Trial Type: Nutrition
Growing Season: 2025

Project Objective: This project is studying the effect of Sulfur (SO_4) and the seed treatment (SUPRGrow) on soybean yield responses compared to soil with no additional sulfur added.

Project Insights:

1. No difference in yield was observed in the Sulfur application and the Sulfur + SUPRGrow application in 2025 compared to the Untreated Control.
2. Trials showed improved tissue Sulfur levels in both Sulfur treatments.
3. Current atmospheric Sulfur deposition is 1/3 of what it was in the 1980s.

Project Results 2025

The following graph shows the yield response for the 3 successful trials and the overall mean for each treatment (Figure 1). We did not have any statistical significance for yield between treatments in any of the individual trials or in the combined results. Untreated was the lowest yielding treatment. However, the difference in yield between the untreated and the other treatments was less than 0.6 bu/ac. Based on this low range in yield responses, average product costs, and a sale price of $10.06 per bushel, ROI for the Sulfur and Sulfur + SUPRGrow were both negative. The yield differences observed were also variable as the site 3 untreated was the highest yielding. This variability is why the yield differences observed were not statistically significant.

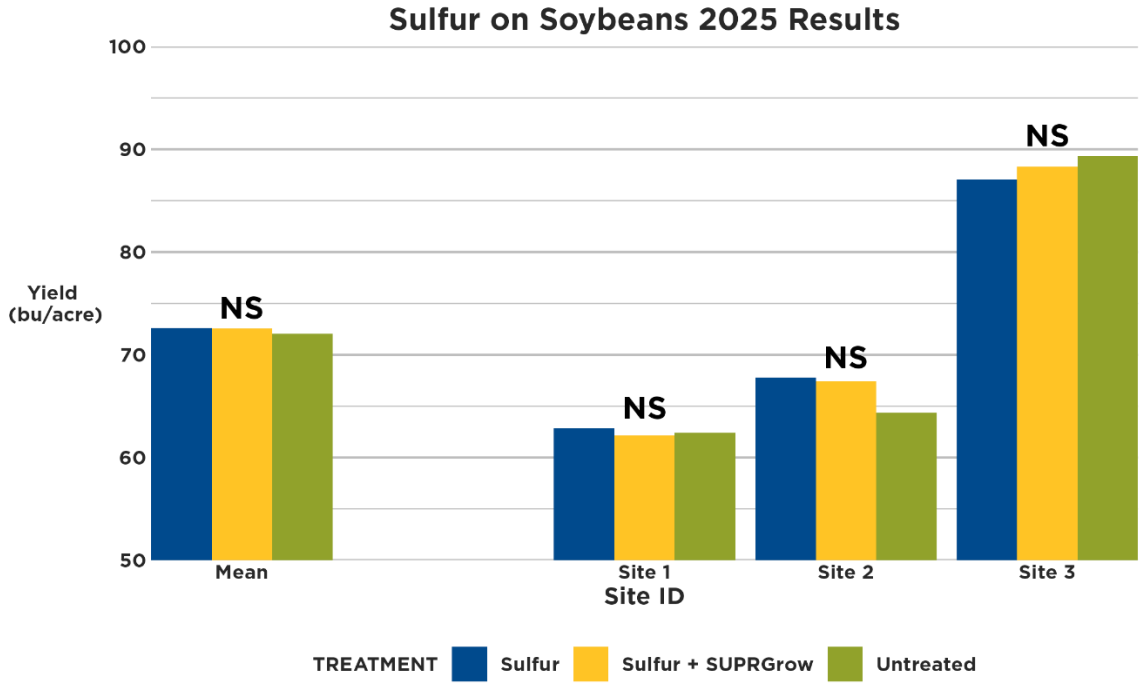

Figure 1 Yield results for 2025 trials. NS indicates no statistical significance.

Below is a map of the trial distribution and locations across the state (Figure 2). For 2025, 3 trials were successfully conducted.

