long-time association member, director and board secretary, introduced the honouree at our recent AGM as "very professional, very hard working and very good for the STA," adding, "and don't have a detailed discussion with her unless you know your facts!"

There have been only six recipients of the prestigious award in the STA's twenty-three year history. Jane joins the ranks of James Boyce (1989), Norman Rothwell (1989), Clayton Switzer (1992), Robert Sheard (1998), Michael Bladon (2000) and Christopher Mark (2005).

A Driving Force With The STA

Jane joined the STA in 1991 and within three years illustrated her full dedication to the association by being elected to the board. Her service on various committees of the board and enthusiasm as a director made her an obvious choice for vice-president in 1998, then to serve as president in 2000 and past-president in 2002. She continued to serve as a director until 2009 when a new, more demanding position with the Town **>>**

Honorary Life Member. Jane Arnett and Andrew Gaydon at the recent AGM.

ARNETT TRIBUTE... of Oakville cut short her time to dedicate to the association.

During her 18 years as a member, Jane served for one or more terms as a member of the OTS Program Committee, the Field Day Committee, and the Editorial Committees for the Sports Turf Manager, Understanding Turf Management and Athletic Field Construction Manual. To each she contributed her valuable practical knowledge on "how it is actually done on the job." In addition, she authored several articles for the Sports Turf Manager. To make the various initiatives of the board a success, Jane also became a charming, determined, sometimes fearsome, and very successful, recruiter of sponsorship funds.

A formidable advocate of the STA, Jane excelled in her efforts to make the organization a part of the Parks and Open Space Alliance (POSA). Because she saw a need for STA involvement in the alliance to better serve the STA membership and the industry, she served as the STA representative on the POSA committee during its initial development. As part of her initiatives on behalf of STA, she furthered the education mandate of the STA by acting as coordinator of the new Sports Turf Management and Maintenance Course, assigning the STA with the appropriate responsibility for the educational segment in turf management.

Professional Success

Jane commenced her career with the Town of Oakville as a cemetery operator in 1987; quickly became a lead hand in parks maintenance, and by 1991 she was Supervisor of Parks with district wide responsibilities. In 2007, recognizing her expertise in turf management, Jane was promoted to Manager of Parks Maintenance with responsibility for turf maintenance, sports turf maintenance and winter control operations on a town-wide basis. In early 2010, in recognition of her overall leadership skills, abilities and talent in all phases of park maintenance, Jane was appointed Senior Manager of Parks Operations.

On the Homefront

Over the years, along with managing her career goals and providing dedicated and outstanding service to the STA, Jane has lead a busy family life, raising two boys, Jake and Adam. Jake is completing his degree in Business Administration at Wilfred Laurier University and Adam is an accomplished analyst at Scotia Capital in Investment Banking and Mergers & Acquisitions. Adam has recently been accepted to the MBA program at Oxford University beginning in October. Jane is extremely proud of their accomplishments.

Jane did not recognize any glass ceiling for women in the male-dominated world of sports turf management. Instead, she is a true inspiration. Congratulations, Jane, and much success in all of your future ventures (somehow, I'm sure you'll do just fine!). *By Bob Sheard*

Odds & Ends

SUMMER 2010 DEADLINE

If you have something you'd like to submit for the next issue, please forward it to the STA office by May 28.

EDITORIAL CONTENT

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

Association News

JOINING THE RANKS OF THE WORLD'S LARGEST TURF DATABASE

Sports Turf Manager Magazine Now Completely Digitized

GUELPH, ON. Members of the Sports Turf Association and the greater turfgrass industry now have access to the complete back files of the Sports Turf Manager (STM) and its predecessor the Sports Turf Newsletter through a partnership between the STA and Michigan State University's Turfgrass Information Center (TIC).

In the past, STM readers could search the cumulative index on the STA website for article citations, or subscribers to the TIC's Turfgrass Information File (TGIF) could search for articles but would obtain only the abstract. In either case they would have to physically obtain the article themselves. Digitization provides a much more usable tool, removing the step of having to go and find a particular issue of STM, assuming readers even had access to it. Through the new online digitized archive, which can be accessed at http://archive.lib.msu.edu/tic/stnew/, readers can browse year-by-year or search by term to retrieve PDF files of articles.

The addition of the full content of the publication is the result of the cooperation and dedication of TIC and MSU staff and students, involving more than 87 issues of the magazine, 1,300 pages of material, manually splitting nearly 1,400 PDFs, harvesting the citations for more than 400 turfgrass-related citations and linking more than 900 citations to the PDFs. As part of the ongoing cooperative project, as new issues are produced, materials will be scanned and made available six months following the date of publication.

STA members continue to enjoy complete subscriber access to the Turfgrass Information File, the most comprehensive publicly available collection of turfgrass educational materials in the world, via the Michael J. Bladon Educational Link. Login to www.sportsturfassociation.com and follow the link under the "Members Only" section.

TURFGRASS INFO CENTRE

THE TURFGRASS Information Center, a unit of the Michigan State University Libraries, was founded in 1984 to both continue building the O.J. Noer Memorial Turfgrass Collection and begin construction of what became the USGA Turfgrass Information File (TGIF). TGIF has since become the largest online database serving turfgrass science and management, with worldwide coverage of all sectors of the turfgrass industry. With the arrival of the James B. Beard Turfgrass Library Collection in 2003, TIC also became a centre for scholarship and study of turfgrass science. Since that time, additional focus on building and hosting digital archives has become a primary activity of TIC. For further information on the Center, the Noer or Beard Collections, the digital collections, or TGIF, please begin at TIC's website: http://tic.msu.edu.

QUICK FACTS

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From the Annual Report '09. For the complete document visit http://tic.msu.edu/TIC_Annual_Report_2009.pdf

OTRF ACHIEVES RECORD RESEARCH FUNDING IN 2010

Through record fund raising and joint partnerships, the Ontario Turfgrass Research Foundation (OTRF) will support an unprecedented $175,000 allocation for turf research in 2010. This covers seven new research projects and an additional five currently underway. The latter include projects on turfgrass diseases, fertilization and irrigation methods that will assist turf managers and home owners in their grass management regime.

With respect to new funding, projects range from methodologies of controlling insect infestations and weed control to a management regime for a revived grass cultivar for use in both home lawns and athletic fields. Projects are compliant with Ontario's new pesticide ban restrictions. In conjunction with the Sports Turf Association, the OTRF is supporting a project that will study the potential risk of acute and chronic injuries based on playing surface selection (natural and synthetic). Funds will also be granted to study the long term effects of soil and nutrient loss/gain from the continuous use of commercial sod production in Ontario.

Funds for Research. Kevin Falls, Past President of the OTRF, accepts the STA's annual donation from Past President Gord Dol at the Ontario Turfgrass Symposium.

STA supports turfgrass research & sharing results through...

