

Phosphorus Products Are Efficient In Improving Phosphorus Nutrition

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New fertilizer materials are the subject of a two-year trial underway by Dr. John Grove, agronomist and soil scientist with the University of Kentucky based out of Lexington, Ky.

This study is sponsored by Mosaic Fertilizer Company and the goal is to look at new fertilizer materials and fertilizer additives involving phosphorus, as well as some micronutrients and sulfur to improve nutrient use efficiency.

“The major objective we have here is to understand whether any of these new materials are of particular benefit to wheat production on a soil like this which is testing low to medium in phosphorous,” Grove said. “Hopefully we’ll learn some things about these additives that are being applied to phosphorous fertilizers, whether they are able to enhance phosphorous fertilizer use efficiency.”

No yield data was available at the time of this interview, although some preliminary tissue data surfaced.

The tissue data shows a benefit of added phosphorus to phosphorus nutrition, but neither of the two fertilizer additives enhanced phosphorus use efficiency. The same was true of grain yield, though wheat yield was depressed by drought at this location.

“We’re still going to carry these all the way to yield and try to learn how good these products really are,” he said. “Our work is continuing on phosphorous, nitrogen and other products to improve nutrient use efficiency in our major grain commodities.”

The focus this year was similar to last year in that phosphorus materials were being evaluated. The focus was different in that an evaluation of a couple of fertilizer use efficiency additives was added to the trial.

“The research last year also involved phosphorous materials and some micronutrients on wheat,” Grove added. “We observed a good response to phosphorous, but the new materials and the old materials were pretty comparable in terms of the way they improved yield. Both showed probably a 10 percent to 20 percent yield increase. Both were very good at increasing tissue phosphorous levels.”

The new materials were the Mosaic MES and MESZ products. The

old materials were monoammonium phosphate (MAP, 11-52-0) and diammonium phosphate (DAP, 18-46-0). There was no response from the micronutrients but they didn’t hurt growth.

“There was no response to sulfur either but we did get a nice response to phosphorous in the first year of the work and we repeated that again this year,” he said.

“The new phosphate fertilizer products are effective at improving phosphorus nutrition,” he concluded. “When sulfur and micronutrients like zinc, boron and copper are limiting, these products will also improve plant nutrition in these elements as well.”

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Dr. John Grove, agronomist and soil scientist with the University of Kentucky discusses his two-year trial on new fertilizer materials.



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