Stewards of the Game: Athletic Fields and the Environment  
Dr. Eric Lyons, University of Guelph

Smart Fertility  
Managing Nutrients, John Bladon, Nu-Gro Professional Turf

Smart Watering  
Irrigation for a Growing World, Fadi Gholam, Rain Bird

Sustainable Turfgrass Irrigation: Reduce, Reuse, Rethink. How to save up to 50% in water use, Gregory Snaith, P.Eng., EnviroIrrigation Engineering, Inc.

Smart Purchasing  
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Cindy Toth, Director of Environmental Policy, Town of Oakville

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Spring is here at last and we are all looking forward to a great Canadian summer. This year the various horticultural industries are all gearing up in anticipation of a long, hot season.

We had two wonderfully warm weeks in April and it’s amazing how early beautiful weather motivates us all, in thought as well as in work. As our readers wade through spring work, I would like to remind everyone of the importance of safety.

The provincial government is prioritizing workplace safety and many new inspectors have been appointed to cover this task. It is every manager’s responsibility to know “the rules of safety” and it is particularly important that manager’s (and supervisor’s) not only enforce the rules, but also ensure that all individuals under their supervision have read and understand the safety rules of their particular workplace.

In the case of an accident, no matter how major or minor it is, it is the manager or supervisor’s responsibility to ensure that work is carried out safely at all times. For example, if an employee fails to wear safety shoes (or boots) on only one particular day and an accident occurs where safety shoes could have prevented the injury, it is the supervisor’s fault.

Annual Field Day

We are organizing yet another interesting Field Day on September 14th at the Town of Milton. Our host municipality is centrally located, only 25 minutes west of the Toronto Airport and is a rapidly growing town with lots of new parks and sports fields. We have a great program planned with the theme Environmental Stewardship: Healthy Soil... Healthy Turf. See page 2 for the “Program at a Glance” and watch your mail and our website for complete details and registration information.

Recognizing Chris Mark

I would also like to take this opportunity on behalf of the members of the Sports Turf Association to sincerely congratulate Chris Mark for his outstanding service to the STA over many years. At this winter’s Ontario Turfgrass Symposium, Chris received an Honorary Life Membership as a token of our thanks to such a loyal trooper. Only five such awards have been presented previously. Recipients were James Boyce, Norman Rothwell, Clayton Switzer, Robert Sheard and Michael Bladon.
Economic Impact of Turfgrass Industry Quantified
NEW YORK TURFGRASS SURVEY RELEASED: 80-PAGE IN DEPTH REPORT


The newly released survey, which has been in the planning and implementation stages for the past five years, is the first of its kind to evaluate the magnitude and economic importance of the turfgrass industry in New York State. The 80-page report, Turfgrass Final Publication, can be accessed by clicking “Special Surveys” on the NASS home page.

The New York Turfgrass Survey illustrates that the turf industry employed 43,000 people and contributed five billion dollars in turf maintenance expenses to the economy in 2003. Other interesting facts the survey reveals:

• Turfgrass covers 3.43 million acres in New York
• 93% of the 3.4 million acres are private lawns and golf courses
• Over 843,000 new turf acres were established in 2003 at a cost of nearly $1.56 billion
• The value of turf equipment owned by all sectors surveyed totaled over $6.3 billion
• The total payroll for turf employees was nearly $467 million

This important data will position the turfgrass industry as a growing agricultural commodity in New York State and enable the public, industry and government to work together to ensure its continued growth.

The New York State Turfgrass Association is comprised of 1,800 green industry professionals who have joined together to share technology, promote environmental stewardship, support education, advance research and disseminate research findings. For more information, contact Denise Lewis, Public Relations Coordinator at 518-783-1229.

Committee Volunteers Needed
Volunteers are being sought to serve as members on various STA committees. Get involved with your association! No experience is necessary! This is a great networking and professional development opportunity. Contact Lee at the STA office for further information.

2005 STA Membership Fees
Thank-you to all members renewing in 2005! Membership fees are now due. If you haven't already done so, please take a moment to remit them in order to remain a member in good standing. The annual STA Membership Roster is now being compiled and will be distributed on completion.

Turf Agriphone
The Turf Agriphone is up and running. To access this information, call toll free 1-888-290-4441. For the email version, contact Pam Charbonneau at pamela.charbonneau@omaf.gov.on.ca to subscribe.

