

Watching Your Tees & Q's

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Iron — A Micro with Macro Influences

Whenever superintendents get together and discuss their turf management practices, at some point the topic of fertilization usually comes up. Everyone is aware of the "big three" — nitrogen, phosphorus and potassium — and their requirements is a balanced fertility program. However, how often do we discuss the micronutrients and their role in plant growth? The following will be a brief discussion of iron and its role in plant nutrition.

Iron plays an important function in two physiological processes of plant growth. It is the constituent of certain enzymes in the respiratory system and it also is required for chlorophyll synthesis. Thus, the level of iron availability can have a direct effect on turfgrass color. Iron deficiencies are observed as a paleness or yellowish discoloration of the turf. It has also been found that iron can influence the vigor of the bermudagrass as it goes into and comes out of dormancy in the fall and spring. An application of iron in the fall can delay bermuda's entrance into dormancy while spring applications are beneficial to spring green-up. Recent investigations have also shown that iron can improve both heat and drought tolerance of turfgrasses.

It has often been stated that iron is the micronutrient that is most commonly deficient in turf. But why is this so? The primary reason for this fact is that while iron may be present in the soil, it is in forms that are unavailable for plant uptake. Plants are only able to take up and utilize iron when it is in the ferrous (Fe^{++}) iron form. Soils that are alkaline, high in phosphate, magnesium, zinc, arsenic, organic matter, water logged or excessively thatched generally exhibit iron deficiencies. It has also

been found that in Florida soils that have been treated for many years with sprays and fertilizers, copper accumulates and causes iron deficiencies.

At the present time, there is not an accurate soil test for iron availability, thus including iron as a regular fertility practice is essential to good turf management. While some complete fertilizers contain iron, the easiest way to handle applications is with foliar sprays. The foliar applications of iron begin correcting deficiency symptoms within one or two hours after application. However, there is no long term effect because of loss by leaching or conversion to an insoluble, unavailable form. Generally, applications at two to four week intervals in pesticide mixtures have proven successful. Consult with your local chemical supplier in regards to specific rates, pesticide compatibility and availability. ■

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