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SPORTS STA TURF ASSOCIATION

**STA OFFICE HOURS**
Lee Huether is in the office from 9:00 a.m. to 2:00 p.m. Tuesday through Friday. The office phone number is (519) 763-9431. 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.

# The President's Desk

GORDON DOL

## *Wow! What a Day!*

On Thursday, September 21 we hosted our 19th Annual Field Day and as per usual, it surpassed all expectations. The educational program started with opening remarks from Dave Jenner, Assistant Head Master of Ridley College. Dr. Andrew McNitt from Penn State then covered *Sports Turf Drainage* and *Utilizing Compost on Athletic Fields*. After the break, Evan Elford, University of Guelph, took centre stage to discuss research he has been doing on *Competitive Turf: Overseeding for Weed Management*. After a great lunch, Dr. McNitt again took the podium and covered *Multi-Use Field Maintenance*. Following his talk, we had the equipment demo and trade show out on the field. This year we set an all-time record with approximately 200 people registered. We had 31 companies either sponsoring or participating with indoor and/or outdoor exhibits totalling 260 people in attendance.

Without the support of our members, suppliers and speakers, the day would not be the success that it is. Many thanks to Ridley College and Cam Beneteau, Manager of Grounds, for providing a superb venue. Great job, Cam! I would also like to thank Dr. Andrew McNitt who travelled from Pennsylvania State University, and Evan Elford from the University of Guelph. A very special thanks go to the Field Day Committee comprised of Jane Arnett-Rivers, Andrew Gaydon, Roy Forfar, Paul Turner, and Lee Huether – excellent work (Roy, we missed you)! Your hard work and dedication to this industry is the reason why our field days are always well attended and a great educational value. Thanks also to Andrew Gaydon who was the MC for the day and kept everything rolling along without a hitch. Please check out the articles and pictures from the event featured in this issue.

With the Field Day behind us, we're now preparing for yet another prime educational opportunity. Mark your calendars. OTS 2007 will be February 19 & 20, 2007 at the University of Guelph. The theme for this year is *Keeping it Green*. Stay tuned for more details.

Mark your calendars. OTS 2007 will be February 19 & 20, 2007 at the University of Guelph. This year's theme is *Keeping it Green*.

As mentioned in the summer issue of the newsletter, one of the goals of the association is to promote communication and professional development among sports turf managers. If you have any recommended topics for workshops or other educational ideas, please forward them to any board member or Lee at the STA office.

With all the rain that we have had this fall, I'm sure that everyone is knee-deep into the renovation of their sports facilities. While I know that it is frustrating when you are battling the weather, keep your head up… snow is coming! ♦

**Online Job Ads**

Are you advertising a position or searching for a great job? Visit www.sportsturfassociation.com and click on "Turf Trades" for info.

## Coming Events

**NOVEMBER 1, 2006**

STA Scholarship Application Deadline

Info: (519) 763-9431
www.sportsturfassociation.com

**2006 Scholarship Recipient**
Wayne Wong
Kelowna, BC
Ontario Diploma in Horticulture (Turf Option)

**November 14-16**
*Empire State Green Industry Show (Formerly NYSTA Turf and Grounds Exposition)*
Rochester, NY
Info: (518) 783-1229
www.nysta.org

**December 7**
*Ontario Recreation Facilities Association Annual General Meeting & Regional Information Session*
Oshawa, ON
Info: (416) 426-7062
www.orfa.com

**January 9-11, 2007**
*Landscape Ontario Congress 2007, featuring Fencecraft*
Toronto, ON
Info: www.locongress.com

**January 29-February 23, 2007**
*University of Guelph Turf Managers' Short Course*
Guelph, ON
Info: (519) 767-5000
www.open.uoguelph.ca/turfmanager

