

Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. AUTUMN 2015. VOL. 28. NO. 3.

A World Outside the Golf Industry

Robert Heggie, Maple Leaf Sports & Entertainment



As BMO Field and KIA Training Grounds are prominent facilities in the Canadian sports field industry, I felt it was necessary for me to promote the industry where and when I can.

When Rob Witherspoon, Director of the Associate Diploma in Turfgrass Management Program at the University of Guelph called me in my first season at BMO Field and asked if he could bring his class down for a tour, I jumped at the opportunity to host them. The chance for the junior class to see a professional stadium was something that was not available when I was in the turf program.

Since then, we have expanded our facilities and in turn the tours, adding the practice facility to the learning experience. I wanted to engage the students and allow them to see there are other jobs in the turfgrass industry outside of the golf sector. I always get a very positive response from the students and I truly think that they enjoy the tours. They get a basic understanding of what is entailed in managing a professional sports stadium and training grounds. As well, they get an understanding that it can be very rewarding, and can be very lucrative. Unfortunately in Canada the number of natural grass stadiums for professional sports is limited, but I see this changing in the future based on the new technologies that are out there for growing grass in difficult situations.

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SPORTS TURF CANADA™

328 Victoria Road South

Guelph, ON N1L 0H2

Tel: (519) 763-9431

Fax: (519) 766-1704

E-mail: info@SportsTurfCanada.com

Web: SportsTurfCanada.com

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EDITORIAL COMMITTEE

Ken Pavely, Ben Tymchyshyn and Lee Huether

PUBLISHER

Jackie Ranahan

Mach One Communications

Tel: (519) 846-0446

E-mail: jackie@thinkmachone.com

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SPORTS TURF CANADA™ OFFICE HOURS

Staff are in the office from 9:00 am to 2:00 pm Tuesday through Friday. At other times, a message may be left on the voice mail system.

Please include the vital information of name, telephone number with area code, and time of calling.

The office may be reached at any time by faxing (519) 766-1704 or via e-mail.

President's Desk

BY TENNESSEE PROPEDO

Well, Thanksgiving is now in the rear view mirror. Most sports turf managers are busy getting our fields ready for the upcoming winter months. Weather forecasters are predicting an El Nino event so hopefully we will not encounter the brutal temperatures and snow fall that the Eastern part of Canada has experienced over the past couple of winters.

Let's review what has happened since my last message. Sports Turf Canada has had a very productive Summer and Autumn. Both our Field Days in Moncton NB and in Hamilton ON were well attended, received positive reviews, with great speakers for all the sessions. A big thank you to all those presenters, our sponsors and exhibitors, event committee members and staff for making these memorable events happen. We also, with our partner TurfIndustry, provided the Synthetic Sports Turf Field Safety & Maintenance Course together with the accompanying accreditation. You may have noticed the hands-on testing occurring on the field at the Ontario Field Day.

Kudos to Robert Heggie on winning our Sports Turf Manager of the Year award and a gentle reminder that nominations are now being accepted for 2016. Please go to our website for nomination rules and information. Read Robert's article inside this issue.

A big Sports Turf Canada "thank you" goes out to Rob Witherspoon on his retirement from Guelph University and the Guelph Turfgrass Institute. We wish Rob all the best in his future endeavours and extend our appreciation for all of his work in the turfgrass industry and academia. At this time we would also like to welcome Steve Fleischauer into his new role as Rob's replacement. Steve is no stranger to Sports Turf Canada and the turf world as he has been one of the guiding lights behind the Ontario Turfgrass Symposium held every February at the University of Guelph.

Finally, please keep checking our website for upcoming educational events and general turf industry news as it occurs across Canada and beyond.

Tennessee



A long time friend of Sports Turf Canada, we honoured Rob Witherspoon for his years of service to the association and to Ontario's turfgrass industry at the recent Ontario Field Day. With Rob (centre) are association President Tennessee Propedo and new Interim Director Steve Fleischauer. Many will recognize Steve as the long-time Conference Manager of the Ontario Turfgrass Symposium.



Responding to a call on October 9, the Simplistic Lines crew worked over the Thanksgiving weekend to complete a 40m in diameter Blue Jays logo onto the artificial turf field at Canoe Landing Park in Toronto, ON, just in time for the first round playoff series.

For a link to more project details and a time lapse video visit sportsturfcanada.com

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Event Calendar

Association Events are Highlighted in Green

November 1 to January 31, 2016 New Member Referral Program

sportsturfcanada.com

2016 January 15 Sports Turf Canada Sports Turf Manager of the Year Award

Nomination Deadline
sportsturfcanada.com

January 19 to 22 Sports Turf Managers Association Conference & Exhibition

San Diego, CA
stma.org
Sports Turf Canada members can register at STMA member rates!

February 1 to 26 University of Guelph Turf Managers' Short Course

Guelph, ON
turfmanagers.ca

February 17 and 18 Ontario Turfgrass Symposium Time to Grow

University of Guelph
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turf Symposium.ca

February 17 Sports Turf Canada Annual Members Meeting During the Ontario Turfgrass Symposium

University of Guelph
Guelph, ON
sportsturfcanada.com

February 23 to 25 Atlantic Turfgrass Research Foundation Conference & Tradeshow

Charlottetown, PEI
agsa.ca/atrf/about-us/

February 23 to 25 Western Canada Turfgrass Association Conference and Trade Show

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University of Guelph
Guelph, ON

NEW BRUNSWICK

Robert Cooke
Jacobsen
Collingwood, ON

Branden McCloskey
City of Fredericton, NB



Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. AUTUMN 2015.

**“I cannot endure to watch anything as precious as autumn sunshine by staying in the house.
I spend almost all the daylight hours in the open air”**

~ Anonymous



Inside this issue...

