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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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.

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Tectonic
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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.