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

Autumn 2005 Submissions
If you have something you'd like to submit for the next issue, please forward it to the STA office by July 22, 2005.

Editorial Content
Opinions expressed in articles published in Sports Turf Manager are those of the author and not necessarily those of the STA, unless otherwise indicated.
OTTAWA, February 21 – Health Canada’s Pest Management Regulatory Agency (PMRA) has concluded that “the use of 2,4-D and its end-use products to treat lawns and turf does not entail an unacceptable risk of harm to human health or the environment.” After examining the combined risk from exposure through food and residential uses, the PMRA also determined the potential exposure for children and adults contacting treated residential lawns and golf courses was within acceptable standards.

These are the findings in the draft health and environmental risk assessments for the herbicide 2,4-D released by the PMRA for public comment.

“The PMRA’s assessment of the scientific database reinforces a growing number of regulatory decisions and expert reviews that conclude the use of 2,4-D, while protecting food production and the environment, does not present a risk to human health,” stated Larry Hammond, Technical Chair of the Industry Task Force II on 2,4-D Research Data. “The PMRA’s findings bolster the earlier decisions of authorities such as the World Health Organization, European Commission and U.S. Environmental Protection Agency and recent studies by the U.S. National Cancer Institute.”

The PMRA also released key elements of a report by an independent expert Science Advisory Panel. Comprised of five well-regarded experts, the Science Advisory Panel concurred with the general thrust of the PMRA evaluation. The publication of the Proposed Acceptability for Continuing Registration document begins the public comment stage of the PMRA’s re-evaluation program of 2,4-D. Copies of the re-evaluation document and notice of the public comment period may be obtained at: http://www.pmra-arla.gc.ca/english/pubs/pacr-e.html. Further information on 2,4-D can be obtained at 1-800-345-5109, www.24d.org, info@24d.org.
**Choice of Site**

For best results, the green should be built on undisturbed native soil to avoid differential settling. Land that has been disturbed needs a great deal of preparation and can markedly increase construction costs. Former landfill sites particularly should be avoided because of their inherent instability which history has shown can make the green very difficult if not impossible to keep level.

If the site is fairly level without trees, the costs of proper filling and levelling will be kept to a minimum and good access to sewer, water services and power will reduce the often considerable expense of bringing them onto the site.

**Basic Construction**

Following the survey locating the green on the site, the first operation is to make a shallow excavation of about 30 cm deep. The bottom of this depression, the sub-base, is levelled to plus or minus 2 cm. If low places exist, they must be filled with fully compacted sand and then the entire area is compacted with a vibratory roller.

Trenching on 1.5 m centres to accommodate 4” drain tile with headers, outfall, etc. is done. After the trenching is complete, a 6 mil polyethylene barrier is laid over the entire area following the contour of the trenches. In this way, the drain system will work evenly and the tiles will hold some water at all times. The barrier is particularly important if the sub-base is sandy or if filling some areas of the sub-base with sand or aggregate has been done.

The drain system is then laid and levelled to plus or minus 8 mm.

Next, the footings for the backboard/plinth system are poured and customized metal spreader brackets attached. The plinth boards are then bolted to the brackets so that they are level with the final playing surface and the edge of the backboards are attached so their top is 229 mm above the top of the plinth.

After the backboard is complete, the irrigation system is then installed just behind them.

**Adding and Levelling the Rootzone**

The first 15 cm layer of pure sand, processed to USGA specifications, is then put in place, wet completely, and fully compacted with a vibratory roller. Similarly, the second layer is installed and compacted. This brings the sand slightly over the top of the plinth and the critical final levelling process begins.

Above: Commonwealth Greens, Victoria, BC
A 3.6 m custom-built screeder and rails set in the sand and levelled to within plus or minus 3 mm are used. The green is levelled in strips (each 3.6 m wide) and a number of passes are made with the screeder until a true, well compacted surface is produced that is within the plus or minus 3 mm specification.

For best results, the green should be built on undisturbed native soil to avoid differential settling. Otherwise, the land may require a great deal of preparation and thus increase costs.

After the first two sections have been levelled, the rail between them is carefully removed and is re-laid to serve as a guide for the next section. This procedure continues until the entire green is level, a process that can take 24 hours or so.

