AdvanSix | Ammonium Sulfate

Sulf-N® News

Sulfur Boosts Cotton Yields and Quality

Cotton is a sulfur-hungry crop, taking up as much as 12 pounds of sulfur per bale of yield[1]. Maintaining a proper balance of sulfur and nitrogen – a ratio of 1 pound of sulfur for every 10 pounds of nitrogen[2] – is vital for optimum yields and the production of quality cotton.

At the University of Tennessee's West Tennessee Research and Education Center in Jackson, Tenn., Xinhua (Frank) Yin led a research team studying the impact of sulfur on cotton yield and quality. Among their observations, published in Agronomy Journal and Better Crops:

- In two out of three years with normal weather conditions, applying sulfur significantly increased cotton yield by 8.0 to 8.7 percent in a sulfur-deficient, silty soil (in another year of the study, the plots experienced a withering drought and there was no yield response to any treatment)
- Sulfur application usually increased the number of harvestable bolls per plant in the study
- The number of locules ("locks") per boll often increased with the application of sulfur
- The number of seeds per locule sometimes increased where sulfur was applied
- Micronaire increased with the application of sulfur on a three-year average, building strong, healthy cotton fibers well within the parameters of good quality

Sulfate sulfur, which is immediately available to the crop, is an excellent source of sulfur for cotton, especially in the no-till conditions common in West Tennessee and western Kentucky:

- The cool, wet spring soil conditions in no-till fields can delay the biochemical reactions that release elemental sulfur or sulfur trapped in organic matter, Yin notes – in turn denying sulfur to the crop during critical early growth stages. He points out that sulfate sulfur is immediately available to plant roots
- Hot, high-humidity conditions and the high likelihood of sulfur leaching make Cotton Belt soils particularly prone to sulfur deficiency, a phenomenon noted as early as the 1940s
- Clean air regulations have limited emissions of sulfur that once delivered the nutrient to crop land as airborne deposits. Farmers now deliberately apply sulfur to their crops

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

[1] Plant Food Uptake table by International Plant Nutrition Institute (IPNI)
[2] Averaged from 14:1 to 6:1 ratio in the literature

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