1) An annual per-member donation to the Ontario Turfgrass Research Foundation. 2) Enhanced funding in 2010/2011 in support of the project "Contribution of field playing surface type and quality to potential acute and chronic injury rates." 3) Association subscription to the Michigan State University Turgrass Information Centre supporting the continued expansion of the content and availability of the Center's information (see info on adjacent page).

Figure 1

Establishing Turfgrass Without Herbicides: Musings on the Future

Dr. Ken Carey, Department of Plant Agriculture, University of Guelph

OTS HIGHLIGHT
Continued from our front cover.

Pre-emergent herbicides, fumigants. These reduce the pressure from the weed seed bank prior to seeding/sodding.

Post-emergent selective (broadleaf) herbicides. These remove weeds from the establishing turf.

What Are Some Alternatives?

Repeated tillage. This can reduce pressure from both annual and perennial weeds, but is costly in time and labour as weed seeds must be allowed to germinate to make it effective.

Addition of weed-free rootzone material. Topsoil, sand or custom mixtures can effectively bury many problem weeds. The amount of material required will depend on the weed species, but needs to be at least 10 cm (4") to be effective. Natural source material will need to be sterile or sterilized to avoid bringing in weed seed, but this may be a simpler and cheaper process than dealing with weeds on site.

Alternative herbicides (pre- and post). These products may become more widely available, efficacious and cost effective. Materials such as acetic acid (non-selective post-emergence), corn gluten meal (non-selective pre-emergence), Sarritor, and chelated iron (selective post-emergence) are currently available or under development as Schedule 11 herbicides, but may not be adequately effective or inexpensive for large scale turf installation purposes.

Heat treatments. These have shown to be effective in some situations for non-selective and targeted control of weeds, both established and seed.

1) Steam treatments. Wet heat (hot water, steam) is many times more effective than the same temperature of dry heat (flaming). The effectiveness of steaming or hot water is dependent on the ability to contain the heat long enough to kill plants and seeds (Figure 1, Table 1). The difficulty of generating enough heat or hot water to fill reasonably sized covers or enclosures may limit the usefulness of this method, but there may be technological fixes for this. Generating hot water or steam is also very expensive in terms of fuel, and generates greenhouse gases, which is a definite drawback. There are also safety risks with both wet and dry heat methods. In some horticultural applications, relatively safe chemicals (calcium oxide, potassium hydroxide) have been added to effectively increase the temperature generated by steam through their exothermic reaction with the water.

2) Flaming. Direct flaming of vegetation and the rootzone with propane or other fuels can kill existing vegetation, but is much less effective at raising the soil temperature enough to kill weed seeds, and much less effective than wet heat. Nevertheless, research is being pursued on this alternative (Figure 2).

Figure 1. Steam treating rootzones for weed control. Steam generator requires inputs of water, diesel, and hydro. Steam containment frame is 1 x 2 m. Guelph Turfgrass Institute (GTI) 2009.

Figure 2. Plots treated with acetic acid (bleached) or propane flaming (black) to study effectiveness for weed control in renovation pre-treatments. GTI 2009.

3) Solarization. Using solar radiation to heat the soil under a plastic film has been shown to be effective in some areas to kill weed seeds prior to planting. This has the advantage over other heat methods of being environmentally benign and potentially scalable to larger areas, but remains to be tested in our climate. The promising aspect is that the time when solarization is most likely to be effective (summer and fall) is followed by the optimal time for turf seeding. This is another alternative that is being actively researched.

Turf choice and timing and method of installation. These factors will definitely have an impact on producing turfgrass with fewer weeds. They are not new options, but we may need to rethink some of the old "best choices" in light of the loss of traditional herbicides.

1) Timing. The optimal timing (fall) remains the same, but our windows for successful installation may be smaller, and requirements for backup irrigation, etc., may be more stringent.

2) Seed species, mixtures. Species such as perennial ryegrass (resistant to weed pressure because of aggressive growth, as well as producing natural allelopathic chemicals?) may play a bigger role in successful installations. Solving winter hardiness problems by breeding or management will be critical in using different choices of species or mixtures. Mixture recommendations, as well as seeding approaches that were based on availability of herbicides, will probably need to be revisited in research.

3) Hydroseeding vs. dry seeding. There are some differences in weed pressure between hydroseeding and dry seeding methods, but hydroseeding has not been investigated fully as a method to install turf while suppressing weeds. Choice of seed mixtures, rates of seeding, various types of mulches, and other aspects of the hydroseeding method could hold promise in improving weed control.

4) Sodding vs. seeding. Of course, sodding is a very effective way to shift the need for weed control to the sod producer, and sodding can produce essentially weed free turf for a long time if installed and maintained properly. Nevertheless, choices with sodding (timing, post-installation maintenance, large-roll sod to reduce seams, etc.) can reduce the likelihood of weed invasion or growth.

Prospects

The next little while (months, years?) is going to be challenging for any sports turf manager needing to install large areas of weed-free turf in Ontario. We have a few tools, and are working as fast as we can to get more, but it will be a time of experimentation, trial and error, and sharing of ideas and information. If you, as turf managers, have ideas that you think should be tested, do your best to pass them along to the turf researchers who are investigating as many options as they can.

GTI Field Day

AUGUST 19, 2010

If you attend the research field day at the GTI this summer, you'll be able to see what we're doing and share your ideas. Visit www.guelphturfgrass.ca for details as they become available.

Table 1. Effect of steaming of rootzone on weed pressure in seeded turfgrass.

Treatment	Weed Presence Rating			
	07/03	07/30	08/31	09/18
Steamed	0.11 a	3.63 a	3.18 a	4.40 a
Unsteamed	0.04 b	1.30 b	1.18 b	2.84 b
lsd	0.03	0.31	0.32	0.47

How to Get a Sports Field Ready in 70 Days

Dr. J. Tim Vanini and Dr. John N. Rogers, III

The 70-day summer window is ideal for sports fields to actively grow and repair themselves. Typically, there is less activity on sports fields during this time and the summer months usually provide optimal growing conditions for recuperation of traffic areas. That said, cultural practices can get increasingly complicated when school and park crews leave for vacation and/or inclement weather occurs. The need for strategies that are less expensive and time-consuming is evident.

A 2002 Michigan Rotational Survey reported that the two practices sports turf managers performed most consistently, regardless of maintenance level, were mowing and fertilization. Mowing is obviously a common and essential practice for any turfgrass professional. When mowing height decreases, there is an increase in shoot density, plants per unit area, and a decrease in rooting. Fertilization is paramount for proper turfgrass health and is relatively inexpensive compared to other cultural practices. Extensive research has been conducted on fertilizers and their effects on turfgrass. Although usually more expensive, slow-release fertilizers can provide potential benefits for the sports field manager, including longer turfgrass response, less nitrogen leaching, less surface run-off, less volatilization, and fewer applications for healthy turfgrass response compared to quick release fertilizers.

