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THE AGRONOMY CORNER

MANGANESE

We now turn our attention to one of the two "M" micronutrients, manganese.

Manganese's primary role is as a part of the enzyme system in plants. It is vitally important because it is a primary synthesizer of chlorophyll and without it, a plant cannot make chlorophyll and the photosynthesis process would cease and the plant would die.

It also activates several metabolic reactions as well as accelerates germination and maturity. It also serves to increase the availability of phosphate and calcium to a plant.

Manganese is immobile in plant tissue, so deficiency symptoms appear first on younger leaves, with yellowing between the veins. Sometimes a series of brownish-black specks appear. Unfortunately, these symptoms are the same ones as iron and nitrogen deficiencies. A tissue test can show which nutrients are at fault. Delayed maturity is also seen as a manganese deficiency in some crops.

Manganese deficiencies are most common in high organic matter soils and in those soils with naturally low manganese content and with neutral to high pH readings.

Manganese deficiencies are often associated with high-pH soils, which may result from an imbalance with other nutrients such as calcium, magnesium and iron. Soil moisture also affects its availability. Deficiency symptoms are most severe on high organic matter soils during cool spring months when soils are waterlogged. Symptoms disappear as soils dry and temperatures warm.

A deficiency can be corrected in several ways. Among these are manganese applied in a band with the starter fertilizer, proper liming to prevent acidic soils, by foliar application and ensuring that the starter fertilizer has more than adequate amounts of phosphorous which helps to activate manganese.

Take aways.

Manganese's primary role is as a part of the enzyme system in plants.

It is vitally important because it is a primary synthesizer of chlorophyll without which the plant will die.

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

High pH soils can cause deficiencies since uptake diminishes with increasing pH. So also can imbalance of other nutrients such as calcium, magnesium and iron.

An active deficiency can be overcome by foliar application and by the addition of manganese to a banded starter fertilizer high in phosphorous.

Links to the sources for this discussion:

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

http://eldoradochemical.com/fertiliz1.htm