Nitrogen Deficiency Cost Missouri Cornfields 113 Million Bushels In 2009

COLUMBIA, MO.

All Peter Scharf sees is yellow corn and lost potential when he looks at the 2009 corn harvest in Missouri.

Missouri posted near-record yields last year with almost 438 million bushels of corn on 3 million acres, according to the USDA National Agriculture Statistics Service. But Scharf, a University of Missouri Extension agronomist and MU professor of plant sciences, argues that the third-largest corn yield in history could have been 25 percent larger if the crop hadn't run out of nitrogen.

"I estimate that last year in Missouri 113 million bushels of corn weren't realized, and over the Midwest a billion bushels total were lost in the last two years," Scharf said. "Farmers understand there's a problem when they see a lot of ugly, yellow corn in their fields, but most haven't been able to get motivated to do something to solve it."

The amount lost is nothing to ignore. "This year we're looking at 63 million bushels of profit after we cover expenses in the state," Scharf said. "If we had gone in and put nitrogen on every field that lost more than 20 bushels, we're conservatively estimating that we could have made another 80 million bushels. The potential was there."

Scharf logged more than 2,000 miles surveying cornfields in Midwestern states and analyzed as many miles of aerial photography of fields last year. In field after field he saw telltale yellowish stalks and leaves, indicating a lack of sufficient nitrogen in the soil.

While two of the wettest years on the books helped boost yields, that same saturation led to nitrogen leaching and nutrient deficiency.

"There are certain parts of a field that really punish you when you don't apply enough nitrogen," Scharf said. "The excess rainfall last year meant lots of fields that could be economically treated."

Scharf emphasized that paying close attention to the color of your corn early in the growing season will pay dividends. Applying so-called rescue nitrogen can produce up to 50 bushels more per acre.

He suggests that spending an extra $30 per acre to apply nitrogen using a ground rig or an airplane would have earned many producers three times that much.

"When you talk about everything we do to produce a corn crop, a single application of rescue nitrogen isn't much," he said. "We spent about $1.45 billion on this year's corn crop to make $1.7 billion, but we could have spent another $80 million on rescue N and made another $300 million, doubling our profit.

"We need to rethink nitrogen and correct the situation." Δ

Corn yellowing due to nitrogen deficiency.

Photo by:
Julie Abendroth, MU Extension