

SPORTS TURF MANAGER

... for safe, natural Sports Turf

MARCH 2002

VOLUME 15 ♦ ISSUE 1



Life Styles and Life Cycles

DEMOGRAPHICS, ECONOMICS AND THE FUTURE OF ONTARIO'S TURF INDUSTRY

Keynote speaker at the Ontario Turfgrass Symposium this year was David Baxter who discussed the topic *A Growing Demand: Life Styles, Life Cycles and the Future of Ontario's Turf Industry*. Since University of Toronto demographer David Foote published his Canadian bestseller *Boom, Bust and Echo*, more and more emphasis has been placed on predicting future market trends by tracking population statistics. Baxter's OTS talk was based on linking demographic information obtained from Statistics Canada with changing economic conditions. The following points highlight emerging North American trends. Although many may appear to have no specific link to the turf care industry, all will shape the future life styles and life cycles of an aging Canadian population. Business owners and municipal managers should consider demographic information in their decision-making processes.

- The Ontario population will rise from the present 11,000,000 to 16,000,000 in the next 30 years. Over the next 10 years, the population aged 45-plus will increase by 1.3 million people while the under 45



The future will bring more community leagues, which are currently popular, and a renewed interest in neighbourhood sports.

population will increase by only 400,000 people. The population of Ontario is aging. The median age for child bearing is 30. Ontario does not have a replacement birthrate. Life expectancies are up. People are living three times longer than either the pension plan or health care system was designed for. One out of four Canadians will live to be 90. Generally as a population, we are more fit and increas-

ingly healthy. Baby-boomers will be the first generation to retire with two pensions.

- Our health care system is increasingly taxed as the population ages, so health care costs rise. Two-thirds of health care spending is on people 65 years or older. Half of the people who retire in Canada are under the age of 61; half of those retiring from the public sector are under the age of 57.

- Young people tend to live in apartments. When they reach the age of 30, they go to ground-oriented accommodations, which can loosely be defined as looking across the snow to a barbecue you forgot to clean! This is the age group who tend to have high discretionary and disposable incomes. The 35-44 age group buy

the largest number of lawnmowers, but the 55-64 age group exhibit the highest household spending on lawnmowers. They buy the ones with all the bells and whistles. One group buys the starter kit, the other a very sophisticated machine.

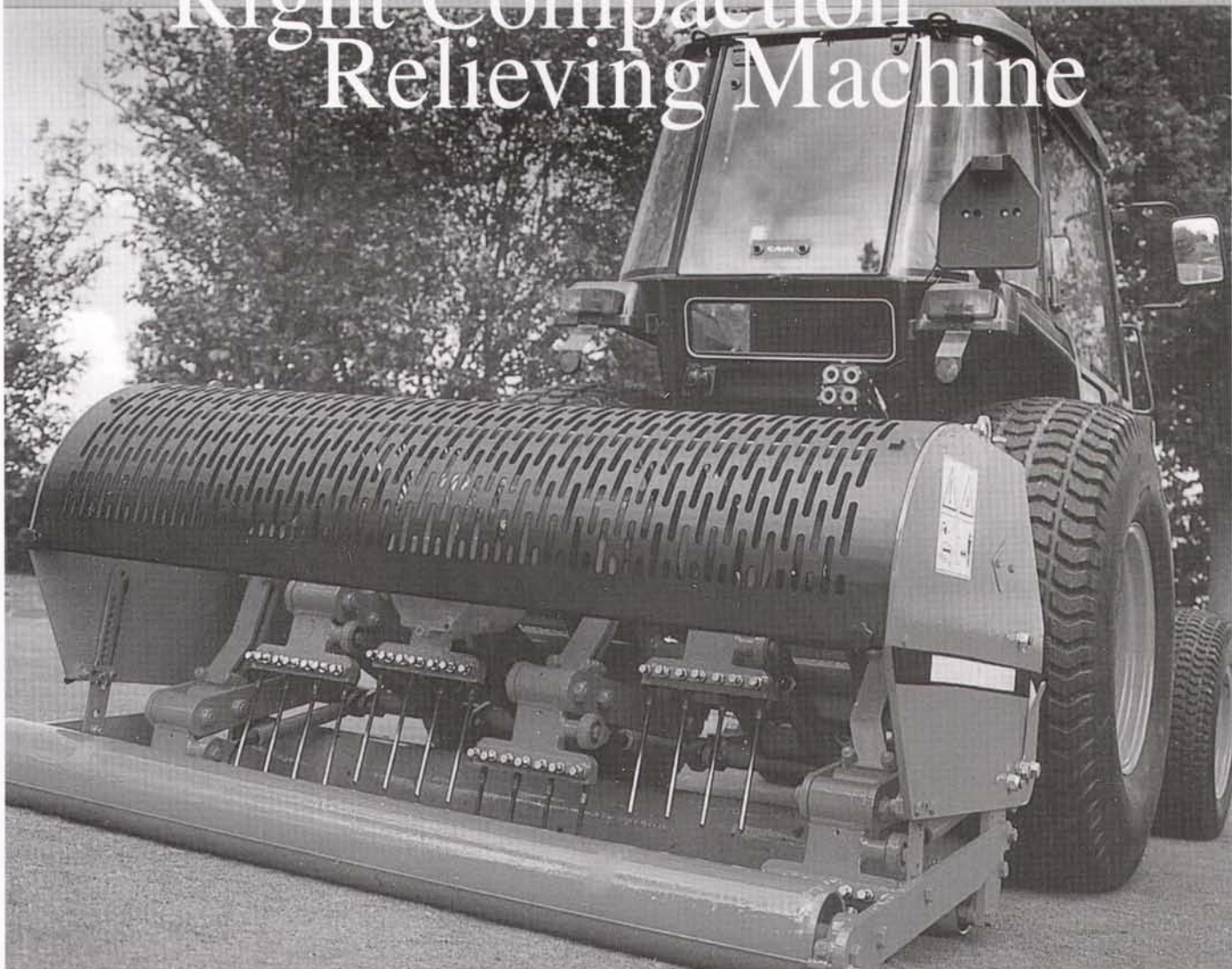
- Turf services will be much more important in the future. As this 55-64 group ages, their spending declines. However, these are the people ... *con't on page 5*

In this issue of Sports Turf Manager, you'll find ...

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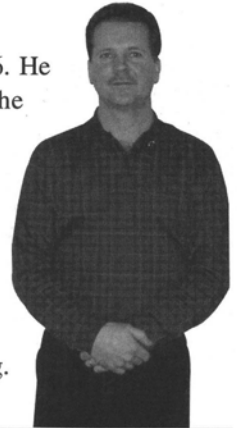
Please include the vital information of name, telephone number with area code, and time of calling. The office may be reached at any time by faxing (519) 766-1704 or via e-mail.

Meet Our New Board Member

STEPHEN TOLLEY JOINS THE STA TEAM

Stephen has 20 years of experience in the landscape maintenance and construction industry, 11 of them with the Town of Markham Parks Department, and most recently as the Grounds Supervisor at the University of Toronto at Mississauga. A graduate of the Ontario Diploma in Horticulture Program at the University of Guelph, Stephen was the recipient of the Award of Excellence from

OMAFRA in 1996. He is a member of the Ontario Parks Association, Landscape Ontario (Horticulture) and enjoys downhill skiing, golf, and, of course, backyard gardening.



GET INVOLVED WITH YOUR ASSOCIATION!

We invite you, our members, to participate on a variety of Association committees and experience the many rewards of volunteering. For details, please contact Lee Huether at the STA office prior to April 30th.



