GUEST COMMENTARY

# For turf's sake, don't take peat for granted

By TOM LEVAR


*Tom Levar*

The constructed soil in sports turf root zones is the foundation of your golf course.

It is easily and often taken for granted once it is placed and covered with turf. Yet your continued success is largely linked to root-zone management, including construction. When root-zone conditions are optimized and sustained, you are also able to establish and sustain healthy, playable turf. This goal is best achieved through the proper use of peat in the root zone; and the bonus is water and nutrient conservation.

No other organic material is as effective as peat in constructed soils for maintaining healthy turf. Our organic options are ever increasing, but peat is the proven standard in the horticultural industries and for very good reasons. Healthy turf relies on a balanced diet of water, air and nutrients. A properly constructed root zone using peat will provide this balance and give a hedge against natural excesses and stresses..

The root zone must breathe and be permissive to gases and water, and at the same time function as a reservoir of available moisture. Peat provides both pore space for pathways and cellular fibers for sorption sites. The water held by peat is readily available to the roots of the turf. No other organic can provide both storage and availability so well. The fibrous nature and structure of peat enables the controlled metering of water and gases in the constructed root zone.

The greatest bonus of sphagnum moss peat in sports turf management is water conservation. The water in the root zone is the "chicken soup" to the turf — a broth carrying nutrients, gases and other natural substances to and from the turf roots. If stagnant, this water can suffocate the roots and give rise to diseases and turf failure. The proper use of peat will improve your efficient water use through storage, with optimum gas exchange which promotes an aerobic environment. This means moisture storage without stagnant, anoxic conditions. The balance of water movement and storage is very critical, since all root-zone functions are related to these processes.

Not only is total water use made more efficient with peat, but water quality is also improved. Peat performs as a physical filter to root-zone water which may be laden with nutrients and agrichemicals. Micro-organisms reside in the organic and biologically degrade agrichemical residues, enabling their contact and bioconversion by microorganisms. By using peat, the water percolating through the root zones of your facility is physically and biologically treated.

An additional conservation bonus of peat is related to the inherent presence of peat humic substances. Organic acids stimulate microbial activity and promote more efficient nutrient conversion and uptake by the plants. This effect on the beneficial micro-organisms gives them a competitive advantage over pathogens in the

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*Tom Levar is the principal scientist of North Woods Organics in Duluth, Minn. His 21-year career has included university research, private consulting, resource management, product development and technical assistance to private industry.*

## Letters

### DETAILING A RECIPE FOR ROOT ZONES

To the editor:

I admire Mark Leslie's editorial in the November issue, "We mustn't forget: Greens, root zone are living organisms."

The "recipe" you describe is widely accepted, specified and used by the Deans of American Golf Construction. You identify several of these Deans in your editorial and the accompanying article ("Experts decry inconsistent root-zone mixes"), none of whom address your question: "Does anyone know what this recipe evolves into?"

The solution to your "recipe" is not found in the school of agronomy but is discovered in the school of medicine; pre-med to be exact, in the microbiology section.

See "Facts on File, Biology," edited by Elizabeth Tootill; Library of Congress catalog #88-045476; published in New York-Oxford-Sydney. This particular volume describes Part A of your "recipe" for peat. What follows is a partial description of "peat" from the above text:

*1. Partially decomposed plant material that accumulates in water-logged anaerobic conditions; varies from light spongy material to a dense, brown, humidified material in the lower layers.*

*A. If mineral salts are present, neutral or alkaline peat (fen peat) is formed.*

*B. If there are no mineral salts present, acid peat (or bog peat) is formed.*

What follows next is a description of the spongy and humidified material:

*1. Mull: humus from deciduous and hardwood forests, grasslands, warm humid climates; neutral; alkaline; supports bacteria, worms, larger insects are abundant; decay is rapid.*

*2. Mor: humus; usually acidic characteristic of coniferous forests; few micro-organisms exist; anthropods and fungus being the most common organisms; decay is very slow.*

The textbook description of your recipe would now read:

**acid peat = peat (bog) = raw humus (mor)...** supporting anthropods and fungus.

The next step in your "recipe" is the sand. A silica is superior to any calcarious sand. But it can be equally dangerous if not graded correctly. "Correctly" means no fines below the #100 screen and enough pore space to allow oxygen and water movement (The new United States Golf Association specification has difficulty meeting these basics).

