Sports Turf Manager
FOR BETTER, SAFER SPORTS TURF. WINTER 2010. VOL. 23. NO. 4.

Synthetic Turf: Asking the Right Questions

And this includes: "What's required for maintenance? Give me an equipment list."

Alliance associations have been fielding numerous requests for information about the many choices and decisions required when considering synthetic turf. When the answers to the questions resulted in even more questions, the Parks and Open Space Alliance (POSA) partners, including the STA, realized that there was an abundance of information out there, but it was fragmented and lacked any good overview of the spectrum that is 'synthetic turf.'

PARKS & OPEN SPACE ALLIANCE (POSA) PARTNERS: SPORTS TURF ASSOCIATION, ONTARIO RECREATION FACILITIES ASSOCIATION & ONTARIO PARKS ASSOCIATION

In response, POSA assembled a team of professionals to provide an up-to-date and detailed educational workshop entitled *Introduction to Synthetic Turf and Maintenance Training Sessions* on October 27-28. Sessions addressed the elements that must be considered for suitability, selection, design, construction, cost and maintenance.

Our thanks to those who participated in program development and session delivery, to our host the City of Mississauga, and to all our exhibitors for their participation.

Not in attendance? On the following pages are two bulletins from the US-based Sports Turf Managers Association to get you started, together with an article by Paul Hollis, whose colleague Chuck Hicks spoke at the maintenance training session. Do you have something to bring to the table? We welcome your feedback. Let's keep the information flowing in future issues of the *Sports Turf Manager*.

Courtesy of OPA

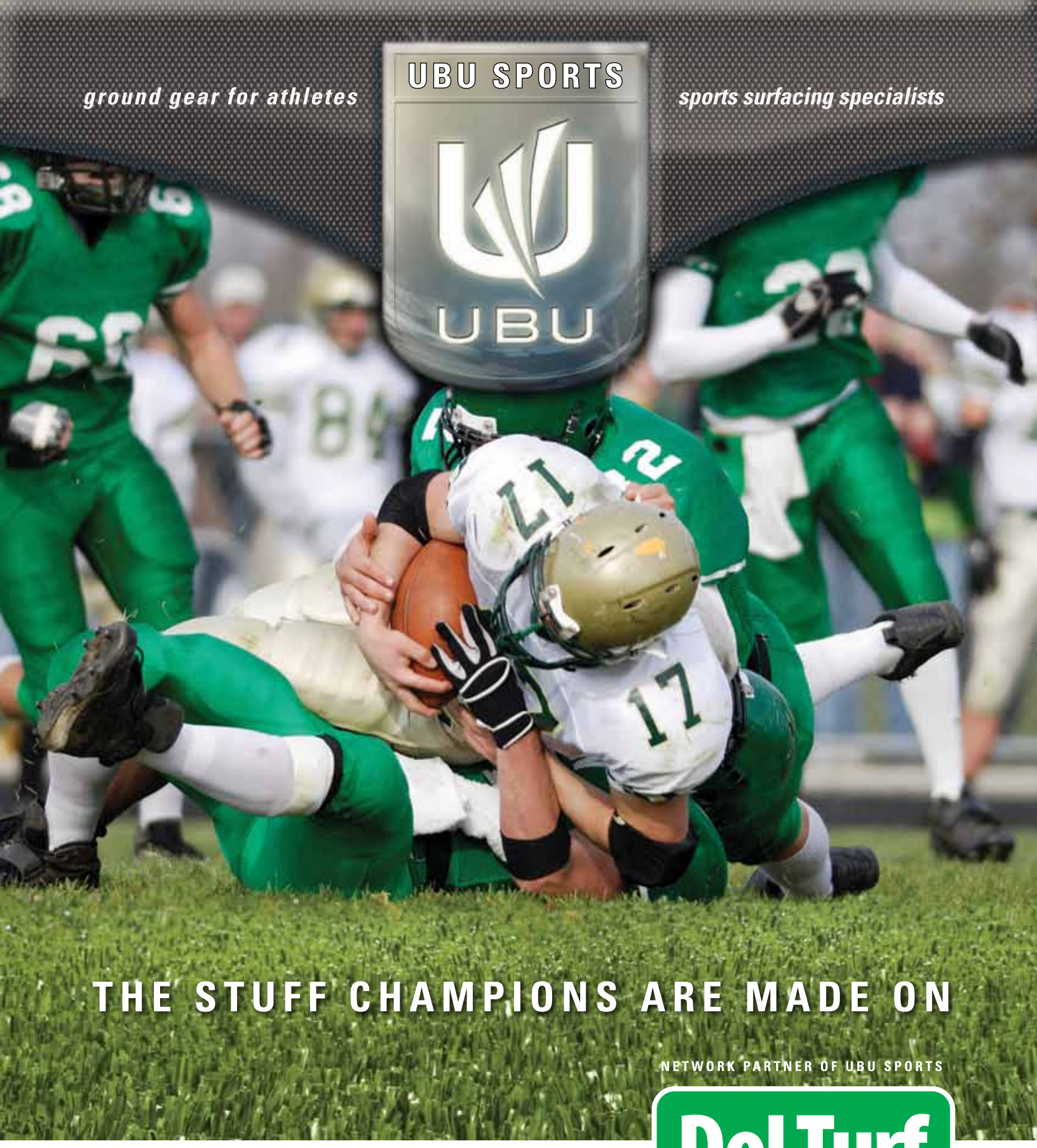
SYNTHETIC TURF COVERAGE

Continued inside on pg. 12

Editor's Note: The discussion will continue at the Ontario Turfgrass Symposium, February 23 & 24, 2011. See the program-at-a-glance inside for sessions "Artificial Turf: Challenges and Opportunities" and "Preparing Moncton for Atlantic Canada's First Regular Season CFL Game."

Courtesy of ORFA

Inside Features



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Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. WINTER 2010.

O, Wind. If Winter comes, can Spring be far behind? ~Percy Bysshe Shelley

Inside this issue...

REGULAR COLUMNS, DEPARTMENTS & SMALL FEATURES

Deadline for Spring 2011 Sports Turf Manager: March 4th.

WHAT'S ONLINE

www.sportsturfassociation.com

STA Membership Directory
Is your contact information current? Your email address must be registered to login to the "Members Only" section.

Turf Trades Employment Board
Advertising a position? Searching for a job? Visit us online.

Shop for Resource Publications
The Athletic Field Construction Manual & Understanding Turf Management.

Sports Turf Manager

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President's Desk

BY PAUL GILLEN

As this message is being written, the west has seen snow and well below zero temperatures and the east is bracing for the same later this week. Welcome to winter. Now is the time to consider what you need for next year and start the planning process.

Courtesy of ORFA

POSA Synthetic Turf Seminar. STA President Paul Gillen welcomes attendees October 28th in Mississauga.