The surface must be kept continuously wet after levelling to prevent changes of level due to wind erosion.

Seeding and Development
The surface is fertilized with a good starter fertilizer and scarified lightly. It is then seeded with an appropriate bentgrass, Pencross is often used, and kept wet until germination is achieved and a turf begins to develop. At this time, a light rolling takes place to settle the crowns of the plants into the rootzone.

The first mowing takes place when the grass has reached about 2 cm, usually between four and five weeks from seeding. Subsequent regular mowings at a decreasing cutting height helps the turf spread and knit together. With any luck, the green should be playable at the end of July the summer following construction.

Regular mowing at a setting of 3 or 4 mm and weekly dethatching are needed to keep the playing surface free of thatch and fast and keen.

More Help
This is a very general look at bowling green construction. Material is available that provides detailed information on building and maintaining a quality green. Check the Bowls Canada website at www.bowlscanada.com or send an e-mail to office@bowlscanada.com for additional information.

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OTS 2005: Back To Our Roots

The Ontario Turfgrass Symposium continues to be Ontario’s premier educational turf symposium with over 570 participants in attendance at this year’s show. Hosted at the University of Guelph, the 2005 symposium was for many like old home week – a chance for delegates to visit their alma mater or network with industry leaders, faculty, other turf managers and old friends.

Focusing on what OTS does best, the educational program offered delegates over 45 engaging professional development seminars highlighting the latest in scientific research, best management practices, tools for integrated pest management, irrigation and water conservation, organic solutions, regulatory issues and nutrient management within the sports turf management, golf, lawn care, sod production and recreation sectors.

Many seminars were filled to capacity reinforcing the value turf delegates place on the quality education experience found at the Ontario Turfgrass Symposium.

STA Board of Directors

The STA elected its 2005 officers and directors at the annual meeting held during the Ontario Turfgrass Symposium at the University of Guelph, February 21-22, 2005. Those elected include Gord Doll/Dol Turf Restoration Ltd., Vice-President; Bob Sheard/Guelph Turfgrass Institute, Secretary; Rick Lane/Haldimand County, Treasurer; and Directors Brian Adriaans/City of Burlington, Cam Beneteau/Ridley College, Roy Forfar/York Region District School Board, and Paul Gillen/Holland Equipment Ltd. Other members currently serving include Andrew Gaydon/Vanden Bussche Irrigation, President; Paul Turner/G.C. Duke Equipment Ltd., Past President; and Directors Jane Arnett-Rivers/Town of Oakville and Dave Smith/DCS Agronomic Services.

Katerina Jordan to Join Guelph Turfgrass Faculty

At the opening session of the Ontario Turfgrass Symposium, Ontario Agricultural College Dean Craig Pearson announced that Katerina Jordan would be joining the Department of Plant Agriculture at the University of Guelph. Katerina is in the process of completing her Ph.D. program at the University of Rhode Island.

Katerina has a diverse background with a B.S. in microbiology and an M.S. in agronomy, both from the University of Maryland. Her Ph.D. research involves the study of plant-parasitic nematodes and their antagonists in golf putting greens. She will bring a unique perspective to her turf teaching and research duties at Guelph. Katerina and her husband Sean, a Penn State turf diploma grad and golf course superintendent, will arrive in Guelph later this summer.

— Rob Witherspoon

Remembering Mac Frost

We were saddened to learn of the death of G.M. ‘Mac’ Frost on March 30th. Mac was known throughout the golf industry as an innovative golf course owner and developer. He was a very modest man who openly shared his experience and success. One of his most notable contributions was when he and his wife Beth provided the founding donation that resulted in the construction of the G.M. Frost Research & Information Centre, home of the GTI as well as the Sports Turf Association, Ontario Golf Superintendents Association and the Professional Lawn Care Association of Ontario.

Mac’s involvement with the GTI did not end there as he took an active role as a member of the GTI Advisory Board helping to steer the Institute through the many challenges of our early years of existence. His good humour, positive attitude and
wise advice will be missed. Mac was also a strong supporter of his community and many other worthy causes and helped to establish the Juvenile Diabetes Research Foundation. Our condolences are extended to his family, friends and many associates in the turf industry. Contributions in Mac Frost’s memory may be made to the Ontario Turfgrass Research Foundation (c/o G.M. Frost Research & Information Centre, 328 Victoria Road South, Guelph, Ontario N1H 6H8) or the Juvenile Diabetes Research Foundation (www.jdrf.ca).