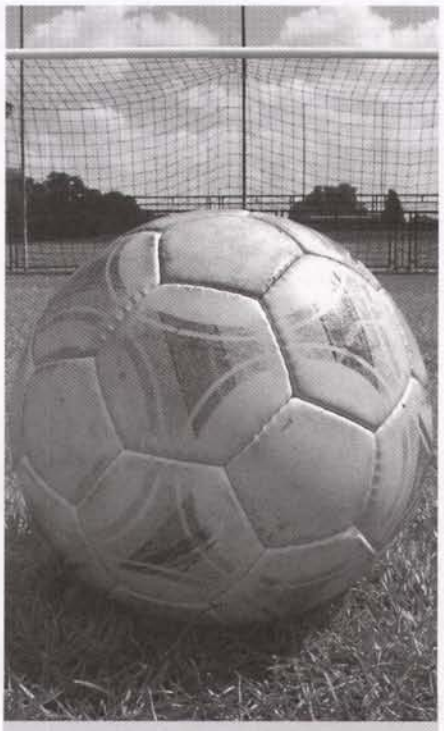
**February 5-9**
*Turfgrass Producers International Midwinter Conference and Field Day*
Queensland, Australia
Info: (847) 649-5555
www.TurfGrassSod.org

**February 19-20**
*Ontario Turfgrass Symposium*
University of Guelph
Guelph, ON
Info: (519) 767-5000
www.openuoguelph.ca/OTS

**Spring 2007: Encore Presentation!**
*STA Proactive Water Use for Sports Turf Management: Implications of Municipal Water Restrictions*
Watch for details!

**GET ON THE LIST!**

Contact the STA office if you have an event you'd like to advertise in the *Sports Turf Manager*.



## *Odds and Ends*

**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.

**Winter 2006 Submissions**
If you have something you'd like to submit for the next issue, please forward it to the STA office by November 3, 2006.

**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.

# LATE FALL FERTILIZATION OF TURF

PAM CHARBONNEAU, OMAFRA TURFGRASS SPECIALIST

Early fall is an important season for turf growth and recovery and nitrogen fertilization is needed to accomplish this. Hopefully you have already applied the early fall nitrogen application. Late fall fertilization is also very important. It helps turf to overwinter, and it encourages root growth and early spring green-up. With the onset of fall temperatures, shoot growth stops, plants continue to photosynthesize, roots will continue to grow and the plant will accumulate carbohydrate reserves. This will allow the plant to store carbohydrates which helps it to survive the winter and promote early green-up in the spring.

It is essential to stress the importance of timing on the application of the late fall nitrogen application since the prime period producing optimal benefits may only last a couple of weeks.

Late fall fertilizing of turf offers many advantages:

- turf which stays green longer in the fall
- increased winter hardiness
- early spring green-up
- no need for early spring fertilizer and the flush of soft spring growth is avoided
- the first spring fertilizer application can be delayed until late May/early June

### Principles of Late Season Fertilization

- Nitrogen is taken up by the roots even though shoot growth has ceased. This is because roots remain active at cooler temperatures.
- Nitrogen enhances fall colour and hence increases chlorophyll content.
- Increased chlorophyll content means increased photosynthesis.
- Increased photosynthesis means increased sugars. Since turf is not growing at the time of the fertilizer application, the sugars which are produced are not used for growth but are stored to enhance winter survival and spring recovery.
- Late season nitrogen promotes deep rooting during fall. Plants go into spring and summer with deeper, healthier roots.
- Spring green-up is early because the nitrogen stored in the roots is there ready when shoot growth resumes.

### Timing

It is essential to stress the importance of timing on the application of the late fall nitrogen application since the prime period producing optimal benefits may only last a couple of weeks. With improper timing, the fertilizer will be either detrimental or ineffective. An early application (during mid-September to the end of October) will force succulent growth and tissue hydration which increases the turf's susceptibility to winter disease and low temperature kill. An application of nitrogen fertilizer when turf has already gone dormant will not produce the carbohydrates that promote root growth or allow the plant to produce and store carbohydrates that will result in early spring green-up. The optimal time for the late fall application is when the temperature has steadily lowered to the 10°C level. The shorter days and cool nights allow the plants to begin to accumulate carbohydrates more efficiently. The turf is still green at this point, the shoots are no longer growing, the roots are still growing and it is well before dormancy. Timing of application in the Guelph area is late October to early November. It could be up to a