The POSA "Introduction to Synthetic Turf" seminar was held at the Hershey Sports Centre in Mississauga on October 27 & 28. From all of the evaluations received, it was well accepted and appreciated. Thanks to our guest speakers, exhibitors, and the host complex, for all of their efforts in making this event such a success.

Due to wide ranging interest on the topic, we've made synthetic turf the primary focus of this issue. Also, as mentioned on the cover, there will be supplemental information at two additional sessions planned for the Ontario Turfgrass Symposium at the University of Guelph in February.

Have you thought of playing a more active role in the STA? Being a director is a rewarding volunteer effort – not to mention a great networking opportunity. Nominations are due December 24th and our AGM is held in conjunction with the OTS in February.

Speaking of the OTS, see the program at a glance included on page 8. There are a number of STA members on the speaker roster this year. Also making a presentation will be Kim Heck, Executive Manager of the Sports Turf Managers Association in the US. Ms. Heck has spoken to international audiences in the past but this is her first visit to Canada and we are fortunate to have her attend the OTS. It should be an interesting session.

The annual STMA Conference is in Austin, Texas in January, 2011. A reminder that your STA membership entitles you to register at STMA member rates. Details can be found at www.stma.org. There is a registration form available on the STA website via the "Members Only" section.

I would encourage all of you to make plans to attend the STA Annual General meeting to be held in conjunction with the OTS on February 23. All members have received a call for nominations for directors and officers, and these are due no later than December 24. This is your association – make it work for you.

POSA Fall Update. Don't forget to build your educational credits.

The Parks and Open Space Alliance (POSA) continues to move forward strengthening parks and open space practitioners through professional development, recognition and advocacy. The Alliance offered two different events over recent months that focused on meeting practitioner training needs. The first was the 4th Annual Summer Operational Forum June 23, 2010 in the City of Cambridge with a theme focused on "Accessibility in Ontario's Parks and Open Spaces." Recently, an "Introduction to Synthetic Turf and Maintenance" training session was held October 27 and 28 in Mississauga.

Delegates may wish to apply the educational credits received from both of these events towards the Parks and Open Space Professional Training Program Level II certificate. To meet the requirements of Level I, a practitioner must successfully complete the following three courses: Parks Maintenance and Operations; Parks and Landscaping Equipment Safety Operations; and Sports Turf Management and Maintenance. In addition, the practitioner must have a minimum Grade 12 education; be a member in good standing of the OPA, the ORFA or the STA; maintain current WHMIS and Standard First Aid training; and have a minimum of 24 months practical work experience in the parks and open space industry. The application of other training credits will apply towards meeting Level II certificate criteria.

Please visit www.posalliance.c/documents/POSATRAININGLEVEL1and2.pdf for more information. Alternatively, partner websites may be viewed as a source of other education and professional development opportunities (www.ontarioparksassociation.ca, www.orfa.com and www.sportsturfassociation.com).

Lifelong Learning

DR. KATERINA JORDAN'S PERSPECTIVE...

Take advantage of field days, conferences and even spending a little time each week on the internet...

The key to properly managing pests and abiotic stresses is understanding the life-cycles of the various weeds, insects and even the desirable turf, as well as the conditions under which they all thrive. ...

The more you educate yourself and understand what you are fighting in pest management, the more successful you will be...

~ Autumn 2010 issue, Sports Turf Manager

Seasons Greetings from the STA

As we approach the end of 2010, on behalf of Lee & the STA Board of Directors, we wish you all Season's Greetings and the very best in 2011.

New Members

Richard Hawkins, Markham, ON
Hawkins Contracting Services Limited

Jacques Zara, Saint-Colomban, QC
GTR Turf

Dan Murnaghan & Ray Stukas
City of Toronto, ON

Odds & Ends...

STA MEMBERSHIP PLAQUES

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

TURF TRADES EMPLOYMENT ADS

Are you advertising a position or job searching? Visit us online at www.sportsturfassociation.com and click on "Turf Trades." Cost is $75 plus HST for STA members for a 2-month listing.

Event Calendar

ASSOCIATION EVENTS ARE HIGHLIGHTED IN GREEN

December 15. Early Bird Registration Deadline. Sports Turf Managers Association 22nd Annual Conference & Exhibition. Austin, TX, www.stma.org Note: STA members can register at STMA member rates!)

December 17. Early Bird Registration Deadline. Ontario Turfgrass Symposium. 519-767-5000, www.ots.open.uoguelph.ca

January 11-13. Landscape Ontario Congress. Toronto, ON, www.locongress.com

January 11-15. Sports Turf Managers Association 22nd Annual Conference & Exhibition. Austin, TX, www.stma.org (see early bird notice at top!)

January 12-14. Ontario Golf Superintendents Association. Ontario Golf Course Management Conference and Trade Show Windsor, ON, www.golfsupers.on.ca

January 31-February 25. University of Guelph Turf Managers' Short Course. Guelph, ON, 519-767-5000, http://tmsc.open.uoguelph.ca

February 23 & 24. Ontario Turfgrass Symposium: On the Cutting Edge. University of Guelph, Guelph, ON, 519-767-5000, www.ots.open.uoguelph.ca

February 23. Sports Turf Association Annual General Meeting. University of Guelph, Guelph, ON (during the Ontario Turfgrass Symposium) 519-763-9431, www.sportsturfassociation.com

March 4-8. Canadian Golf Superintendents Association & the Western Canada Turfgrass Association Canadian International Turfgrass Conference & Trade Show Vancouver, BC, www.golfsupers.com, www.wctaturf.com

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

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

STMA CONFERENCE

January 11-15, Texas
Early Bird Date: Dec. 15th

Your Sports Turf Association is an International Affiliate Organization of the Sports Turf Managers Association (STMA). As such STA members may register for the US organization's annual conference and exhibition at member rates.

To access the STMA/STA member conference registration form, login to the "Members Only" section of the STA website at www.sportsturfassociation.com. For conference details, visit www.stma.org.

CONFERENCE TIPS

Reaching Out To People

My most important suggestion is to meet or introduce yourself to at least one person at the conference you've never met before.... A surprising number of people will remember you, even years after the introduction. This also pushes you outside of your comfort zone of acquaintances and allows you to discuss ideas with people who will expand your world of thoughts and information. Not only that, but no doubt they'll introduce you to at least one of their friends, and so on.

I also try to meet at least one person to whose position or job I aspire. This allows for your own professional growth and gets you acquainted with a possible mentor.

— Warren J. Wilson, excerpt from "At Least One Way to Add Value to Conferences," EduCause Quarterly, No. 2, 2005.

On the Cutting Edge

OTS 2011, FEBRUARY 23 & 24, 2011, ROZANSKI HALL, UNIVERSITY OF GUELPH

Sports Turf Specific Sessions

WEDNESDAY, FEBRUARY 23

W6 11:15 am - 12:00 pm. Turf seeds vs. weed seeds: The ultimate competition for space and nutrients on a trafficked field. Kathleen Dodson, University of Guelph.
The public's expectations for safe, reliable, ready-to-play athletic fields puts particular pressure on sports field managers. An examination of the weed seed bank and the impact of overseeding with both perennial ryegrass and supina bluegrass will be discussed.

