

April 26, 2011

## Sulfur in Crop Production

Sulfur is in every living cell. It is in 2 of the 21 amino acids which form proteins. Sulfur assists plants by improving nitrogen efficiency, protein production, seed oil in oil-crop seed, activates enzyme systems and development of vitamins, and contributes to chlorophyll formation. A corn crop averaging 180 bushel per acre uses 28 lbs. of sulfur; 60 bushel soybeans use 25 lbs. per acre; 55 bushel wheat, 13 lbs.; 8 ton alfalfa, 40 lbs. (Please note these are use rates and not crop removal rates; if residue is left on the field, a portion of the sulfur stays.) As you can see by the above figures, it is evident that high nitrogen usage crops are large consumers of sulfur.

As yields have increased and the supply of sulfur from the environment has been reduced we are seeing more deficiencies. These symptoms include: slow plant growth, poor response to nitrogen, pale green color of new growth, and low protein levels.

Plant needs for sulfur can be supplied by a number of sources and many different ways. Some people apply sulfur in the fall of the year. Sulfur is applied with the broadcast of phosphorous and potash, normally elemental sulfur, 0-0-0-90. Ammonium sulfate, 21-0-0-24, can also be used, but only in late fall, due to the fact that the sulfur is in the sulfate, or leachable form. Spring sulfur application prior to planting can utilize 21-0-0-24 or ammonium thiosulfate, 12-0-0-26. Either of these products can be used as weed-and-feed applications, involving various nitrogen sources and crop protection products. Recently growers have applied nitrogen and sulfur products in side-dress applications, after the crop has reached knee high or greater heights. Products for these applications can be in dry formulations, but most are applied as liquids. When looking at these late season applications it is always wise to have tissue samples taken to determine rates and product mixes.

After four years of tissue sampling, Central Valley Co-op has noticed late season potash shortages, even on soils testing high in potassium. To solve part of the problem we will be testing applications of potassium thiosulfate, 0-0-26-17, a liquid product that can be used in these late season problem areas.

Contact your local Central Valley Co-op Agronomist with questions regarding your sulfur needs.



Above: Sulfur deficiency in corn.