OTS HIGHLIGHT
Presented February in Guelph, Ontario

Typically with urea, multiple applications are needed to attain responses observed by using a single slow-release fertilizer over a long period of time. Sports field managers tend to use fertilizer products, usually urea or sulfur-coated

urea (SCU), that are less expensive due to restrictive budgets. Minimal research has evaluated these products or others in neither a short re-establishment window nor the agronomic effects on the playing surface. Studies have, however, been conducted in evaluating a combination of mowing and fertility practices. As expected, these studies found more shoots were produced with a lower mowing height in conjunction with a higher rate of nitrogen; however, research did not focus on sports field management situations when time for preparation was a factor nor did the studies evaluate playing surface characteristics (traction and surface hardness).

Canaway and Krick compared perennial ryegrass (*Lolium perenne* L.) established from seed and Kentucky bluegrass (*Poa pratensis* L.) sod for soccer fields before the playing season on sand-based rootzones. Sod produced a superior playing quality surface compared to seed when evaluating playing surface characteristics. Cook et al. evaluated turfgrass establishment using hydroseeding (a mixture of primarily water, seed, fertilizer and mulch sprayed on the intended target area) and compared the results to seed and sod on a sand-based rootzone. However, simulated traffic on these studies was not initiated until 125, 365 and 140 days after treatment (DAT), respectively. Furthermore, these studies implement practices (sodding and hydroseeding) that can be expensive and labour intensive from year to year.

Table 1. Individual treatments for mowing and fertilizer study, 2002 and 2003.

Mowing Treatments

1) **1.5" Continuous** - mowed at 1.5" throughout the study.

2) **3.0"-Gradual-1.5"**† - maintained and mowed at 3.0" for 33 DAS and slowly dropped height to 1.5".
- 3 July - 15 July - 4 mowings at 3.0"
- 16 July - 24 July - 2 mowings at 2.5"
- 25 July - 30 July - 2 mowings at 2.0"
- 31 July - 3 Sept - 9 mowings at 1.5"

3) **3"-Chop-1.5"** - mowed at 3" and scalped to 1.5" 68 DAS.

Fertilizer Treatments	Total N used ‡
1) **Urea** – 1 lb. N/1000 ft^2 only on 1 July	2 lb. N/1000 ft^2
2) **Urea 2w** – 0.33 lb. N/1000 ft^2 starting on 15 June every 15 days equaling 1 lb. N/1000 ft^2	2 lb. N/1000 ft^2
3) **SCU** - 3 lb. N/1000 ft^2	4 lb. N/1000 ft^2
4) **RCU2** - 2 lb. N/1000 ft^2	3 lb. N/1000 ft^2
5) **RCU3** - 3 lb. N/1000 ft^2	4 lb. N/1000 ft^2
6) **RCUThin** – 4 lb. N/1000 ft^2	5 lb. N/1000 ft^2

† In 2002, mowing started on 25 June and was mowed at 3.0" until 15 July. Six mowings occurred until 15 July.
‡ Total N used includes starter fertilizer application (13-25-12) at 1 lb. N/1000 ft^2 plus treatments on 1 June.
- Analysis of fertilizers - Urea 46-0-0, SCU 39-0-0, RCU2 and RCU3 43-0-0 and RCUThin 44-0-0.
- Seed and starter fertilizer (13-25-12) was applied on 1 June to all treatments.
- Fertilizer treatments 3-6 were only applied on 1 June.

Our Objectives & Methodology

The objectives in our study were to clarify the impact of best management practices in regards to mowing height and fertilization on re-establishment of sports field turf during a 70-day window and quantify these effects during and after a 25-day simulated traffic period.

This study was conducted in 2002 and 2003 at the Hancock Turfgrass Research Center on the campus of Michigan State. Three mowing heights and six fertilizer treatments were evaluated (Table 1) and re-randomized in 2003 to avoid any edge effects from the first year. Plot size was 6x9 feet.

In 2002, sod cutters were used to strip out the existing sod, and in 2003, a Koro Field Topmaker was used to strip the turf from the 2002 experiment. The soil was a sand-based profile and was sterilized each year with Basamid G at 8 lbs/1000 ft^2. Seeding and fertilizer treatments began June 1 both years. A 30:70 sports grass mixture (by weight) of perennial ryegrass and Kentucky bluegrass was seeded at 4 lbs/1000 ft^2.

Lebanon Country Club 13-25-12 from Lebanon Turf Products was applied at 1 lb N/1000 ft^2 and subsequent fertilizer treatments were applied (Table 1). Fertilizer treatments applied were: Andersons urea (46-0-0) at 1 lb N/1000 ft^2 July 1 (Urea) and 0.33 lb N/1000 ft^2 every two weeks starting June 16, July 1, and July 18 (Urea 2w); Lesco Poly-Plus sulfur-coated urea (39-0-0, 12% sulfur coating) at 3 lbs N/1000 ft^2 (SCU); and Polyon resin-coated urea (RCU) [43-0-0, 6% Reactive Layer Coating (RLC)] at 2 lbs N/1000 ft^2 (RCU2), and 3 lbs N/1000 ft^2 (RCU3) and (44-0-0, 4% RLC) at 4 lbs N/1000 ft^2 (RCUThin).

Germination blankets were placed over the top of the plot and removed 15 days after seeding (DAS) in both years. Based on visual quality throughout the experiment, potassium, phosphorous and micronutrients were supplemented. Andersons 0-26-26 fertilizer and Andersons Trace Element Package were applied at 1 lb/1000 ft^2 and "normal rate," respectively, on June 27 and July 25 both years. Lebanon Country Club 18-3-18 was broadcasted to all treatments at 0.5 lb N/1000 ft^2 on August 6 and August 19 to supplement nutrients during traffic phases in 2002 and 2003. Irrigation was applied daily during re-establishment and

Table 2. Effects of mowing height and fertilization treatments on turfgrass cover percent (%) on a non-trafficked and trafficked perennial ryegrass/Kentucky bluegrass stand at the Hancock Turfgrass Research Center, East Lansing, MI., 2003.

	2002 Non-traffic					2003 Traffic		
Treatments	**2-Jul**	**5-Aug**	**7-Jul**	**4-Aug**	%	**12-Aug**	**19-Aug**	**3-Sep**
1) Mowing								
1.5" Continuous	77	84	52	77		66	49	40
3.0"-Gradual-1.5"†	72	85	57	81		69	51	41
3"-Chop-1.5"	73	80	54	73		67	46	37
LSD (0.05)	NS	4	NS	6		NS	NS	NS
2) Fertilizers†								
Urea	62	82	42	76		66	39	27
Urea 2w	72	82	43	74		60	42	34
SCU	69	78	47	68		61	43	32
RCU2	83	86	69	81		74	62	49
RCU3	88	92	76	92		84	68	66
RCUThin	70	79	49	69		61	38	28
LSD (0.05)	6	5	9	8		9	11	11
No. of passes	0	0	0	0		8	16	34

NS non-significance at the 0.05 level.
† All fertilizer strategies received 1 lb. N/1000 ft^2 of 13-25-12 on 1 June.
• Urea, urea applied at 1 lb. N/1000 ft^2 on 1 July; Urea 2w, 0.33 lb. N/1000 ft^2 urea applied every two weeks; SCU, 3 lb. N/1000 ft^2 sulfur-coated urea; RCU2, 2 lb. N/1000 ft^2 polymer-coated urea applied on 1 June; RCU3, 3 lb. N/1000 ft^2 polymer-coated urea applied on 1 June; RCUThin, has a thinner coating compared to other polymer coated-ureas and 4 lb. N/1000 ft^2 polymer-coated urea applied on 1 June.

as necessary throughout the experiment to prevent moisture stress.