W7 1:30 pm - 2:30 pm. Artificial turf: The challenges and opportunities. Frank Cain, University of Guelph, Jay Todd, Downsview Park & Frank Erle, University of Western Ontario.
This panel discussion will focus on how staff and the training of staff are impacted when sports fields are altered from natural turf to artificial turf surfaces.

W8 2:30 pm - 3:30 pm. Alternative pest management: The Cosmetic Pesticides Ban two years in. Tennessee Propedo, City of Hamilton, Dennis Wale, City of Brantford, Jane Arnett, Town of Oakville & Pam Charbonneau, OMAFRA.
This panel discussion will give municipalities, from large to small, an opportunity to share how they are managing their fields in reaction to the Cosmetic Pesticides Ban. Discussion will focus on cultural practice basics "from the weird to the wonderful."

THURSDAY, FEBRUARY 24

T1 9:00 am - 9:45 am. Building your personal brand in the sports turf industry. Kim Heck, Sports Turf Managers Association.
The perceptions others have of you can enhance or damage your career in sports turf management. Learn how to create a strong personal brand that establishes you as a professional and essential to the operational success of your sports facility.

T2 9:45 am - 10:15 am. New technologies in turf irrigation. Dr. Eric Lyons, University of Guelph.
Irrigation and the application of water become increasingly important if other agronomic tools are limited in sports turf environments. With more turf fields making use of irrigation systems every year, turf managers can benefit from the development of important new technologies. This session will discuss these advances in irrigation, their opportunities and limitations and how turf managers can make the most of these new technologies.

T3 10:45 am - 11:30 am. Preparing Moncton for Atlantic Canada's first regular season CFL game: challenges of combining artificial and natural turf. Gord Horsman, City of Moncton.
To prepare for this major sporting event, the turf at Université de Moncton Stadium had to be repaired and converted from the World International Association of Athletics Federation's track and field standards to CFL standards. Of particular concern were the transition areas between natural turf and artificial turf in the end zones. Managing material requirements and work orders in time for the big day added to the complexity in getting ready for this event.

T4 11:30 am - 12:00 pm. Overseeding: Does it work? Dr. François Tardif, University of Guelph.
Overseeding is promoted as a technique to enhance turf competiveness against weed infestation. What, however, is the true success rate of overseeding? Can techniques be improved? The results of a three year study on soccer fields at the Guelph Turfgrass Institute describe best frequency, methods of application and seed mix for overseeding.

General Sessions

W2 Guelph Turfgrass Institute Update.

W3 What is the future using corn gluten based products for weed control in turf?

W4 What have we learned this season about Fiesta™ and Organosol® for broad-leaf weed control?

W5 Growing turfgrass without conventional herbicides: Examining the role of alternative strategies.

T19 Using your computer, smart phone and social media to get your message across.

T20 Turf Things Microscopic. Using dissecting microscopes to see things that are not easily viewed with the naked eye.

T21 Supervising 2011: A lot more than a white hat and a pay raise!

Browse the OTS brochure (in print or online) for more sessions and details!

ONTARIO'S KEY ANNUAL TURF CONFERENCE

Speakers from both industry and academia will provide important insights pertaining to the OTS 2011 theme – On the Cutting Edge. Delegates will participate in sessions providing up-to-date information responding to the complexities of maintaining healthy turf in today's more restrictive growing environment. Sports turf managers, facilities, lawn care and golf course professionals and nursery sod growers can all learn from the many session topics: from pest and disease controls to safety and liability issues in turf environments.

Turf managers and staff will benefit from both learning sessions and the ability to network with colleagues in the turf industry. Attending OTS offers insight into best practices as initiated by leaders in turf sciences locally, across Canada and beyond.

Registration opened November 12. The deadline for early bird registration is December 17. Visit the conference website at www.ots.open.uoguelph.ca or call 519.767.5000 for more information.

Important Registration Details

EARLY BIRD DATE: DECEMBER 17, 2010. STA DISCOUNTS!

As an STA member in good standing, you qualify for lower association rates. In addition, others from your facility/organization who are not STA members qualify for the lower association rates when registered with a member. Send the registration in the same envelope, fax it at the same time, or make just one phone call to register. Visit www.ots.open.uoguelph.ca or call 519.767.5000 for more information.

QUOTABLE QUOTE....

By learning you will teach; by teaching you will learn.
~ Latin proverb

Top 10 Conference Tips

1. Plan ahead.

2. Set realistic expectations.

3. Use email to keep yourself on track, both at the conference and afterwards.

4. Write a daily summary of what you learn.

5. Share your ideas and experiences with colleagues.

6. "Divide and conquor" the progrtam with colleagues for the most benefit to your institution.

7. Talk to people at the sessions you attend to create a network of new colleagues.

8. Attend sessions that will introduce you to new ideas rather than those where you might feel the most comfortable.

9. When you return home, set up an action plan (with milestones) and commit to reflecting on and assessing what you have learned.

10. Realize that the effect of attending a conference could be as subtle as a change in attitude.

— Joan Getman & Nikki Reynolds, Educause Quarterly Vol. 25(3), 2002 (as quoted by Warren Wilson, see citation pg. 7)

The completed garden at the GTI.

Common & Uncommon Grasses Take Root in GTI Display Garden

Peter Purvis, GTI Station Manager & Rob Witherspoon, GTI Director, University of Guelph

Over a beer at "Shakies" (the Shakespeare Arms, a local turf student and staff watering hole), Rob Witherspoon confided in me an idea of his that had been brewing for a long time: "What if there was a site at the Guelph Turfgrass Institute (GTI) that would include representative plantings of many cool and warm season turf grasses that we could use for teaching and research – and what about a putting green with different grasses that people could practice on?" And so the Turfgrass Species Display Garden was born.

Several weeks after planting.

We know that Kentucky bluegrass, creeping bentgrass, perennial ryegrass and the fine fescues are the four main species of grasses used in Ontario. Unfortunately, there has been limited investigation into the suitability of alternative turfgrass species for use in sports fields, golf courses, sod production, parks, roadsides, landscape sites or other turf areas. Fortunately, new turfgrass cultivars are constantly being developed and tested, but often an existing species may be all that a sports field manager requires for a specific application. Are there existing turfgrass species that can withstand drought or wet conditions, harsh winters, low fertility, disease pressures and many other extreme conditions yet retain good quality and recuperative potential? The answer to this question is critical given the challenges of climate change, watering and nutrient restrictions, and pesticide bans.

The objective of the Turfgrass Species Display Garden is to establish a long-term research and teaching site that includes side-by-side representative plantings of a wide range of cool and warm season turf grasses. The garden will provide several benefits, including:

Preparation of the garden.