**Table 1. Rating of Nitrogen Sources for Suitability for Late Fall Fertilization.**

| Nitrogen Source | Analysis | Source of N | Suitability for Late Fall |
|---|---|---|---|
| **Quick Release** | | | |
| Urea | 46-0-0 | urea | Excellent |
| Ammonium nitrate | 33-0-0 | AN | Excellent |
| Ammonium sulfate | 21-0-0 | AS | Excellent |
| Ammonium phosphate | 18-46-0 | DAP | Good |
| **Urea Formeldehyde Reaction Products** | | | |
| Nutralene | 40-0-0 | methylene ureas | Good |
| Methylene urea | 39-0-0 | methylene ureas | Good |
| Nitroform (Gran.) | 38-0-0 | ureaform | Poor |
| **Natural Organics** | | | |
| Milorganite | 6-2-0 | activated sludge | Poor |
| Sustane | 5-2-4 | composted turkey litter | Poor-Fair |
| Ringer products | 6-1-3 | seed & bone meals, blood | Poor |
| IBDU | 31-0-0 | IBDU | Good-Excellent |
| **Coated Materials** | | | |
| Sulfur-coated urea | varies | urea | Fair-Good |

# *New Members*
## WELCOME TO THE STA!

**Larry Iafrate & Reid Paterson**
City of Vaughan, ON

**Mark Colpitts & Edwin Wile**
Dol Turf Restoration Ltd.
Bond Head, ON

**John Hollywood & Trey Sasser**
Sasaki Associates, Inc.
Watertown, MA, USA

**Jennifer Wacasey**
Ecoval
Toronto, ON

**Jason Ireton**
Plant Products Co. Ltd.
Brampton, ON

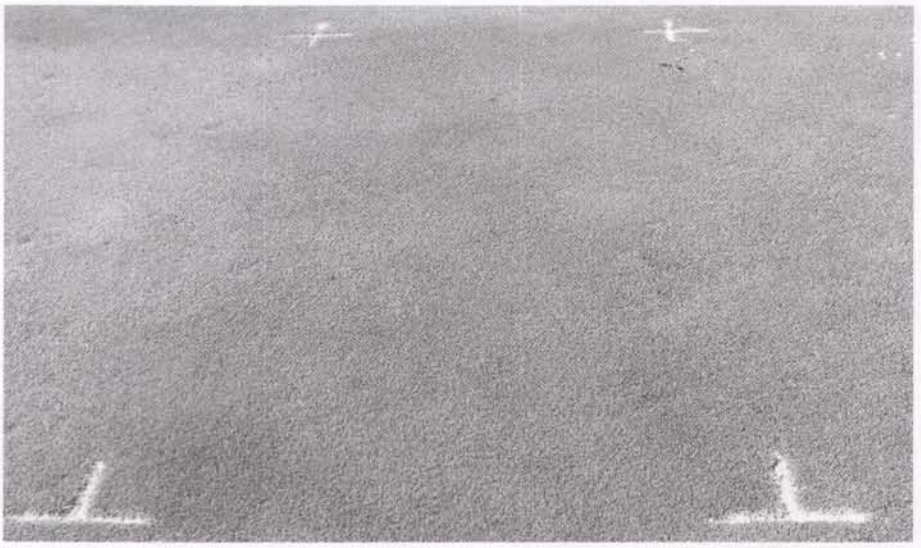
**Roch Robicheau**
Kwik Goal Canada/Gemsport.com
LONGUEUIL, QC

**Kurt Vanclief**
Willowlee Sod Farms
Ameliasburg, ON

**Jay Kivell**
Jay Kivell & Associates
Thornbury, ON

**Ian Blundy**
Seneca College
Toronto, ON

**Lesley Swift**
City of Kitchener, ON



**Above:** Darker green plots showing early spring green-up are those that received a late fall fertilizer application.

week later in the most southwestern part of the province and as much as a week to 10 days earlier in the northern part of the province.