ASTM Standards Available

VALUABLE GUIDES FOR SPORTS TURF MANAGERS

The following standards are available from the American Society for Testing and Materials .

- *Standard Guide for Construction and Maintenance of Skinned Areas on Sports Fields*, Guide F2107-01, \$30 US, and

- *Standard Guide for Fences for Ballfields and Other Sports Facilities*, Guide F2000-00a \$25 US.

For further information or to order, visit the ASTM website at www.astm.org or telephone (610) 832-9585.

STA Membership Fees

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Thank you to all members renewing in 2002! Invoices for membership fees will be mailed at the end of March and are due and payable on or before May 1. Please take a moment to verify your contact information as it appears on the memo accompanying your Membership Invoice. The Membership Roster is compiled from this information entered in our database. For any questions, please contact Lee Huether at the STA office.

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

Words of Wisdom ...

Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young.

— Henry Ford



MEMBERSHIP PLAQUES

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Sports Turf Association Display Membership Plaque in executive engraved walnut. **\$50 plus S&H.** To order, contact Lee Huether at the Sports Turf Association office.

The President's Desk

PAUL TURNER



I wish all our members a belated Happy New Year for 2002 and let's hope it brings us continued health and many successes in our endeavors. As your

new President for the next two years, I would like to take this time to say how honoured I am to be following in the footsteps of some very talented people, Jane Arnett-Rivers and Chris Mark. I look forward to guiding our Association to continued heights of excellence.

As all of you are aware, the events of September 11th have changed forever the way we value life and also the way business is conducted. I, for one, now value each minute of each day more than ever before. Our thoughts and prayers go out to all those touched by that fateful day.

It is with great pleasure that I welcome Stephen Tolley to the Board of Directors for a two-year term and thank all those Board Members who have committed to another term. A sincere thank you is extended to Andrew Gaydon who has accepted the position of Vice-President. I must however share some sad news with the membership. Harold Van Gool, our Treasurer for many years, has decided to leave us (a great deal of arm twisting didn't help!). Harold is diverting his energy to

obtaining his Masters in Business Administration from the Richard Ivey School of Business at the University of Western Ontario. We wish him all the very best on his new project. The duties of Treasurer will now be assumed by Rick Lane. Thanks Rick!

Recently at the Annual General Meeting, a membership fee increase was approved for 2002. These fee increases were necessitated due to rising administrative costs, including increases in office insurance and the publishing and mailing of the newsletter. The new rates are \$130 for initial members and \$32 for each additional member. The student rate remains unchanged at \$25. The 2002 advertising rates are now available to prospective advertisers and I think you would agree that our rates are very attractive for suppliers to show people what's NEW in the marketplace.

For those who were not in attendance, the Ontario Turfgrass Symposium was, once again, a great success. The list of quality speakers was astounding and from a personal standpoint, the change of date to later in January was refreshing. A big congratulations goes out to the Sports Turf Challenge winners, Marjie Fraser, Reid Patterson and Tino Petrunti from the City of Vaughan.

The Field Day Committee is busy at work putting the finishing touches on the 2002 event. Exact dates and location will

be announced in the June issue of the *Sports Turf Manager*. The committee did agree with membership input to move the field day to September from August, a more convenient time since most summer vacations are over. I think you would all agree that the Sports Turf Field Day continues to be one of the best values in our industry and I look forward to seeing those in attendance. Let's make 2002 the best one yet!

STM

The annual STA Field Day will be moved from August to September this year.

In closing, the Association is in great shape and we look forward to fine tuning a few things in the upcoming year to make things run even smoother.

Some projects that we are embarking on in 2002 include revamping the current web site to make it more attractive and user friendly and implementing payment by credit card to allow you to register for the Field Day and pay for your membership and other services more conveniently.

I welcome any comments or thoughts from you, our members. You can email me directly at paul.turner2@sympatico.ca or through the Sports Turf Association office at sta@gti.uoguelph.ca. ■

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by Dr. R.W. Sheard



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Life Styles and Life Cycles

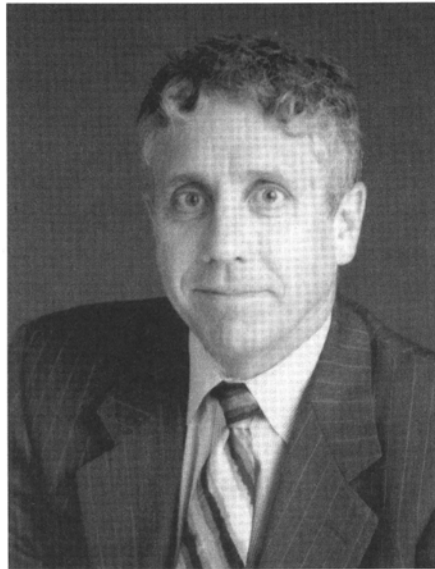
OTS HIGHLIGHT • FRONT COVER ARTICLE CONTINUED

who are hiring others to do the work. So we are eventually going to see less of the consumer trade and more business going to companies that provide horticultural services. In the residential sector, it will be more of a service industry than a product industry.

- In the last ten years, there has been a drop in the domestic product, the level of housing starts and population growth. We are slowly coming to grips with the economic realities of an aging population. Over the next decade, we will reach a state where more people are retiring than entering the work force. There are increasing employment opportunities for young people, but there is also a tremendous challenge for employers looking for skilled labourers/tradespeople. In many sectors, there will be more jobs than people. The future will bring an increasing reliance on immigration to fill a variety of positions in the Canadian workforce. The US will continue to raid our workforce.

- Lifestyles since September 11 have changed. There are more demands on what is available in North America. International travel has slowed, especially by air. More tourist dollars are being spent at home. Internet services have reached the level of sophistication where we don't even need to leave our house – everything can be obtained online.

- Golf, tennis and bingo are *niche or lifestyle* markets, they are not lifecycle markets. On the surface, statistics appear to show that as you age, you start playing bingo. Average household spending on bingo in the under 25 age group is \$119 per year. In the 55 and older age group, annual bingo expenditures are much higher. Yet digging deeper into the data shows that only 10% of the population in each age group, more or less, play bingo; therefore, those that play in the older age groups, play a great deal and spend more – on average \$1,000 a year! Increased spending on bingo is not age related but lifestyle related.



Keynote Speaker David Baxter

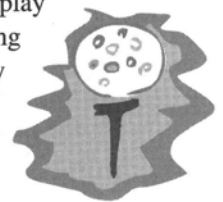
- Economic conditions in 1990 resulted in a very high demand for sod – demand dropped in 1991. In 1998, Ontario was supplying 57% of Canada's sod needs. By 1999, the percentage dropped to 49% as sod prices dropped in value and in acreage sown to 10,820 acres.

- The number of people attending live sporting events peaks in the 35-44 range and drops off after that, as does the spending at these same events. These events will decline in the future. We will see many national and city sporting teams disappear. There will be more community leagues, which are still popular, and renewed interest in neighbourhood sports and industrial leagues is anticipated.

- In the golf industry, there are two main population segments, the most significant is the under 35 age group, the young group with no children, followed by mature adults, many of whom are in the avid golfer category. The latter are the people to focus on to play more rounds and to maintain their avid golfer status to a greater age.

- The US population will grow by two 'Canada's' in the next 25 years providing a major market, tremendous export industry and continental tourism potential.

Remember, people do not play golf because they like playing with a little white ball, they play golf because they get stories, experiences that tie into their lifestyles.



Pay attention to the customer. Study your market, look at what your market is doing. You cannot sell cheaply and provide a high level of service as well. Investigate value-added customer services. Boomers are willing to pay for quality experiences and products.

