AdvanSix | Ammonium Sulfate

Sulf-N® News

Sulfur Boosts Protein and Baking Quality in Hard Wheat Varieties

An early spring application of sulfur helped increase protein and baking quality in hard red winter wheat varieties, according to research by Dr. Wade Thomason at Virginia Tech.* With growing interest in locally-sourced crops and artisan breads, sulfate sulfur can be a useful management tool for growers supplying high-quality wheat to premium markets.

Applying sulfur fertilizer to eliminate sulfur deficiencies in bread wheat varieties improves the types of proteins in flour. The result is decreased mixing time and lower work requirements in bread preparation, increased loaf volume, more elasticity and better crumb texture.

Thomason and his colleagues applied sulfate sulfur at jointing in their replicated study of nitrogen and sulfur on three varieties of bread wheat. He says the form of sulfur is important for applications seeking to influence protein levels in the current crop:

- Sulfate sulfur is immediately available to plants. By contrast, elemental sulfur must be oxidized by soil bacteria before plants can use it – a process that can take weeks or months, especially in early spring

- “At the time of this application, soils are cool, and there’s not a lot of microbial activity,” Thomason notes. “In this case we have a water-soluble form of sulfur because we need it *now*.”

- Increasing protein levels in hard wheat varieties is especially important for growers in humid regions like the East Coast, notes Thomason, where climate conditions tend to suppress protein production

Thomason points out that the Virginia hard red winter wheat crop is grown under contracts that specify key quality parameters, including protein and baking quality. That creates an incentive for Virginia growers to use sulfur as a tool to boost quality. He adds that sulfur is widely used in Virginia to improve wheat yield:

- “We’re seeing more sulfur deficiency in crops than we did 10 years ago,” Thomason notes. “We’re seeing more sulfur going out in everything – especially in wheat. There’s been a decrease in atmospheric deposition of sulfur, and we have fields that used to get manure that aren’t getting it anymore.”

- Maintaining a 10:1 nitrogen-to-sulfur ratio helps keep nutrients in balance. The presence of sulfur allows the crop to make full use of available nitrogen for building the amino acids it needs for growth and protein development

“Looking at past history and tissue tests will give you an indication of whether your sulfur levels are adequate for soft wheat varieties,” Thomason concludes. “In bread wheat, I would say a sulfur application should be part of your management plan unless there’s something that makes you think otherwise.”

Sulf-N® ammonium sulfate fertilizer is an outstanding source of ammonium nitrogen and sulfate sulfur, which are both immediately available to growing wheat plants. Apply it in the fall and/or early spring to promote tillering and grain yield, as well as at jointing time to boost grain yield and quality. Sulf-N® ammonium sulfate from AdvanSix delivers immediately-available sulfate sulfur, along with plant-available and loss-resistant ammonium nitrogen.

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

**Thomason, W.E., S.B. Phillips, T.H. Pridgen, J.C. Kenner, C.A. Griffey, B.R. Beahm, and B.W. Seabourn. 2007 Managing nitrogen and sulfur fertilization for improved bread wheat quality in humid environments. Cereal Chem. 84:5, 450-462.

Thomason, W.E., C.A. Griffey and S.B. Phillips. 2008. Nitrogen and sulfur fertilization for improved bread quality in humid environments. Better Crops 92(1): 10-12.

Contact AdvanSix
To learn more about the benefits of Ammonium Sulfate, visit Advan6.com or SulfN.com or call:
1-844-890-8949 (toll free, U.S./Can.)
+1-973-526-1800 (international)

AdvanSix