Golf industry needs to adopt standard methods of peat analysis

By TOM LEVAR

I would like to ask you some basic questions regarding the use of peat materials in the blending of root-zone mixtures. I intend to encourage you to view peat and its use more objectively — to ask yourself, "Why do I use this peat material in my root-zone mix?" and "How can I improve my use of peat?"

Peat is likely our best "organic option" if judiciously used. It can be processed to our specification with technical and economical efficiency for superior turf performance. It can be quality-controlled by a competent and cooperative industry, if that is what we require of them.

Our industry needs to adapt and implement standard methods of peat analysis. We also need to better understand the dynamics and function of peat in the root-zone environment.

We are responsible for providing specifications to our peat suppliers. We need to become a more discerning market. Over time, we will realize the benefits of peat in root-zone mixes, by literally seeing them on our courses.

Conversations with Dr. Norm Hummel, Wayne Kussow, Jim Snow (USGA Green Section national director) and other professionals have revealed issues and concerns in the forefront of our industry which are relevant to peat.

These include standardizing laboratory procedures, the use and performance of substitute organic materials, use of finer root-zone components, inconsistent properties of peat materials from the same supplier, and the rising costs of construction.

I contend that no universal or "magical" organic exists, but peat is likely the best of its kind to meet the physical needs of a root-zone mix. Peat is not a panacea, since its benefits are primarily physical. Gains other than these may be postulated, but are not well defined. Some may include the natural content of biostimulants (i.e., humic substances) and of beneficial microflora and microfauna, and sustained plant nutrient release.

One type of peat can not provide all the physical and mystical benefits in our root-zone mixture. That bill will be most difficult to fill with any organic material. Any such claim should be highly scrutinized.

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My foremost caution is this: The marriage of any organic material with the sand component in your root-zone environment should be considered carefully, especially in regards to capillarity and air-water economy.

Root-zone mixtures can be designed to optimize air-water balance and water storage, but only with the right components and basic information. Otherwise, we may be faced with unmanageable root-zone environments of short duration. The key is selecting the right peat type with your sand, and understanding how it works in the root-zone over time.

Peat type is descriptive of both the organic material's "botanical origin" and its "degree of decomposition." "Botanical origin" refers to the identifiable plant remains of the parent material. This can be quantified using microscopic inspection.

"Degree of decomposition" refers to the natural extent of humification, that is, how "rotted" the peat appears. This is measured by various means, some of which are quite subjective.

Botanical origin and degree of decomposition indicate the material's biological stability in its natural state.

A practical beginning for us is to simplify "peat type" by grouping it according to botanical origin, as sphagnum moss, reed-sedge, hypnum, transitional, woody, grassy peat and peat humus. In each of these peat types a range of decomposition is found. However, the identifiable

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"namesake fiber" dominates its makeup.

This simplification serves us well for root-zone mixtures, since each of these general types differs markedly in basic physical and chemical properties, and in the peatland from which they originate.

I advise you to look at each peat type as a potential component in turfgrass applications. Since all have potential benefits, each will perform differently and all are available from North American producers. But this grouping by peat type is only a beginning.

Why differentiate between peat types for use in turfgrass culture?

Locally available peat types may be initially inexpensive but may not be physically compatible, especially over time. Some peats are too decomposed or too coarse to match with the selected sand. This affects the root-zone mix's mechanical stability, capillarity and structure — free air space and density.

An analogy would be the physical instability and density changes of mixing golf balls and marbles. With any surface activity, a mixture like this would be very unreliable.

Also, some coarse or raw peat materials may not be biologically stable over time, and decompose too quickly when exposed to turf practices such as fertility management. This may result in subsidence and surface irregularities, anaerobic conditions and formation of impermeable residues. Proper selection of peat improves dependability and control of your root-zone media.

It is most important for our industry to contract laboratories which use USGA standardized test methods and services which fully characterize the root-zone components, including the peat. Our industry has made recent strides in the use of standard methods for organic carbon of the mix (using Walkley-Black, 1960) and ash content of the peat, but that effort is not complete.

Additional emphasis should be placed on organic carbon, particle size distribution and the quality of the peat alone. The quality of the peat fiber can be described by its "biostability." The carbon:nitrogen ratio is one good indicator of biostability.