— RW

Norman McCollum Announces Retirement

GTI Research Superintendent Norman McCollum has announced his plans to officially retire effective January 1, 2006. Norman’s unique contributions to turfgrass research and teaching at Guelph go back 36 years and have touched the careers of students and scientists alike.

Among turf managers, he is probably best known for his long time involvement with the annual Turf Managers’ Short Course providing instruction in turf and weed identification as well as helping to create a welcoming social environment for students in the course.

I suspect that in retirement Norm will remain active in his many University of Guelph alumni activities including the annual Associate Diploma Hockey Tournament. Next year, he plans to enjoy his first summer away from the research plots at his summer cottage on the Bruce Peninsula. Please join us in wishing Norman a long, happy and healthy retirement.— RW
Turf Disease Research Update: Sugar With Your Tea?

TOM HSIAng AND LYNN TIAN, DEPARTMENT OF ENVIRONMENTAL BIOLOGY, UNIVERSITY OF GUELPH

There are increasing societal pressures to limit the use of synthetic pesticides in urban environments. More municipalities are likely to ban the use of pesticides for cosmetic purposes, whether or not there is toxicological justification. In light of this trend, there is a need to seek alternatives. Although biological controls with microbial antagonists have shown promise for the control of pests, these products must also undergo very stringent reviews by the federal government and the costs of registration are prohibitive in Canada.

Opponents of synthetic pesticide use often list alternatives which they claim are as effective if not better than synthetic chemicals. There is a need for rigorous assessment of these claims with controlled testing of the efficacy of home or folk remedies. Substances which have recently been proposed for turfgrass disease control include:

- hydrogen peroxide (or hydrogen dioxide) used every few days to control foliar diseases
- molasses or sugars used weekly to stimulate microbial activity
- compost teas based on fermentation extracts from various composted materials

Summer 2004 Trials

In summer 2004, we conducted trials to look at the effects of some of these home remedies on turfgrass disease control. Two of the substances tested can be easily purchased at the local supermarket: hydrogen peroxide was used at 1% and 3%, and molasses was used at 1% and 5%. Both of these substances were applied at two different rates weekly from June through September 2004 to test their efficacy against dollar spot disease. There were many different recipes for making compost teas, but the one we tried was created by diluting the compost in two-fold water and aerating the solution using aquarium bubblers.

We tested various types of starter composts: cattle, sheep and turkey manure (each tested separately), mushroom compost, and turf topdressing made with compost. Teas were made from each of these composts, and the number of micro-organisms was assessed for each tea on a daily basis up to 10 days.

Results

All treatments showed some level of suppression compared to our inoculated plots which were otherwise not treated. Molasses and peroxide showed the lowest levels of suppression (25% to 38% disease reduction), compared to the compost teas. For example, on August 30, 2004, there were an average of 71 spots in each of the four inoculated control plots (0.5 m by 0.5 m), compared to 48 spots per plot for the 1% molasses treatment, which gives a disease reduction rate of 32%.

The compost teas provided significantly higher levels of suppression: cattle (63%), topdressing (66%), sheep (70%), turkey (72%) and mushroom (86%). The number of spots per plot for the mushroom compost tea plots averaged 10, as compared to 11 spots in neighbouring plots which had been treated with the fungicide Daconil 2787 at 190 ml product / 100 m². Among these treatments, the mushroom compost tea showed the greatest promise and should be tested further.

Funding for this work was provided by the Ontario Turfgrass Research Foundation. A web version of the presentation on this topic made at the Ontario Turfgrass Symposium in February 2005 can be found at: www.uoguelph.ca/~thsiang/present/2005ots1.pdf. For further information or comments, please contact Dr. Tom Hsiang at thsiang@uoguelph.ca.

Photo: Fresh brews of compost teas were prepared weekly by placing solid composts in these plastic containers and then adding twice the volume of water. To create an aerobic tea that encouraged the growth of micro-organisms, aquarium pumps with bubbling airstones were used for seven days at 25°C with daily stirring. The liquid was then strained out and applied to the turfgrass plots.