When Tina Turner appeared on the advertising scene, ladies' hosiery sales went up 400% in one month. People buy tiny perfect containers of goat cheese with basil and other expensive specialty items. What causes such swings in consumer behaviour? Don't assume your market, go out and find your market! Good luck – the times, they are changing ... ■

— Summarized by Michael Bladon

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The March issue is dedicated to thorough OTS 2002 coverage.

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Something New in Sports Field Restoration

IAN MILNE • COMMUNITY SERVICES • CITY OF GUELPH

Back in April of 2001, the Guelph Youth Soccer Club asked me if I could have the four mini soccer fields at Bristol Street Park regraded. The fields were getting to be in pretty rough shape – they were starting to take on the look of a mogul run. To add a little bit of history, this park is located over a 1960 era landfill site and continues to settle.

With soccer registration at an all time high, a common problem with scheduling repairs to soccer fields is deciding when to do the work and how to keep the fields in operation. We put together a plan – topdress the two better fields and keep them in play and regrade and reseed the two others as soon as the soccer season was over.

The topdressing was accomplished early in the season with no disruption to

remembered hearing Chris Morrison of Organic Express talk about Terraseeding. Chris had been looking for a site to conduct further testing of their product in a sports field situation. These two small soccer fields fit in very well for him and the timing was just right.

After some discussion with Chris, a plan was put in place. First we had the high spots scraped off and a layer of much needed good quality screened topsoil was added. This would give the turfgrass roots ample depth of soil to grow down into. With the existing topsoil and the 330 cubic yards of screened material hauled in, we had about 4-6" of topsoil, not ideal, but a great improvement over existing soil conditions. The second week of September we had the fields ready for fine grad-

ing; the soil was dry and the surface worked up very nicely. We were now ready for Chris to come in and complete the job.

On Sept. 13, Organic Express rolled in with their blower truck and started work; the job was completed the same day.

The Terraseeding material consists of a layer of compost material approxi-

mately 2 cm deep with a particle size no larger than 1 cm. The seed and the initial fertilizer are blown on with the compost and are evenly distributed throughout the 2 cm depth of compost. The compost is a weed seed free organic matter; thus, any emerging weeds would have to come from the screened topsoil or the existing soil. The seed mixture used was 50% turf type perennial rye grass and 50% turf type tall fescue. This mixture provides optimal germination, fast growth and will stand up to drought conditions.

We had five days of very dry conditions after the compost and seed was put down.

This made me a little concerned, so I applied for a watering permit. This accomplished, a nearby community ice rink 1" water outlet was activated with 500' of water hose and a rain train sprinkler. One day of irrigation was all that was needed as the skies opened up and we settled into some very nice moist conditions that had the seed germinated nicely within a week.

Composted material retains significantly greater moisture than topsoil, so once the moisture is in the ground, the need for irrigation is greatly reduced. Although there was good seed germination overall, one small section at the west end of the field was a little sparse and a bit slow to germinate.

Chris was reasonably pleased with the early results but found that germination could have been more even. His company conducted some additional testing of the compost material used and found the carbon concentration to be a little high. They believed this affected seed germination and early seedling growth stage. As a result of this new information, Organic Express has corrected the carbon problem in the compost.

By early October, we had a nice seedling coverage, 5/20/20 fertilizer was applied and the weather throughout the fall was ideal for seedling growth and turf development. In fact, the turf must have looked pretty good to a group of Saturday afternoon football players who found the field and had themselves an impromptu game – needless to say, this did nothing to improve the new turf.

Snow cover has been less than ideal this winter, although the low temperatures have not been too unkind. So, it is with a great deal of anticipation that I look forward to the result of this experiment in sports field restoration in the early spring of 2002.

Due to the positive early results of this experiment, I will give consideration in the future to the Terraseeding method of topdressing sports fields during the season to keep overused fields in play. ■



play. Now came the hard part, how to get the other two fields regraded with a good stand of turf ready for play by May 1, 2002.

I had considered reseeding, though this has worked in the past with less than ideal results. You must get the seed down early and be fortunate enough to get some moisture into the ground in the form of rain. Considering the time factor, this was a bit risky. Re-sodding the fields was a better option but with the cost of sod, the labour to put it down and Guelph's water shortage, I felt that option was out too.

I went searching for alternatives and



Improving Your Turf in Fall

DR. ZAC REICHER • SUMMARIZED BY MICHAEL BLADON

Dr. Reicher gave a very interesting talk and in the time frame allotted, answered many questions which he invited from the audience. The following is a synopsis of his session.

Fertilization Recommendations

Fertilizer treatments applied in August and September help improve turf density and lateral growth of bluegrasses and bentgrasses which spread by rhizomes and stolons. There is very little vertical growth during fall months and fertilizing then improves density. Slow release forms of nitrogen (N) are preferred for early fall applications, but if your budget doesn't allow it, fast release forms are better than no fertilizer.

Final fertilizer applications should be applied close to the last mowing when the grass is still green. There is a fair amount

of time between when the turf stops growing and when it turns brown. Late fall fertilizing increases the amount of carbohydrates built up for winter survival and early spring greenup. Don't apply fertilizer to dormant areas; turf must be active and photosynthesizing to reap fertilization benefits.

For late fall applications, it's important to use fast release forms of N so it is taken up by the plant immediately. Fast release forms like urea or ammonium nitrate are fine, plus they're cheap! Rates of 1.0 to 1.5 lbs N/1,000 sq. ft. should be used at this time. An immediate green colour will be seen and it lasts.

What you do in September, October and November translates into how well your grass will survive next summer. The effects of good fall management practices will also be seen next spring with faster



greenup and good root growth. Do not apply fertilizer in spring until after the spring growth flush, because you will get all kinds of top growth at the expense of root growth. If you must go out, employ a very light application of nitrogen at 0.5 lbs N/1,000 sq. ft.

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Don't forget the obvious in that spreader patterns are also important when applying fertilizer. Be sure to calibrate the spreader and your overlap – with a rotary spreader is 50% where the edge of your pattern should touch the spreader tracks from the previous pattern. Be careful with potassium as it is overrated – only apply if a soil test indicates you need it.

Soccer fields with considerable wear can handle three fall applications: after the heat in August, and 1 lb. in September and October. The risk with this fertilizing strategy is that it will increase snow mold, but this risk is normally justified on areas under severe wear pressure. Slow release should be used for the first two applications and fast release for the last one.

Reduce your fertilization rates and you have to reduce your expectations. Your best bet is to let the grass plants dictate fertilization. If you see clover, dollar spot, red thread or rust in your fields, you have too little nitrogen. If you have perennial brown patch, pythium, snow mold and/or *Poa annua* problems, your fertility might be too high. You can't make up for missed fall applications in spring. Furthermore, leaching is not as much of a problem in fall because plants take up the fertilizer immediately – but that doesn't give us license to over-apply or apply carelessly.

Fall Seeding

Though Kentucky bluegrass is the preferred grass in lawns and athletic fields, it's not very competitive as a seedling. Perennial ryegrass is easier to overseed because of its tremendous competitiveness as a seedling, but it is more sensitive to diseases and does not spread like Kentucky bluegrass. When overseeding thinned out grasses, Kentucky bluegrass will work fine if it is a very thin turf and the area will not be trafficked for six growing weeks or more. But if the turf is "in play" and is needed constantly, use perennial ryegrass. Though many people use sod for a quick fix during a playing season, newly laid sod doesn't handle traffic well and overseeding may be a better choice.

The best time to seed is August, but don't seed any later than mid-September. If time restraints are a problem, then do it

in September. A rule of thumb is if the field is seeded the first of September under normal conditions, it will be available for play by the first week of June. Dormant seeding works very well combined with aggressive aerification at the end of the year.

