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PRODUCTION NEWS

Sulfur deficiencies cropping up in unexpected places

Predictions of more sulfur deficiency following the Clean Air Acts of 1990 and 1995 are coming true in some areas of the Midwest.

At the Wisconsin Forage Council symposium in January, Dr. Keith Kelling reported yield increases from sulfur fertilization in areas that were previously considered unresponsive. Kelling, soil scientist with the University of Wisconsin, cited anti-pollution legislation as a leading cause.

"In Wisconsin, it's not uncommon to find sulfur deficiencies in the northern and western areas of the state, especially on soils that are light-textured and low in organic matter and have not received manure in the past two or three years," explains Kelling. "But now we're starting to see sulfur responses in the southern and eastern areas of the state, where we typically have not seen them in the past."

These are clearly new areas for sulfur responses, and Kelling attributes them to anti-pollution legislation.

According to the Wisconsin Department of Natural Resources, sulfur emissions in the state have declined by 40 percent from the mid1980s to the mid-1990s," says Kelling. That means crops are getting less airborne sulfur from industry smokestacks.

Alfalfa is a big sulfur user and yield increases from sulfur fertilizer are common where soils are sandy. In 1997 and 1998, Kelling documented yield responses on a Plano silt loam in southern Wisconsin with 3.5 to 4 percent organic matter. In 1999 and 2000, Kelling, with help from county faculty, recorded yield increases on similar soil types in Dodge and Manitowoc counties. All three are located in the southern and eastern portions of the state.

"In all three cases, we were dealing with silt loams and organic matter levels of 2.8 to 4 percent – soil types that have not responded to sulfur in the past," says Kelling. "These data strongly suggest that the potential for sulfur response is higher in southern and eastern Wisconsin than it was just a few years ago.

In most cases, the yield increases occurred during the first and second cuttings, and amounted to total annual gains of .2 to .7 tons per acre. The optimum rate of sulfur was 25 pounds per acre per year, or 75 pounds per acre during the seeding year only.

"If you want to generate a response in the first year of application, it's important to use the sulfate form of sulfur," notes Kelling. "This form is immediately available to plants. Elemental sulfur is not available until it is converted to sulfate, and this conversion may take four to six weeks." ✣