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

Deadline for Winter 2015 Sports Turf Manager: October 30

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The history of Toronto FC and BMO Field is brief, as the team and league are fairly new. BMO Field was originally opened in 2007 as the home of Toronto FC. After three years with an artificial pitch the decision to install natural turf was made to help attract high end talent from other leagues. BMO Field was built to the same specifications as a USGA golf green, along with a full hydronic warming system, a SubAir system and sodded with washed Kentucky bluegrass sod. In addition to Toronto FC, BMO Field is now the home of Team Canada Men's and Women's Soccer, Team Canada Rugby and, as of 2016, the Toronto Argonauts.

After the installation of the grass at BMO Field there was a quick realization for the need of a practice facility and multiple fields. In 2012 the KIA Training Grounds opened to the first team, and has since flourished into a series of Academy teams starting at about nine years of age, as well as a United Soccer League professional team. The grounds consist of four natural pitches, two of which have a SubAir system with a warming system attached, all sodded with washed Kentucky bluegrass sod. The Toronto Argonauts have also joined our facilities at Downsview Park, training on one of the artificial fields.

The expectation of turf quality in the professional soccer atmosphere is held to the absolute highest standard. With athletes that have played in the English Premier League and the World Cup they know exactly what they do and do not want when it comes to playability and field conditions. Being able to balance a schedule that involves Major League Soccer, international rugby, international soccer and community rentals takes an experienced staff and a vast

understanding of plant health and needs. One example is over the span of two days we hosted 42 rugby events for the 2015 PanAm Games, followed by a double header Gold Cup soccer match just two days later. This sort of turnaround time is tight on any level; my crew and I have become masters of the quick conversion. The ability to promote recovery and pre-stress condition allows the turf to withstand and recover from the intense damage. A well rounded maintenance program involves proper fertility and all aspects of cultural and mechanical maintenance. The healthier the turf is, the more events your venue can host, which in turn means more revenue for the company. The grass is installed for the athletes and ownership to create revenue. We are here to live with the schedule we are given and to do our very best to promote grass health and a good stand of grass under those circumstances.

As part of promoting the sports field management sector I try to take at least one intern per year from a horticulture related program. I try to provide as much hands on experience and help students get a taste of something different. I hope that through my positive attitude and love for teaching that I can help inspire some more sports field managers of the future. I also have a passion for guest speaking and sharing knowledge and experiences with anyone that will listen. Every year I also try to give a few guest lectures for the university, at conferences and in seminars.

I would like to thank Sports Turf Canada for the opportunity to be the Sports Turf Manager of the Year – it is a great honour. I would also like to thank the University of Guelph Turfgrass and Horticulture



Program professors for guiding me through class and giving me the fundamental knowledge to pursue a successful career in turfgrass management. I would like to thank my Assistant, Andrew Strike and my Second Assistants, Greg Patterson and Aidan Fitzgerald. A manager is only as good as the people that he surrounds himself with. Lastly I would like to thank my family, and of course a special thanks to my fiancée Melissa for putting up with living with a turf guy, the long hours and stressful times. •

Robert Heggie is Head Groundskeeper for BMO Field and KIA Training Grounds, Toronto ON



Sports Turf Canada Congratulates 2015 Sports Turf Manager of the Year – Robert Heggie

Although announced in the Spring, Robert Heggie was formally congratulated and introduced as the 2015 Sports Turf Manager of the Year at Sports Turf Canada's recent Ontario Field Day. The Sports Turf Manager of the Year award is a prestigious honour which recognizes an individual's professional ability and contribution to the Canadian sports turf industry and shows appreciation for his or her proactive and progressive efforts within the profession. It is not Robert's knowledge and expertise in managing fields for the sport's highest level of play that we recognize with this award; it is his continuing effort to inspire and mentor those students who may aspire to become sports turf managers. Robert is a frequent guest speaker for students at the University of Guelph, participates in the student-run Turfgrass Symposium, and is always willing to host tours of the Toronto FC stadium field and practice facility. He encourages students to consider sports turf as a career option and regularly invites both interns and graduates to work with the club's grounds crew.

The January 15 nomination deadline for 2016 is quickly approaching. Although the first two award winners have been high profile individuals, we encourage nominees who are practitioners as well as managers, from organizations big and small, displaying outstanding performance in any one of a number of key categories. Visit sportsturfcanada.com for eligibility, criteria and the nomination form.

Sports Turf Manager of the Year.

A professional award program of Sports Turf Canada with the cooperation and sponsorship of the Guelph Turfgrass Institute.

Who will be the next recipient?

**Get your paperwork in order
Nomination deadline January 15**

VISIT OUR WEBSITE for all the details.
sportsturfcanada.com

GTI Director Rob Witherspoon Retires

Guelph Turfgrass Institute (GTI) Director, Rob Witherspoon, has retired from the University of Guelph. Rob has served the University and the turf community in the capacity of Director of the Guelph Turfgrass Institute and Director of the Associate Diploma in Turfgrass Management since 1998 and he has been employed by the University of Guelph in various capacities for 28 years. Rob is also an undergraduate and graduate alumnus of Guelph.

Rob's dedication to the turfgrass students and the industry has been outstanding and his guidance of the Turf Manager's Short Course and Superintendent in Residence activities has put the University on national and international stages. He has been in the centre of a number of changes in the GTI. Especially in the past few years, his leadership in the discussions of the relocation of the GTI has been critical. His steadfast enthusiasm for all things turf will be sorely missed.