Seeding at the wrong time of year is always a problem with weed control. Most herbicides have some kind of restriction when it comes to seedlings. Whether you spray over the top or prior to seeding, make sure you read the label carefully because every herbicide differs in its restrictions with use around seedlings. The best way to control weeds in seedlings is through mowing and most people don't mow a new stand soon enough. In order to maximize establishment, good seed to soil contact is required. The application of high phosphorous fertilizers prior to

seeding will also help establishment.

Finally, Dr. Reicher does not recommend perennial rye when establishing new fields. He recommends 100% Kentucky bluegrass blends instead. He maintains recommended seeding rates are too high. Regardless of the seeding rate, a turf stand can only support a given number of seedlings.

In terms of fall broadleaf weed control, Dr. Reicher referred to a Michigan State University study showing you can still get great weed control in the late fall as long as the target weeds are green and photosynthesizing. They will take up the herbicide but will show little effect only to die during the winter. Where aerification is concerned, you cannot kill turf or over aerify provided you are not doing it at 90F. Lastly, he recommended keeping mowing heights the same year round. ■

Industry News • STA New Members

Executive Director Appointed

Ken Cousineau, CAE, has been selected to succeed Vince Gillis, CAE, as Executive Director of the Canadian Golf Superintendents Association. Mr. Cousineau, who assumed his new duties February 11th, brings to the CGSA strong association management experience, both in managing internal administrative functions and external relationships with government and stakeholders.

Breeding and Evaluation of Turfgrasses Technical Conference

May 1-2, 2002. Organized by the Sports Turf Research



Institute, the conference, being held in West Yorkshire, will interest all turfgrass breeders and evaluators, turf scientists and other turf professionals.

A panel of 8 speakers will present 10 conference sessions. Further details can be obtained from Anne Wilson, Head of External Affairs, STRI,

telephone 01274 565131, email info@stri.co.uk.

TPI Confirms England for 2003 Winter Conference

For the first time in its 35-year history, the Mid-Winter Conference and Exhibition of Turfgrass Producers International will be held outside of North America. The 2003 meeting will occur from February 26-28 in Birmingham, England. Open to everyone in the green industry, anyone interested in receiving information about exhibiting or attending should contact TPI at 800-405-8873 or 847-705-9898, email can be sent to info@TurfGrassSod.org.

Welcome New STA Members

- Jim Nelson, City of Kitchener, ON
- Tim Ernst, City of Kitchener, ON
- Jorg Hermanns, Hermanns Contracting Ltd., Schomberg, ON
- Laurie Weatherall, City of Ottawa, ON
- Bruce Warren, Parc Downsview Park, Toronto, ON



Organic Amendments – Soil Elixir or More Snake Oil?

DR. BRIAN HOLL • PROFESSOR EMERITUS, UNIVERSITY OF BC • LAMORNA ENTERPRISES LTD.

The maintenance of high quality sports turf under intensive use and management is an on-going challenge. The exploitation of various designs of sand or amended sand root zones was initiated primarily to address issues related to drainage and compaction, particularly in regions with high rainfall and periods of significant winter play. Nevertheless, the sand-based root zone brings its own challenges – effective water and nutrient management is essential for any turf, but can be particularly critical on the sand base. It is not an uncommon experience to see the investment of significant capital resources in new field construction provide inadequate performance and poor returns on investment as a consequence of insufficient provision for subsequent maintenance resources.

In addition to their more conventional uses, modern recreational sports turf is often subjected to a diversity of other activities, including festivals and concerts.

The impact of stage construction, vehicle traffic, 25,000 rambunctious fans and ancillary requirements for concessions and portable toilets can result in excessive wear. Communication of the consequences of severe traffic and wear to user groups is often a significant challenge. We have found the following conversion of wear from conventional soccer play into a per metre expression of foot traffic to be an effective means of communicating the potential for damage to the turf.

On a soccer field, 70% of the play occurs on 30% of the field. Each player travels approximately 10 km/game – that produces 250,000 foot imprints per game (excluding the referee and goalies). At 42 foot imprints per square metre per game, a 100 game season results in 4,200 foot imprints per square metre! Given the additional impact of the referee, linesmen, goal tending pressures and other sideline activity, the real surprise is the ability to maintain any turf under this kind of traffic.

Holistic Management

In assessing management options to improve the performance of sports turf, there has been considerable interest in organic amendment and supplementation of sand-based turf in particular. In addition to the range of materials that are available for new construction, there are many additional products available for fertilization, topdressing and supplementation. Organic amendment use should be part of a more holistic approach to turfgrass management reflected in the concept of Integrated Cultural Management (ICM) – “the process of managing sports turf by considering and analyzing all environmental factors, pests, maintenance processes and player-applied stresses which affect the health of the turfgrass culture” (Puhalla, Krans and Goatley. *Sports Fields; A Manual for Design, Construction and Maintenance*. Sleeping Bear Press 1999).

In this article, I will review briefly some of the underlying principles of organic



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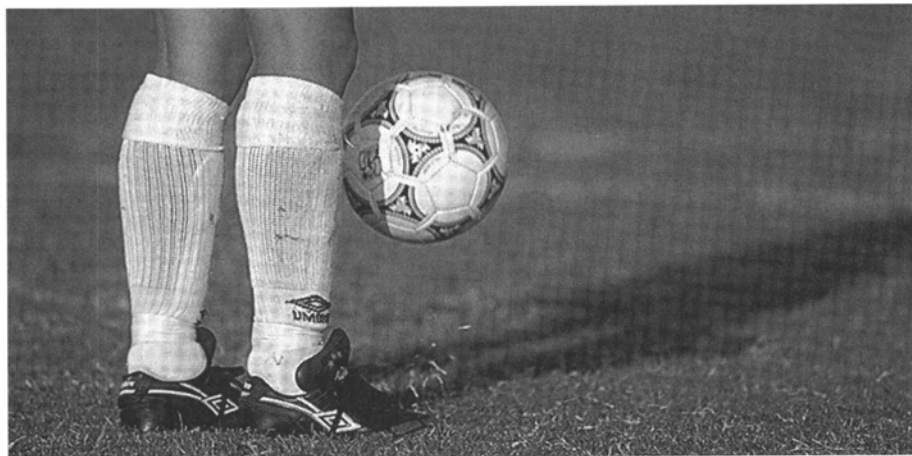
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amendment use and factors to consider in assessing the selection and application of a particular amendment type.

Much of the interest in organic amendments is derived from:

- Increased construction and use of sand-based turf systems and increased use (and degradation) of soil-based fields.
- Greater societal emphasis on “organic” approaches to turfgrass management in the context of “going green.”
- The production of organic materials through a variety of recycling pathways and waste streams and regulatory and commercial pressure that perceives turfgrass as a desirable route for the re-introduction of these materials into the ecosystem.
- Increased understanding of the role and natural benefits of soil organic matter.
- Literature that attributes multiple benefits to organic amendments in the turf ecosystem, including provision of nutrients, improved soil structure, enhanced plant growth, higher stress tolerance, improved ability to recover from disease or insect damage, enhanced beneficial soil microbial populations and disease suppression.

