Seven Lines of Defense

Canadian project uses set of conservation techniques

By CHERYL REGO

ONTARIO, Canada — Environmental concerns rise high at the site of any golf course development, and now a developer here is using what it calls the Seven Lines of Defense to combat environmental concerns. The Seven Lines of Defense are conservation techniques that address concerns such as water runoff, loss of nutrients and leaching of pesticides.

Some of the techniques featured in the Seven Lines of Defense have already been incorporated into new golf courses, and many of the techniques are leading the industry. Two of them are particularly interesting:

• By lining the greens, tees and inlets to wetlands with klinker ash stone, a hydro-generation waste product, the developer hopes to remove additional phosphorous runoff.

• It also plans to plant a harvested species such as poplar trees in the constructed wetlands which will remove unwanted components by bio uptake.

The notion of using klinker ash on the course has an interesting start. Klinker ash is a byproduct from the coal-fired hydro generation waste product, the developer hopes to remove additional phosphorous runoff. The idea to incorporate klinker ash stone came from Michael Michalski, a biology consultant who had done research on the ash. Experiments are now being done to determine the life span of klinker ash's phosphorus-abating properties. The klinker ash, and with some research found that it could be used as bulk fill and that it attenuates and binds phosphorus.

Phosphorus is a major concern for the Lake Rosseau Beach Resort. The resort is located in the Muskoka Lakes region of the province, a watershed area of great environmental interest. Phosphorus encourages algae blooms in lakes. The idea to incorporate klinker ash stone came from Michael Michalski, a biology consultant who had done research on the ash. Experiments are now being done to determine the life span of klinker ash's phosphorus-abating properties.

Why change?

Today's demands on courses are growing, Lynch said. Input costs — i.e. fertilizers, irrigation and pesticides — are going higher and higher. Demands for late- and early-season play as well as Augusta National-like conditions are escalating. And despite the "Brown Is Beautiful" campaign designed to lower golfer expectations, golfer demands mean living turf is being pushed to its limits.

More challenges loom on the horizon.
Niche and native turfs are the answer in some places

Continued from page 25
zon in the form of additional government regulations.

"[EPA chief] Carol Browner is not our friend," warned Lynch. "Restrictions on fertilizer, limits on irrigation water and reductions in emissions and waste are on the way.

"Why do you think Toro and Jacobsen are making electric greens mowers? Emissions, emissions, emissions."

There is also a growing demand for non-chemical solutions to turf problems — i.e. good neighbor policies, the Audubon Cooperative Sanctuary Program, removal of certain families of pesticides.

"We've already lost mercury, PCNB is a target and certain fumigation techniques are going away. The reality is, we need to change our way of thinking," Lynch said. These changes will require developing new grassing strategies and golfer acceptance of less-than-perfect conditions.

"You cannot sustain Augusta-quality conditions on 16,000 courses in America," Lynch said. "We need to develop a more intimate relationship with Nature by bringing native and naturalized areas closer to play, thereby reducing the amount of maintained turf."

This is where niche and native grasses enter the picture.

Niche grasses are traditional turf types that suit a certain management regime and cultural practices. Colonial bentgrasses, velvet bentgrasses and fine fescues are three examples commonly used in the Northeast.

Grasses are plant materials that are indigenous to an area, such as big blue stem, Queen Anne's lace and Indian head. They also include grasses introduced hundreds of years ago, like the red fescues Spanish fivers planted in the Southwest as a forage grass in the 1500s.

NICE GRASSES

Colonial bentgrasses are bunch grasses. They are fine textured, apple-green in color, and establish quickly. They are tolerant of sandy, gravelly soils with low fertility requirements and fairly high disease resistance. They also have low irrigation needs.

"The problem with Colonials is that you can kill them with kindness," Lynch said. "The more water you dump on them, the worse they perform. They are excellent fairway and tee turf and can be mowed to a quarter-inch. They have good wear tolerance and blend well with fine fescues and poa annua. They can help you get through icy conditions and low-fertility, low-water, zero-pesticide regimes."

Velvet bentgrass — long a staple in the Northeast — is often as effective as the As and Gs being specified into many of today's courses, Lynch said. Velvet bentgrasses are stoloniferous and have an ultra-fine texture with a leaf width that is half of A4.

If managed properly, they are very disease resistant, have a true green color, are tolerant of most soil types (especially low pH), require little nitrogen and need little water. They are suited to tees, greens and fairways, are the most shade-tolerant of all bentgrasses and can withstand low mowing heights.