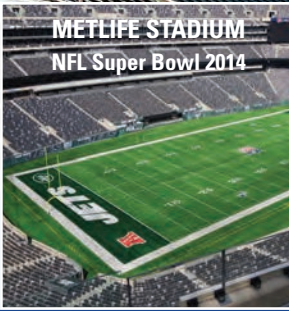


GTI Names Interim Director

Stephen Fleischauer, University of Guelph Open Learning and Educational Support, has accepted an eight month secondment to the position of Director of the Guelph Turfgrass Institute and the Associate Diploma Program in Turfgrass Management.

Steve brings many years of experience in the turf industry and education to the position and will continue the momentum of the important work of the GTI and the Diploma program.

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Managing Water for Playability

Brad Park, Rutgers University

Much has been written about sports field drainage — an essential element in the playability of sports fields. Dr. Andrew McNitt, Penn State University, described methods in practical terms to improve sports field drainage in an article titled, *Understanding Field Drainage* that appeared in *Sports Turf Manager* (McNitt, 2006). The textbook, *Sports Fields: A Manual for Design, Construction and Maintenance* (Puhalla et al., 1999) provides excellent details on sports field drainage. The most comprehensive textbook in which the author is aware of the subject is *Practical Drainage for Golf, Sportsturf and Horticulture* (McIntyre and Jakobsen, 2000).

This article will attempt to add to the existing base of knowledge on this subject by discussing the author's own observations in dealing with sports field drainage as well as baseball/softball skin surface water management issues in a university extension setting.

Sports Field Design and Construction

It has been the experience of the author that many sports field architects and engineers have unrealistic expectations concerning the way native soils or sand-modified soils drain internally. Architects and engineers will often develop a specification for a sports field calling for construction using a sandy loam soil (or finer in texture), perhaps native to the site, and design the field with minimal surface pitch (i.e. slope) with the expectation that it will exhibit rapid internal drainage. Following field construction, often performed by a contractor who employs heavy road building equipment to manipulate soils during construction, the field drains poorly, negatively impacting the playability of the surface.

A sports field can be constructed with minimal surface pitch (e.g. 0.5%) if the rootzone conforms to specifications for golf course putting green construction developed by the United States Golf Association (USGA). While subtle deviations (i.e. greater fine and very fine sand, silt, and clay) from the USGA specifications may still allow for acceptable internal drainage and limited surface pitch, McIntyre and Jakobsen (2000) do a very nice job describing how the internal movement of water through soil profiles (including “golf” sands with too many fines and sandy loams) becomes increasingly restricted under greater compaction levels – compaction being a more-often-than-not sports field construction reality.

The most pragmatic strategy in working with non-USGA conforming rootzones and certainly native soils is to design sports fields using these soils with adequate surface pitch. For example, in the design of a soccer/lacrosse/North American football field using a native soil (e.g. sandy loam, silt loam, etc.), the plans should include a “crown” that has no less than 1.5% surface slope from the middle of the field (goal to goal; or endzone to endzone) towards the sidelines.

The Multipurpose Field Dilemma

A reoccurring sports field design problem entails the creation of multipurpose fields constructed using native soils or soils poorly modified with sand that are tipped diagonally from one corner of the field to the other. These designs are desirable from the perspective of athletic directors, coaches, business administrators and other decision makers as an appearance is created that field space is maximized. Who could not resist fitting a baseball field, softball field, and soccer/lacrosse/field hockey field in one two-and-half acre (1 hectare) footprint? The author has often observed the placement of a baseball or softball skin surface in the lowest corner of the field where water is forced to surface drain (i.e. run down hill) onto the infield skin.

On the issue of multipurpose fields, Puhalla et al. (1999) note that sports fields should be treated as individual drainage units, and should not be expected to perform acceptably with water running onto a sports field from an adjacent field; moreover, within each field, an infield skin surface should not be lower than the outfield.

Improving Drainage on Existing Fields

There are several strategies that can be employed to improve the drainage of existing fields as field reconstruction is typically not feasible. The following strategies are meant to improve, or “augment”, the surface drainage characteristics of a field with some existing surface pitch, either in the form of a crown or tipped from one side to another.

Sand-slit drains can be designed and installed as sand-filled trenches (e.g. 3 to 4-inch (7.6 to 10 cm); 12-inch (30.5 cm) deep) with a strip drain embedded in the base of the trench; the goal of this system is to intercept surface-draining water and rapidly move it off the sports field into a collector drain(s) (Puhalla et al., 1999). These



Fields constructed with fine textured soils and built without adequate surface pitch are highly prone to exhibit poor drainage following rain events (Photos by Brad Park).

authors provide excellent schematics of these systems and note that the drains should be installed at a 45-degree angle to the direction of the surface runoff. McNitt (2006) advises that after installation of a sand-slit drain system core cultivation of the field should be followed by core harvesting and sand topdressing; this management style, similar to that of a “push-up” golf course putting green, will preserve the integrity of the sand-filled trenches.

Sand-slit drain installation is a dramatically underutilized technology in the school/town sector of sports field management. Having made dozens of sports field consultations during the last 13 years, the author can only recall a handful of occasions where this sand-slit drainage has been employed. This drainage technique can be installed on both existing sports fields as well as part of the construction of new fields. Unfortunately, in the eyes of many decision-makers a sand-slit drainage system is viewed as an unaffordable “luxury” that is only reserved for the premier field of the school, town, college, etc. During the last 10 to 15 years, the primary “improvement” made to many school and town premier sports fields has been the removal of natural turfgrass and installation of synthetic turf – considerable costs both at the time of installation and at eventual tear-out and resurfacing.

Newer machines (e.g. BLEC Sandmaster, WaterWick, etc.) have appeared on the market in recent years that mimic sand-slit drainage installation where sand channels can be more rapidly introduced into a sports field in lieu of traditional trenching practices, creation of spoils, etc. While these tools will effectively create sand-filled trenches and improve drainage, they do not provide the advantage of an installed pipe at the base of the trench that will accelerate water movement. Similar to slit drains, operation of these machines should be made at a 45-degree angle relative to the surface flow of water.

