

Chlorosis - Not Yellow Tuft

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Every spring and autumn samples of yellowing bentgrass or annual bluegrass from greens are sent for diagnosis. Often we are asked if yellow tuft disease is the problem, and seldom has this been the case. Yellow tuft plants are distinctively tufted and are most conspicuous during cool and wet periods. Plants infected by the yellow tuft fungus (*Sclerophthora macrospora*) produce large numbers of tillers. Healthy plants have 4 to 8 tillers; whereas, yellow tuft plants from putting greens typically have 15 or more tillers. Furthermore, yellow tuft plants are easily detached from putting greens, because roots of infected plants are abnormally short and bunched. Yellow tuft is most commonly observed in the winter and spring following a fall seeding or heavy overseeding.

Chlorosis or yellowing is caused by a lack of chlorophyll production or an abnormal breakdown in chlorophyll levels. Chlorosis can be caused by nutrient deficiencies. The most common would include high nitrogen use in combination with low potassium levels in soil; and iron (Fe) or magnesium (Mg) deficiencies. Iron and Mg deficiencies are uncommon in our soils. In sandy putting green mixes, Fe deficiencies can occur. Other factors, however, can limit Fe or Mg uptake such as extremes in soil pH, and possibly cold and wet weather. Because most problems with non-uniform chlorosis appear in our area during spring and fall, it seems likely that environmental conditions that interfere with root uptake of Fe, Mg or other micronutrients are the cause. These weather conditions can inhibit chlorophyll production and retention levels in plants. Both spring and fall are characterized by generally warm days and cool nights. These conditions stimulate rapid growth of cool season grasses. Cool to cold nights slow the ability of plants to produce sufficient chlorophyll levels to meet the needs of rapidly increasing leaf and sheath tissues. as a result, chlorosis develops.

Chlorosis is also very common on perennial ryegrass fairways. Like greens, the chlorosis on fairways develops in pockets. There is often no apparent relationship between the appearance of chlorosis and soil condition (i.e., well-drained vs. wet.) Chlorosis, however, may be somewhat more common in shaded or wet sites, but these factors are not associated with all chlorosis problems.

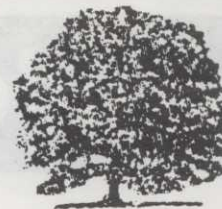
In most situations the chlorosis dissipates within a few weeks. Occasionally, however, it debilitates

plants, especially annual bluegrass. The application of a micronutrient product may be beneficial should thinning of the turf become evident. Because Fe and Mg are greatly involved in chlorophyll production, they are frequently recommended. Iron sulfate (1-2 oz/1000 ft²) or chelated Fe (Ferremec, Lesco Fe + N, or Sprint) materials are suggested. Epsom salts (2.0 oz/1000 ft²) are a good source of Mg. Also, next time N is to be applied use a complete fertilizer (i.e., N + P + K). Covering chlorotic greens with blankets during unusually cold spring or autumn nights also may help to reduce the yellowing.

There are other causes of generalized chlorosis and they would include the following: use of extremely high seeding rates that result in huge numbers of crowded plants occupying a small space; excessively wet or poorly drained soils that become temporarily anaerobic; plant parasitic nematodes; Pythium induced root dysfunction, and other diseases. In the case of these latter situations, chlorosis could develop at almost any time of year.

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