Mowing began June 25, 2002 and July 3, 2003, and treatments were mowed twice per week throughout the experiment (Table 1). During the re-establishment phase, the 1.5-inch-continuous strategy was mowed with a 17-inch wide McLane mower and the 3 inch-grad-1.5-inch (mowing height lowered weekly) and 3.0 inch-chop-1.5-inch (Table 1) treatments were mowed with a Honda rotary mower (Harmony HRB216 Quadracut).

The 3.0-chop-1.5-inch treatment was scalped down with an Exmark Lazer Z HP to a height of 1.5-inch 68 DAS. From this point on, all mowing treatments were mowed at 1.5-inch height with the Exmark mower for the duration of the experiment. Clippings were returned at all times.

Traffic was applied by the Cady Traffic Simulator (CTS) uniformly to all plots. The CTS was a modified Jacobsen Aero King 30 self-propelled core cultivation machine with "rubber feet" weighing 1,496 lbs.

Data were collected during re-establishment and traffic phases. Extensive research parameters were measured in this experiment including turfgrass cover percent ratings, shear resistance, divoting resistance, peak deceleration, chlorophyll index, root pulls, and plant count. (Due to space limitations, we will only discuss turfgrass cover percent ratings and traction. You may see the full article at Applied Turfgrass Science - doi:10.1094/ATS-2008-0218-01-RS). Turfgrass cover percent ratings were estimated qualitatively. Traction values were measured by both the Eijkelkamp shear vane Type 1B for shearing resistance and Clegg Turf Shear Tester for divoting resistance with a plate depth of approximately 1.6 inch.

Results: Turfgrass Cover Percent

Mowing height only detected differences at the end of the 70-day trial, August 5, 2002 and August 4, 2003 for turfgrass cover percent (Table 2). These dates represented the last turfgrass cover percent ratings observed before simulated traffic was ini-

Table 3. Effects of mowing height and fertilization treatments on shear resistance and turf shear tester (TST) on a non-trafficked and trafficked perennial ryegrass/Kentucky bluegrass stand at Hancock Turfgrass Research Center, East Lansing, MI, 2003.

	2002		2003 Shear Resistance					2003 TST	
	Non-traffic	Traffic	Non-traffic	Traffic				Traffic	Non-traffic
Treatments	15-Aug	4-Sep	7-Aug	13-Aug	21-Aug	28-Aug	3-Sep	3-Sep	3-Sep
					Nm				
1) Mowing									
1.5" Continuous	16	11	14	15	12	10	8	49	113
3.0"-Gradual-1.5"†	16	11	15	15	12	11	8	53	108
3"-Chop-1.5"	15	11	14	14	12	9	7	51	106
LSD (0.05)	NS	NS	NS	NS	NS	NS	NS	NS	NS
2) Fertilizers†									
Urea	16	11	13	13	11	9	5	39	97
Urea 2w	16	10	15	14	11	10	7	47	109
SCU	15	10	13	14	11	7	7	48	112
RCU2	18	12	16	17	14	13	11	61	112
RCU3	17	12	18	17	15	13	12	70	118
RCUThin	14	11	12	12	11	8	4	39	106
LSD (0.05)	2	1	2	2	2	3	3	11	NS
No. of passes	8	30	0	6	18	26	34	34	0

NS - non-significance at the 0.05 level.
† All fertilizer strategies received 1 lb. N/1000 ft^2 of 13-25-12 on 1 June.
• Urea, urea applied at 1 lb. N/1000 ft^2 on 1 July; Urea 2w, 0.33 lb. N/1000 ft^2 urea applied every two weeks; SCU, 3 lb. N/1000 ft^2 sulfur-coated urea; RCU2, 2 lb. N/1000 ft^2 polymer-coated urea applied on 1 June; RCU3, 3 lb. N/1000 ft^2 polymer-coated urea applied on 1 June; RCUThin, has a thinner coating compared to other polymer coated-ureas and 4 lb. N/1000 ft^2 polymer-coated urea applied on 1 June.

tiated. There were differences among fertilizers for every date regardless of traffic and non-traffic areas in both years. RCU3 was in the highest statistical category for every measuring date.

SCU and RCU3 had the second highest amount of nitrogen, but these two products responded differently. SCU releases nitrogen once water comes in contact with the urea prill via cracks and imperfections in the sulfur coating. RCUs combine irrigation/rainfall and high temperature (> 80 degrees F) to slowly release nitrogen. The process is initiated when the RCU prill uptakes water, expands with heat and then slowly releases nitrogen via expanded pores in the coating at a steady rate. Consequently, due to a more controlled release from RCU3, it rated higher in turfgrass cover percent (and others).

Mowing treatments (started June 25, 2002 and July 3, 2003, respectively) had approximately a 35-day window compared to fertilizer treatments applied at the beginning of the 70-day re-establishment window. Even though more than one-third of the plant was being removed from the 3.0-chop-1.5-inch treatment 68 DAS, differences were not observed among mowing treatments for turfgrass cover percent.

There were no significant differences among Urea, Urea 2w, SCU and RCUThin for five of seven measurement dates for both years combined. RCU3 was 14% and 18% higher compared to SCU August 5, 2002 and August 4, 2003, respectively, before traffic commenced. Turfgrass cover percent loss after traffic revealed a 53% loss with SCU, but only a 28% loss with RCU3 between August 4 and September 3, 2003.

Soil temperatures in the month of June 2002, averaged from 77 to 82 degrees F from 1200 to 1800 h. In June 2003, average soil temperatures ranged from 67 to 77 degrees F from 1200 to 1800 h. This might explain why turfgrass percent cover was higher in 2002 compared to 2003.

Results: Shear Resistance & Turf Shear Tester (TST)

Shear resistance and TST values are quantitative measures that clearly ascertained differences in strength of the surface after the 70-day reestablishment window, and during and at the end of the 25-day traffic regime (see Table 3).

At the end of the 25-day traffic regime in 2003, only RCU2 and RCU3 had shear vane values above 10 Nm. It should also be noted that RCU2 values were significantly higher than SCU and RCUThin for all dates except September 3 TST non-traffic values. RCU2 nitrogen amount was less than SCU and RCUThin. Type of coating and coating thickness were possible factors in releasing of nitrogen from the RCU2 fertilizer compared to SCU and RCUThin.