- A site where sports field, park and turfgrass managers and golf course superintendents have access to a comparison of a wide range of cool and warm season turf grasses, both in their natural and maintained forms;
- An educational resource for faculty, extension specialists, students, industry professionals and the general public;
- A source of mature and established plant material for greenhouse and student research projects; and
- A means of informal annual evaluation of the short and long term performance of various common and uncommon turfgrass species grown under southern Ontario conditions.

Construction of the Turfgrass Species Display Garden began in August 2009 with much of the work being done by student interns from the University of Guelph Turfgrass Management program. The area was first sprayed with glyphosate, then the sod was stripped off and garden areas rototilled. Twenty species of cool season grasses (Table 1) were planted in September. Grasses were planted in 1-m wide, side-by-side rows with a divider in-between each row to reduce spreading of the grasses. Two-thirds of each species was mowed and the remainder left unmown so the grasses could be viewed in their cultivated and natural forms. A series of paths and benches were constructed throughout the garden for easy access to the grasses and all species were well labeled.

A putting green was also planted in five separate sections, each containing a different species of fine-type turf (Table 2). Putters and golf balls are left on site so that visitors can practice putt as they evaluate the different grass putting surfaces. A selection of warm season grasses was planted in June, 2010 (Table 3). It will be interesting to see how these warm season grasses handle our southern Ontario winter. The official dedication of the garden took place at the Guelph Turfgrass Institute's Research Field Day in August, 2010. Please come and view the new garden and see if you can incorporate any of these grasses into your golf course or turf areas. Visitors are always welcome.

We thank the Ontario Turfgrass Research Foundation, Ontario Horticultural Trades Foundation, the Georgian Bay Golf Superintendent's Association and Pickseed for generously supporting this project.

Table 1: Cool season grass species planted in the Turfgrass Species Display Garden.

Grass (common name)	Species Name
Fairway Wheatgrass	Agropyron cristatum
Crested Wheatgrass	Agropyrum desertorum
Redtop	Agrostis gigantea
Creeping Bentgrass	Agrostis stolonifera
Smooth Bromegrass	Bromus inermis
Orchardgrass	Dactylis glomerata
Sheep Fescue	Festuca ovina
Red Fescue	Festuca rubra
Chewings Fescue	Festuca rubra var. commutata
Hard Fescue	Festuca trachyphylla
Tall Fescue	Lolium arundinaceum
Perennial Ryegrass	Lolium perenne
Annual Ryegrass	Lolium perenne ssp. multiflorum
Western Wheatgrass	Pascopyrum smithii
Timothy	Phleum pratense
Canada Bluegrass	Poa compressa
Kentucky Bluegrass	Poa pratensis
Texas Bluegrass Hybrids	Poa pratensis × Poa arachnifera
Rough Bluegrass	Poa trivialis
Weeping Alkaligrass	Puccinellia distans

Table 2: Grass species planted in the putting green.

Grass (common name)	Species Name
Annual Bluegrass	Poa annua
Colonial Bentgrass	Agrostis capillaris
Creeping Bentgrass	Agrostis stolonifera
Fine Fescue Mix	Festuca trachyphylla; Festuca ovina; Festuca rubra; and Festuca rubra var. commutata
Velvet Bentgrass	Agrostis canina

Table 3: Warm season grass species planted in the Turfgrass Species Display Garden.

Grass (common name)	Species Name
Sideoats Grama	Bouteloua curtipendula
Blue Grama	Bouteloua gracilis
Buffalograss	Buchloe dactyloides
Bermudagrass	Cynodon Dactylon
Zoysia Grass	Zoysia japonica

POSA Synthetic Turf Highlight: Proper Maintenance Equipment

Paul Hollis, Executive Vice President, Redexim North America

The sports turf industry has seen a large increase in the number of synthetic turf fields over the last decade. Unlike the first and second generations of synthetic turf, third generation playing fields have longer fibers and are filled with rubber, sand, or a mixture of both to reduce the hardness of the playing surface. One of the characteristics that turf manufacturers boasted about this new turf was that it was maintenance free. Now after seeing many fields that are 6-8 years old that have not been maintained, these same manufacturers are admitting that there needs to be a degree of maintenance done to prolong the life of the field and keep them aesthetically pleasing. The most disappointing thing to the sports turf manager is that many manufacturers also suggest that only they or one of their installers can properly maintain the carpet. But the bottom line is that we vacuum our carpet at home, so why can't we clean and groom our carpet at work?

To better understand the maintenance required of today's synthetic fields, one must understand the basic construction of the synthetic playing surface. It consists of fibers or carpet, the infill (sand or rubber), backing material, a choker stone layer, open grade and soil. It may sound complicated, but in essence the fields are not all that different from your typical household carpet.

In order to select the proper maintenance machine for your field you must remember three basic components of field preservation:

- Keep the surface free of debris.
- Keep the fibers in an upright position.
- Keep the infill free of compaction.

A Debris-Free Surface

To keep the surface free of debris, obviously it must be removed. Organic material such as leaves should not be allowed to remain on the surface for any length of time. They can start to decompose and move into the infill system, which can impede field drainage. Some companies may

SYNTHETIC TURF
Coverage from October POSA Session.

instruct the owner to use a brush or backpack blower to remove the material from the surface. This may work for larger items, but when small debris such as sunflower seeds are a problem, a blower just moves the pollutant from one spot to another. To properly remove debris, it is recommended to use a mechanical sweeper or vacuum to collect and remove the material. The amount of maintenance needed varies from location to location, but clearly a maintenance machine must be well maintained and the instructions must be followed carefully so as to not cause any damage to the playing surface.

TIP: Make a maintenance schedule and log all activity.

Upright Fibers

Regular grooming is a must to keep the carpet fibers in an upright position. If an artificial playing surface is not groomed regularly with a proper drag brush, the surface will become slick and the fibers will wear prematurely. If the fibers are allowed to lay over and remain bent too long, they may be difficult to stand upright again so they need regular attention. A drag brush can easily be found that can be used behind any power unit, including small tractors, utility vehicles, golf carts or even small mowers. Dragging will improve footing, redistribute infill, reduce static electricity, and improve the look of the playing surface.

TIP: Pick a drag brush that is designed specifically for synthetic playing surfaces.

Zero Compaction

Just like natural turf, all types of infill become compacted over time. Through research, we know that GMAX ratings or surface hardness (measured with a Clegg drop hammer) over 200 pose greater risks for athletes. To reduce compaction levels, it is imperative to use a drag brush with spring tines to loosen the infill mix. Infill mixes that use sand, or a sand/rubber mix, tend to see higher GMAX levels due to their design. They use sand not only as a weighted base, but to make the infill stiffer for a faster and harder playing surface.

TIP: Always put a rope through the spring tines in case one comes loose or breaks.

Courtesy of OPA

Courtesy of ORFA (top & bottom)

Maintenance Budget

When planning your purchases, make sure to include the price of these three machines for proper maintenance. The maintenance of a playing surface is a program that will not only provide a better looking and safer playing surface, but it is also an investment to ensure a longer life for your synthetic playing surface.

