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THE AGRONOMY CORNER

COPPER

Another of the very important micronutrients is Copper.

Copper is one of the main activators of enzymes and helps catalyze many of the reactions in the plant growth processes. It serves a major function in both photosynthesis and the reproduction process. Copper also is involved with actual chlorophyll production in plants and helps to increase the sugars that feed the plant. Copper also aids in lignin formation that strengthens cell walls and aids in wilt resistance.

Despite this outsized plant activity, copper only needs to be present in the plant in very small amounts. It has been estimated that leaves will not show copper deficiency signs if the level is above 20 ppm on a dry matter bases.

Copper is the least mobile nutrient of the micronutrients. Thus, look for deficiencies on new growth. This deficiency is first seen on leaves and stems, as stunted plants with lack of chlorophyll coloring (leaf yellowing or pale green), and die back.

Copper deficiencies are mainly reported on organic soils and on sandy soils that are low in organic matter. Heavy clay-type soils are the least likely to be deficient in copper. Copper uptake decreases as soil pH increases. Increased phosphorus and iron availability in soils decrease Cu uptake by plants.

When soil tests indicate the need for copper it should be added as copper sulfate or copper oxide. The effects of adding copper to the soil have been observed in research work as long as five or more years after a single application. Thus be aware that adding too much copper can be toxic to your plants. A little goes a long way. Check with your agronomy advisor or county extension service. Follow the need for soil applied copper with soil and plant tissue tests. When the tissue tests show adequate levels, stop applying to prevent toxic effects.

Different plant species require different amounts of copper to support their growth and development. It has been observed that legumes like soybeans and peas and grasses like wheat and barley seem to be more prone to copper deficiency. Vegetable crops also need copper.

Take aways.

Copper is one of the main activators of enzymes and helps catalyze many of the reactions in the plant growth processes, especially photosynthesis and reproduction.

It is important in lignin development for cell wall strength and wilt resistance.

Copper is essential for plant development but it is used in very small amounts by the plant.

Copper is the least mobile within the plant of all the micronutrients. Look for deficiency signs on new growth.

The addition of copper when indicated by soil tests must be carefully followed as over application can cause toxic results.

High pH soils can cause copper deficiencies since uptake diminishes with increasing pH. So also can the over abundance of iron, phosphorous and aluminum.

A little copper addition to the soil goes a long way. Consult your agronomy advisor or local extension service.

Links to the sources for this discussion:

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

http://eldoradochemical.com/fertiliz1.htm