

Late summer yellowing of Kentucky bluegrass and creeping bentgrass
July 13, 2017

We're seeing an interesting yellowing (chlorosis) of turfgrass around the region. It is most prevalent on Kentucky bluegrass and creeping bentgrass. It is most severe on alkaline soils when soils are warmest in August or cold in March. It's also been seen in wet areas such as around irrigation heads and low areas. Nitrogen fertilization intensifies the yellow coloration on the youngest leaves. We suspect it is the result of a micronutrient deficiency but soil and tissue test reports are inconclusive.

Dr. Ryan Goss at New Mexico State University has done some initial research on this phenomenon. His work suggests the yellow/chlorotic turfgrass is iron (Fe) deficient. Iron is not a phloem mobile nutrient which causes yellow symptoms to appear on new leaves and is consistent with the yellowing we've observed in Nebraska. While Fe availability in alkaline soils is low, grasses have special mechanisms in their roots to extract trace amounts of Fe from the soil. These mechanisms typically satisfy the plant's need for Fe and any greening response to Fe fertilization is the result of Fe oxide formation on the surface of the leaf. Intensification of the yellowing following nitrogen fertilization also suggests there is a micronutrient deficiency. Nitrogen fertilizer promotes turfgrass growth which increases plant demand for other nutrients like Fe. When Fe availability is low, nitrogen applications can intensify micronutrient deficiency symptoms increasing the demand for Fe.

It is still unclear why yellowing only occurs in Kentucky bluegrass and creeping bentgrass. Appearance of yellowing during late summer, when soil temperatures are warmest, may suggest there is some type of root dysfunction with these species. We've found that application of chelated micronutrient fertilizers quickly corrected the deficiency symptoms on a calcareous USGA putting green plot at Mead (Fig. 1). We are studying different sources of chelated iron at Heritage Hills Golf Course in Mc Cook, NE. We'd like to thank Bill Bieck for allowing us to use his course. We'll discuss the results in a future Turf iNfo article. Stay tuned.

Bill Kreuser, Assistant Professor and Turfgrass Extension Specialist, wkreuser2@unl.edu



Figure 1. Application of a chelated micronutrient mix (left) corrected yellowing symptoms (right) on a creeping bentgrass putting green.