

News Column

by Greg McClure, KSU-Riley County Extension Agriculture Agent  
110 Courthouse Plaza  
Manhattan, KS 66502

For Release 12/11/23  
Phone: 785/537-6350  
Fax: 785/537-6353

## SULFUR DEFICIENCY IN WHEAT

I was a brand new county agent in 1986 when Ron came to my office in Clay Center to introduce himself,...and to explain to me in great detail why I was an idiot.

Believe it or not, I was surprised. You see, I hadn't been on the job long enough yet to understand how little I actually knew. I didn't know yet that I was stupid, but Ron set me straight.

Ron was a fertilizer salesman and he didn't like the advice K-State agronomists were giving regarding the need for sulfur fertilizer. Unlike many other brands of fertilizer, his brand contained sulfur and it was a big selling point for him. Unfortunately, K-State was telling producers at the time that they likely didn't need additional sulfur, except on sandy soils.

Never mind that my degree was in animal science and I had no clue what he was talking about. Those guys at K-State were idiots and I worked for K-State, so I was an idiot too.

As you might imagine, Ron was wound kind of tight. He was on the short side of average height and on the heavy side of average weight. I would describe his build as stocky. His full, round face got redder and redder as he clenched his teeth holding back his anger, and by the time he was done with me he looked like a heart attack waiting to happen.

Ron wasn't happy when he finally left my office – it took about a half hour to tell me all of my problems – and I wasn't happy to have met him. However, as wrong as he was that day, he would be right today. We started seeing sulfur deficiency in some fields (that aren't sandy)

about 30 years after that conversation. Most fields didn't need sulfur fertilization then, but many do now.

In recent years, sulfur deficiency in wheat has become more common, especially in no-till wheat. Agronomists blame this on a reduction in atmospheric sulfur and cooler soil temperatures as a result of no-till, which slows sulfur mineralization in the soil.

The reduction in atmospheric sulfur is believed to be the result of decreased auto emissions due to lower sulfur levels in our fuels. Because our automobiles aren't causing as much pollution, our crops are now sulfur deficient.

Sulfur deficient wheat is yellow and stunted, with symptoms usually observed in patches in the field. Areas with previous soil erosion are often where sulfur deficiency is first observed.

Sulfur deficiency and nitrogen deficiency look similar, with both causing yellowing of plants. With nitrogen deficiency, older leaves show firing and yellowing first. With sulfur deficiency, pale-yellow symptoms first appear on the younger or uppermost leaves. Wheat plants with S deficiency eventually become uniformly chlorotic (yellow).

Some producers routinely add sulfur to their fertilizer blend and I guess that works, but a soil test would tell you if you really needed sulfur, and how much. A deep sample, taken to a depth of 24 inches, is needed when testing for sulfur.

There are several forms of sulfur fertilizers available, but one you might want to think twice about using if you are already seeing sulfur deficiency symptoms is elemental sulfur. Elemental sulfur must first be oxidized by soil microorganisms to sulfate before it will be available to the plant. This can be a slow process, so elemental sulfur isn't a good choice for a spring topdress if sulfur is needed immediately.

My friend Ron would be happy to know that I am finally in his camp. We are seeing

more and more fields each year that need added sulfur for optimum plant performance. If you think you might have a problem, let's get a soil test to the lab to find out for sure.

By the way, in case you think I'm being facetious, I'm not. Ron actually is a friend now. I haven't seen him for many years, but he turned out to be a really good guy.

If you have questions, you can reach me at the Riley County Extension Office at 785/537-6350. Or, you can send e-mail to [gmcclure@ksu.edu](mailto:gmcclure@ksu.edu).

K-State Research and Extension is an equal opportunity provider and employer.