Baseball/Softball Infields and Infield Skin Surfaces

Several useful resources have been developed in recent years that provide practical information on the subject of baseball and softball infield skin surfaces. The Rutgers Cooperative Extension Fact Sheet, Skin Surface Selection and Management for Baseball and Softball Infields summarizes infield mix selection criteria developed by

American Society for Testing and Materials (ASTM, 2007) and management information derived from field research and experienced sports field managers. This document can be accessed by performing a simple search using any web browser. Baseball and Softball Fields: Design, Construction, Renovation, and Maintenance is a textbook dedicated to this subject matter (Puhalla et al., 2003) and is a must-have resource for engineers and architects who are in the business of designing sports fields.

Infield Design

There are two primary considerations when designing baseball and softball infields: 1) The infield should be designed/constructed in such a manner to move surface water away from the infield towards the outfield and foul territory; and 2) Infield mixes/skin surfaces should not be expected to exhibit acceptable internal drainage and should therefore be part of the larger infield design to direct water towards the outfield and foul territory via surface pitch.

Regarding the first design consideration, as previously noted in the discussion concerning multipurpose fields, surface water should never be directed onto a baseball/softball infield. Moisture management plays a key role in the maintenance of infield skin surfaces; the sports field manager needs to have the ability to apply water to the skin at his or her discretion to maximize the playability of the surface, not be preoccupied with unwanted surface water running onto an infield skin surface as a result of design flaws. Puhalla et al. (2003) show an excellent set of drawings to illustrate grading designs with added “good”, “better”, and “preferred (best)” commentary in order of effectiveness in moving surface water both away from the infield and off the entire playing surface in the most rapid manner possible.

All good designs call for some minor pitch (e.g. 0.5%) to infield skin surfaces to provide surface drainage. While extremely sandy infield mixes may allow for some internal drainage, most contain enough fines that under compacted conditions internal drainage will be compromised resulting in surface pitch being a necessity.



Sand-slit drains can improve the playability of existing fields by intercepting water moving across moderately pitched sports field surfaces



Water management is an important element in providing acceptable baseball and softball skin surface playability

Infield Skin Surface Management

Skin Surface Selection and Management for Baseball and Softball Infields (Park and Murphy, 2009) summarizes the importance of water management in maintaining infield skin surfaces. In the most basic terms, water is needed to soften fine-textured infield mixes (high silt and clay content) and firm coarse-textured mixes (high sand content) (ASTM, 2007).

In the experience of the author, outside of natural rainfall events, water is not regularly applied to most school and town infield skin surfaces in New Jersey for the purpose of managing surface hardness and playability. The majority of mixes encountered by the author at schools and towns consist of approximately 80% sand and 20% silt+clay. While appropriately applying water could certainly improve the playability of these surfaces, many perform adequately considering the level of play in lieu of supplying water. On a cautionary note, high sand content infield mixes can be over-scarified with motorized infield grooming equipment equipped with large “teeth”. Without the ability to apply water to firm these mixes, the loose, cat litter-like conditions that result from overly-aggressive grooming are difficult to firm until natural rainfall supplies the necessary moisture.

Similarly, grooming practices should be performed in such a manner to maintain a grade that allows for surface drainage. Water will pool in low-spots, sometimes referred to as “birdbaths”, if grooming procedures regularly remove infield mix from one area of the skin surface and deposit on another location of the skin surface (i.e. creating a high spot). Periodic laser-guided grading of infield skin surfaces is a highly effective means of re-setting grades (and good surface drainage).

Conditioners (e.g. calcined clay) can be spread on top of skin surfaces to improve playability over a range of weather conditions. Conditioners are often used to soak-up excess water after rain; finer-textured conditioners work best for this purpose (Puhalla et al., 2003) but should be removed from the skin surface after play (Sherry, 2006). Skin surface water retention is a function of the amount of silt and clay in the infield mix, not the amount of calcined clay on the surface; calcined clay applied to the skin surface will often dry before the underlying infield mix resulting in some grounds managers applying unneeded irrigation water (Brosnan and McNitt, 2007).

Conclusions

A trained, competent sports field manager can employ the finesse that is required to manage water for playability. Sports fields design parameters and construction methods are not always conducive to good drainage – and the costs and/or field down time necessary to improve these problems dictate that a sports field manager must often “work with what he or she’s got”. Case in point: Poor sports field drainage can be compounded with bad irrigation management; that is, a timer/clock programmed irrigation system may be allowed to deliver additional water following a natural rainfall event rendering a sports field unplayable. A sports field manager with site-specific experience will have the feel/finesse to properly irrigate a poorly drained sports field to maintain plant vigour yet provide good playability on a surface that is highly susceptible to being compromised with over-watering. •



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Brad Park is Sports Turf Research & Education Coordinator, Rutgers, The State University of New Jersey; a member of the Sports Field Managers Association of New Jersey (SFMANJ) Board of Directors since 2003; and Editor, SFMANJ Update newsletter.

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3RD Biennial Atlantic Sports Turf Field Day



Mother Nature didn't cooperate but everyone else rose to the challenge as we moved from Plan A to the hastily developed Plan B for the 3rd biennial Atlantic Field Day, August 27 in Moncton, NB.

Because of the pouring rain all outdoor events including barbeque lunch, tailgate tradeshow and afternoon educational presentations were moved inside. The Moncton Coliseum graciously provided tradeshow floor space, the caterer changed locales, the event supply company altered our order last minute to include tables and chairs, and our speakers, professionals that they are, adapted quickly and delivered what were to be practical, on the field sessions, indoors.

