

Avoid Sulfur Deficiencies in Wheat

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Each spring I get several calls about wheat that won't green up. The first thing that comes to mind is Nitrogen (N). In recent years more and more "yella" wheat can not be explained by N. What you are seeing might be Sulfur (S) deficiency.

Sulfur deficiency in wheat looks similar to N deficiency, a closer look however shows some differences. Both S and N deficiencies produce stunted, light yellow green plants. Unlike N, S is not highly mobile in plants. Accordingly S deficiency is first expressed in the younger leaves while N deficiency first appears in older leaves. Other symptoms of S deficiency in wheat include shorter, thinner and woody stems, delayed maturity, and reduced grain fill. Commonly S deficiency will occur in a spotty pattern in the field. Proper identification of the problem is critical as excessive N fertilization can induce S deficiency. Adding more N will not help your wheat if S is the problem. Plant tissue testing offers a method for diagnosing S and N deficiency. For best results collect 15 to 20 plants each from both a good and bad area of your field. It is a good idea to also collect soil samples from the same areas of the field.

In previous years Sulfur was delivered free to the farm by rain. Volcanoes and fossil fuel burning power plants release millions of tons of S annually. This Sulfur was then brought to earth with rain and snow. While the government can not regulate volcanoes the EPA has restricted Sulfur emissions from fossil fuels. S deficiencies in crops have increased each year.

Most of the Sulfur in soil is contained in soil organic matter. This sulfur is made available to plants by bacterial action. Soil bacteria increase in numbers and activity as the temperature goes up. As wheat grows in the spring before the soil warms up it is particularly susceptible to S deficiency. The lighter-sandy or silt-loam soils of Southeast Missouri are also prone to low Sulfur conditions. Regular soil testing is a good way to head off potential Sulfur problems. These problems are easily corrected by adding Sulfur fertilizers.

Ammonium sulfate is a commonly available Sulfur fertilizer. It is 24%S and 21%N. When applying green up Nitrogen consider including 30 to 40 lbs. ammonium sulfate per acre. This will give you 7.5 to 10 lbs./acre of S. Ammonium Sulfate (NH_4SO_4) is more expensive in terms of N than urea or ammonium nitrate (NH_4NO_3), but when you consider the Sulfur the cost is more reasonable. When I compared a mix of NH_4SO_4 and NH_4NO_3 alone, adding the 10 lbs. of S cost an additional \$1.50/acre. This is inexpensive insurance against Sulfur deficiency.