The key to any good sports turf begins with a suitable growing medium and good turf management. A “typical” native soil includes solid components (mineral and organic matter) and pore space (air and water). Levels of approximately 3% are commonly quoted for the organic matter (OM) content of such “typical” soils. The physical properties of a good root zone include total porosity of 35-55% distributed between air-filled and capillary porosity, with a saturated hydraulic conductivity of 15-30 cm/hr and moisture retention of ≥ 2.5 cm/30 cm depth (Sheard, R.W. *Understanding Turf Management*, Sports Turf Association of Ontario 2000). These basic characteristics reflect the importance of physical composition and performance characteristics of the soil profile. Based on the figures above, it might be presumed that organic matter (OM) is a relatively insignificant component of the root zone mix. In fact, organic matter makes a disproportionate contribution to the soil-plant relationship. The significance of naturally occurring OM in water



On a soccer field, 70% of the play occurs on 30% of the field. Each player travels approximately 10 km/game – that produces 250,000 foot imprints per game (excluding the referee and goalies). At 42 foot imprints per square metre per game, a 100 game season results in 4,200 foot imprints per square metre!

relations and in stabilizing soil aggregates and nutrient cycling has led to considerable interest in the use of organic soil amendments, especially for sand-based turf.

Assessing Organics

What are some of the issues that need to be considered in relation to an assessment of organic materials and their appropriate use in turfgrass management?

The keys to this assessment include evaluation of:

- C/N ratios of the starting material
- Soil O₂ levels and gas exchange
- Soil microbial populations
- Physical and chemical nature of the material, including formulation
- Continuity and quality control of supply
- Independent substantiation of product claims

Organic amendments include peat, soil, peanut shells, sawdust, composted urban waste, composted sewage sludge (biosolids), organic fertilizers derived from a variety of sources (including composts), humates and biostimulants of various types. These diverse materials are composed of various amounts of sugars and starches, amino acids and proteins, cellulose, hemicellulose, lignins, fats and waxes. It is not surprising, therefore, that organic sources differ markedly in physical and chemical composition, rates of

decomposition and contribution to the plant-soil ecosystem.

Organic matter decomposition involves reaction with microbes in an aerobic environment to produce humus, carbon dioxide and microbial biomass. Decomposition rates are influenced by C/N ratios, the physical and chemical formulation of the material and the soil conditions – particularly water and oxygen (good gas exchange is an essential feature of effective organic matter turnover). For material with the same surface area (particle size), the higher the C/N ratio of the organic material, the slower the decomposition process will occur. High C/N materials may also result in temporary immobilization of soil N, making it unavailable for plant growth in the absence of adjustments to the fertility program. Compacted or waterlogged soils will also have significantly poorer OM decomposition, and are more prone to developing microbial communities that include deleterious bacterial species.

Composition

Major interest in organic amendments has been focused on the increasing availability of compost and compost-based fertilizer products in the market place. In a native soil, good quality compost should increase particle aggregation, improve permeability, reduce surface compaction

and contribute to nutrient re-cycling. The material should be highly organic and decomposed (or manufactured from such materials). Material high in recognizable wood chips may have higher C/N ratios and slower decomposition rates. Moisture contents of 30-50% are generally desirable. At levels above 60% the material is hard to handle and clumps; below 25% it may be excessively dusty. Moisture levels can be critical to effective spreading and/or ease of incorporation.

The reaction (pH) of the material should be between 6 and 8. In soil, pH is unlikely to be a significant issue; however, on a sand base, incorporation of compost may influence the overall pH and could affect nutrient availability. Because of the highly variable input sources that can be used for composting, it is also essential to obtain a measure of the salt content – some products are sufficiently high in salts to create additional soil problems. Composts, as with most organic materials, provide slow release, low analysis fertilizer inputs to the turfgrass system. In particular, the release of some materials may be particularly low in the first year. At higher application rates, this may lead to nitrogen immobilization. This uncertainty can be a particular challenge for the “unprocessed” composts that tend to be more variable in composition and less defined in terms of release rates than fertilizers that have been manufactured from composted sources.

Other organic amendments include materials such as humates and a range of biostimulants products such as kelp extracts, microbial inoculants and other biologically derived materials. Humic substances are “naturally-occurring,

highly decomposed organic substances with very complex structures.” They normally include humic acid, fulvic acid and humins, which are distinguished on the basis of their solubility characteristics. Many of the characteristics attributed to natural soil OM have also been associated with humic substances – they are not fertilizers, but have been correlated with increased mineral nutrient absorption, enhanced soil microbial populations, reduced aluminum toxicity, increased plant hormone activity, etc. The challenge with humic substances is that because they are defined on the basis of solubility, materials with similar solubility may be from very different sources, have different chemical structure and properties, and have a very different effect on plant growth. With such materials, it is clearly critical to have specific and dependable evidence for the performance claims of the specific source material.

That category of materials known as biostimulants is probably the most challenging group of products to assess. They are diverse in origin and offer a similar range of benefits to other organics – nutrient uptake enhancement, beneficial microbial activity, soil structural benefits, stress tolerance, etc. Our experience with some of these kinds of products is that they are generally more likely to be efficacious under stress conditions – when growing conditions are near optimal, often little benefit is observed. As with any other group of products, independent evidence to substantiate claims is an important part of the assessment. As James Baird of the USGA pointed out at the recent Ontario Turfgrass Symposium, red flags should be

raised when product claims are preceded by the statement “*this product is so good, it didn't need any research.*” It is also essential that there be a clear rationale for the inclusion of these organic materials into the management program. Biostimulants, or any other organic amendment, are not substitutes for good turfgrass management.

Putting Organics to Use

In a sand-based sports field, and for soils in which OM deficits are clearly problematic, a strong argument can be made for the use of organic amendments in the initial design/ construction phase, and/or as part of the long-term maintenance strategy. As product availability increases, the ability to make an informed choice becomes more challenging. Particular attention should be paid to the basic rationale for including an organic amendment, to the properties of the material relative to the intended use, to appropriate incorporation of the material into the overall management strategy, and particularly to the scientific evidence used to substantiate the claims made for the product. If organic amendments have been incorporated into your management program, don't assume that is the end of the process. Continue to monitor the turf and its response to inclusion of any new organic amendment and to review the outcome in the context of your overall cultural management. Organic amendments may not be the elixir of life for your turf, but careful selection of materials with demonstrated potential can form an important part of an integrated cultural management program. ■

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SEEDS

Budgeting for Sports Field Construction

CHRIS MARK • TOWN OF OAKVILLE • STA DIRECTOR

In the past year, the Town of Oakville has undertaken construction of four soccer fields that will collectively form one of the Town's primary locations for tournaments. Field construction began in late winter 2001 with the fields anticipated being open in May 2002. Three fields were topsoil fields with each field measuring 100 m x 64 m and one field measured 105 m x 73 m. This article will discuss the costs associated with constructing quality athletic soccer fields along with some helpful hints to save money and potential headaches.

The costs associated with quality athletic fields is significant, not only in the initial construction but also later in terms of ongoing maintenance. Financial and land decisions with regard to the size and number of fields usually must be made several years in advance of actual field and park construction. The key is to develop a plan and remain true to your vision because there will be many bumps along the path to success.

With losing the ability to purchase parkland under the Development Charges Act, most municipalities do not have the luxury to purchase additional land for major sports parks. Hence obtaining enough parkland for a major sports park with only the 5% parkland dedication available under the Planning Act often means amassing land from several landowners. These negotiations, discussions with your finance staff to ensure the funding is in place, and ultimately, the approval by

elected officials can prove challenging and difficult. However, if one remains focused on the quality of the fields and venue, the results can be most gratifying.

