Montag Manufacturing, Inc.

2737 Van Dorn Rd
Milford, NE 68405

3816 461st Ave
Emmetsburg, IA 50536

Phone: (712)-852-4572
Email: info@montagmfg.com
Website: www.montagmfg.com

THE AGRONOMY CORNER

IRON

In this edition we turn our attention to another of the micronutrients, iron.

Iron is essential for plant growth and food production. Iron is a component of many enzymes associated with energy transfer, nitrogen reduction and fixation, and lignin formation. It is a catalyst for chlorophyll formation and must be present. Iron is especially important in legumes as an oxygen carrier in the nodules on the roots.

Like several of the other mineral nutrients, iron is mostly immobile within plant tissue. Thus, look for deficiencies on new growth. This immobility means that the need for iron must be met with iron ions moving up the plant from the roots. The reaction to make iron available to a plant is slow and the demand by the plant can exceed the ability to convert enough iron into the correct ion for the plant, leading to signs of deficiency.

When this occurs, the only way to overcome the deficiency is through foliar application of iron solutions. The addition of iron to the leaf surface of a deficient plant will cause the chlorophyll reaction to take place at the site of addition and can overcome iron deficiency.

Iron uptake can be reduced by cold soils and high pH soils. Since legumes require iron for nitrogen fixation and energy transfer, iron deficiency is seen in legumes sooner than it is observed in non-legumes, like corn.

Iron deficiencies normally manifest themselves as a yellowing of the tissue between the veins on the leaves. This lack of color is called “chorosis”. It is frequently seen on young soybean plants growing in northern climes on high pH soils. These plants normally outgrow the deficiency with warmer soils and more root development.

Additionally, iron deficiencies can be caused by imbalance in the presence of copper, manganese and molybdenum. Poorly aerated or highly compacted land also reduces iron uptake by plants. Uptake of iron decreases with increased soil pH, and is adversely affected by high levels of available phosphorus, manganese and zinc in the ground.

The best method to reduce the chance of iron deficiencies is to apply iron in your fertilization program and to partially reduce the pH of the soil. There are varieties of legumes that are not as susceptible to iron deficiencies.

Take aways.

Iron is a component of many enzymes associated with energy transfer, nitrogen reduction and fixation, and lignin formation.

It is a catalyst for chlorophyll production.

Iron is immobile within plant tissue. Look for deficiency signs on new growth.

High pH soils can cause iron deficiencies since uptake diminishes with increasing pH. So also can imbalance of copper, manganese and molybdenum.

An active deficiency of iron can be overcome by foliar application. To eliminate causes of iron deficiency, soil conditions must be changed as the addition of iron alone will not correct the availability of iron caused by high pH soils.

Links to the sources for this discussion:

http://www.cropnutrition.com/crop-nutrients-iron

http://eldoradochemical.com/fertiliz1.htm