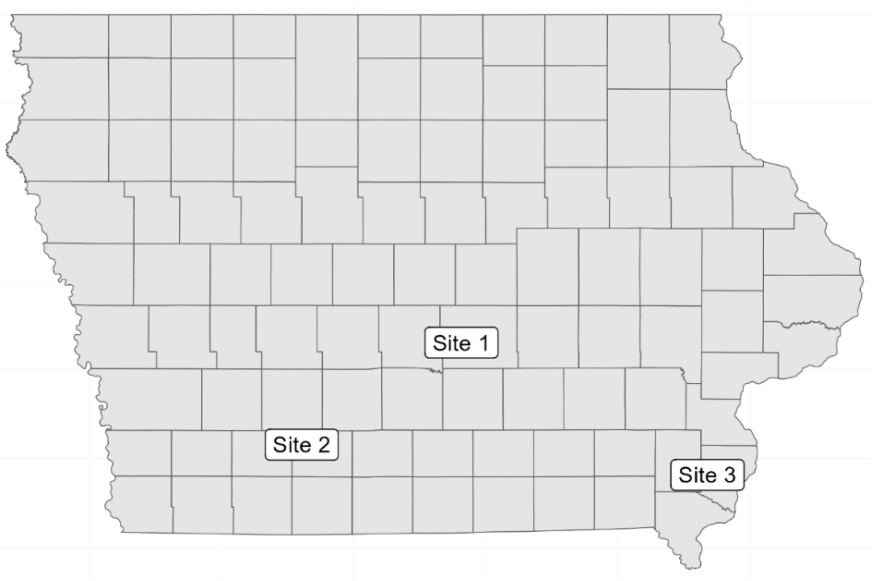

Figure 2 Trial locations for 2025.

Tissue Sampling was conducted at the R1 growth stage, and 15-20 leaves were collected from each treatment strip. Sulfur content in the plant tissue was significantly higher in the Sulfur and Sulfur + SUPRGrow when compared to the untreated. This difference is seen in the graph below (Figure 3). Even though we observed lower levels of Sulfur in plants in the untreated strips, those plants still contained sufficient levels of Sulfur.

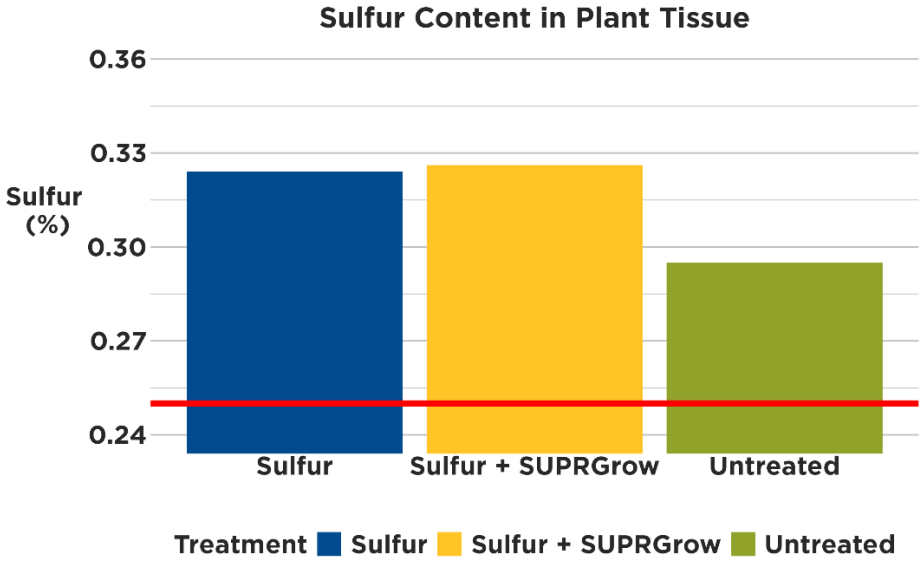

Figure 3 Sulfur content for plants sampled in each treatment. Sulfur + SUPRGrow and Sulfur alone were statistically significant when compared to Untreated. The red line indicates the sufficiency level for Sulfur in soybeans.