Although many turf manufacturers still stand by the "no maintenance" needed mantra, it is likely that most educated buyers have seen past that fallacy when budgeting for new synthetic sports fields. When looking to purchase a synthetic field remember to ask these key questions before making your decision:

- Can I do my own maintenance?
- Is there a recommended maintenance program?
- Is there a recommended or approved list of maintenance equipment?

As stated previously, many turf manufacturers will suggest that only they or their installers can maintain a synthetic field. Many have an approved list of machines that can be used on their fields that you can buy only from them which limits your choices and increases your costs. Some companies have clauses that restrict users by hours of use, maintenance schedules and other items such as improper footwear. When gym class, band practice and actual game time is added up, it not only voids the warranty, but shortens the life of a playing field. All this must be considered when budgeting for a new synthetic sports field.

TIP: Look closely at manufacturer warranties before making a buying decision.

STMA Advisory Bulletins

DETERMINING THE RIGHT SPORTS FIELD & NEEDED EQUIPMENT

Town of Oakville Sixteen Mile Sports Complex

Foreword & Further Information

The Sports Turf Managers Association (STMA) has developed a series of advisory bulletins on synthetic and natural fields. The bulletins are sequenced to provide information and resources throughout the process of selecting and building a new sports field. Often decisions that seem small and insignificant in the short-term can affect the quality of the field for years to come. Visit their website at www.stma.org to access these and other titles referenced.

1. DETERMINING THE RIGHT SPORTS FIELD FOR YOUR ATHLETES

Your organization has decided to build a new sports field. This is an excellent decision that will benefit your athletes, the fans and the community. With sports participation and viewership on the rise, the focus on fitness, and the desire for environmentally friendly recreational venues, now is an ideal time to build a sports field.

As a sports turf manager, you are responsible for the quality of the new field. Most importantly, your goal is to manage it to a high level of playability and safety, thus reducing an athlete's likelihood of suffering a surface related injury. The first step is to ensure that your organization has decided to build the most suitable field based on use, budget, management expertise, and many other factors specific to your situation.

The answers to these assessment questions should help to guide your organization to make the best choice for your athletes.

SUGGESTED SPORTS FIELD ASSESSMENT QUESTIONS

Overall Project Questions

1. Are there Certified Sports Field Managers*/sports field managers available for this project? Yes No

*The Certified Sports Field Manager is a certification program sponsored by the Sports Turf Managers Association (US). This program is available to members of the STA. Please contact us for further information.

2. Will the sports field manager be involved with the field selection and construction process? Yes No

3a) How many events are you planning to hold on the field? b) How often will the field be used (games & events/wk)?

4. What sports will be played on it?

5. How many non-sporting events will be held on this field?

6. Will the field use increase over time? Yes No

7. If you increase the number of events on the field are you able to allocate the necessary funding to provide the additional maintenance? Yes No

8a) When (what time of year) will the bulk of your events be held? b) How does the event schedule overlay with weather limitations patterns?

9a) How many other athletic fields at your institution do you manage? b) Are any synthetic? Yes No

10. Have you set an appropriate budget for the number of events you are planning? Yes No

11. What time-frame has been established for completion of this project?

12. What are the long-term expectations and goals?

13. What is your estimated project budget?

14a) What is the projected capital budget (usually includes equipment with purchase costs of $1,000+)? b) Projected operational budget (includes all inputs, water and labour costs)?

15. Have the safety concerns for the field type been identified and discussed? Yes No

16a) Have you selected an appropriate site for the installation of the field? Yes No
b) Does it have a north, south, east or west orientation? North South East West

17a) Do you have standards set for quality, field conditions and safety? Yes No
b) Have you set thresholds for which you are willing to accept liability? Yes No
c) Have you identified the potential health issues associated with each field type? Yes No

18. Do you have an appropriate budget for the maintenance to provide the standards noted in question 17? Yes No

19. When was the last new field installed at your institution (may indicate the projected life expectancy of the new field)?

20. Have you read/are you familiar with STMA's "Guide to Synthetic & Natural Turfgrass for Sports Fields: Selection, Construction & Maintenance Considerations"? Yes No

21a) Have nearby institutions at your level of competition installed new fields recently? Yes No
b) Were they synthetic? Yes No

22. What is the security plan for the area during construction? After construction?

Natural Fields

1a) Do you allow appropriate time for renovations, re-work or repairs to your fields by not scheduling the field during these times? Yes No. b) Does your budget allow for the items above? Yes No

2. Will you be able to rest the field during the prime growing season? Yes No

3. Do you have enough fields to allow for field rotation to provide the necessary rest periods for your field? Yes No

4a) Are funds available for an irrigation system? Yes No. b) If no, will watering costs be included in the operating budget? Yes No

5. Will there be footwear restrictions? Yes No

6. Do you have the appropriate equipment* to do the necessary maintenance on your field? Yes No

* See Following Advisory Bulletin #2, Suggested Equipment List, which starts on the next page.

Synthetic Fields

1a) If you are considering a synthetic field, will you charge user fees for the removal and environmental disposal of the synthetic turf when it becomes worn? Yes No b) Are you budgeting for the costs associated with replacing the synthetic material? Yes No

2. Do you or your staff have the expertise to monitor, groom or repair the synthetic field? Yes No

3a) Are funds available for an irrigation system? Yes No. b) If no, will the cost of water to cool the turf be included in the operating budget? Yes No

4a) What type of permanent field markings are desired or required?
b) What type of decorative or revenue generating logos are desired?
c) Do you intend to change field uses/markings and/or logos on the field? Yes No

5a) Do you have the appropriate equipment* to do the necessary maintenance on your field? Yes No.
b) Will the budget allow for purchase of specialty tools to maintain and repair synthetic turf? Yes No.
c) Will the budget allow for training the staff on how to use them correctly? Yes No

* See Following Advisory Bulletin #2, Suggested Equipment List, which starts on the next page.

6. Will there be footwear restrictions? Yes No

The content of these bulletins is intended for informational purposes and is not intended as a substitute for specific professional consultation.

STMA Bulletin #2. Suggested Equipment List

Specialized equipment is necessary to maintain natural turfgrass and synthetic surfaces on sports fields. Trained staff, using the right equipment on a sound maintenance schedule, can positively affect the quality of the playing surface. Following are typical pieces of equipment used for natural and synthetic surfaces. Some equipment may be leased or services contracted out. Typically, equipment that costs $1,000 or more should be included in the capital budget, but check with your finance and accounting department for its capital expenditure threshold. For equipment use on synthetic surfaces, please consult your manufacturer's warranty.

Natural Surfaces: Necessary Equipment

Mower. Rotary or reel type depending upon turfgrass species and quality/aesthetic requirements. Reel mowers are commonly used to maintain turfgrass at cutting heights of ~1.5" or lower, while rotary mowers are used when a higher height of cut is desired.

