



Questions From the Floor

By Dr. Wayne R. Kussow
Department of Soil Science
University of Wisconsin-Madison

Q: For the five previous years or so, a hot topic among golf course superintendents was "the black layer". Special symposia were held, articles were written and every educational program from Maine to California had speakers addressing this subject.

Suddenly not a word about the dreaded black layer. What happened? Did the problem go away or wasn't it a problem in the first place? SAUK COUNTY

A: The silence is puzzling. As you know, a flurry of research came up with some remedial actions; deep, frequent aeration, use of the nitrate form of fertilizer N and a halt to use of elemental or sulfate-sulfur on putting greens. Nothing much was ever said about preventing black layer.

I can only guess why black layer has not received any press lately. If the basic causes of black layer are being researched for the purpose of learning how to prevent the problem, I can understand the silence. This is long-term research that won't come up with answers quickly. The precursor to black layer is interrupted drainage several inches from the putting green surface. This can result from the layering of topdressing sand over native soil. Once the sand depth is such that aerifier tines no longer break through the sand-soil interface, a saturated layer begins to form at this interface when rainfall is heavy and/or there is persistent overwatering. In sand matrix greens, the most likely cause of impeded drainage is downward migration of silt and clay particles from poor quality construction materials and eventual blockage of sand pores. In either case, these are conditions that require several years to develop.

I feel weather may also have played a role. Even after drainage has been impeded, it takes two to three months or more of water saturation before black layer begins to form. My first encounter with black layer was during a season

following a very wet fall and an equally wet spring. Automated irrigation systems seem to have been a contributing factor to black layer in other instances. Another reason we haven't heard much about black layer lately may be because it's not a popular topic among those who heavily promote sand topdressing without regard to the nature of the soil from which putting greens have been constructed.

I personally don't feel that we've heard the last about black layer. The preconditions for its development have been and still are being created. All that's needed is a prolonged period of above normal rainfall.

Q: We have been forced to stop hauling our grass clippings to our local landfill and have decided to compost them. We were almost immediately discouraged, however, by the overwhelmingly bad smell. Neighbors and players are starting to complain. Is there anything we can do to get rid of the barnyard smell or must we abandon composting altogether? DODGE COUNTY.

A: Composting is a little more than microbial oxidation of organic matter. The basic requirements for rapid decomposition are fresh organic matter with a favorable C:N ratio, moisture and oxygen. The problem with grass clippings is the last requirement. Clippings pack so tightly that with the first burst of microbial activity all the oxygen in the pile is consumed and none can enter from the surrounding air. The decomposition process then becomes that of fermentation in which vile smelling organic acids and other aromatic organic compounds form. At this point what you're producing is not compost but grass silage!

The only way you can compost grass clippings is to somehow maintain aerobic conditions in the compost pile. Two things must be done. First, you have to mix the grass clippings with some type of dry material that will pre-

vent compaction in the pile and allow for free interchange between carbon dioxide formed by microbes in the pile and oxygen in the surrounding air. Examples of such materials are dry tree leaves, wood chips and chopped straw. They need to be thoroughly mixed with grass clippings at a ratio of approximately one volume dry material to two volumes grass clippings. Secondly, the compost pile cannot exceed about 125 cu. ft. in volume. This is to ensure adequate oxygen in the center of the pile. Lastly, if you want the composting process to be complete in 2 to 3 months, you'll have to mix the pile a couple of times and make sure it stays continuously moist.

As you can see, composting is not a simple, low-cost disposal method for grass clippings. But don't give up completely on the thought of composting your clippings. As more and more municipalities go to solid waste composting you may be able to enter into a cooperative venture wherein you supply low C:N ratio grass clippings that will hasten the composting process.

Q: There are really a lot of exotic blends of fertilizers coming into our market. They are being sold under the guise of "slow release". Does the blending approach to slow release fertilizer really work? WOOD COUNTY.

A: My answer to this question is based on the assumption that what we're talking about here are blends of soluble and slow release N (SRN) fertilizers developed with the idea that such products give quick greenup followed by fairly uniform color and growth for a period of several weeks. Blends of this type are the industry's effort to come up with the "ideal" turf fertilizer and a competitive advantage in the marketplace.

Surprisingly, there is very little research information regarding the advantages of different combinations of
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