Our thanks to speakers Brad Park/Rutgers University, Jeff Langner/Turface Athletics, and special guest Dave Mellor of the Boston Red Sox for travelling to Atlantic Canada to be a part of our event. Look for their articles in this and upcoming issues of Sports Turf Manager.

To our sponsors and exhibitors, we appreciate your always generous support and participation. Lastly, we are acutely aware of the work required by the host municipality in hosting such an event.

When things, such as the weather, necessitate a change it is even more evident how all go above and beyond to make the day a success. A "shout out" to Atlantic Director Gord Horsman, our man on the ground, who championed the day, and together with City of Moncton staff, made it a success.

Moncton, New Brunswick



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28TH Annual Ontario Sports Turf Field Day



The weather in Hamilton couldn't have been more dissimilar than that for the Atlantic Canada field day; the sunshine and warm temperatures provided the perfect conditions for the almost 200 sports turf professionals who gathered for our 28th annual Ontario field day on September 24.

Educational events, such as our field days, are presented to provide delegates with current, credible and relevant information to help manage field assets in the most safe and effective manner. Our thanks go out to our speakers for their presentation development and delivery, to our sponsors and exhibitors for their support and participation, and to our delegates who find field days an important part of their work towards better, safer sports turf.

"In turfgrass science, we do not grow food, and we do not grow fiber. We grow human experiences and human connections. We grow the soccer fields that children play on during the weekends, we grow the football fields that we love to visit every fall, we grow the parks that we spread blankets out to watch fireworks, we grow the yards that we stand on in our bare feet, and we grow the golf courses that someone's grandfather plays on every Sunday." Becky Grubbs, Doctoral Student, University of Georgia in UGA Breaks Ground on Turfgrass Facilities – GeorgiaTurf.com

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The Importance of Internships

University of Guelph, Guelph, Ontario

Rob Witherspoon

Director, Associate Diploma in Turfgrass Management, Retired

An internship is a temporary period of employment with a strong emphasis on on-the-job training. The internship associated with the University of Guelph's Associate Diploma in Turfgrass Management (ADTM) program is a minimum 15-week work term with an organization in an area of turfgrass management related to the student's interests. The internship takes place between the first and second year of the two-year ADTM program and students are paid as a normal seasonal staff member.

The ADTM internship program is structured to encourage students to extract the most out of their internship experience. As part of the first semester Turf Industry course, students are required to complete an exercise where they conduct a personal evaluation of their previous employment experience, identify their strengths and weaknesses, and then develop a list of specific learning outcomes for their upcoming internship. These learning outcomes address specific technical skills they lack such as operating a particular type of equipment, as well as management and problem solving skills such as supervising staff or developing a turfgrass fertility program.

Once students have developed their internship learning outcomes, they seek out an employment opportunity that will allow them to gain the skills and experience they need to continue to grow as turf management professionals. Students are expected to meet with prospective employers, discuss their learning outcomes and develop an agreement that addresses the needs of both the employer and the student intern.

During the internship, students are expected to maintain a journal to record their internship experiences and observations. Towards the end of the internship period, employers are asked to complete an online evaluation of the student. When students return to Guelph in September, a class called Current Turf Practices allows students to reflect upon their internship experience. They prepare and give presentations, write reports and discuss their experiences. Utilizing feedback from their employer as well as their own self-evaluation, students reflect upon what they learned to develop career goals for the future. Internship experiences are called upon throughout many of the courses taken in the final year of the program.

Internships are critical to the educational experience of the ADTM program. Students have the opportunity to apply what they learn during the first year of the program and the internship helps them gain much more value from the advanced material discussed in the second year of the program.

What is in this experience for you as a potential internship employer?

You gain an employee who aspires to be a professional in the turfgrass industry. Interns should be expected to show a much higher level of interest and dedication than the average summer student as this is their chosen career, not just another summer job. An intern should be a key member of your management team, another set of ears and eyes in the field. They are highly motivated to support your organization's goals. There is an expectation that employers give more time to interns demonstrating and discussing various practices and decision making processes but interns are expected to earn this time through their hard work and dedication. Your investment should pay dividends, as an intern should be a more productive and effective employee.

Progressive turf operations across Canada and the USA understand the value an intern can bring to their organization and competition for available interns is quite intense. Your best bet is to recruit from within by identifying and encouraging high school students and other seasonal employees who show interest to consider a career in turf management and then hiring them back as interns after they become students.

Internship postings can be sent to the university but can be easily lost among the many posted each year. Meet students directly by participating in events that students attend like the Sports Turf Canada Ontario Field Day and other turf conferences such as the student organized communications symposium that takes place each fall. If you are in the Guelph area, inquire about attending a Turf Club meeting or giving a guest lecture in one of the classes. Making a personal connection with potential interns is very effective in identifying and recruiting an individual who could become a key staff member in the coming season.

Internships are an extremely important component of turf management education programs. They provide a real life learning experience for the student intern but can also provide an outstanding experience for intern employers and their organizations.

Additional information:

www.uoguelph.ca/oac/future-students/turfgrass-management

Olds College, Olds, Alberta

Jason Pick

Instructor, Golf Course Management

Olds College has long recognized the value of hands-on learning for its golf course and turfgrass management students. With continued efforts to advance the calibre of its graduates, the turf department restructured its program in 2013 to enhance that hands-on commitment, incorporating block style inquiry based learning, summer field schools, and internships.

In the new program, turf students arrive on campus the first week in January and are immersed in an inquiry based, problem solving program format. A unique 13 day block system allows students to focus on a single course topic every 13 days before moving on to the next. The system offers many advantages over a traditional 15 week semester by circumventing distractions such as timetabling conflicts, the shuffling of assignments, even the stress of taking multiple courses at a time in traditional semesters. Within the block, students are focussed on just one topic at a time - fully engaged for a deeper understanding of the subject matter.

