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Watch For Sulfur Deficiency In Soybeans

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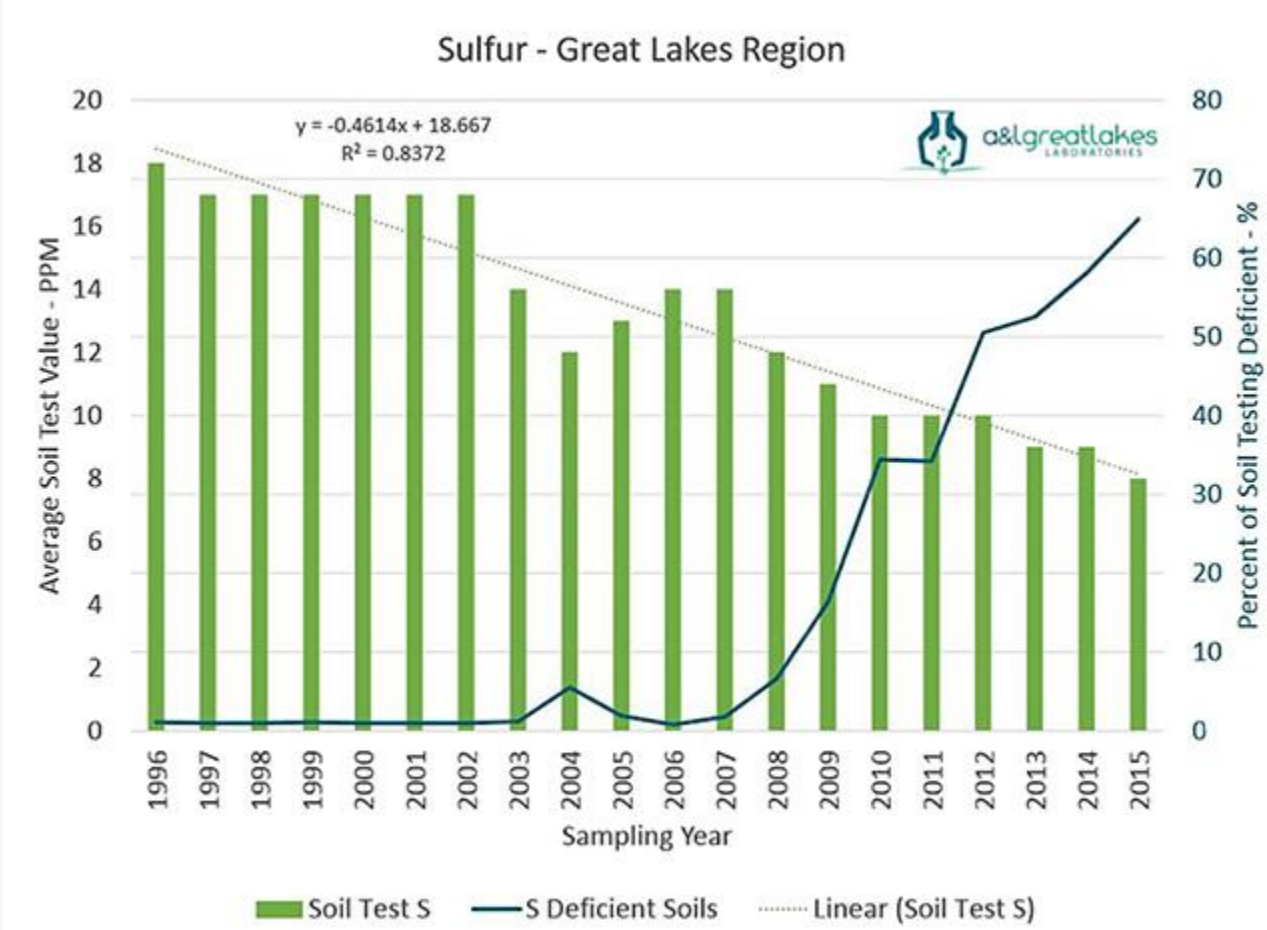

Image by Beckâ€™s

Beck's, Contributor

Soil labs report that about 65% of soils they test from across the Corn Belt are deficient in sulfur. “It was close to zero percent until the early 2000s,” says Steve Gauck, a Beck’s Hybrids field agronomist.

He notes that there is probably more than one reason for the change. Better sulfur removal from power plant (coal) smokestacks has likely contributed to less atmospheric sulfur. More importantly, a significant cause of reduced sulfur in our soils is higher corn and soybean yields. “As corn and soybean yields have increased, crops pull more sulfur out of the soil,” says Gauck. “As a result, sulfur is becoming a limiting nutrient in a growing number of crop fields.”

That has grabbed the attention of a number of universities across the Corn Belt. Early university trials in Illinois and Indiana have shown reduced yields from sulfur deficiency, notes Gauck.

FACTORS BEHIND SULFUR DEFICIENCY

Both weather and soil type can be factors in sulfur deficiency. “Sulfur is hard to hold onto in the soil and is prone to leaching,” Gauck points out. “So cool, wet soils and wet conditions can lead to sulfur loss and a deficiency for the crop.”

And then there are soil differences. “Some soils are more prone to having sulfur-deficient crops than others. Those include low organic matter soils, sandy soils, soils with low cation exchange capacity (CEC) and soils with a pH above 7,” says Gauck.

Sulfur deficiency is harder to identify in soybeans than corn, he continues. “Typically, physical symptoms in corn include shorter plants and pale-green leaves, but it’s easy to confuse the leaf color with nitrogen deficiency,” says Gauck. “Poor nodulation in soybeans is another sign that the plants aren’t getting enough sulfur.”

To confirm if sulfur deficiency is your crop’s problem, Gauck advises using a plant tissue test, adding that it’s more accurate than a soil test.

WHY SULFUR MATTERS

Sulfur is the fourth most important plant nutrient in soybeans behind P, K and N. It plays a crucial role in helping seedlings survive in cool, moist soils by providing rapid root growth, helping in the development of chlorophyll and improving the physical condition of the soil. The nutrient also is required for nodulation and nitrogen fixation. “Sulfur helps plants use nitrogen more efficiently, and it also acts a bit like a stabilizer for nitrogen,” says Gauck.

During peak growth at R3, a soybean plant needs 0.3 pounds of sulfur per day. A 60 Bu./A soybean crop will remove around 11 lb./A of sulfur from the soil. Soybean crops typically receive the sulfur it needs from soil mineralization and the atmosphere. However, as previously noted, some soils aren’t able to mineralize and/or hold onto sulfur as well as others. At the same time, high-yielding crops pull an increasing amount of sulfur from the soil.

SUGGESTIONS FOR SULFUR SOURCES

For soils needing additional sulfur for a soybean crop, “broadcasting ammonium sulfate (AMS) seems to work the best,” says Gauck. “Other sources include manure and, in areas where it’s available, gypsum is a good source,” he adds. “Foliar feeding is also an option.”

When making a sulfur application, Gauck recommends leaving an untreated check strip, or strips, so you can measure the yield difference between treated and untreated areas. Knowing the yield difference is also essential for calculating return on investment (ROI).

“Sulfur sources are expensive,” notes Gauck, “so finding a cost-effective supply for your area is important. We’re seeing consistent yield increases from applying sulfur to soybeans, but based on the source and cost, it’s running close to breakeven or making a little money. As we get better with sources and timing, I think we’ll see the ROI consistently increase from applying sulfur on soybeans. But we have to look for a cost-effective source.”