Results presented may be due to a more accelerated wear compared to other data in the literature using different traffic simulators. The CTS is a more aggressive machine compared to traditional wear machines to date.

Take Home Message

The fertilizer strategy was more important than the mowing strategy for a 70-day window in the summer. First, there may not have been a wide enough difference among mowing strategies. Second, the fertilizer strategy was implemented for the full 70-day window while the mowing strategy was not implemented until halfway into the experiment because young seedlings were too immature to mow. An effective fertilizer strategy (product and rate) is paramount in a re-establishment growing window.

By implementing a mowing and fertilizer strategy, a sports field manager could reduce labour costs, and/or redirect labour to other projects, while also producing a better quality and safer surface for the upcoming playing season.

Photos 1 & 2: On July 28, 2003, SCU (1) and RCU3 (2) both mowed at the 7.6 – Grad. – 3.8 cm mowing height before traffic. **Photos 3 & 4:** On July 28, 2003, SCU (3) and RCU3 (4) both mowed at the 7.6 – Chop – 3.8 cm mowing height before traffic.

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Turfgrass Identification

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If you were to ask most end users of athletic fields what kind of turfgrass is present on a field, they will likely say that there is one type of grass with the remainder of the vegetation being weeds. Turfgrass professionals, however, know this is not the case. There are many turfgrass species with each having an ideal growing condition and optimal use. With this in mind, you may be able to guess the significance of being able to identify the different species of turfgrasses that are found on athletic fields and parks.

Almost every introductory turfgrass management course emphasizes the importance of proper turfgrass identification. Although emphasized, too often the reasons "why" are not explicitly stated. Generally, most sports field managers have little opportunity to see the fields that they manage on a regular basis. Municipal parks managers are often in charge of many fields frequently spread across large geographical areas. The ability to identify turfgrass species will help the sports field manager better understand what has occurred at a field between visits, as they observe a change in species.

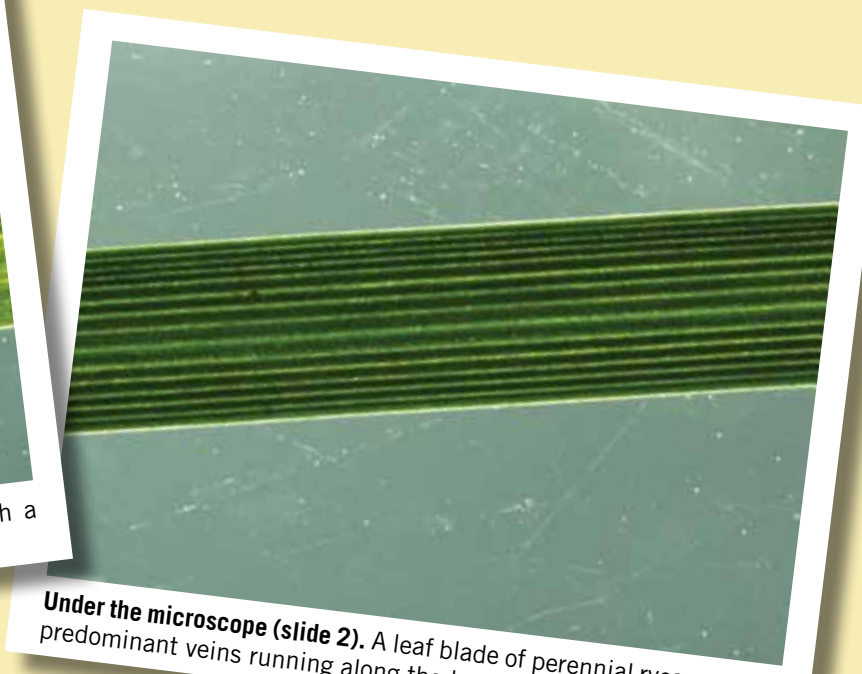
Three primary reasons to be able to properly identify turfgrasses on an athletic field are: 1) to assess the success of an overseeding program, 2) to aid in the identification of potential problems, and 3) to determine interactions between turfgrass species and alternative management practices. The purpose of this article is to discuss these reasons in detail and explain how the ability to identify the turfgrass species present on an athletic field will provide sports turf managers with an invaluable tool to better manage their fields.

Overseeding

One important management practice currently employed by athletic field managers is overseeding. With municipal pesticide bans, it has become apparent that fields that have been part of a consistent overseeding program faired much better than fields that were not. However, the expense of both seed and labour hours involved in overseeding athletic fields has resulted in a need to measure the success of overseeding programs.

As most overseeding programs are implemented through the use of perennial ryegrass, one of the ways to determine the success of these programs is to assess the percentage of ryegrass and Kentucky bluegrass in the turf stand. This makes the identification of perennial ryegrass as opposed to Kentucky bluegrass very important, a task that is not so simple as these are two of the hardest grasses to tell apart. Many students in turfgrass programs will pull the sample apart looking for the

Under the microscope. A leaf blade of Kentucky bluegrass with a relatively flat surface with a visible midrib.



Under the microscope (slide 2). A leaf blade of perennial ryegrass with predominant veins running along the length of the blade.

rhizomes that make Kentucky bluegrass so wear tolerant.

While that works in a classroom, it may cause considerable damage to an athletic field. Thankfully, there are other ways to differentiate the two species. All bluegrasses have a boat-shaped tip, although with mowed turfgrasses this is not always easy to identify. In addition, the leaf blade of Kentucky bluegrass is relatively flat with two prominent lines. Perennial ryegrass has similar lines, but they are less prominent when compared to the parallel lines across the entire leaf blade. Two of the biggest tell tale signs of perennial ryegrass are the shiny underside of the leaf surface and a reddening at the base of the plant. These are often the quickest ways to pick out perennial ryegrass in a Kentucky bluegrass stand although they are not always completely reliable.

Identifying or Avoiding Problems Using Turfgrass ID

The turfgrass species that are used on athletic fields have varying tolerances to cold and winter injury. Both a knowledge of the species that are present on the field and an understanding of the relative susceptibility of each species to winter injury will help a turfgrass manager to predict winter damage.

The previous section discussed overseeding with perennial ryegrass and the importance of differentiating between ryegrass and Kentucky bluegrass to assess whether or not an overseeding program is successful. Knowing the amount of perennial ryegrass in a field can also help a manager predict winter damage. Perennial ryegrass is more susceptible to winter injury and damage from ice coverage. Knowing which fields are at greater risk for winter injury allows a manager to schedule early season events around possible repairs.

In recent years, some fields have been planted to turf-type tall fescue. This rhizomatous tall fescue has shown promise as a grass that continues to grow without supplemental irrigation in the heat of the summer. One of its drawbacks in Canada, however, is that it is very slow to "wake up" in the spring. If a turfgrass manager knows that a field is predominately tall fescue, then she or he can attempt to limit traffic on the field in the early spring and increase field use in the heat of the summer.