In planning athletic fields, the use of the fields should govern the type of construction and follow-up maintenance program. Are you constructing fields to be used for a couple of days per week, or daily? If your requirements dictate a need for fields for use during weekends, it is difficult to justify spending the approximate \$250,000 premium for a sand base field. If you are planning to install lights so the field can host two games per evening, plus weekend play and tournaments, the additional costs associated with proper drainage, irrigation and a modified root zone are well worth the extra money. Another critical planning decision is whether you can afford the follow-up maintenance program. This program must be geared to the type of field constructed. A sand base field, complete with lighting and irrigation, will require significantly more maintenance dollars than a topsoil field without lights or irrigation. Do not construct a field you cannot afford to maintain following construction!

Another important decision is tendering the field(s) for construction. Do you want to tender through a public tender or through the developer? Typically we have achieved good success by tendering large park and athletic field construction projects through the developer. All bidders are pre-qualified to ensure they have the

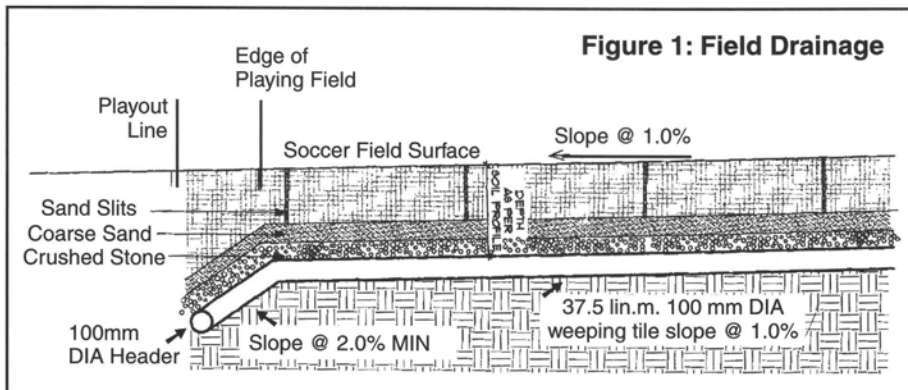
experience and expertise to construct quality athletic fields. We have also identified qualified sub-contractors to ensure that drainage, irrigation and electrical elements are installed by quality trades. Ensure quality sub-trades are hired for the project that includes a soil agronomist who can recommend proper sand and soil and thoroughly interpret a soil analysis.

Field Sub-Grading \$5,500/field

Park pre-servicing costs are minimized by having the developer undertake the grading and servicing at the same time they are performing similar work in the surrounding subdivision. Typically the developer will have large earthmovers and scrapers already on site so partner with them to have the park block graded by this equipment. Bringing such equipment back at a later date will cost 2-3 times more than undertaking the grading in tandem with the subdivision. If water, sanitary and electrical services are required for the park, coordinate their installation at the same time these services are being installed in the surrounding subdivision. Once again, the savings will be substantial.

With overall park grading completed by large earthmovers and scrapers, the rough grading is completed using dozers equipped with laser levels. Sub-grades for the fields is 1% and in our most recent fields, the sub-grade was completely flat.

Field Drainage \$25,000/field
(4 in. O-Pipe)



Drainage is an area where if you cut costs initially, it can increase ongoing maintenance costs at a later date. The fields were drained with 4 inch O-pipe without a filter sock. The drainage was installed upon completion of the sub-grading and all material from the trenches was removed off-site. The tile was laid on approximate 20 ft. centres across the entire field (including sideline areas where players benches will be placed) with the tile

graded at a 1% slope across the field and then 2% into the header trench (see Fig. 1). All tile was installed using laser controlled equipment which ensured the work was done accurately and quickly. Extreme care was taken to ensure no native soil migrated into the trenches.

On the topsoil fields, the trenches were filled with 10 mm of gravel followed by 100 mm of sand. It was important to select a stone that did not allow the topsoil fines to move down into the tile and potentially leading to a blockage. On the sand base field, the trenches were filled with gravel followed by a 100 mm blanket layer of gravel across the entire field followed by 12 inches of sand.

Field Drainage \$17,000/field
(Slit Drainage)

On the topsoil fields, it was decided to include slit drainage as well as the 4 in O-pipe drainage. The slits are approximately 2-3 inches wide and are filled with coarse sand. The slits extend down the length of the field and are installed to the depth of the O-pipe. This work is done when the fields are sodded and well rooted. It is anticipated the slit drainage will be installed in fall 2002.

Field Profile

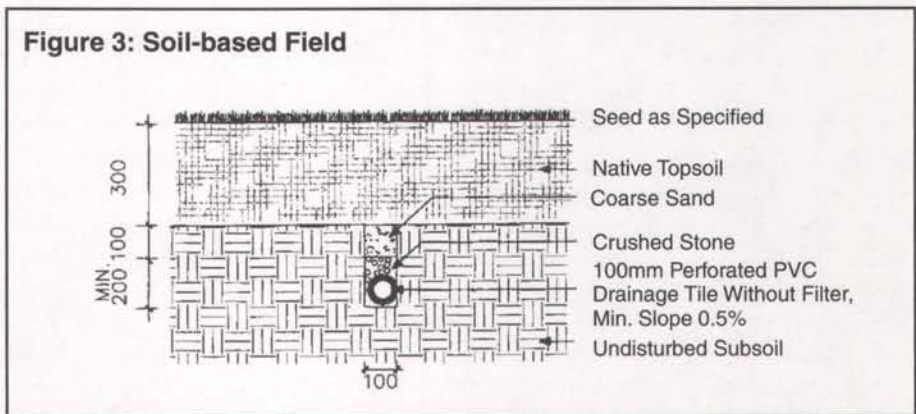
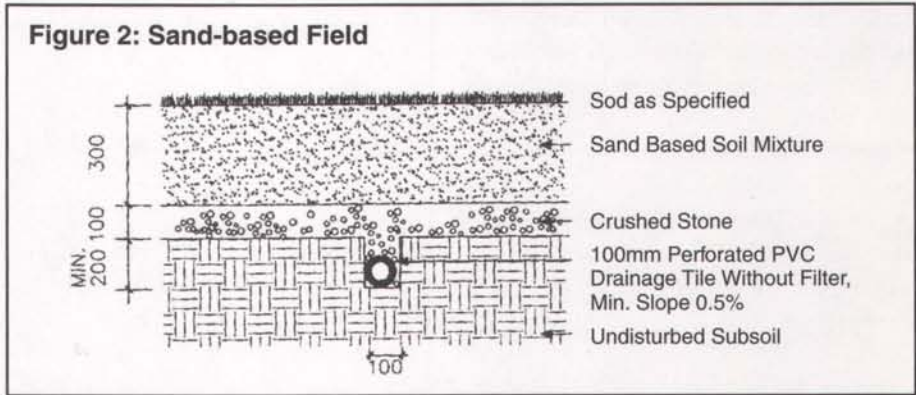
Sand Base \$250,000/field
Topsoil Base \$100,000/field

As one can see, the premium cost for a sand base field profile is significant. In both cases, the field profile was 12 inches/300 mm. The individual field profiles are listed as Fig.2 and Fig. 3. For specific information with regard to the sand and topsoil specification, the author may be contacted, or consult the Sports Turf Association publications *Understanding Turf Management* or *Constructing the Sports Field*.

Irrigation

Irrigation System \$14,000/field
Irrigation Building \$10,000 lump sum

In Oakville, we use pre-cast concrete buildings that serve as both irrigation and electrical buildings. One of the critical design criteria was to ensure the water



service and pipe sizing permitted all four fields to be watered in one night. (ie. begin irrigation at 11:30 pm and be completed by 6:30 am) Another important design element was ensuring that each field system could be isolated for repairs or different shut down schedules in the fall. Since we seeded the fields, it was critical to have the system installed prior to the actual seeding. We have had good success with both Rainbird and Toro irrigation systems.

