What Is Iron Deficiency?

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The University of Wyoming has a publication on iron deficiency. The soils in the Rocky Mountain area were developed under conditions, which contained limestone. This calcium carbonate material causes our soils to be alkaline. This also causes our soils to restrict movement of air and water, due to the high clay content, and low organic matter. These factors may limit the availability of certain soil nutrients and cause deficiencies, with iron being the major deficiency.

Iron is one of 16 chemical elements essential for plant growth. Plants need small amounts of iron and generally, it is not added to most fertilizers. Iron is abundant in most soils but the availability is generally limited by the soil conditions. Iron availability is lowest between the pH ranges of 7.5 to 8.5, which is the range of most soil analysis I have seen for our area. Iron is more available as the pH range decreases. PH is the measure of how alkaline or acid a soil is with seven being neutral. In addition, cool wet soils, which occur in the spring, can also aggravate the availability of iron.

The biggest problem generally occurs where plants that developed in areas with more acid soils are planted in alkali soils, such as Maples, Oaks, Aspens, Cottonwoods, Pines, Rose family, Buckeyes. The symptom is generally a yellowing (Chlorosis) between the veins of the leaves. This symptom shows up normally on younger leaves first then moves to older leaves. If the problem is sever, then the leaves will die and so eventually will the plant.

If the symptoms only occur for a short period of time, say in the spring then no treatment is necessary. However, if the symptoms are longer or the health of the tree or shrub is affected then treatments should be tried. Other nutrients should also be in adequate amounts so a soil test should be conducted first. Spraying a light application of liquid fertilizer, on the leaves, such as “Miracle Grow” should show quick green up if there is a nutrient deficiency. Next, try adding 1 to 2 pounds of ammonium sulfate per 1000 square feet on the ground. This will add nitrogen and sulfur, which will help temporarily, lower the pH level of the soil. The fertilizer I like using is one that has ammonium sulfate as a primary source of nitrogen for this reason. If this still does not seem to help then try adding 2 pounds of sulfur per 1000 square feet around the tree. This may need to be repeated several times during the growing season. To change the pH of the soil permanently is a difficult process.

The most effective form of iron, which is most readily available to plants, is a "chelated" form of iron. This form is an organic compound combined with the iron so the soil does not tie up

the iron as readily. A person can also use a liquid iron fertilizer to spray on the plant. This may also have to be repeated several times (up to every 10 days) during the growing season. However, be careful of hot days as this can burn the leaves and the iron can stain leaves, sidewalks etc. A person can always try the powdered fertilizers used for houseplants as a spray. I have found that by using a fertilizer with some iron, Zink, and sulfur in the summer time the grass and other plants in the landscape have a deeper green color and seem to withstand the hot dry summers better. I also like to add gypsum either in the fall or spring to add some sulfur to the soil. Also the more organic matter there is in the soil the less alkaline the soil will be.