Fertilizer spreader. Fertilizer will need to be applied throughout the growing season to maintain a healthy turfgrass stand. Models are typically pulled by a tractor or utility vehicle, but walk-behind models are available for smaller applications. Annual calibration is required to deliver accurate amounts of material to the field.

Weed/pest control sprayer. In accordance with Ontario's Cosmetic Pesticides Ban or local legislation, weed/pest control products may need to be applied throughout the growing season to maintain healthy turfgrass. Models are typically pulled by a tractor or utility vehicle, with a 100 gallon tank (or greater) considered desirable. Annual calibration is required to deliver accurate amounts of material to the field. Backpack versions are available for small scale applications.

Irrigation system. Water will need to be applied throughout the growing season to maintain a healthy turfgrass stand. Both above and below ground systems are available with a wide range of pipe, head and nozzle types to choose from.

Aerator. Aeration should be performed two to five times per year to reduce soil compaction resulting from excessive player traffic (use). It is also a key tool in managing organic matter/thatch build-up in the root zone. Excessive soil compaction weakens the turfgrass root system, which in turn reduces a field's ability to withstand wear and increases its divoting potential. Highly compacted fields may become hard enough to create an unsafe environment for the athlete. Both hollow tine and solid tine models are available, with hollow tine models removing material from the root zone (cores). A piston-action model is preferred, which is capable of pulling a 3" core. A reciprocating piston-action model is typically pulled behind a tractor or utility vehicle.

Tractor. Used to mount/carry multiple pieces of equipment and load bulk materials. A model with a 50-60 horsepower engine, PTO of 45 hp, front-end loader and turf tires is desirable.

Paint sprayer. Game lines (side lines, yard lines, etc.) will need to be painted onto the field. Paint sprayers are available in walk-behind or riding configurations. Tape measures and string lines are required for accurate painting, while templates and stencils can be used for adding numbers and logos.

Hand tools. Assorted hand tools (i.e. rakes, shovels, hammers, string trimmer, edger, wrenches, etc.) will be needed to work on small areas across the field.

Natural: Optional Equipment

Core harvester. Used to collect cores that are pulled to the surface following hollow tine aeration. This is critical for sand-based root zones, where organic matter accumulation negatively affects internal drainage, but may be unnecessary for native soils. Can be used to gather thatch, similar to a sweeper.

Overseeder. Fields should be overseeded continually throughout the season to maintain a dense turfgrass stand. A dense turfgrass stand is not only aesthetically desirable, but necessary to maintain an adequate level of playability. Various models are pulled behind a tractor, but walk-behind models (i.e. rotary spreaders) are available for small applications. Overseeders are a valuable tool when renovating a field.

Topdresser. Fields are topdressed with sand for a number of reasons including altering the physical properties of the root zone, preventing thatch build-up, and smoothing the surface. Topdressers can be mounted to utility vehicles or pulled behind a tractor. A model capable of carrying 1 cubic yard is desirable.

Verticutter. Vertical mowing (verticutting) is performed on an as needed basis to remove thatch from the root zone. Can remove thatch, relieve shallow compaction and may be appropriate to use prior to seeding for good seed-to-soil contact. It can also

Natural: Optional Equipment

Verticutter continued. be used to break up cores following hollow tine aeration. Verticutting units are typically pulled behind a tractor, but walk-behind models are available for smaller areas.

Deep-tine aerator. Deep tine aeration is done on an as needed basis to alleviate soil compaction at levels deeper (lower) than those reached during conventional aeration. Models are typically pulled behind a tractor.

Truck/utility vehicle. Used to move assorted pieces of equipment as well as materials. Models should be capable of holding two passengers, capable of towing 1,500 pounds, and have a hydraulic lift bed with a capacity of at least 800 pounds.

Hoses/nozzles. Hoses and specialized nozzles are needed for small scale irrigation (syringing). They are a necessary piece of equipment for baseball fields, as they are used to manage moisture on skinned areas.

Turf sweeper/blower/vacuum. Used to remove debris from fields. Turf sweepers can be employed to remove debris from vertical mowing and as a replacement to the core harvester in removing cores brought to the surface following hollow tine aeration. These pieces can be pulled behind a tractor, but walk-behind models are available for small applications.

Skidster. Versatile piece of equipment used for multiple applications based on attachment (i.e. front-end loader, plow, fork-lift). A model with turf tracks is desirable.

Synthetic Surfaces: Necessary Equipment

Grooming/spiking equipment. Typically some type of broom, brush or tine that is dragged over the field to stand the synthetic fibers up and re-distribute the crumb rubber. This practice is analogous to aerating natural turfgrass fields as it reduces compaction of rubber particles and prevents fields from becoming excessively hard. Models can be pulled behind a tractor or utility vehicle.

Sprayer. In accordance with Ontario's Cosmetic Pesticides Ban or local legislation, liquid applications may be required to prevent weeds from growing through the synthetic surface and lessen the static charge from the crumb rubber. Wetting agents are applied on an as needed basis to improve infiltration of water into the rubber. Sanitation products may need to be applied to prevent bacterial growth from bodily fluids. Models are typically pulled by a tractor or utility vehicle with a 100 gallon tank (or greater) considered desirable. Annual calibration is required to deliver accurate amounts of material to the field. Backpack versions are available for small scale applications.

Topdresser. Crumb rubber will have to periodically be applied to the field as some material is lost over time. Topdressers can be mounted to utility vehicles or pulled behind a tractor. A model capable of carrying 1 cubic yard is desirable.

Utility vehicle. Used to move assorted pieces of equipment as well as materials. Models should be capable of holding two passengers, capable of towing 1,500 pounds, and have a hydraulic lift bed with a capacity of at least 800 pounds.

Turf sweeper/blowers/vacuum. Used to blow trash such as sunflower seeds and peanut shells off the playing surface. Models can be towed behind a tractor. Backpack models are available for smaller applications.

Hand tools. Assorted hand tools (i.e. rakes, shovels, hammers, string trimmer, edger, wrenches, etc.) will be needed to work on small areas across the field.

Courtesy of ORFA

Synthetic: Optional Equipment

Irrigation system. Water may need to be applied to reduce the temperature of the playing surface. Some manufacturers require irrigation to maintain the manufacturer's warranty. Both above and below ground systems are available with a wide range of pipe, head and nozzle types to choose from.

Hoses/nozzles. Hoses and specialized nozzles are needed for small scale irrigation (syringing). They are a necessary piece of equipment for baseball fields as they are used to manage moisture on skinned areas.

Paint sprayer. Game lines (side lines, yard lines, etc.) may need to be painted onto the field if they are not inlaid. Paint sprayers are available in walk-behind or riding configurations. Tape measures and string lines are required for accurate painting, while templates and stencils can be used for adding numbers and logos.

Mechanical scrubbers. Can be used to remove painted lines.