### Application Rates

The late fall application can range from 0.5-1.0 kg of N per 100m$^2$. The higher rate should be used if turf is very thin. On turf that receives heavy traffic, an application of potash in the late fall will also help the turf with overall stress tolerance. Potash rates should be applied according to soil test results.

### Fertilizer Selection (See Table 1)

Water soluble or quick release fertilizer allows the nitrogen to be available to the plant regardless of soil temperature. If choosing a slow release form of nitrogen, no more than 25-30% of the nitrogen should be in a slow release form. Some examples of quick release forms that are suitable are urea, ammonium nitrate, ammonium sulfate, potassium nitrate and ammoniated phosphates. IBDU is considered a slow release formula of nitrogen, but it is well suited to the late fall application.

### Environmental Considerations

Late fall fertilization has many advantages, but there are environmental risks associated with it. Late fall, winter and early spring brings precipitation which recharges the aquifers. Potential leaching of soluble substances such as nitrate is increased during these periods. It is no longer recommended on highly permeable soils, such as sand, to fertilize late in the fall. In these situations, slow release sources such as IBDU and sulfur-coated ureas should be used which help prevent leaching of nitrates. ♦

# PREPARING YOUR IRRIGATION SYSTEM FOR WINTER

ANDREW GAYDON, VANDEN BUSSCHE IRRIGATION

Winterization consists primarily of expelling all of the water from the irrigation system piping and equipment. This is necessary since any remaining water would freeze during the cold weather and could break pipes, fittings, valves, sprinklers, and pump equipment.

Although most substances contract as they get cold, when water cools it contracts only until it reaches a temperature of 39 degrees F. Upon further cooling to 32 degrees F, water actually EXPANDS. At 32 degrees F it further expands as it turns from water to ice. Water expands and increases in volume by about one-eleventh, so that 11 cubic feet of water will form approximately 12 cubic feet of ice. This expansion force is sufficient to cause pipes and fittings to burst, valves to crack, sprinkler cases to split open, and other damage to the irrigation system.

The only way to ensure expulsion of all water from the system is by using compressed air to blow it out. Therefore, it is highly recommended to rent a compressor and "blow out" the system for winterization. There are also many irrigation contractors that offer this service. In this article, I will detail all of the steps that should be taken to prepare your irrigation system for winter.

### 1. Developing a Winterization Plan

A crucial part of the winterizing process is to have a **written winterization procedure** for your fields or park. The "blow out" process cannot be performed efficiently unless there is a logical approach prepared ahead of time. You want to avoid the endless pushing of water around in the system without actually expelling it. A written plan can be followed step-by-step by any member of your staff or personnel actually doing the air blow out.

### 2. Preparing the System

Be sure that you have an accurate "as built" drawing of your system with critical "high" and "low" elevations indicated. This "as built" drawing should also indicate the location of all zone shut-off valves (or zone isolation valves), all drain valves, all remote control valves, sprinklers, quick coupling valves, controller locations and areas they control, etc.

### 3. Understanding Air Compression

It is important to remember that **air volume and not air pressure** is the most critical element in blowing out a system. A sufficient volume of air is required to move the water through the pipe's full diameter. If an insufficient volume of air is used after having forced out some water, the air will ride up over the top of the water. This will result in the remaining water draining back into low points of the system, which will then be subject to freezing and likely damage to the system piping, fittings, sprinklers, valves and other components of the system.

### 4. Calculating Air Volume

The volume of air required will depend on your irrigation system. In general it will require somewhere between 100 to 250 CFM (cubic feet per minute).

### 5. Determining Air Pressure

The amount of pressure to use is best established by analyzing the system and determining the weakest part from a pressure rating standpoint. This can be quite low, perhaps in the 60 PSI range. You should **not** exceed this pressure and it is best to keep it somewhere below this level. Air pressures should be in the range of 40 to 60 PSI.