Basically, the fertilizer and water cannot move or function if they are isolated or locked in an extremely fine mix. The fungus present in the acid peat then expands, leaving the golf course owner and maintenance staff with no other choice than litigation because, at this stage of the game, the green has failed.

So the recipe evolves into an impossible project for the superintendent, who will then hire an agronomist, who will recommend various fungicides that might or might not work.

The success/failure ratio in Colorado projects between the late 1970s and today also identify your "recipe" and the recipe's results:

1. Late 1970's to Early '80s: All organic materiel used was a native peat, an extremely heavy black soil. Successful, if handled cautiously.

2. Early to mid-'80s: Your "recipe" was used, sometimes with moderate success but always with problems. Some severe failures — namely, Breckenridge and Castle Pines — occurred.

3. Mid-'80s to today: Change to neutral organic on 95 percent of Colorado projects with 100 percent success to date. The five percent using an acid (not neutral) peat suffer similar fungus problems as those seen in the early '80s.

If the Deans of American Golf were to follow the example of the Canadian and American effects during the mid-1960s to stop the deadly contamination in the Great Lakes, perhaps golf greens would turn green.

Tom Briddle
Tectonic
Longmont, Colo.

**OBITUARIES**

## Frank Duane, 73

Francis J. (Frank) Duane, a golf course architect who overcame paralysis, died Nov. 16, 1994. He was 73.

Duane, who was confined to a wheelchair after suffering from a rare paralysis in 1965 and a stroke in 1972, designed more than 60 golf courses as an associate of Robert Trent Jones and Arnold Palmer, and in his own practice. Duane also remodeled or expanded more than 45 facilities. His projects are found throughout the U.S., Canada, South America, Puerto Rico and Jamaica. Some of his courses include Bel-lerive CC in Creve Couer, Mo., Big Sky GC in Big Sky, Mont., Half Moon Bay (Calif.) CC, Howell Park GCin Farmingdale, N.J. and Tamarest CC in Alpine, N.J. Duane served as president of the ASGCA in 1972 and was a fellow.

A graduate of the New York State College of Forestry at Syracuse University with a degree in landscape architecture and recreational management, Duane believed golf course architecture should be a fair challenge to not only the professional, but the average player too. "Golf course design must not forget that 95 percent of golfers who pay the bills," he once wrote.

A native of Queens, Duane lived in Port Washington, Long Island, since 1957. He is survived by his wife of 39 years, Mary; sons Andrew and Joseph; daughters Mary, Patricia and Olivia; brothers James, Thomas and Robert; sisters Grace and Alice; and one grand-daughter.

## Milton Coggins, 92

Milton D. Coggins Sr., an active golf course architect in the Southwest for 25 years and a fellow of the American Society of Golf Course Architects , died on Nov. 4, 1994. He was 92.

Mr. Coggins was one of the greatest figures in the history of Arizona athletics. In 1922, while attending Phoenix Union High School, he and his teammates won the state basketball title. He later started for the baseball team University of the Redlands, where he graduated with a degree in economics. He won five Arizona state tennis titles during the 1920s, was an avid hunter and fisherman. One of Mr. Coggins' friends was Clark Gable, who once said: "Coggins goes with the Arizona outdoors like its sunshine and pine trees."

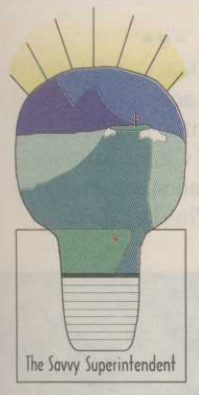
As his life progressed, however, golf became Mr. Coggins' true love. Taking up the game in 1928 at the age of 26, he won the state amateur in 1931 & 1933. In 1940, he became PGA professional at Encanto Muni in Phoenix, a position he held for 25 years. After leaving Encanto, Coggins took up architecture full time. In total, he laid out 29 courses, including those carrying the Sun City name in Arizona (North, South and West), California, Texas and Florida. He was inducted into the ASGCA in 1970 and elected fellow in 1973.

Mr. Coggins is survived by his wife, Tate D.; sons Milt Jr. and Lewis; three grandchildren; and one great grandchild.