The student residency requirement for subject blocks in the diploma and degree turfgrass management program is just 4.5 months on campus. Following this brief residency, students return to work to pursue field school and internships, offering the greatest opportunity to recover tuition costs in the compressed timetable. An immense value to both students and industry, this format not only makes the Olds College turfgrass management program the most affordable when compared to other learning models, but provides the sports turf industry an exclusive advantage.

Traditional semester programs pull students away from their courses/employment in September, forcing employers to make due short staffed. Traditional timetabling further denies students a critical training period when winter protection programs such as irrigation blow-out, fall aeration and snow mold protection programs are taking place. Olds College having duly recognized this training challenge as well as the industry need to retain employees in the shoulder seasons, has added this much needed component into its program structure.

Each internship and field school helps students achieve

competency milestones, meet occupational standards, and reach experiential needs of industry each stage of their training. Theories explored in the block format are paired with respective summer internships, strategically integrated to ensure students seamlessly work towards achieving those training milestones without conflicting with day to day operations. Reinforced by our Industry Advisory Committee, a team of active superintendents routinely assess and report on industry standards. Through this process, students are assured that their training goals are highly relevant, and meet the ever changing needs of the industry.

Although many students choose to complete field schools where they are currently employed, industry demand for our student interns and graduates is exceptionally high. Subsequently, opportunities both nationally and internationally exist for those who choose to diversify their experience, even explore world class venues.

Additional information:

oldscollege.ca/programs/horticulture/turfgrass/

“The program is structured differently so that students work through the entire golf season; this is a benefit to both the student and the golf courses. The students will now be working and learning in October when the courses are put to bed.” Dustin Zdan – Superintendent, Connaught Golf Club

Kwantlen Polytechnic University, Langley,

British Columbia

Stan Kazymierchuk

Instructor, Turfgrass Management

KPU offers a two year Diploma in Turfgrass Management as grounding for future sports field managers and golf course superintendents. Internship comprises two courses, HORT 2302 and HORT 2306.

HORT 2302 involves interns working at an approved summer turf site for a minimum of 455 hours. Students are encouraged to select a site and supervisor which will give maximum opportunity for responsibility and learning new skills. Interns are expected to keep a detailed written and photo log of all activities experienced and are also responsible for collecting data on some form of project of interest. This project may be applied research, study of an innovative procedure or product, or detailed analysis of some aspect of the operation. Supervisors are encouraged to share whatever information they are comfortable with, to verify hours and provide intern assessments at the end of summer.

HORT 2306 is a fall course follow-up to the work experience. Interns process the collected data and photos into two PowerPoint presentations to classmates. One is a detailed analysis of the operation including aspects such as labour, irrigation, fertility, mowing, cultural, etc.; the other is a PowerPoint presentation of their project of interest. Both presentations are followed by Q/A discussion and peer grading.

Students benefit from internship on multiple levels. This is usually the first time they actively collect data about their worksite and probe supervisors for reason, rationale and data. Operations analysis is useful for the “big picture”, while their interest project encourages in-depth detail. They can apply their basic first year knowledge to an actual site and are able to discuss operations with their supervisors at a different level. From a supervisor’s viewpoint, it is a chance to see if their intern has “the right stuff” for a future move up. Experiencing other student’s presentations may be the most valuable component, as seeing how a range of facilities operates fully enriches learning in their final upper level coursework.

Additional information: www.kpu.ca/hort/turf

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The When and How of Sports Field Renovation

Steve Schiedel, Greenhorizons Sod Farms

We all struggle with WHEN and HOW to improve the sports fields we manage. We all want safe, reliable and predictable natural grass surfaces for everyone to use and enjoy. So when we do decide to renovate, do we re-sod or simply provide some aggressive maintenance procedures like verti-cutting, dethatching, fraise mowing, fertilizing and overseeding?

One of the main factors to help make the decision on aggressive maintenance, renovation or sodding is whether your scheduling department will allow the time for the renovation procedure you desire. For example, overseeding is an economical choice but needs the time to reach maturity in order to handle traffic. It's very disappointing to have a beautiful seeding catch, only to be played upon prematurely and defeating all your hard work. Depending on the seed type you use, seeded fields should be kept out of play for at least two to three months. This time allows the new seedlings to mature enough so that they are tillering and starting to grow rhizomes and stolons, the plant's anchors and reservoirs, enabling them to handle traffic and recover from normal wear. It is this healthy thatch layer in a mature, well-maintained field that gives it durability and recuperative ability.

Relieving compaction is almost a given no matter what direction you are going. Compaction due to traffic and normal use is the sports field's worst enemy. Once a field is compacted it will not drain properly. It will hold water which makes the soil anaerobic, essentially making it stale, or dead. In compacted soil, roots are not able to penetrate the soil, will become shallow, susceptible to drought stress and more damage from traffic. The natural turf's ability to uptake nutrients is greatly diminished and a compacted field will simply not properly recover from traffic.

Compaction can be relieved in many ways with a core aerifier or slicing tools. Removing the core is always the most beneficial as we are actually decreasing the soil density in the top three to four inches (75 to 100 mm). A shattertine type tool fractures the soil to create voids for roots to follow.

Your soil compaction management should be performed just before seeding, therefore most of the intensive traffic you are performing to complete the renovation process has been done. When the soil is not compacted the small germinating seedlings have the best chance to germinate in an open core or put down a high volume of roots into a core void.