### 6. Controlling the Process

Although many compressors have pressure gauges and some type of pressure regulating device, it is still strongly recommended to install your own pressure regulating valve and pressure gauge at the point of connection into the irrigation system. This ensures that your devices are operating correctly and are accurate, where those on the compressor may not be. It also provides a very important back up and close monitoring to ensure proper operation during the blow out process.

### 7. The Actual Blow Out Process

***Identifying the Point of Air Introduction into the System***

Compressed air should be introduced at the highest point on the system. A 1" size inlet, equipped with a gate or ball valve, is adequate for sports and park systems. This connection should be steel or brass – not plastic.

*Step #1*

Shut off the water supply to the system. This may be as simple as closing a valve on the source of supply to your system or it might entail disconnecting your pumping station from your system. It is recommended, and this is a good time to check, that the valve is tied closed and a sign

placed on it stating it's "not to be opened" to ensure no one opens it during the winter shut-down period.

Next, open all drain valves, hose connection spigots and/or quick coupling valves. Allow your main lines to drain to low spots in the system. Disassemble several sprinkler heads at high spots to allow air to enter and speed up the draining process. This is best done several days before actually connecting the compressor to your system.

*Step #2*
Connect the compressor to your system at the high point. If possible, you want to always push the water down hill to the low points of the system.

*Step #3*
Activate the compressor. It is important that the operator be knowledgeable and thoroughly trained on its proper operation. This is an expensive piece of equipment and must be operated properly to prevent damage to it. The compressor and irrigation system should be slowly brought up to the desired operating pressure in order to reduce the possibility of surges and potential damage to the system.

Be patient and do not rush this process – it may take in excess of 10 minutes to get the system up to proper pressure and volume. It is important that the compressor have a high-pressure relief valve that you know is in good working condition. Also be sure to monitor closely to ensure that only the proper volume of air is being forced into the system.

*CAUTION!* Water is relatively non-compressible, but air is quite compressible and can develop characteristics that are more explosive and dangerous. Caution must be exercised when turning equipment on or off while the system is under air pressure. It is also strongly recommended that no one work directly on or stand over equipment or sprinklers while the system is under pressure and **always** have at least one valve open to allow air to escape while the system is pressurized. The compressor should **never** be left unattended while in operation.

*Step #4*
Zones within your system that are farthest away from the point of introduction of air should be blown out first. By doing so you will be able to eliminate a large percentage of the water from the main lines first. This in turn should speed up the process of blowing out the remainder of the zones. In order to avert the possibility of water running back into zones that have already been winterized, piping that is at the higher elevations should be blown out at the beginning of the procedure, followed then by zones in lower elevations.

*Step #5*
During the blow out operation, be sure to flag and record any pipe or fitting breaks, valve damage or sprinkler problems so that proper repairs can be made in the fall or spring before the system is "re-charged" for irrigation operation. It is suggested that

BOTH PICTURES OF HASTINGS BALL DIAMOND • COURTESY OF ENVIROIRRIGATION INC.

someone walk around the park and listen carefully as often you can hear the air escaping or see the air bubbling up from breaks in the piping or fittings, which you would not see under normal operation. This will be helpful in determining what materials you will need in the spring for proper repair. It will also eliminate the question as to whether this damage was done during the winter because of inadequate system blow out.

*Step #6*

If you have any backflow prevention valves on your system, they also need to have all water evacuated from them. Open and close drain valves and test cocks on the backflow preventers during the blow out process for the zone they are on. Also any rain shut-off devices that may be on the system should have their cup or collection sump emptied and either turned down or properly covered to keep any water out of them during the winter.

*Step #7*

After you have run a sufficient number of cycles so that only a mist is coming from the sprinklers on all zones, you are ready to shut down the operation. When shutting down, always leave several drain valves at the farthest end of the system open. Slowly close the flow control valve on the compressor until it is no longer pushing air. Then shut off the compressor.