One of the best indicators of a drainage problem or a field that has been constructed in an area with a high water table is the presence of stoloniferous turfgrasses, those with above-ground lateral shoots. Usually considered weeds on athletic fields, creeping bentgrass and rough bluegrass are both stoloniferous turfgrasses and indicators of saturated soils. When deciding to allow play after a significant rainfall, or even when determining the mowing schedule when fields may be wet, the presence of these grasses will tell a turfgrass manager which fields are most likely to remain saturated the longest and therefore be most susceptible to compaction and wear injury.

Finally, turfgrass species can be a good indicator of how much wear a field is experiencing and a predictor of how much wear a field will be able to withstand. In an effort to reduce management costs, some municipalities have begun establishing athletic fields with low-input turfgrasses, or they have just created fields on areas that were originally planted with low-input turfgrasses. Turfgrass species such as fine fescues and bentgrass may be good low input grasses, but they do not have the growth rates to recover from the wear athletic fields must endure. The ability to identify turfgrass species allows the turfgrass manager to better select sites for

All bluegrass species have a boat-shaped tip and a relatively flat leaf blade with two prominent lines. Perennial ryegrass has similar lines, but they are less prominent. More telling are the shiny underside of the leaf surface and a reddening at the base of the plant.

new fields, and anticipate field failures as well as the need for renovation in advance of the event.

Turfgrass ID & Interaction With New Pest Management Products

With the ban on traditional pest management products, a number of new alternatives are appearing on the market. Many of these products have been fast tracked through registration and are only tested on common turfgrass species such as Kentucky bluegrass and perennial ryegrass. In general, relying on data from these two grasses is not a problem with our traditional pest control products as they often target hormonal pathways that are specific to the pest or weed being eliminated. Newer products are less specific and we may see significant damage to commonly found species such as annual bluegrass on athletic fields.

Annual bluegrass is a weedy turfgrass that is a prolific seed producer. Its high seed production and resistance to mowing make it a great candidate for invasion into highly disturbed environments like athletic fields. Annual bluegrass is not very wear tolerant but it is constantly overseeding itself so it can become pervasive. One issue with annual bluegrass on athletic fields is that it is very susceptible to damage by line paint.

Often, with as few as two applications of coloured turf paint, significant injury to annual bluegrass can occur. This example illustrates that not all turfgrasses respond to all products in the same way. Just because a product works well on a Kentucky bluegrass field does not mean it will be safe for a field that has been taken over by annual bluegrass. If you know a field is a different species, you can test a product in a small area out of play to assure that it will not damage your predominant turfgrass species on the field. In order for the test application to be effective, you have to make sure the area that is being tested actually represents the species that are on the field.

Both Photos. Patches of creeping bentgrass in a Kentucky bluegrass field on a high water table.

Learning Turfgrass ID

This article has focused on the importance of turfgrass ID as a tool for the athletic field manager. It has not taught you how to identify turfgrasses. In actuality there is only one way to get good at turfgrass identification: practice repeatedly. In addition, you need to ask questions and access resources available to you. There are many good turfgrass identification keys available on the internet or in print format. Utilize them and try to improve your skills at differentiating among turfgrass species. Once you can tell them apart, you can confirm that you are identifying them correctly by asking colleagues and double checking using multiple resources.

The pressures on our professionals to provide safe athletic fields on limited budgets without traditional pest control products makes it more important than ever to use all of the tools that we can to provide better athletic fields for our communities. Turfgrass ID is one of those tools that can help you achieve that goal.

A good quality playing surface vs. less than desirable conditions (below).

Sports Field Management for Schools

David Ormsby, Agronomist, NZ Sports Turf Institute, Hamilton, New Zealand

Schools face the considerable challenge of trying to provide for the different training requirements of their students. Inevitably, sports fields, despite being a major educational facility, are at the bottom of the "food chain" when it comes to receiving funding. Consequently, sports fields at many schools fail to meet expectations at some time during the year. Furthermore, the same host of problems often reoccur from one year to the next.

Although economic reasons are often cited for substandard performance of school playing fields, there are other considerations including: poorly defined or unrealistic expectations; lack of an appropriate asset management plan to support expectations; lack of appropriate maintenance plans; a reactive maintenance approach is often adopted (aside from mowing and weed control); and inappropriate prioritization of resources.