Amending the soil should also be considered when you are doing any type of renovation. Soil chemical tests and physical tests should be taken to identify what soil additions and/or alterations would benefit your field the most. Adding compost can be a benefit to improve the humus level in your soil and in turn help the plant change synthetic fertilizer into something the plant can use. Compost can also help with soil structure by relieving soil compaction, retaining water and in some cases even improving water penetration. Adding sand is another option. I just caution against high expectations of adding sand as it may not always improve drainage. Sometimes adding sand can actually increase the intensity of, instead of relieving, compaction and not allow your field to drain properly. This is why a physical soil test is so important. It can help determine if sand, or what gradation of sand and how much sand it will take to create any kind of improvement in your field's' draining capabilities.

Unless we are at a school where the field is down for the summer months or at a municipal location where we can take a field off the



schedule in early September and not put it back into the schedule until late-May mid-June, seeding will be a challenge to make any long term improvement in your sports field. Sodding is a fantastic option when time is crucial.

The same field preparation needs to be performed whether you are sodding or seeding along with the commitment to get your sod established properly by watering it within the first three hours, keeping it watered properly for the first three days, and managing water, mowing and fertility for the first three months.

Sod needs to be installed on bare soil, there cannot be any thick organic matter under it, if there is, it will decompose, creating an uneven playing surface and unhealthy environment for new roots to establish.

Sodding just the goal mouths and centre of the field tends to be problematic and we do not recommend it as it is difficult to prepare these small areas properly. It is difficult to do a good job keying them in so there are no transition issues that could lead to injury, not to mention the difficulty establishing individual small sections. Picking a full width between the goal posts and going from one end of the field to the other is the best option. This requires one clean edge on either side to be keyed in and in most cases, can be watered separately with existing field irrigation zones.

After preparation and just before installation, apply a starter fertilizer with a high middle number like 8-32-16 or 5-20-10. Water immediately upon installation, keep it so wet for the first three days that you cannot walk on it and then start to cut back on watering so the sod needs to go looking for water.

The new sod needs to be reviewed a couple of times per day during this establishment period and watered as required as soon the turf gets to the wilting point. By seven to 10 days the new sod should have roots 1/4 to 1/2 inch (6 to 12 mm) into the soil and be ready for the first mowing. After the first mowing, water the sod as if it was the first day you installed it. Then cut back on watering to allow the turf to go looking for water. Water at the wilting point for the next seven to 10 days, and then mow again. After mowing, water again as if it was the first day you installed it then cut back again to allow the field to firm up and root even deeper. By the third week of mowing the new sod should be ready for play.

Natural turfgrass sod is the best solution for sport surfaces. Properly maintained natural turf is safer, more predictable and economically more efficient if built right from the beginning. •

Steve Schiedel, Greenhorizons Sod Farms, www.greenhorizons.net/



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Components of an Infield Mix

Every skinned infield is comprised of three unique components: sand, silt, and clay. Understanding the characteristics of each component goes a long way toward helping with the management of a baseball or softball field.

Sand, for example, is going to drain very well but will have a tendency to be loose or shifty. Theoretically, you might be able to play a baseball game on an infield made out of 100% sand, but only if you have a sufficient amount of water after every pitch to keep the surface firm and playable. Since this is not a very practical method to maintaining a field, it is important that sand is balanced out by enough silt and clay to bind the infield mix together and provide sufficient water-holding, giving the infield skin stability and firmness.

Clay particles, however, will be slick, slimy, and slippery when wet – and are often the cause of rainouts. In contrast, during hot, dry summer months, clay will dry out, crack, and harden – causing a dangerous sliding surface and creating potentially unsafe ball hops.

Silt is considered the binder or bridge between sand and clay. In some respects, it is a necessary evil – helping to hold the mix together, but become unruly to manage in high concentrations. A mix that has significantly more silt than clay, for example, will have sort of a flour consistency: moisture is unable to penetrate into the mix, and the silty particles will cake to the bottom of athletes' cleats. Also, as silt dries out, it can create a hard pan layer on the surface of the infield, and often needs to be removed or rototilled into the field to prevent water build-up over time.

It is highly recommended that an infield has a balanced Silt to Clay Ratio, or SCR, of 1:1 or even .5:1, whereby there is never more silt than clay on the field. This will be a far easier field to maintain than one where the silt level is two or three times the amount of clay on the field.

Selecting an Infield Mix

There is no 'perfect' infield mix, but there are mixes that are better suited for various climates, available maintenance resources, and different levels and amounts of play.

A field that is high in sand content, for example, will be more forgiving in rain situations, and can also withstand significantly more wear and tear if there is a limited maintenance staff managing multiple facilities at a complex. Often at the recreational level, the sand content on a field may be between 70 – 75% while the silt and clay would total 25 – 30% of the mix.

At higher levels of play (collegiate, Minor League, and Major League), the clay content will be increased since field managers likely have the ability to tarp, add water, and manage a single field on a day to day basis (often with plenty of assistants to help with the maintenance practices!)

A professional mix, for example, may only be 55% sand with the silt and clay totaling about 45% of the mix (and striving for an SCR of less than 1:1, which could mean 20% silt and 25% clay in that mix).

Testing a Mix

Prior to developing a maintenance program for a field, it is critical to conduct a soil test to identify the various percentages of sand, silt, and clay. This can be done through a soils lab or an ag extension. The results will typically show not just the percentages of each component, but will further break down the particle size distribution, so that a field manager can determine whether he or she has a significant amount of coarse or medium sand, as opposed to a high concentration of fine and very fine particles.



Again at the recreational level it is common to see fields that are 70 – 75% sand content, but within the sand particles it is desirable for the majority of the particles to be medium to medium-coarse sand. Too many fine particles will tend to behave more like undesirable silt. Once a baseline is determined from a soil test, it is easier to develop a maintenance program and to select amendments to improve the playing surface – either incorporating more infield mix to bring a field into a more desirable sand/silt/clay range, or utilizing infield conditioners as a maintenance practice.