# In search of the better idea

By TERRY BUCHEN

BELTON, Mo. — Nels A. Lindgren, CGCS, golf course superintendent here at the Loch Lloyd Country Club, grew in this tournament-caliber golf course in 1989 and hosted a Senior PGA Tour event just 13 months after it opened for initial play. Quite a feat, to say the least.




The course, just south of Kansas City, was designed by Don Sechrest and built by Wadsworth Golf Construction Co.

I like to tour other superintendents' maintenance facilities as I always learn at least 10 new ideas on how to operate a modern, functional, efficient maintenance building operation. I was at Golf Course Superintendents Association of America headquarters in September for a Research Committee meeting and had the pleasure to stop off at Loch Lloyd with Don Tolson, CGCS, and Mark Esoda, CGCS, for a "Cook's Tour" and came away with the following neat ideas:

**GRANULAR FERTILIZER/PESTICIDE STORAGE**

Making the best use of available space in a maintenance building is always a superintendent's goal. Lindgren found some used warehouse racks for his 30- by 60-foot cold storage building. This building has 12-foot-high garage doors with 13-foot ceilings. The racks were cut with a torch to fit on all three sides of a building that did not have garage doors.

The club mechanic rebuilt an old forklift by putting in a new short block and they started putting in pallets of fertilizer that weighed about one ton each. Where the pallets were three across, the metal sagged slightly but remains structurally strong on the free-standing racks. Lindgren and his crew use space underneath the lower racks for additional equipment storage, which works quite effectively.

Lindgren has one additional used warehouse rack outside one of his other maintenance buildings that was not cut off with a torch. The rack is 16 feet high. It is used for palleted storage for tournament supplies, irrigation pipe, irrigation spools of wire, etc. The racks had brackets welded to them and bolted to the outside of the building. Because of their additional height, they needed this extra strength.

**FOAM MARKERS**

Foam markers are common on boom-type golf course sprayers to show the operator where he/she has sprayed and where he/she hasn't. The markers are becoming more common for use with tractor/truckster-mounted rotary and oscillating fertilizer spreaders.

Photos by Terry Buchen

*Granular products can be stored easily and neatly with a forklift.*

Lindgren has mounted a Richway Foam Marker on the front of a turf tractor and has two hoses out in front (in-between the front wheels). He uses a red piece of rebar steel for weight.

When his personnel fertilize wheel track to wheel track, a foam spot is left in-between each wheel mark. For added insurance, a green dye could be added just in case the foam disappears during a hot, sunny day while the spreader is being filled up with material.

Electric switches, which operate the marker, are located on the dash board and the 12-volt electrical is hooked up to a spare fuse.


*The foam marker mounts easily on frame bolted to front weight tray of tractor.*

## Levar: For turf's sake

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root-zone environment. The benefits of superior health, pathogen suppression and reduced reliance on artificial substances further justifies the use of peat in root zones.

Peat is the standard, natural organic of the horticultural industry and has been for decades. It has stood the tests of research and commercial use over time, and is unparalleled in performance as a plant substrate. To best ensure its performance, follow a quality-control pathway of selection, analyses, blending and testing of your components. While establishing and sustaining a healthy, playable turf, you will receive the bonuses of water conservation, more efficient use of agrichemicals and reduced management costs using peat.

## Public chemical concern

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indicate they currently use a lawn care company.

• People strongly believe pesticides are safe when used as directed, but are less certain if their neighbors are using pesticides safely.

• Approximately half of those surveyed believe pesticides made available to the public are thoroughly tested, with the remaining respondents indicating they are unsure if pesticides are thoroughly tested.

• "Maintaining public health" was the reason given by almost 8 in 10 respondents for applying pesticides to control pests and weeds in public areas.

For more information on this study and its findings, contact RISE at 202-463-0474.

**REINDERS HOSTS TURF SHOW AND CLINIC**

ELM GROVE, Wisc. — Reinders, Inc. will host its 12th Turf Conference, Equipment Show and Service Clinic on March 15 and 16, here at the Waukesha Expo Center. The clinic is the largest show of its kind in Wisconsin and has been held every year since 1973. More than 1,400 people are expected to attend. For more information contact Ed Devinger at Reinders, Inc., 13400 Watertown Plank Road, Elm Grove, Wisc., 53122 or by calling 414-786-3301.