Seeding \$10,500/field
Sodding \$17,000/field

Seeding or sodding the fields is an important decision for the turf manager. One is more expensive than the other, but cost alone should not be the only consideration. Expected use of the field following construction will also have to be considered when deciding whether to seed or sod. The general rule of thumb for field use following completion is six months for seed and six weeks for sod. In Oakville, we prefer to seed the fields if time permits to incorporate the best sport field blends at the outset. For the topsoil fields,

we used 75% bluegrass (varieties of Washington, Alpine and Touchdown) and 25% turf-type perennial rye (Cutter). For non-irrigated fields, we have specified 50% Mustang tall fescue with 40% Kentucky blue and 10% Shortstop tall fescue.

Electrical Lighting \$110,000/field

On average, \$110,000 per field is needed for lighting, that includes bringing the power from the local utility to your on-site electrical building. All fields were lit with 1,000 watt metal halide fixtures with full cut-off controls with minimal light spillage. Field lighting uniformity is absolutely critical. Do not try and save money by using fewer poles and shorter poles. The fields were lit with either 70 ft. or 80 ft. poles. Due to the significant lead time required for pole delivery (4-6 months), we ordered the poles separately from the contract to ensure delivery coincided with the contract tender award. Push button controls are installed at each field for users to turn on/off the lights. Receptacles are also installed in each power control post for PA systems, portable generators, etc. for tournaments.

This sports park is located near a residential community. The fields will be lit nightly from May to September. We made sure the developer building the homes backing directly onto the lit sports park included a warning clause in each sales agreement. This warning clause indicated they had purchased a home adjacent to a lit park facility. It is also helpful to install the lights prior to building permit issuance.

Fencing \$20,000/field

For premier fields, we fence the entire field to restrict access to users with a facility permit. It costs approximately \$42.50/linear meter (6 ft. high) using Schedule 40 pipe, 9 gauge fabric. Double gates are installed at both ends of the field on both sides for maintenance equipment. One of the design criteria was ensuring a bucket truck could drive down the side-lines of the field to service the lights without crossing the field. In many cases, we increase the height of the fencing behind goal nets to 10 ft. in an attempt to keep

balls in play (and out of neighbours yards).

Misc. Items \$20,000/field
(bleachers, goal posts, benches, waste receptacle)

Our typical bleachers are aluminum, 4 rows and just under 4 feet in height. The ends of the bleachers are painted yellow for greater visibility to avoid accidents from glare. Benches are anodized aluminum. Players' benches are also aluminum, 5 meters long and installed permanently in the ground. Goal posts are 8 feet high x 24 feet wide painted white with an epoxy powdercoat finish. Waste receptacles that have been very successful are the deep below ground 300 gallon units that hold large volumes of garbage and do not need frequent pickups.

Final Costs

In conclusion, costs associated with athletic field construction are significant and careful choices and decisions must be

made that have impacts on the initial construction cost and the future maintenance costs. Do not build a field you cannot afford to maintain or build a field that does not coincide with the intended usage.

The average construction cost for a premier sand base field (tile drained, irrigated, lit, fully fenced with bleachers, players bench and goal posts) is approximately \$465,000 for a seeded surface, \$471,500 as a sodded surface. The average cost for a premier topsoil base field (tile drained, slit drained, irrigated, lit, fully fenced with bleachers, players benches and goal posts) is approximately \$332,000 for a seeded surface. As a sodded surface, the cost would be in the range of \$338,500. ■

Coming Events

Mark Your Calendar!

STA's Annual Field Day will be moved from August to September this year. Stay tuned for details.



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Budgeting for Sports Field Maintenance

JANE ARNETT-RIVERS • TOWN OF OAKVILLE • PAST STA PRESIDENT

Depending on your perspective, time and/or money is the item you always need more of. At some point, unless staffing compliments increase with workloads, all the money in the world will not help you get the work done. The following is a description of general maintenance items, the equipment to do it, staff required and materials needed. You decide, is it about time or money?!

In Oakville we have 61 diamonds and 77 soccer fields. We host 16,000 players using our fields for 47,000 hours. What does all this mean to fields? Turf wear and tear. What does all this mean to you? You'd better find ways of doing more in less time with less money. If the field is lit, it will receive at least twice the play. If it is irrigated and lit, it will be used for tournaments assuming the quality of turf will be high. During tournaments, the field could see 5 to 6 games per day for 4 consecutive days. If applying appropriate funds to appropriate amounts of play, open up the purse strings on these fields – they will cost the most. Premier fields definitely see the largest percentage of funds, unfortunately the others must settle with being kept safe.

At a past Sports Turf Association Field Day, Marc Altman said put your money where your play is. In other words, don't treat the infield the same as the outfield. If home plate sees most of the action, spend more there. Compaction will be



more of a problem on 30% of a soccer field. Keep that in mind while going through the following points.

BALL DIAMONDS

First, always first, mark your irrigation heads. Whether aerating, overseeding or rolling, mark the heads. Damage to the lines is costly and will slow any operation down.

Infield and Outfield \$38, 1 hour

Aerating can achieve so many things in the soil – whether to assist in moving water or increasing the O₂ in the soil,

therefore increasing microbial activity or relieving surface compaction. Optimum is 12 to 16 holes per square foot, 2 to 3 passes. It should be done with any renovation. Aerating should disturb the soil in a controlled way and be done when the crowns have time to heal. Some studies have shown it increases control when done prior to weed spraying.

Infield \$40, 1/2 hour
Outfield \$100, 1 hour

Overseeding

On infields, we use establishment rates of 20 pounds/1,000 square feet, on out



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fields, we use 10 pounds. We like to overseed the infields 3 times and outfields once. During play we use a perennial ryegrass blend, in fall we use a Kentucky bluegrass.

Infields \$120-\$170, 1/2 hour
Outfields \$240-\$340, 1 hour

Topdressing

This is the only chance you have to change surface soil. Soil dictates the movement of water, whether through gravitational flow or capillary flow through micropores. Soil can hold nutrients or release them. It can be your biggest problem. You want water to move fast enough to keep the field playable, but slow enough to allow fertility levels to stay high as long as possible. Find the mix which best suits your existing soil. You should not attempt to radically change the soil type, this could result in a layering problem further causing drainage problems. No more than 3/8" should be applied at one

time. To stretch money, use a higher quality material on infields than outfields.

Infields \$210, 1 hour
Outfields \$500, 2 hours

Grooming Infield & Warning Track

Change the point of entry each time the equipment accesses the infield. Ensure the operator carries a rake and trash bags as well as a short check list. Stress the importance of speed, too much will cause lips to form on the edge of the infield. If grooming is done slowly, less infield material will be thrown out. Our infields are groomed daily, warning tracks 2x/week.

Infield \$35, 1 hour
Warning Track \$35, 1 hour

Cutting Lips (Edge of the Infield)

This is done when the season is not in play, spring or fall, and prior to tournaments for detailing. It will prevent a lip from forming. Be sure to mark the irriga-

tion heads before cutting. Be prepared to add infield mix after hauling away debris, often existing mix cannot be leveled out adequately.

Hardball \$145, 2 hours
Softball \$100, 2 hours

Brooming Lips

Five times per season will help stop a lip from developing. We use a sweepster 3' broom with plastic bristles. Be sure to broom into the infield. \$25, 1 hour

Cutting and Fertilizing

Not including fertilizer costs. Equipment to cut irrigated fields is floated and cut more often.

Irrigated \$75, 1 hour
Non-irrigated \$55, 1 hour

Installing a Mound

For permanent mounds we have used 'Mound Master.' It takes approximately 50



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bags at \$5 a bag. It constructs a more permanent structure requiring less reinforcing. Be sure to have accurate measurements. Talk with the groups using the diamond first to see what they want. If reconstructing the infield, mark the mound dimensions and leave it until all other work is complete.

