

Choosing a Sulfur (S) fertilizer material

There are many S-containing fertilizer materials. Several dry materials are available that can be blended with dry phosphorus or nitrogen fertilizers for winter/spring topdressing. However, some of these products are best used in pre-plant applications because they are slow in becoming plant available in the spring for topdressing.

Dry fertilizers

- **Elemental S** (typically 90-95 percent S) is a dry material marketed by several manufacturers. Before it becomes available for plant uptake, elemental S must first be oxidized by soil microorganisms to sulfate. This can be a slow process when surface-applied. As a result, elemental S is not well suited for corrective applications to S-deficient wheat in the spring, due to the time required for oxidation to sulfate.
- **Ammonium sulfate**, AMS (21-0-0-24S) is a dry material that is a good source of both N and S. However, it has high acid-forming potential and soil pH should be monitored. Ammonium sulfate is a good source to consider for either pre-plant or topdressing to correct existing sulfur deficiencies.
- **Gypsum** (analysis varies) is calcium sulfate and is commonly available in a hydrated form containing 18.6 percent S. This material is commonly available in a granulated form that can be blended with other materials. Since it is a sulfate source, it would be immediately available and is another good source for spring topdressing. However, gypsum is not as water soluble as many fertilizer materials such as ammonium sulfate.
- **New N-P-S products** such as Microessentials, 40-rock, and others that are typically ammonium phosphate materials formulated with S, and in some cases micronutrients such as zinc. In most of these products the S is present as a combination of elemental S and sulfate.

Liquid fertilizers

- **Ammonium thiosulfate**, ATS, (12-0-0-26S) is the most popular S-containing product used in the fluid fertilizer industry as it is compatible with N solutions and other complete liquid products.
- **Potassium thiosulfate**, KTS, (0-0-25-17S) is a clear liquid product that can be mixed with other liquid fertilizers.

Topdressing with thiosulfate and UAN can be done early, before Feekes 5 growth stage (green up), and at temperatures below 70 degrees F. Be aware that some leaf burn may be expected with some of these liquid fertilizers. These products would be good sources for pre-plant application as well.

Supplemental resources

- *Sulfur in Kansas* (MF 2264), <http://www.ksre.ksu.edu/bookstore/pubs/MF2264.pdf>
- For estimations of required application rates of S - *Soil Test Interpretation and Fertilizer Recommendations*, (MF2586) <http://www.ksre.ksu.edu/bookstore/pubs/mf2586.pdf>