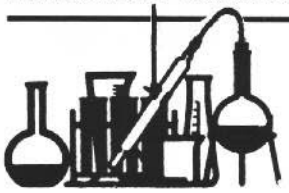

Questions From The Floor

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Q. *A group of us got into a discussion over sand used for root zone mixes. Some claimed silica sand was the only way to go; others were fierce in their defense of calcareous sands. What do you think — are there significant differences between the two? WALWORTH COUNTY*

A. To begin, let's briefly review what the USGA Green Section has to say on the matter. "Silica sands are recommended, other sands acceptable in rare cases where silica sand is unavailable." USGA Green Section Record. May, 1973.

"Sand particles should preferably be smooth or round in shape. If round-shaped particles are not available, sharp sands are suitable and acceptable. Be sure to stay away from sands of soft origin, such as limestone or other calcareous materials. Only sands formed from silica, quartz or other hard rock materials are recommended." USGA Green Section Record. November, 1977.

Clearly, silica sands are strongly preferred by the Green Section staff. Why? Both physical and chemical concerns are involved. Some calcareous sands contain only carbonates, but these act as cementing agents for clay, silt and very fine sand particles. Other calcareous sands actually contain sand-sized limestone particles. In either case, the carbonates will eventually weather away, leaving behind fine sand, silt and clay particles that can clog larger pores. The net result can be significant reductions in water infiltration rates and inadequate drainage and aerations.

On the chemical side of this issue are concerns about nutrient deficiencies. Calcareous materials strongly absorb phosphate and render it unavailable to turfgrass. If the carbonate present is only calcium carbonate, you have the situation wherein magnesium deficiency has occurred in golf greens. When carbonates are present, the equilibrium pH of the root zone mix is 8.3. At this pH, iron deficiency is likely and problems with zinc and manganese may occur as well. At its worst, you can find yourself having to institute an unending foliar feeding program.

The position the Green Section staff has taken on calcareous sands is prudent. It is not saying that all of the above problems will arise if you use calcareous sand, but the potential exists for problems that are not associated with silica or quartz sands.

Q. *Iron applications to greens, tees and fairways as part of a spray program are fairly common in Wisconsin. Some superintendents are using ferrous sulfate while others are using chelated products. What difference does it make? DOOR COUNTY*

A. If you are layering in your greens or tees, I'd avoid ferrous sulphate when using iron on a regular basis. Layering disrupts drainage and sets up conditions for black layer formation. Under the unaerobic conditions that result, microrganisms reduce sulfate to hydrogen sulfide. Hydrogen sulfide is a gas that can accumulate to the point of becoming toxic to the turfgrass.

If you don't have conditions conducive to black layer formation or aren't worried about it, choice of iron source depends on whose research reports you read. Chelated iron seems to be more effective than ferrous iron when air temperatures are low, while the opposite may be true under high temperatures. In general, on an ounce-for-ounce basis, chelated iron gives a better response than ferrous iron. However, the differences in responses often do not justify the cost differential of the two products.

Q. *Can you get a "black layer" on older type soil greens? I thought it was only a problem on sandy root zones, but while at the Golf Turf Symposium I overheard someone say that O.J. Noer had seen such a layer 50 years ago. LA CROSSE COUNTY*

A. You need only two conditions to set the stage for black layer formation. One is obstruction of water movement at some point in the turfgrass rooting zone. The other is the presence of organic matter or an inorganic compound such as sulphate that serves as an energy source for microorganisms. I don't doubt that there were (are?) some old soil greens where these preconditions have arisen. I would, however, venture to guess that we're talking primarily about sandy loam or loamy sand soils overlying finer textured soil.

Q. *Fine grade Milorganite seems to be more available these days from MMSD distributors. What do you know about this material? RACINE COUNTY*

A. I've been applying the material to creeping bentgrass for the past three years. Its turfgrass response characteristics are similar to those of regular grade Milorganite. The only difference is that I've had to apply about 30% more N from the fine grade Milorganite as compared to the regular grade to get comparable intensities of turfgrass color. This may be due in part to the fact that the fine grade Milorganite has been applied bi-weekly and the regular grade Milorganite on a monthly basis. My experience is that increasing the frequency of application of a nitrogen fertilizer while keeping its annual rate constant reduces the intensity of turfgrass color.

The major difference between fine and regular grade Milorganite is in application. If you're going to use the fine grade material, you have to be willing to push a drop spreader and wait for a calm day .I believe Tom Harrison can describe what happens when fine grade Milorganite is applied with a rotary spreader.

Q. *I'm embroiled in an argument with a colleague over homogenous vs. blended fertilizers. I say that on fine turf you should use a homogenous product. He says it doesn't make a lick of difference and that I'm foolish to spend the extra money. How do you view the "cost/ benefit" factor in this golf course management issue? GREEN COUNTY*