Installing \$350, 8 hours
Maintaining \$75, 2 hours

Home Plate Construction and Installation

Purchase rubbers framed in and filled with concrete. We also use clay brick around the home plate area. This cuts down on constantly replacing material and checking for divots. Be sure to have at least 1-1/2 inches of material on top of brick so players can still 'dig in.'

With Clay \$850, 8 hours
Without Clay \$85, 1 hour

Weekly Inspection

This is one of the most important things you can do. Use a form to ensure the inspection is done and nothing is missed. It is the time when holes are filled and seeded; irrigation heads are checked; and lips, fence lines, base paths and home plate are level. Recommended inspection sheets are available from the Sports Turf Association.

SOCCER

Again, always begin with marking irrigation heads before starting work on the field. \$38, 1 hour

Aerating

Soil strength is measured by its ability to hold when pressure is put on either vertically or horizontally. This is critical for traction. Moisture levels will affect soil strength. Aerating can improve moisture levels and air in soil. \$140, 2 hours

Overseeding

Choice of seed depends on time of the year. During mid season play, germination times are critical, while in fall seeding, over wintering of seed is more of a factor. Guaranteed germination rates are on the bag, ask the supplier for them if

they're not. How you store the seed will also affect germination rates. When a seed is cultivated there is a goal. Wear resistance, drought resistance and disease suppression are all factors. There is a cost involved with developing new seed. They do it for a reason, find out what that reason is.

Perennial Ryegrass Blend \$400, 2 hours
Kentucky Bluegrass Blend \$600, 2 hours

Topdressing

You want soil to hold nutrients in the root zone for the plant to take up. You also want the water to drain to keep the field playable. An optimum root zone will allow you to fertilize less frequently by cutting down on leaching. Be sure not to alter material too much from existing soils to avoid layering.

Sand \$900, 4 hours
Soil \$700, 4 hours

Layout and Lining

Cutting down lines first with a push mower will help keep them longer, especially on irrigated surfaces. User builders block paint; mix it 1:1 with water.

Initial Lining \$130, 3 hours
Weekly Lining \$65, 1 hour

Painting Goal Posts

Done once a year using latex paint. \$55, 1 hour

Cutting and Fertilizing

Irrigated fields are cut with a mower, which is floated and cut 2 times per week. Non-irrigated fields are cut every 10 days. This cost does not include fertilizer.

Irrigated \$75, 1 hour
Non-irrigated \$55, 1 hour

Weekly Inspection

As with the ball diamonds, designing and distributing a checklist is very worthwhile ensuring that work completed is recorded and all points are checked. Again, inspection sheets are available from the Sports Turf Association. ■



COSTS BREAKDOWN

Yearly Ball Diamond Maintenance

Irrigated

Labour 244 hours
 Equipment \$8,950
 Materials \$3,000 to \$6,500

Non-irrigated

Labour 154 hours
 Equipment \$5,265
 Materials \$550



Yearly Soccer Field Maintenance

Irrigated

Labour 136 hours
 Equipment \$5,140
 Materials \$2,150

Non-Irrigated

Labour 50 hours
 Equipment \$925
 Materials \$745

Spinning the Numbers

- One person can maintain 5 irrigated ball diamonds.
- One person can maintain 9 irrigated soccer fields.

This does not include:

- Irrigation shut down or start up
- Light maintenance
- Drainage installation
- Infield/soil amendments application
- Warning track amendment
- Installing fence protectors
- Sodding in fall
- Bleacher maintenance.

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woven backing, the crown and the root of the plant remain protected.

Even during heavy use, SPORTGRASS™ maintains a consistent and level surface. The synthetic blades and woven backing form a matrix with the root system of the natural grass. So if the natural grass blades are temporarily worn away, the stability and safety of the area is retained.

Test results indicate that SPORTGRASS™ surfaces can stand and recover up to five times faster than conventional grass.

SPORTGRASS™ can be used for repairing goal mouth and high traffic areas to full field installations. SPORTGRASS™ is available in a big roll grown form or as a grow-in product.

Permaline® and SPORTGRASS™ are available from Dol Turf Restoration Ltd. Call 1-800-794-9664 for details. ■

COMING EVENTS

March 24-26

International IPM Conference
*Exploring New Frontiers in
Integrated Pest Management*
Toronto, ON. Info: www.gov.on.ca/OMAFRA/ipmconference/

March 25

Industry Task Force II on
2,4-D Research Data
*The Science of Turf & Cereal
Herbicides*, Mississauga, ON
Info: (800) 521-9724

April 9, 16, 23 & 30

University of Guelph
*Pesticide Applicators Certification
Exam Preparation Course*
Guelph, ON, Info: (519) 767-5000

April 22-26

University of Guelph
*Structural Pest Control Applicator
Course*, Guelph, ON
Info: (519) 767-5000

April 28 - May 3

Ontario Recreation Facilities
Association 47th Annual Profes-
sional Development Program
Guelph, ON, Info: (416) 426-7062

May 1 & 2

Sports Turf Research Institute
*Breeding & Evaluation of
Turfgrasses Technical Conference*
West Yorkshire, UK, Tel: 01274
565131, email info@stri.co.uk

August 13

Guelph Turfgrass Institute
Summer Research Field Day
Guelph, ON, Info: (519) 767-5009

September

STA Annual Field Day
Date and location TBA

October 23

STA/ORFA Educational Workshop
*IPM Cultural Practices and
Equipment*, Mold-Masters
SportsPlex, Halton Hills, ON
Info: (416) 426-7062 (ORFA) or
(519) 763-9431 (STA)



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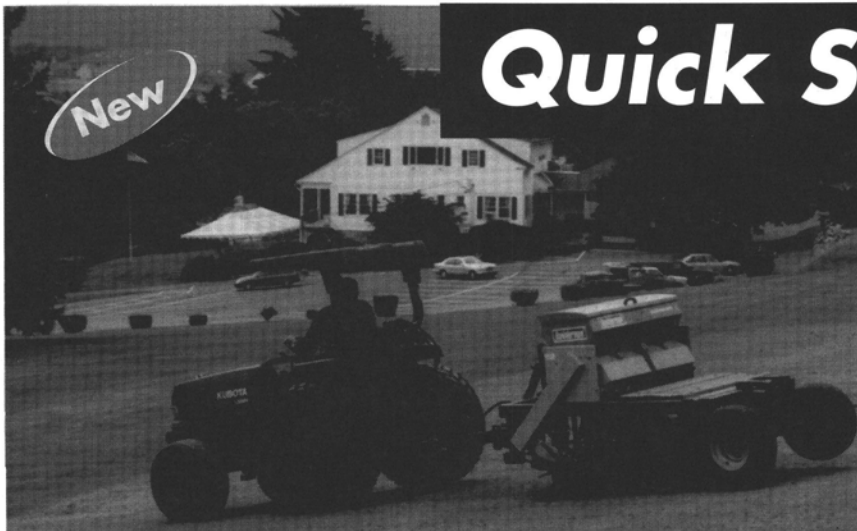
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- Save 25% of seed with accurate calibration.

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The Quick Slit Seeder follows the ground contours accurately and plants seeds at a constant depth in its own prepared mini seedbed. This unit is also a cultural tool in that it acts as a grass root pruner by cutting or breaking the grass plant roots. For the survival of the grass plant, it must immediately put all of its resources into growing new roots, resulting in stronger plants with better root structures.

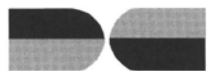


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