



## SOYBEAN RESPONSE TO SULFUR FERTILIZER

With pollution control efforts reducing sulfur emissions a corresponding decrease in sulfur deposition on agricultural fields has many farmers asking, “Do I need sulfur fertilizer?” Historic research has shown needs for sulfur fertilization are generally highest on soils with low organic matter and low CEC.

During 2018, the AIM Agronomy team undertook an on-farm research trial at 2 locations in Ohio to better understand the need for sulfur fertilization in soybeans.

### MATERIALS AND METHODS

Participants applied replicated strips of sulfur fertilizer preplant that totaled about 10 lbs. of sulfur. If a form of sulfur fertilizer was utilized containing nitrogen (for example: AMS) the control treatments received an equal rate of a nitrogen fertilizer so the sulfur was the only variable.

At harvest, replicated strips were harvested and yields were obtained either with a weigh wagon or a calibrated yield monitor. Yields were analyzed through an ANOVA to determine if yield increases were statistically significant.

### RESULTS AND DISCUSSION

The application of sulfur fertilizer did not result in a significant increase in yields at either location. The research site at Perrysburg, OH is a Hoytville clay soil with an organic matter of 4.4 and a CEC of 16. The major source of sulfur in most soils is organic matter. As the organic matter in soil breaks down it slowly releases the sulfate form of sulfur which is then taken up by the crop. At this location sulfur was not a limiting factor.

The site near Mt Cory, OH also saw no significant increase in yields because of sulfur fertilization. One replication did see a 5.7 bu/a increase in yield from sulfur fertilizer compared to the control. At this site, organic matter and CEC varied across the field. The lowest organic matter and CEC reported from this field were 2.1 % and 8.7, respectively. In this one replication, it is possible that either the organic matter could not supply enough sulfur or the sulfur leached out too quickly. To manage sulfur fertilizer, it is recommended that each field be soil sampled or have tissue tests taken in season. If a field contains more than one soil type it should be grid or zone sampled. Sulfur fertilizer is recommended when soil organic matter is less than 2 % or tissue tests confirm a sulfur deficiency.

For 2019 the AIM agronomy team would like to expand this trial. If you are interested in participating, please contact your AIM Agronomist!

LOCATION	ORGANIC MATTER	CEC	SULFUR	CONTROL	LSD
Perrysburg, OH	4.4	16.1	55.0 bu/a	55.9 bu/a	NS
Mt Cory, OH	2.8	12.5	65.1 bu/a	62.8 bu/a	NS