Sulfur In the Soil

Sulfur has been getting increased attention in recent years for two prominent reasons: yields have increased leading to more nutrient removal, and atmospheric Sulfur deposition has decreased significantly since the 1980s. This decrease can be observed in the graph below (Figure 4). Annual atmospheric deposition of Sulfur is 1/3 of what it was in the 1980s.

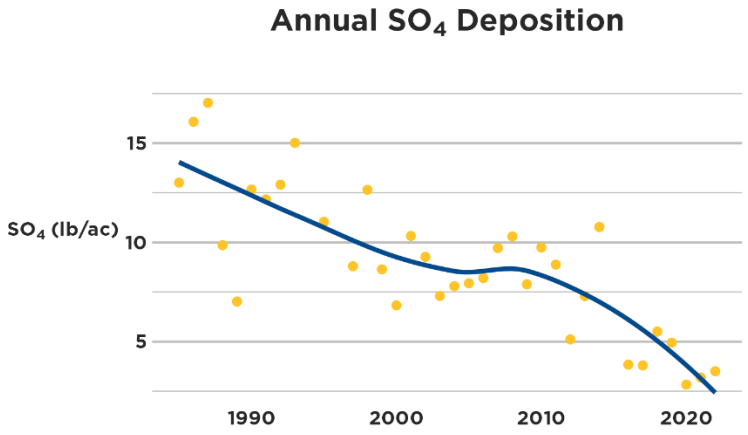

Figure 4 Atmospheric Sulfur deposition in the soil from 1984-2022. Deposition decreased from nearly 18 pounds per acre in the late 1980s to about 3 pounds per acre in 2020 (National Atmospheric Deposition Program (NRSP-3). 2022. NADP Program Office, Wisconsin State Laboratory of Hygiene, 465 Henry Mall, Madison, WI 53706).

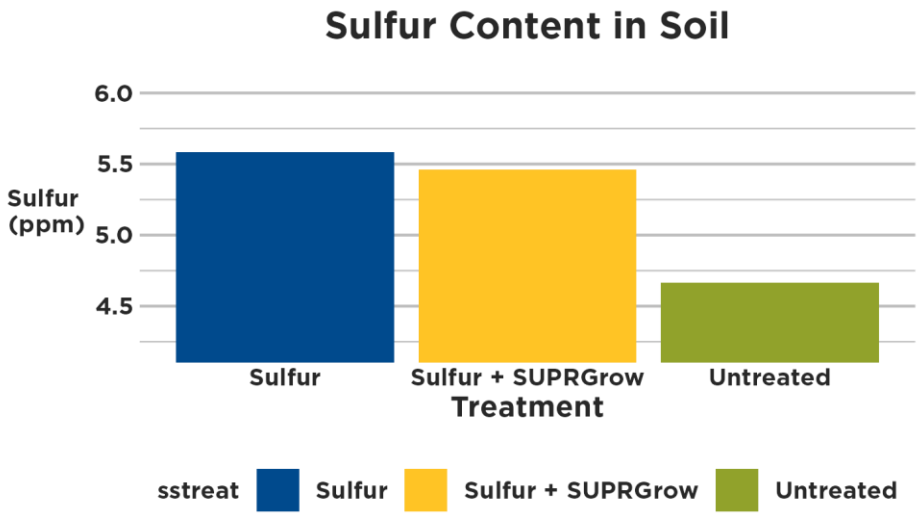

Figure 5 Soil Sulfur content sampled for each treatment.

Soil test results in the graph above show that we observed higher levels of Sulfur in the strips that were treated with Sulfur (Figure 5). Each strip was sampled once at a depth of 0-12 inches at the plants R1 growth stage. Soil testing for Sulfur levels should not be relied upon to assess Sulfur needs. Tissue testing provides more reliable results than soil testing and is a better indicator of a plant's Sulfur needs.