

Preliminary tests indicate sulfur deficiency in some fields

READING — A sulfur deficiency? Here in Pennsylvania?

It doesn't seem likely. Unlike the coarse-textured, sandy soils found on bottomland and along the coast — where sulfur deficiency is more apt to occur — the heavy clays that dominate the Keystone State keep a tight grip on soil nutrients.

And don't forget all the "free" sulfur that blows in from the industrial Midwest. For decades emissions from steel mills and other factories there have dumped significant amounts of sulfur — a protein-forming nutrient — on local soils, prompting some farmers call it "pennies from heaven."

Nevertheless, reports have surfaced in recent years about crops in and around Pennsylvania responding to applications of sulfur fertilizer.

Last year, in university test plots in Landisville and Rock Springs, extension agronomist Dr. Elwood Hatley and researchers from Allied Corporation averaged wheat yield increases of 2.3 and 3.6 bushels, respectively, in sulfur-treated plots. All plots were planted with the Tyler variety.

On winter barley, yields jumped nearly a bushel.

Hatley says he was surprised by the yield increases. "I wasn't even looking for a crop response to sulfur," he says, "and at this point, I'm not sure that I saw one. I set out to compare two different nitrogen sources — ammonium sulfate (21-0-0-24S) and ammonium nitrate (33-0-0). The plots treated with ammonium sulfate happened to produce a better yield."

Why?
"I don't know. I really have no idea," the agronomist concedes. "It may have been the sulfur. It may have been all the ammoniacal N in ammonium sulfate. Or maybe it was a combination of both factors. We'll resume tests with Allied this year and see what happens."

All plots in the Penn State study received equal rates of N. Sulfur rates ranged from 10 to 30 pounds per acre.

While Hatley is intrigued by the possible need for sulfur, he also points out the irony of the situation. "Environmental scientists are conducting acid rain studies only a half mile from the site where we recorded the 3.6-bushel increase," he says.

Tom Hemphill, an agronomist for Allied Corporation, adds, "I'm sure we're still getting plenty of sulfur from the atmosphere, but we may not be getting enough to

support today's high-yielding crop varieties."

Penn State does not include sulfur in its official fertilizer recommendations for small grains because only one year of study has been conducted to date. Hatley also notes that while yield increases were noted in all ammonium sulfate plots, the 3.6-bushel increase recorded at Rock Springs was the only test considered "statistically significant."

Researchers frequently use what is known as an LSD factor — for "least significant difference" — to account for natural variations in individual test plots. In this wheat study, a yield increase of more than two bushels per acre was considered statistically significant, meaning that a 3.6 bushel, or 7 percent, yield increase would be possible 95 percent of the time.

In the meantime, some farmers are putting out sulfur test plots of their own. Dairyman Floyd Kurtz of Fleetwood, Pa., says he recorded an 8 percent yield increase and a \$12.70 per acre net return on a \$2 per acre investment in sulfur fertilizer.

"I'm going to topdress sulfur on all of my wheat this spring," he says. "I might even try some on my corn."

Working with fieldman Roy

Kurtz (no relation) of Reading Bone Fertilizer, Inc., a farm supplier in Reading, Floyd top-dressed half of a 12-acre field with 50 pounds N in the form of a 30 percent UAN solution. The other half received 50 pounds N plus 10 pounds sulfur. The nitrogen-sulfur combination was applied as a 20-0-0-4S made with UAN solution and fluid-grade ammonium sulfate, a fine mesh dry fertilizer that Reading Bone mixes with liquid fertilizers. (Ammonium sulfate is also available in a granular grade for bulk blends.)

Both plots had been seeded the previous fall with Pioneer S-76 and had received 300 pounds of 6-20-20.

At harvest, the plot receiving sulfur yielded 59.6 bushels per acre, 4.2 bushels more than the adjacent plot topdressed with N only.

Dairyman Eddie Mercer of Frederick, Md., is also hooked on sulfur. "I haven't put out any test plots or anything. But then again, I haven't felt a need to, either," he says. "All I know is that my soil tests have consistently shown a need for 20-25 pounds of sulfur per acre, I'm using sulfur in my fertilizer program, and I'm producing the best yields I've had in years."

On non-irrigated land, Mercer

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Dairyman Floyd Kurtz (left) of Fleetwood, Pa., reviews results of fertilizer program with his dealer, Roy Kurtz (no relation) of Reading Bone Fertilizer, Inc. Topdressing sulfur on wheat boosted Floyd's wheat yields by 4.2 bushels per acre.

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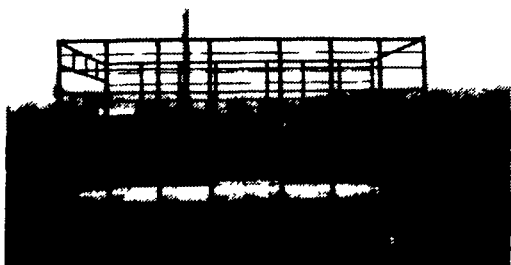
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