Pressure washers. Used to remove unwanted fluids or contaminants from the surface.

Rubber blade snow plow. Used to remove snow.

EDITOR'S NOTE

If natural turf is identified as the desirable option, the STA's "Athletic Field Construction Manual" is an invaluable resource! Visit www.sportsturfassociation.com for all the details.

Sports Turf Fertility & The Nitrogen Factor

John Sorochan, Ph.D., Department of Plant Sciences, University of Tennessee

Maintaining competitive and safe playing surfaces has long been the goal for all sports turf managers. Many cultural practices are used to promote proper growth and health of the turf which is important to prevent injury to players. Sports turf managers core cultivate, topdress with sand, and apply fertilizers to grow an optimum playing surface. Often times however, fertility can be a puzzling matter. Considerations must be made to the location, amount of traffic, and disease and pest incidence in order to apply correct amounts of nutrients. Over-applications of nutrients are wasteful and potentially harmful to the environment, not to mention the extra labour and money involved. So, where does a sports turf manager begin when creating a fertility program suitable for his or her field?

Soil Testing

The first step to creating a fertility program is to determine the actual amount of nutrients currently available in the soil. In order to do this, samples need to be sent to a soil testing or university extension lab for analysis. Soil sampling is a simple procedure. Randomly select 10 to 12 locations on the field. At each location, remove the sod and take a sample at least six inches in depth. All samples should then be mixed well in a bucket. From this mixture, fill a soil sampling box or a 4x7 inch bubble envelope and mail (Puhalla *et al*., 1999).

The soil testing lab will send back a report that tells the amount of available phosphorus, potassium, calcium, magnesium and zinc. Phosphorus should be maintained at levels ranging from 30 to 120 pounds per acre. Potassium should be maintained at much higher levels ranging from 300-500 lb per acre (Puhalla *et al*., 1999). Generally, potassium should be applied depending upon nitrogen levels. Low levels of nitrogen decreases the amounts of potassium used by the plant.

A Closer Look at Nitrogen

Typically, soil test reports also make recommendations for fertilizer applications based upon nutrient requirements. Soil testing is a cheap and effective way to prevent over- and under-applications of nutrients, which saves both time and money. However, soil analysis does not measure the level of nitrogen, which is likely the most limiting factor in turfgrass growth and vigour (Puhalla *et al.*, 1999).

Determining actual levels of nitrogen in the soil is pointless due to the volatile and mobile nature of the nutrient. A soil sample sent off to a soil testing lab will likely have a different amount of nitrogen when it arrives at the lab than it did before it was taken (Puhalla *et al*., 1999). Instead, nitrogen applications must be determined individually based upon geographic location, root zone mix, deficiency symptoms, turfgrass species selection and the expected quality of the turf.

Applications should be made only during months of active turfgrass growth. Tissue analysis does, however, determine actual amounts of nitrogen and other nutrients in the plant. Leaves for tissue analysis should be taken at random and sent to a lab for testing. Optimum levels for nitrogen in plant tissue should be 3-5% of the total dry weight (Turgeon, 1996).

1. Location & Growing Period

Geographic location determines the number of months for active growth and aids in the selection of a suitable turfgrass species. Growing months for turf can differ by several months between various locations. Therefore, the total amounts of nitrogen to be applied per year must be adjusted for location. For instance, a bermudagrass sports field in Tennessee may only need 6-9 lb of nitrogen (per 1,000 ft^2) per year compared to the exact same field in Florida that needs more than 9 lb per year, with the difference being the length of the growing season.

2. Root Zone Composition

The make up of the root zone also affects the amounts of nitrogen to be applied. Fields consisting of high silt and clay contents require different application procedures versus a sand-based field. Root zones consisting predominantly of silt and clay have lower percolation rates, helping to prevent the loss of nitrogen through leaching. Therefore, applications of nitrogen can be limited to a monthly basis using a fertilizer consisting of both fast and slow release nitrogen sources.

Sand-based root zones require applications to be applied more often with less total nitrogen per application. These root zones promote drainage, which reduces the holding capacity for nutrients like nitrogen. To ensure the availability of nitrogen for the plant, it should be applied every 10 to 14 days at half the normal rate depending on irrigation and precipitation levels. Sand-based fields have other nutrient retention problems as well. The lack of cation exchange capacity of sand allows other nutrients such as potassium, which normally is found at acceptable levels in native soils, to potentially leach out (Turgeon, 1996). Therefore, sand-based athletic fields should receive applications of potassium and phosphorus, as well as other micronutrients, more frequently than native soil athletic fields. As stated earlier, soil testing will also help determine these nutrient requirements.

Table 1. Nitrogen applications (lb/1,000 ft^2) for bermudagrass fields, southern US. Note that May through October are actively growing turf months and Jan-April and Nov-Dec are overseeding periods.

*Total amount of nitrogen/year

Month	Sand-Based Fields		Native Soil Fields	
	Slow Release	Fast Release	Slow Release	Fast Release
January	-	-	-	-
February	-	-	-	-
March	1	05-1	-	0.5
April	1	1	1	1
May	2	1	2	1
June	-	1	-	1
July	2	1	2	1
August	-	1	-	1
September	2	1	1	1
October	-	1	-	-
November	1	1	1	0.5
December	-	-	-	-
Total* (no overseed)	**6**	**6**	**5**	**5**
Total* (overseed)	**9**	**9**	**7**	**7**

3. Turf Quality

Another way to determine nitrogen needs is by assessing overall turf quality. Turfgrass growing under low nitrogen levels will exhibit chlorosis. Chlorotic plants appear yellowish-green to yellow (Emmons, 1995). However, yellowing turf does not necessarily mean that levels of nitrogen are inadequate, but proper nitrogen fertility will correct any deficiencies. Other environmental stresses can produce the same effects. Density is another turfgrass quality that can be used as an indicator for nitrogen deficiencies. Often, turfgrass areas infested with weeds can indicate a lack of nitrogen available to the plant (Emmons, 1995). Weeds are not the cause of bad turf. Rather, weeds are caused by bad turf. Low nitrogen fertility reduces the competitive nature of the turf, which allows invasive weeds to take over.

Nitrogen differences on Kentucky bluegrass.

4. Species Selection

Turfgrass species selection also affects the amounts of nitrogen needed. Bermudagrass, Kentucky bluegrass and perennial ryegrass generally require more input of nitrogen per year than any other turfgrasses being used on athletic fields. These grasses are vigorous and aggressively growing plants that require high nitrogen fertility. Increased rates of nitrogen must be applied in order to keep the plant healthy and able to recuperate from wear. Bermudagrass can receive rates of nitrogen per 1,000 ft^2 of 6-15 lb per year depending on geographic location and field usage.

Table 2. Nitrogen applications (lb/1,000 ft²) for Kentucky bluegrass/perennial ryegrass athletic fields. Note that June-July applications are optional, slow release fertilizer recommended.