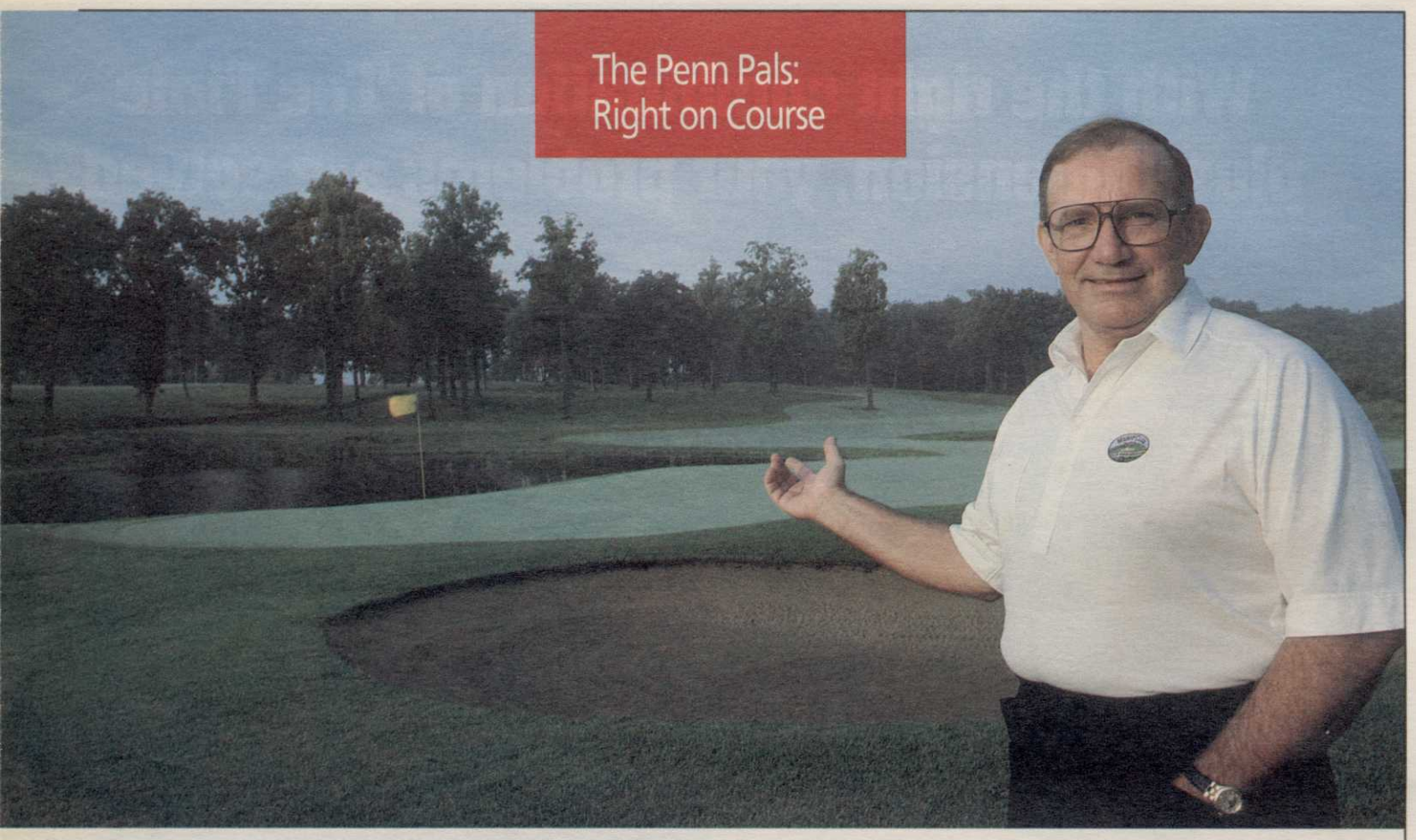
Where peat is used in top dressing or core aerification, the compatibility of these materials to those of the original root-zone media is also essential. Laboratory and blending services with peat expertise help us produce superior turfgrass media consisting of quality components for lasting performance.

As a golf course superintendent or builder, you may ask, "What are the benefits of being more discerning in my use of peat?"

The use of a specification peat materials will ultimately result in lower costs of establishment, maintenance, renovation and general management of your turf. The peat should be consistent, compatible to the sand component in particle size distribution, and free of weed seeds, sticks and phytotoxic residues.

Through proper use of peat, you will realize some of the following benefits in your turfgrass culture and performance: improved green-up and establishment; better rooting stability and wear; reduced compactibility; improved stress resistance and overwintering; improved irrigation response and control; better nutrient management; improved gas exchange; increased microbial activity; and longer life of your root-zone media.

The many benefits and advantages of peat warrant our careful attention to its selection and use in turfgrass culture.



Oscar Miles, CGCS, overlooks the 6th hole at the Merit Club, Libertyville, Illinois.

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numbers.

We started mailing and faxing sample issues of the *Development Letter* in November of 1992, and the response has been overwhelming. Another sample audience should be receiving its complimentary issues any day now.

Frankly, the *Letter*'s positive response doesn't surprise us because the news therein contained is clearly of use to golf course designers, builders and their suppliers. And because this information sometimes can't wait a month to reach its audience, we publish it twice a month, via the fax machine if you like.

Finally, on page 54 you will find an advertisement for the *Development Letter*, including information on whom to contact here at *Golf Course News* about subscriptions... It seems silly to have you turn 40 pages when I could do it right here... I may as well tell you: Associate Editor Peter Blais is handling the *Letter*. You can reach him at 207-846-0600.