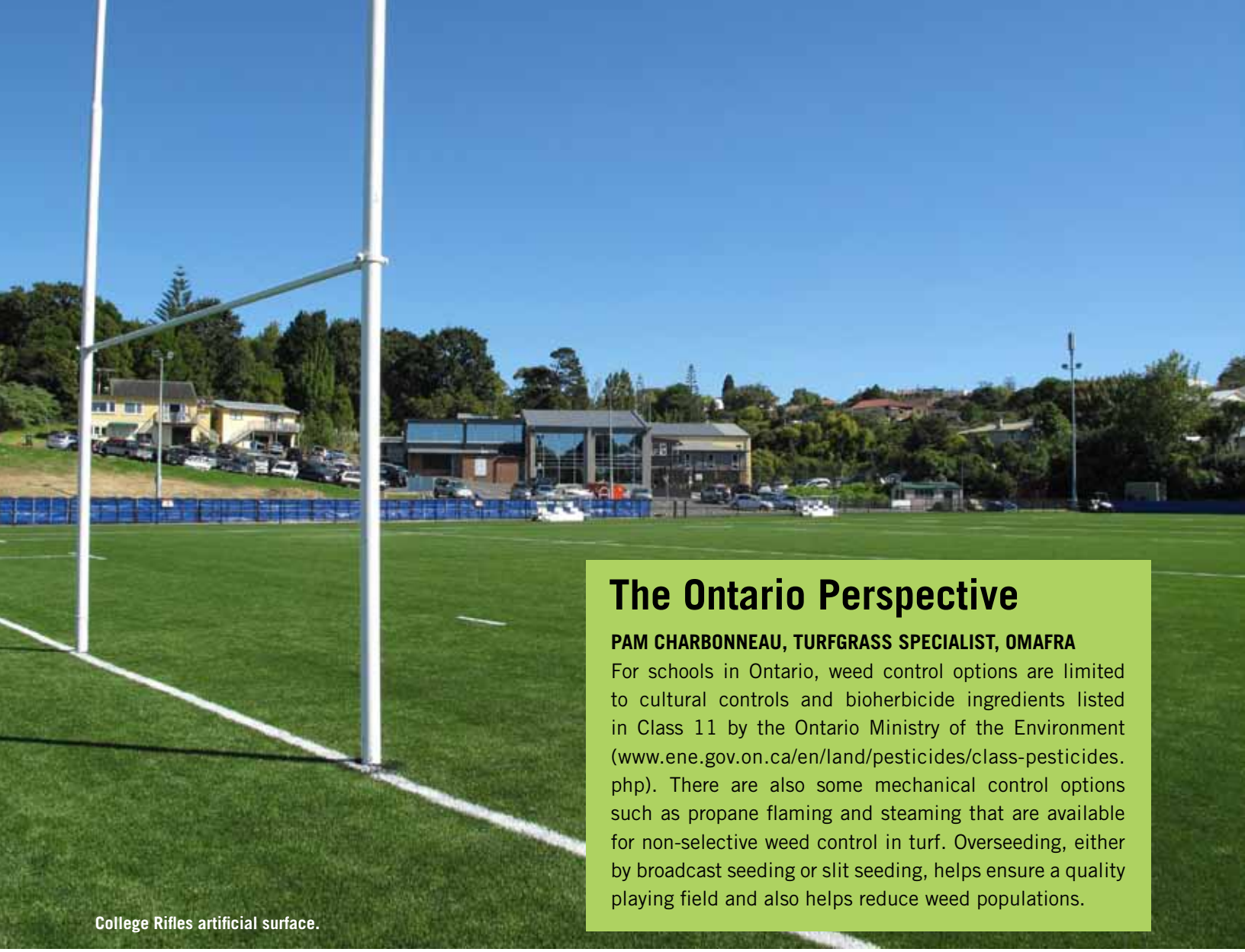
Moving Forward

Clearly, an important benefit of improved and/or quality field conditions is that it assists students to develop better playing skills and add to their enjoyment of the sport. If schools are to fulfil their expectations and provide acceptable playing conditions, both a strategic and operational approach is required when managing sports fields.

Strategic Considerations

1. Clearly defined expectations for each field. This provides a basis for identifying capital and maintenance requirements thus allowing for the establishment of appropriate budgets. Equally, it enables schools to quickly determine the appropriateness (or otherwise) of a given expectation.

- Is closure due to wet weather acceptable?
- What is the maximum number of closure day(s) that is acceptable?
- How much use must we accommodate?
- What level of play are we accommodating – senior representative play vs. junior or casual use?



College Rifles artificial surface.

The Ontario Perspective

PAM CHARBONNEAU, TURFGRASS SPECIALIST, OMAFRA

For schools in Ontario, weed control options are limited to cultural controls and bioherbicide ingredients listed in Class 11 by the Ontario Ministry of the Environment (www.ene.gov.on.ca/en/land/pesticides/class-pesticides.php). There are also some mechanical control options such as propane flaming and steaming that are available for non-selective weed control in turf. Overseeding, either by broadcast seeding or slit seeding, helps ensure a quality playing field and also helps reduce weed populations.

2. Developing an appropriate asset management plan. This will involve:

- A feasibility study to confirm the limiting factors and options available for moving forward.
- Identifying the most appropriate grass for the situation, along with the maintenance requirements and costs of the various grassing options.
- Identifying the ongoing maintenance costs for the chosen level of playing quality or standard of sports field. This is a major consideration, given that for many schools obtaining funding for capital works is often easier than finding ongoing funding necessary for the upkeep of the upgraded fields. Regrettably, it is not uncommon to see fields failing despite considerable capital improvements due to the lack of or inappropriate maintenance.
- Identifying the capital improvement options that best meet your expectations and the ramifications of each. For example, potential options for improving the availability of the fields for play include:
- Additional, appropriate maintenance like verti-draining, nitrogen fertilization
- Improving levels to prevent ponding
- Subsurface drainage
- Sand technology
- Artificial surfaces

Each of these options provide differing levels of service and financial impact for the school.

Operational Requirements_

1. Maintenance. Once the school has completed the strategic process detailed above, it is essential that an appropriately resourced and ongoing maintenance plan is adopted. Implementing a basic, regular annual maintenance program is more cost-effective than letting fields get run down and spending several thousand dollars to resurface them. A regular rather than reactive approach to maintenance provides:

- Better consistency and predictability of sports field playing quality.
- Maintenance costs are more predictable and easier to budget for.
- Less risk of unexpected or additional costs, e.g. increased janitorial costs for cleaning classrooms thanks to muddy feet/bodies.

2. When determining what is an appropriate level of maintenance:

- Be realistic. The greater your expectations, or the more a field is used, the greater the maintenance requirements.

- Establish priorities for maintenance activities based on the amount of use a field receives and/or the importance of each field. Generally, high use fields require greater inputs than lower use fields.

Too often, field maintenance is made unnecessarily complicated or expensive. The key is to prioritize resources and place your emphasis on those options that will provide the best return on your maintenance dollar. Research and field observations have shown that the most common limiting factor on fields is poor turf cover. Once grass cover is lost, field condition deteriorates rapidly.

3. For many schools, the maintenance priority list would typically consist of:

Mowing. Use appropriate equipment that will not damage the field (e.g. marks from agricultural tires). Mowing frequency and height are the most important requirements.

Usage control. Where modern sand or synthetic surfaces are not an option, closure of the field(s) when they are excessively wet or soft will provide major benefits for the school – both in better playing quality for the remainder of the year and significant savings due to reduced requirements for renovation.


Damage caused from overuse during training.

Nitrogen fertilization. For most situations, strategic applications (late spring, late summer and late fall) should be the first priority and will provide a stronger plant throughout the summer when retaining grass cover is paramount.

Weed control. For schools, weed control is critical to avoid both the health (bee stings) and nuisance problems that they create.

Other. Physical treatments and undersowing.

First and foremost, the provision of safe, consistent and quality sports fields requires expectations to be clearly defined. Thereafter, an appropriate asset management and preventative-based maintenance plan needs to be implemented.

— New Zealand Turf Management Journal, Vol 25, No 1, February, 2010

Industry News

FROM EQUIPMENT AND SEED TO ACQUISITIONS

New Tow Behind Verti-Top For Artificial Turf

IDEAL FOR APPLICATIONS that require a lighter unit or when a tractor isn't available for use as power unit. This new tow-behind Verti-Top from G.C. Duke Equipment Ltd. utilizes the same innovative cleaning technology as its tractor mount version by quickly and effectively removing debris from the surface while gently brushing and grooming the turf fibers. All material that is brought up is sifted out in a vibratory shaker screen with the clean infill being returned to the turf and the debris sifted into two easy-to-empty bins. The tow behind Verti-Top is equipped with a quiet and powerful Briggs & Stratton Intek 6.5 hp engine for long life and trouble-free performance. This machine can be used with any power unit – from a golf cart to a riding lawn mower. For additional information contact: Dick Raycroft, draycroft@gcduke.com, 905-637-5216 x116 (Burlington area), 905-338-2404 x116 (Toronto area), 1-800-883-0761 x116 (Toll Free).