Month	Sand-Based Fields		Native Soil Fields	
	Slow Release	Fast Release	Slow Release	Fast Release
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	0.5-1	1	1	1
May	1	0.5-1	-	0.5
June	1	0.5	1	0.5
July	-	0.5	0.5	-
August	0.5	0.5	-	0.5-1
September	1	1	1-1.5	1
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Total N per year	**4-4.5**	**4-4.5**	**3.5-4**	**3.5-4**

Kentucky bluegrass can receive rates ranging from 3-6 lb per year.

5. Type of Venue

Quality requirements for sports fields differ between little league parks and professional stadiums. Typically, city operated fields will not be mowed as many times or as low as in professional stadiums. This difference changes nitrogen needs. Lower mowing frequency and higher mowing heights requires less nitrogen input. Lastly, fields that collect clippings will need to have more nitrogen applied than fields that mulch clippings.

General Rules

Despite all of the conditions described above, there are some generalized rules for producing a fertility program that is right for you. First, nitrogen should be applied at least one time per active growing month. Amounts of nitrogen will differ, but applications should be made every growing month to ensure sufficient amounts. Figures 1 and 2 describe application timing of fast and slow release fertilizers on Kentucky bluegrass, perennial ryegrass and bermudagrass. Highly used fields should receive one pound of nitrogen per month of active growth while low use fields will only need as little as half a pound of nitrogen.

The more applications made per month the better. Try splitting applications in half every 14 days. Applying fertilizers more frequently aids in keeping nitrogen available to the plant at all times (Calhoun *et al*., 2002). Use fertilizers with both fast release and slow release nitrogen forms. One type of fertilizer is not sufficient for an entire season. Fertilizers with different nitrogen forms and percentages should be used to maximize growth (Puhalla *et al*., 1999).

Recommendations of applying phosphorous and potassium by a soil analysis report should be followed. However, some turfgrass managers apply potassium at a one-to-one rate with nitrogen (Emmons, 1995). This is significant to managers with sand-based root zones. Potassium aids in stress tolerance of the plant, but is readily leached from sand root zones (Turgeon, 1996). Finally, applications of nitrogen and potassium should be given at the end of each growing season when shoot growth slows. During this time, the plant is storing carbohydrates, rebuilding damaged roots, and preparing for harsh environmental conditions (Emmons, 1995). For some sports field managers, nitrogen applications do not end with the induction of dormancy at the end of the growing season, but continue with the overseeding of ryegrass for play in the winter season. Fields overseeded with ryegrass need to be fertilized continually throughout the cool season growing months.

Tables 1 and 2 describe examples of fertility programs for sports fields. These examples are meant to be modified and adapted to fit the needs of individual fields. Table 1 describes nitrogen applications for bermudagrass fields in the southern United States. Amounts of nitrogen in pounds per 1,000 ft^2 are given in terms of slow release and fast release fertilizers in either native soil or sand-based athletic fields. In addition, Table 1 describes a continuance of the fertility program for overseeded turf. Table 2 describes applications for fields with Kentucky bluegrass and perennial ryegrass. Nitrogen amounts are also given in pounds per 1,000 ft^2. Application amounts are given for both fast and slow release, as well as for native soil versus sand-based athletic fields.

EDITOR'S NOTE

The rates of application of nutrients provided are somewhat higher than those for Canadian conditions, however the principles remain the same. Sports turf managers should be aware of these differences in the rates of nutrient application to different species in the regions of North America.

Guidelines for creating a fertility program are useful, yet, keep in mind that they are only guidelines. Each individual field requires its own specific fertility program based upon the needs of the sports turf managers, players, owners and others who enjoy the field. Finding what works for you is not an easy task, so be patient and do not be afraid to try new things.

Figure 1. Cool season fertility fast and slow release timing.

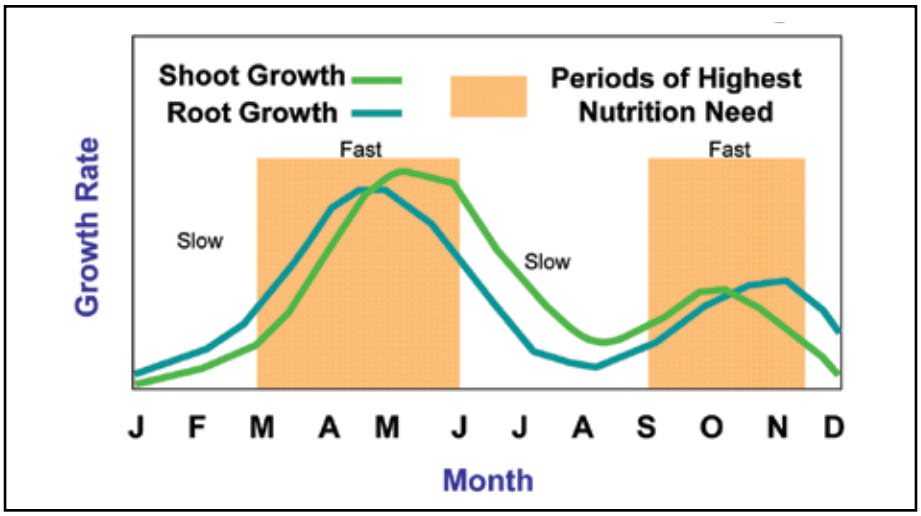
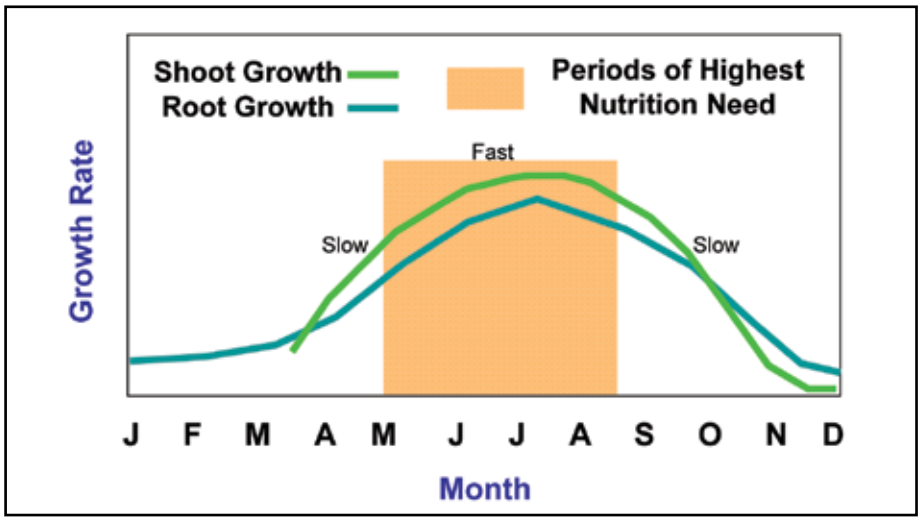


Figure 2. Warm season fertility fast and slow release timing.



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