AdvanSix | Ammonium Sulfate

Sulf-N® News

How Sulfur Improves Yields and Baking Properties in Winter Wheat

An early spring application of sulfur to winter wheat crops can increase yields and improve the grain's protein quality, which enhances its baking properties. In sulfate form, this nutrient is readily available to crops, even in cooler spring temperatures.

Higher Yields

The wheat plant needs sulfur to conduct photosynthesis and build the components of grain. University research highlights the importance of maintaining adequate rates of sulfur in wheat:

- Sulfur applications have been shown to increase wheat yields by an average of 5 to 10 bushels per acre in research trials
- The tillers formed in late fall and winter are the backbone of winter wheat yields, producing as much as 80 percent of the crop's grain. These tillers need the support provided by readily-available sulfur
- Wheat requires 1 pound of sulfur for every 15 pounds of nitrogen

Better Quality

Research has shown that flour produced from wheat grown with adequate sulfur possesses significantly better baking properties than flour made from sulfur-deficient wheat:

- The building blocks of wheat's gluten-forming proteins are held together by sulfur-to-sulfur bonds. Without adequate sulfur, less of the complex proteins that give bread its elasticity can be formed
- University research shows that bread produced with flour from sulfur-deficient plants exhibits less elasticity, harder crusts and poor crumb structure. Pearling sulfur-deficient wheat—removing the grain's hull and bran—results in a greater loss of material
- Sulfur-deficient wheat also yields flour with extremely high levels of free asparagine—as much as a 30-fold increase. Heating asparagine and sugar together in the baking process can form acrylamide, a neurotoxin and potential carcinogen

Sulfate Sulfur: The Optimum Form

Sulf-N® ammonium sulfate is an optimum source of sulfur, as well as a great source of nitrogen, for early spring applications to winter wheat and other crops. Sulf-N® delivers sulfate sulfur, the only form immediately available to crops. Unlike sulfate, elemental sulfur found in other fertilizer sources, or sulfur in soil organic matter, must be converted into the sulfate form for plant use. This process does not begin until soil temperatures reach at least 60 degrees Fahrenheit, leaving crops without the nutrition they need at a critical time in the season.

Sulf-N® provides sulfate sulfur and loss-resistant ammonium nitrogen, helping wheat maintain an appropriate balance of both nutrients and a winning combination of yield and flour quality.

For more information on the use of Sulf-N® ammonium sulfate and the importance of sulfur in winter wheat, click here. Also feel free to contact Mercedes Gearhart, Senior Agronomist for AdvanSix.

Contact AdvanSix
To learn more about the benefits
of Ammonium Sulfate, visit
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