Bannerman Infield Chalker: New for 2010

THE BANNERMAN INFIELD CHALKER (Model # B-LC-1234) applies powdered line marking materials on grass and non-turf surfaces. Our hopper has an adjustable dispensing aperture positioned close to the ground to minimize drift and is equipped with a steel lid to protect the content from blowing about or getting wet in case of rain. The width of the marking is adjustable from 1" (26 mm) to 4" (102 mm). For extra stability and ease of handling, the Infield Chalker is equipped with 4 wheels and pneumatic tires. The front wheels are extra large to ensure a uniform drive for dispensing mechanism

when fully loaded. To cut off the dispensing action, you simply raise the wheels so there is no traction. For further information, visit www.sportsturfmagic.com.

QUALITY SEEDS INTRODUCES RTF®

SPORTS TURF MANAGERS are always looking for better ideas when it comes to establishing and maintaining sports fields. Something new to consider is an innovative product called RTF®, a rhizomatous tall fescue with impressive wear and drought tolerance.

RTF is a patented true rhizomatous tall fescue bred exclusively by Barenbrug Group and sold exclusively in Canada through Quality Seeds Ltd. A rhizome is a horizontal, underground lateral shoot that elongates underground away from the plant and sends out roots and shoots from additional growing points called nodes. Standard tall fescue does not contain rhizomes. With RTF, your sports field has the ability to repair itself resulting in a consistent uniform appearance.

RTF has been selected and bred for heavy traffic. This was accomplished through an intensive and technical process which tests wear tolerance. RTF has been tested for over eight years on actual sports fields in the US and Europe and has had great success. In a recent drought tolerance trial by New Mexico State University, RTF outperformed all other standard tall fescues.

Contact Quality Seeds at 905-856-7333 or support@qualityseeds.ca if you are interested in "RTF Turf Saver Seed" or for the location of an RTF sod grower near you.

Industry News
CONTINUED...

TORO PURCHASES TY-CROP MANUFACTURING ASSETS

THE TORO COMPANY HAS once again proven to be the leader when it comes to turf maintenance equipment. Through this acquisition, Toro has acquired several models of topdressing and material handling equipment that will enhance the company's position in the turf maintenance industry. TY-CROP products will be marketed under the Toro brand and sold through Turf Care Products in Ontario and Quebec (www.turfcare.ca).

TURF CARE
Helping your business grow

TORO. Count on it.

"Comprehensive cultivation and topdressing programs are increasingly important for our customers around the world," said Michael Happe, vice president of Toro's commercial business. "Golf courses and sports fields rely on these machines to achieve improved agronomic conditions and to create healthy, consistent playing surfaces. TY-CROP's solid reputation in this important category complements our existing line of application and cultivation equipment. Equally, it provides our customers with a more comprehensive offering to meet their turf maintenance needs."

Sports turf managers will use these machines to evenly apply a variety of materials like topsoil, fertilizer, sand, lime, and even crumb rubber for artificial turf. Turf Care Products Canada is the exclusive Toro equipment and irrigation distributor for the Ontario market.

PARKS & OPEN SPACE ALLIANCE UPDATE

This year presents all of us in the parks and recreation field with many challenges. Shrinking budgets, tighter controls on spending and greater scrutiny of courses and conferences are pressures facing members throughout the province. The Parks and Open Space Alliance (POSA) continues to work on behalf of all parks professionals to create new opportunities for professional development and career growth by targeting those areas and skills that are keys to success in our industry.

POSA and its partner organizations, the Ontario Parks Association, the Ontario Recreation Facilities Association and the Sports Turf Association, are actively reviewing our courses and ensuring that they deliver premium value for cost and address the pressures and opportunities in our field. We are always working to develop new valuable and innovative programs to be delivered under the POSA banner to complement and enhance the courses offered by our core organizations.

You are invited to attend our Summer Operational Forum on Wednesday, June 23, 2010 at the Cambridge Hespeler Arena. This year's theme is Accessibility in Ontario's Parks. Join us to hear a variety of interesting and dynamic presentations that will help us to understand the needs and requirements of these members of our community and how we can help to enhance their parks experience and open doors to new opportunities.

June 23 Program Overview

- Accessibility for Ontarians with Disabilities Act (AODA): Standards, Legislation and Municipal Response
- Active Living Alliance Tool Kit
- Accessible Playgrounds
- Variety Village: Promoting Access and Inclusive Participation
- Open Forum/Discussion: Topical Trends and Issues for Parks and Open Spaces

NEW

Sarritor™

Biological and Natural Weed Killer

- Highly Effective alternative to chemical herbicides
- Controls most broad leaf weeds
- Does not harm turfgrass
- Active ingredient is a native and naturally occurring fungus - *Sclerotinia minor*
- Dry granule applied directly to the weed

Sarritor is a highly effective natural weed control product based on the fungus *Sclerotinia minor* that will completely eliminate dandelions without harming the surrounding grass.

It is 100% natural and is as effective as chemical herbicides in the treatment of dandelions in turf. This organic product is the ideal replacement to traditional chemical herbicide treatments that have been banned in many municipalities across Canada in recent years.

Sarritor applied in a heavily infested area

Spot application of Sarritor

Sclerotinia minor is a naturally occurring fungus and is indigenous to Canada. When applied to a dandelion, the fungus grows and completely eliminates the weed. Once the weed is gone, the fungus disappears. All grass types have a natural defense mechanism against the product so they cannot be harmed. The fungus does not have any toxicological effects, does not produce spores and does not persist in the environment.

Application Rates (Commercial)

Spot

Sarritor Granular Biological Herbicide can be directly applied to individual plants at 0.2 or 0.4 g product / plant.

Broadcast

Sarritor Granular Biological Herbicide can be applied broadcast with a drop spreader applicator onto the surface of active growing dandelion infested turf at a rate of 40 or 60 g product / m^2.

Sarritor Granular Biological Herbicide can be applied when daytime high temperatures are 18-24˚C and rainfall or irrigation occurs within 12 hours of application. The higher application rate at 60 g product/m^2 can be applied when environmental conditions are sub-optimal (i.e. daily maximum temperatures are outside the optimal range of 18-24˚C, but not surpass 27˚C and dry) and when the turf is highly infested with dandelions.

Agrium Advanced Technologies

Contact your Agrium Advanced Technologies representative for more information:

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A zero radius turn mower rugged enough to be a Groundsmaster. Start with a PTO shaft-driven mower deck and the industry's toughest spindle assembly. Add a direct drive hydro transmission with a wet disc clutch, and a liquid-cooled diesel engine. That's Groundsmaster Tough. With the added versatility of removing snow, grooming infields and blowing leaves.

The first zero radius turn mower that doesn't hibernate when the snow flies. The patent-pending POLAR TRAC system converts the mower to a snow removal machine with rubber tracks and a heated cab - That's Groundsmaster Versatility. A quick connection system allows you to switch between snow blower, rotary broom, angled snow blade and V-plow.

Call us for a NO OBLIGATION DEMO.

Paul Cooper, National Accounts Manager, 905-715-6797
Steve Piche, Territory Manager, 905-868-0733

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