Fine fescues are a grossly under-used grass, Lynch noted. Fine fescues include chewings,

Classic quality, start to finish.

Classic Royale®
15-15-15(S)

Professional Turf and Landscape Fertilizer

Get a good start with Classic Royale® when establishing quality turf or feeding ornamentals. Classic Royale provides N, P, K and S the right way — ammonium and nitrate nitrogen, highly soluble phosphate, chloride free potash and sulfur in every prill.

Split Nitrogen.

Fast Response.

Sustained Feeding.

Classic Royale supplies nitrate nitrogen for quick green-up and fast growth of actively growing plants even in cool weather, and ammonium nitrogen for sustained feeding.

The Phosphate in Classic Royale is highly water soluble and 100% available to roots during turf grass establishment and for vigorous ornamental growth.

Chloride Free Potash and Sulfur — derived entirely from chloride free potassium sulfate for maintenance of vigorous turf in high traffic areas and to aid in resistance to turf diseases and weather stress.

High Analysis — Classic Royale's 1-1-1 formulation contains 45% primary plant food plus 6% sulfur to support proper turf establishment and ornamental nutrition.

Homogeneous Prills — no segregation of nutrients; even application. Every prill contains the stated grade of nutrients. Classic Royale feeds accurately and uniformly without "hot spots" when applied through properly calibrated equipment.

Put Viking Ship® Classic Royale professional turf and landscape fertilizer to work for you. Call us or your local fertilizer dealer for more information.

Customer Service 1-800-234-9376

Continued on next page
BUFFALO, N.Y. — On March 9, the New York State Turfgrass Association (NYSTA) will present its Western Regional Conference, a one-day seminar designed to share with grounds managers the latest information, research, and techniques.

In addition to the educational sessions, this one-day conference will include a trade show with vendors representing various interests.

Seminars will include:
- **General Session** — Weather or Not, Stan Levine, National Weather Service Forecaster; Using Weather Conditions to Predict Pest Outbreaks, Dr. Michael Raupp, University of Maryland.
- **Build Your Skills** — Basic Turf Soil Management, Joann Gruttadaurio, Cornell University; Turfgrass IPM, Kevin Trotta, North Rockland CSD; Weed Identification and Control, Joann Gruttadaurion, Cornell University.
- **Lawn & Landscape** — Advances in Integrating Biological Controls Into Plant Health Care, Dr. Michael Raupp, University of Maryland.
- **Golf** — Turfgrass Disease Review (Including New Diseases Such a Gray Leaf Spot), Dr. Peter Landschoot, Pennsylvania State University.

Conference hours are from 8 a.m. to 3:30 p.m., with registration beginning at 7 a.m. For more information, call NYSTA at 800-873-8873, 518-783-1229.

**Native, niche turf**

**Continued from previous page**

Native grasses are prized for their aesthetic qualities, Lynch said. Their seed heads, fall color and diverse texture make them attractive. Natives are best used in out-of-play areas and as accents around tee boxes, specimen gardens and slope stabilization areas.

There are several keys to establishing native grasses, Lynch said.

"Don't cultivate too deeply, otherwise you'll bring weeds to the surface, especially in areas that were formerly pasture," he explained. "Don't prep the soil down more than 2 inches."

"Minimize pre-planting fertility regimes to less than half of what is used in in-play areas because natives will suck up the nutrients as quickly as they can find them."

"Keep seeding rates low. The idea is to give each individual plant enough room to establish itself."

"And finally, be patient. It takes three to five years to establish a mature-appearing area. If you're expecting results in a year, you'll spend a lot of money and be very disappointed."

**GOLF COURSE NEWS**

The **Jacklin Genetics** label on the bag says you're planting turf seed varieties with:
- the industry's leading private research and breeding program behind them
- a wealth of innovation that has led the world in turfgrass development for nearly seven decades
- proven performance that combines unsurpassed color, turf quality and disease resistance with higher seed yields

Now it's easy to know whether you have the best turfgrass mixtures and blends available. Just look for the Jacklin Genetics label.

The Jacklin Genetics label on the bag says you're planting turf seed varieties with:
- the industry's leading private research and breeding program behind them
- a wealth of innovation that has led the world in turfgrass development for nearly seven decades
- proven performance that combines unsurpassed color, turf quality and disease resistance with higher seed yields

You never have to wonder if the best is in the bag when the Jacklin name is on it. So ask for Jacklin Seed. And if you don't see the Jacklin Genetics label on the blends and mixes you're considering, ask "why not?"