

## THE BLACK LAYER PROBLEM - WHAT DO WE KNOW ABOUT IT?

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In August of 1985, an area of putting surface approximately 300 square feet in size, began to fade, on the rear corner of the #4 green at Walnut Hills Country Club. This area was first recognized by the Assistant Superintendent Dave Pretznow, who brought it to my attention. It didn't appear to be a disease, however, I didn't know what it was and thought that if I ignored it, it might go away. I was wrong, as the area continued to deteriorate. This period of time consisted of approximately 10 days. A soil probe was inserted in the area and about 2 to 3 inches in depth there was standing water. Joe Vargas looked at the area and showed us where the Black Layer was. He recommended that we aerate and cut the rate of irrigation water, which we did. Four weeks later, after the cooler fall weather set in, the area recovered.

HISTORY OF THE GREEN: Constructed in 1977. Soil mix is approximately 80% coarse sand, which is not consistent throughout the green. The 10,000 square feet of putting surface makes this green our largest. It has poor internal drainage especially in the area the Black Layer appeared. Surface water from surrounding areas drains in the direction of the Black Layer problem. We have been on a pure sand topdressing program since 1978. Sulfur has never been applied and Ferrous Sulfate has been used on a regular basis.

CORRECTIVE ACTION: Double aerated with 1/2" tines, removed the cores and topdressed with pure sand. Sprayed with Tersan SP and flushed with water. At this time, a few turf researchers believed that the problem was a result of a soil borne Pythium fungus. More time was spent programming the irrigation system.

OBSERVATIONS: The Black Layer was located at the interface of the pure sand topdressing and the original green soil mix. The area held less water in August, 1986 versus August, 1985. In 1985 no roots extended into the Black Layer. In 1986 the roots extended past the Black Layer and into the original green mix. I was surprised that the roots remained white past the Black Layer.

In 1986 there was a Black Layer, however, there were no visual blemishes on the surface of the green.

When the soil probe is pushed into this green, there is little resistance when inserted through the pure sand topdressing portion. There is much resistance when the probe is pushed into the original soil mix where there was standing water.

SUMMARY: We changed our management practices, primarily cutting back on water. This certainly helped, however, I think the Black Layer will always be there. Hopefully, if we can keep that area of the green relatively dry, the problem won't appear on the surface. I suspect the Black Layer is in many greens, however, it is not observed because the turf has remained healthy. Next summer you may want to cut open a poorly drained area of a green and examine the soil profile to see if the Black Layer has developed.