Why My Putting Greens Appear Purplish in Winter

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The first frosty nights in October bring about some pronounced physiological changes in plants. In bentgrasses, especially lower cut putting greens, leaves may develop a purple or blue-gray color. The discoloration may be uniform, but frequently the various shades of purple, red or blue appear in circular patches. These patches represent clones. The colors are most prevalent on older greens, especially those seeded to Seaside or "*Old South German*" bents. These seeded varieties were genetically variable and as a result all plants emerging from seed were not true to type. Hence, individual plants would grow and the more aggressive types would dominate to produce a circular patch. These patches are not unlike the circular areas of blighted turf associated with some diseases. The purplish discoloration is most often misdiagnosed as leaf spot by some golf course superintendents. Leaf spot is an uncommon disease of bents in Maryland, but it can cause a red-purplish discoloration in Kentucky bluegrass. The purpling is very prominent in Penncross greens. Penncross has three parents and therefore at least three different types of color patches or clones can appear on greens. Presumably, similar color changes will appear in Pennlinks, Southshore, Providence and all of the newer seeded bentgrass varieties as well.

But why do greens turn blue or purple? The cool to cold temperatures trigger the color responses. During mid-to-late October we experience relatively warm days (65 - 75 F), but cool nights (32 to 55 F). The sunny, bright and warm days stimulate plants to produce large amounts of sugars (through photosynthesis) in leaves and leaf sheaths. At night, the sugars must be translocated out of leaves to crowns for storage or use in other physiological processes. When nights are very cool the sugars are not completely moved out of leaves and they accumulate. There are many types of sugars. Glucose is a common plant sugar and sometimes glucose molecules are chemically bound with anthocyanins. Anthocyanins are pigments and their function in plants is unclear. The word "anthocyanin" is from Greek: anthos = "flower", and kyanos "dark-blue". Anthocyanins provide the red, purple and blue colors in flowers. Anthocyanins accumulate in the foliage of trees during cool and bright weather to provide the spectacular colors in autumn leaves. Hence, bentgrasses experience a similar accumulation of sugar, and therefore anthocyanins, following the first cool or frosty nights of fall. These colors may intensify and persist throughout winter months and slowly disappear in mid-spring after turf begins active growth.

A somewhat similar blackening or purpling of bentgrass leaves also may be elicited by the following: iron applications; low soil phosphorus levels; ammonium sulfate application; fungicides classified as sterol inhibitors (e.g., Banner, Bayleton, Sentinel and Rubigan), some plant growth regulators (especially Cutless and TGR); and arsenic toxicity. These responses are well known and can occur at any time of year.

Education Notes March 1995

March Speaker:

Humus, Humate, Humic Acid, Humate Substances and Humates. What the heck is all this stuff? It seems that there are more products on the market each year that contain or claim to have something to do with healthy soil humus and organic matter content. Mr. Chuck Federal, the Director of Research and Development for Earthgreen Products, Inc., will speak to our group about this very interesting and cutting edge topic. He has given his talk the title, 'Current Research in Humus, Humate, Humic Acids and Humic Acid? And yes, there is a difference between Humic Acids and Humic Acid, I've already asked. So, come to our first meeting of the year ready to listen and talk about what a healthy soil is or is not. Maybe your already doing something but aren't quite sure why. Hopefully there will be something for everyone to benefit from.

Comments and Requests

This year, the MAAGCS newsletter will be undergoing many changes. The editor's goals are not only to increase the size and look, but to upgrade its contents and hopefully better serve the membership as a source of practical and technical information. Some of the new ideas being considered revolve around input from a broad range of members. We will be soliciting material from Assistant Superintendents, students, local and regional sales representatives, equipment managers, as well as Golf Course Superintendents. A feature being considered is initiating a free classified section for superintendents which could include requests from fellow members on a variety of subjects. The emphasis will be to widen the newsletter's appeal and encourage more creativity in its contents and communication between members.

In order to achieve these goals we need participation from all members. Whether it is a full article, a letter to the editor, or just an idea you would like to see included as a regular feature. We need your help! This will be an ongoing upgrade so collect your thoughts over the next few months. The newsletter should be your means to express yourself. Take advantage of this opportunity. Call or fax your ideas to either:

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