Scanning the Journals

Iron Influences Bentgrass and Annual Bluegrass Differently

Annual bluegrass is found in disturbed areas around the world in virtually every climate and elevation. High traffic and significant disturbance that occurs on turf areas creates an ideal environment for invasion. While most golf turf areas in northern climates are considered "two grass" systems (bent and poa), there is always interest in understanding any differences that could be exploited to reduce or mask annual bluegrass populations.

Researchers at Penn State University investigated the influence of iron on an annual biotype and a perennial biotype of annual bluegrass, as well as Penncross creeping bentgrass. The objective of the study was determine if the biotypes and bentgrass differ in their growth or color responses to iron. Iron increased color ratings of all grasses, however, the perennial biotype exhibited the highest color ratings at similar iron levels. In fact, the annual biotype responded similarly to Penncross with iron applications. Interestingly, creeping bentgrass produced the greatest shoot and root growth response to iron and growth on both biotypes of annual bluegrass was reduced at increasing iron rates. Significant differences in growth were not correlated with differences observed in tissue iron content.

Results from this study support the sufficiency range for iron in tissue to be between 35 to 100 ppm. However, the high variability relative to corresponding growth indicates that tissue iron content is not a reliable diagnostic feature. Still, interesting growth differences demonstrate potential management options. It is important to note that other researchers have not been able to demonstrate field level responses that result in a meaningful shift in population to favor the bentgrass.

From: Xu, Xia and C.F. Mancino. 2001. Annual bluegrass and creeping bentgrass response to varying levels of iron. HortScience 36:371-373.

Bentgrasses Differ in Salt Tolerance

Increasing populations continue to place pressure on the use of potable water sources for turf and landscape. Also, many turfgrass areas are forced to use poor quality water as a result of reliance on runoff fed ponds and streams that drain from impervious surfaces. Consequently, turfgrasses will need to be selected for their performance under saline conditions.

Ken Marcum at the University of Arizona has been a leading researcher in the area of turfgrass salinity tolerance. Recently, he conducted a study to evaluate 35 bentgrass cultivars for salinity tolerance. Thirty three creeping bentgrasses, one colonial and one velvet were grown in the greenhouse and exposed to various levels of saline water. Various growth measurements were evaluated such as amount of green leaf, shoot and root growth. As exposure time to high salt levels extended out to 10 weeks there were obvious cultivar differences.

Salinity tolerance range indicated that Seaside and Seaside II, as well as Grand Prix and Mariner were considered salt tolerant. L-93, G-2, and 18th green were moderately tolerant. SR1119, Regent, Putter, Penncross, and G-6 were salt sensitive. These results demonstrate that not only is there potential for breeding enhanced salt tolerance, but if water quality is an issue at your facility, you can begin selecting now for a cultivar that will perform under the salt stress conditions.

From: Marcum, K.B. 2001. Salinity tolerance of 35 bentgrass cultivars. HortScience 36:374-376.

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