**Danger.** Remember, do not disconnect while the connection may still be under pressure.

*Step #8*

Power down the controller (disconnect the transformer or main power) to prevent rodent infestation if located outdoors, or protect the unit by sealing all entry points. Anywhere where warmth is created by power being left on will attract rodents. Moth-balls are also a deterrent

## 8. Winterizing the Pump Station

A few simple steps can be taken each fall to ensure that the pumping station will be ready for operation in the spring. This includes making sure that all water is purged from the various sections and components of the pumping station. Whenever the temperature reaches 28 degrees F or lower for a longer period than 24 hours, you risk having freeze damage occur to the pumping station if water has not been purged properly from it.

*Step #1*

Refer to any manuals you may have on your pumping station for the manufacturer's recommendations on the proper way to winterize it.

*Step #2*

In addition to the pumping station manual, or in the event you do not have a manual, you should check and perform the following procedures. Open all drain valves and petcocks that are on the pumping station. If no drains are visible on the pumps themselves, or just for further assurance of getting the pumps drained properly, you can loosen the bolts on the flange and let the water drain from the pump. Also be sure to drain the pressure tank. Let the water drain by gravity from all areas of the pumping station. Be patient as this may take a considerable amount of time to ensure that all water has properly drained. Leave all drain valves open.

*Step #3*

With air, blow out all pilot tubing and all pilot valves on the main control valves. Leave the pilot tubing disconnected for the winter. Loosen the bolts of the main control valve bonnet to allow for draining. Tighten bolts and fill bonnet cavity with anti-freeze.

*Step #4*

Drain all the water from the various pressure switches. Blow out the tubing and leave all tubing disconnected for the winter.

*Step #5*

Check all piping connections and fittings for leaks or other repairs that may be required to put your pumping station back into good working order. This should include checking all mechanical connec-

tions for tightness. Check all seals, gaskets and hoses and replace any that appear to be failing or show aging or hardness and that may not be sealing properly or that look like they may soon fail. Preventive maintenance can be the least costly in the long run and can eliminate the possibility of down time right in the heat of the season when you can least afford it.

*Step #6*
Check all electrical connections. Inspect all electrical components in the controls for your pumping station. Replace any components that you know are bad and any that are suspect for failing in the near future. Again, preventive maintenance can be the most economical in the long run.

*Step #7*
Use steel wool or emery cloth to remove any rust deposits on the pumps, control valves, control panels, and piping of the pumping station. Use a high-quality, rust inhibitor type paint to cover all rusted and/or paint chipped areas.

*Step #8*
Grease all fittings on the pump station. If you have turbine pumps be sure to also change the oil in them. On centrifugal pumps, drain the water from them through the lowest drain plug on the volute of the pump.

*Step #9*
Aluminum intake lines should be removed for the winter to prevent electrolysis. Be sure to clean the interior and the exterior of the inlet or the foot valve. If you have a wet well, this is a good time to clean it of any debris and also to clean the inlet filters.

*Step #10*
If your pumping station is exposed, it is recommended that you cover it with a canvas to protect it from the elements and help prevent rusting. A plastic cover is not recommended as it causes condensation under it and will only aid the rusting process.

**Other Pump Station Tips**
If your pumping station is in a pump house, you may want to consider heating the pump house with a heater to maintain from 40 to 50 degrees F temperature all winter long. In some of the more moderate winter areas, thermostatically controlled heat tape can be used to provide this added protection and assurance.

Keep in mind that winterizing the pump station properly and making sure it will survive the winter successfully will ensure you that it will be ready and in good working order in the spring. It can reduce your replacement costs which can be quite high if you sustain a lot of damage to the pumping station due to winter freeze failure. In addition, you can eliminate the delay in getting your system back into operation in the spring due to needed pump station repairs In conclusion, your time and efforts dedicated to the winterization process are well spent for both the long-and short-term care of your irrigation system. ♦