Managing Your Moisture

The single most critical element in field management is water. Too many fields lack access to water and in turn fail to manage moisture by adding water to the infield skin. This added moisture acts as a “glue” to provide a stable infield mix, and also creates a level of consistency if a sufficient amount of water is added to the mix.

For groundskeepers at the professional level, this means flooding the field the night before a day game, or first thing in the morning for an early evening game. This healthy soak of the skin – which can take up to an hour, or can require two to three soakings of the field – creates a moisture reservoir and ensures that the surface remains firm, but not hard, throughout the upcoming game.

There are several considerations when determining just how much water should be added to the skin. The temperature, humidity, cloud cover, and wind are all factors that influence evaporation rates; and of course potential rainfall should also be taken into account.

Management of Skinned Infields

Jeff Langner, Turface Athletics



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Other considerations include the amount of time before the game starts, the forecast for game time and the rate at which the skin will absorb water. It takes hours of practice to be able to apply water evenly. This is just as important as how much water you apply. A consistent, uniform watering will promote a consistent, uniform bounce. Deep watering after the last game of the day will help the next day's work go smoother.

Ultimately, a groundskeeper is striving for something known as a "corkboard effect" – almost a sponginess to the skinned surface. A skinned infield should be firm, but not hard. A good way to gauge this is that a player should see a "cleat in / cleat out" effect when they are running on the infield.

A cleat that doesn't adequately penetrate the top of the infield skin, or causes a chunking out of the clay, indicates that the mix is too dry (and possibly that there is too much silt and clay at the surface). In contrast, a cleat that comes out mucky indicates that the infield mix has become oversaturated. Following a game on a professional field, hundreds of individual cleat marks will be visible, but none of the infield clay will have blown out or come apart. This is the idea of cleat in / cleat out; firm but not hard.

The Use of Infield Conditioners

Even after an infield mix has been tested, amended, graded, and watered, there is still a high level of daily maintenance that goes into infield management. This is where the role of an infield conditioner is critical.

There is no industry standard for what constitutes a conditioner, and as such there are a range of products on the market, including aggregates, limestone, brick dust, vitrified clays, expanded shales, and calcined clays.

A conditioner should be selected primarily for its ability to manage moisture and provide a barrier between an athlete's cleat and the clay below. For this reason, professional groundskeepers exclusively use vitrified clays and calcined clays for skinned infield management.

These two types of conditioners vary in the base mineral that is used for the amendment, along with the manufacturing process that heats the particle to give it its stability or permanence (it is in this regard that calcined clay differs from a kitty litter, which is simply a dried clay rather than a fired permanent "ceramic" amendment).

Every field should incorporate some kind of conditioner at the very least on the surface of the skinned infield to prevent infield clay from sticking to cleats, equipment, and grooming tools. For this application, typically about a 1/8" (3 mm) layer of material is applied. (The amount of product needed will vary based on square footage of the infield, along with the type of conditioner selected. For example, more vitrified clay would need to be applied to achieve a 1/8" (3 mm) depth than calcined clay because calcined clay is a much lighter material). Conditioners will also act as a mulch to help hold moisture in the infield on hot sunny days.

Many field managers like to work conditioners deeper into the infield skin, using a rototill or nail drag, as a way to help manage moisture deeper in the soil profile. This is especially beneficial when using calcined clays, which nearly hold their weight in water, acting like tiny sponges to absorb water and release it back into the infield skin over time.

In contrast, vitrified clays and expanded shales have less water-holding capacity, but can be appealing as a surface topdressing for their ability to let moisture work its way through the surface and down into the infield mix, especially in hotter, dryer climates. Vitrified clays and expanded shales offer a high level of durability and often have aesthetic benefits as well.

Dragging Techniques

Dragging a skinned infield can easily be a daily task on many fields, but is often neglected by field managers who have to care for multiple fields with limited staff. However, the benefits of good dragging practices should not be ignored (similarly, it's important to keep in mind that poor dragging methods can cause low spots on the field, lip build-up at the edge of the skin, and can create a field that is too fluffy or shifty).

When done properly, though, nail and mat dragging a field can help to maintain the proper grade, promote drainage and provide a safe, resilient playing surface. Nail dragging helps to loosen the soil and provides material that can be moved around to fill low spots. This practice is most effective when the infield mix is moist, but not oversaturated. For daily maintenance, the nail drag should be light enough to remove spike marks and bumps but not turn up too much loose material. Field managers should take care to always hand rake the last six to 12 inches (15 to 30 cm) from edges to avoid pushing infield mix and conditioner into the turf, which causes lips.

Mat dragging is a good way to put a nice finish on the field and to smooth out imperfections. This is a good practice prior to each game on a field, though if a field is wet, a cocoa mat is better than a metal drag since wet infield mix tends to clump and stick to metal equipment.

When dragging fields, the starting and stopping points should vary from day to day. Base paths should be raked by hand whenever possible, and kept slightly firmer than the rest of the infield. A periodic rolling can help firm up the base paths.

Conclusion

Infield management is not without its challenges, and a staff with limited personnel, tools, and financial resources may struggle to stay on top of some of the daily maintenance requirements. Things like access to water and availability of mound and plate tarps make a huge difference toward being able to battle the elements – not just staving off rain, but maintaining a good moisture base when weather turns hot and dry as well.

Selecting a good base soil (or amending an existing infield mix) and choosing the right conditioners can go a long way to making the daily maintenance process a bit easier on a field manager. Taking the extra time to establish a proper grade, drag regularly, and manage lips will give a field the extra touch to look and play its best when the game is on the line. •

Jeff Langner is Brand Manager, Turface Athletics, www.turface.com/

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