Planter Applied Micro-Nutrient Study

Objective: To evaluate yield and net return of dry micronutrient fertilizer products at planting. The goal of this study is to use low-rate micronutrient fertilizer products applied at-plant, using a Gandy® Dry fertilizer box on the back of a planter row unit (Figure 1). All fertilizer is banded, and surface applied with some incorporation of planter closing system on 30" planted rows.

Figure 1. Gandy® Fertilizer Box on PTI Plot Planter

Six fertilizer products were selected and evaluated in this study, including the following:

Winfield® United Corn Mix LS: A granular 7% Sulfur, 1% Boron, 1% Copper, 3% Manganese and 8% Zinc micronutrient fertilizer containing lignosulfonate compounds derived from plant material to help correct nutrient deficiencies in a range of crops, improving mobilization and utilization. Micronutrients complexed with lignosulfonate work to reduce soil tie-up, and water-soluble formulations help improve water transfer absorption and plant uptake of nutrients.

Midwestern BioAg® MicroPack 5-5-5™: A balanced, homogenized combination of N-P-K, Calcium, Magnesium, Sulfur, and micronutrients. It is a granular fertilizer that provides balanced micronutrient nutrition for all crops, helping to maximize yield potential and plant and soil health.

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Winfield® United Zinc 10% LS: A lignosulfonate granular micronutrient containing Zinc and Sulfur to address nutrient deficiencies in corn, wheat and other crops. Zinc 10% LS improves plant mobilization and utilization of nutrients.

MicroSync™ Complete®: A 2-0-0- fertilizer containing 5% Calcium, 10% Sulfur, 1.25% Boron, 1.25% Copper, 3.5% Iron, 5% Manganese, and 5% Zinc. MicroSync™ Complete® is formulated with Verdesian Polymer Technology to help synergize and increase the availability of both secondary and micronutrients for plant uptake. Also includes Nutripaction®, a process that creates a unique combination of micronutrition that offers improved nutrient availability.

Soileos®: Repurposed cellulose derived from agricultural residues such as pea hulls and lentil husks that promote nutrient cycling in the soil. The carbon in Soileos® is fuel for soils microbiome, and as the cellulose is broken down, microbes release or ingest nutrients. Contains 8.5% Potassium, 4.7% Sulfur, 5% Zinc, 2.5% Manganese, 1% and Iron.

MicroMark® DG Humic: A granular micronutrient product featuring The Andersons® Dispersing Granule (DG) Technology. With DG Technology, particles are efficiently broken down through hydrolysis, increasing the efficacy of nutrients. MicroMark® DG Humic contains a unique blend of 36% calcium sulfate dihydrate 9% calcium, 11% sulfur, 4% manganese, and 5% zinc. MicroMark® DG Humic also includes humic acid which is a natural chelator of micronutrients and also has been shown to improve soil health

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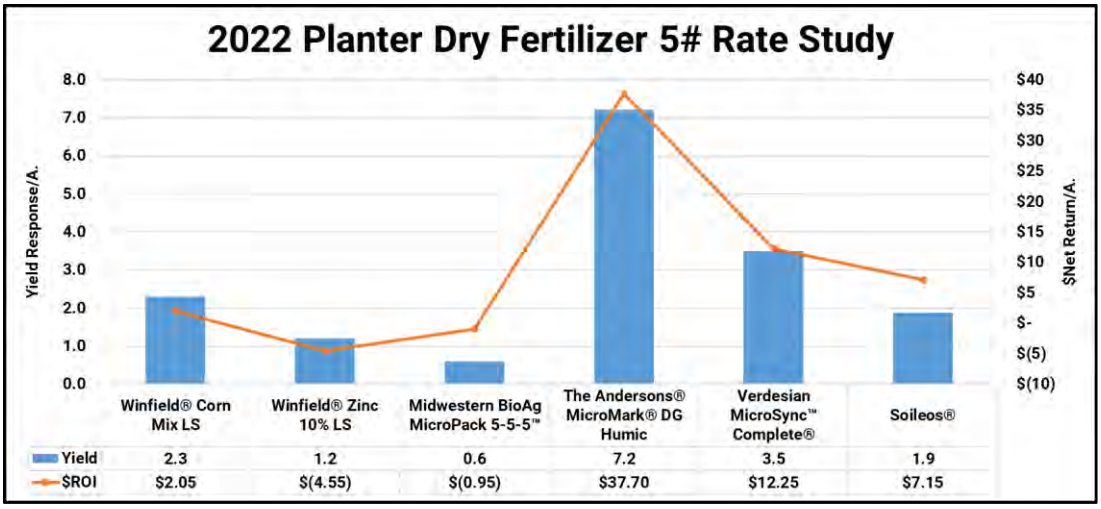
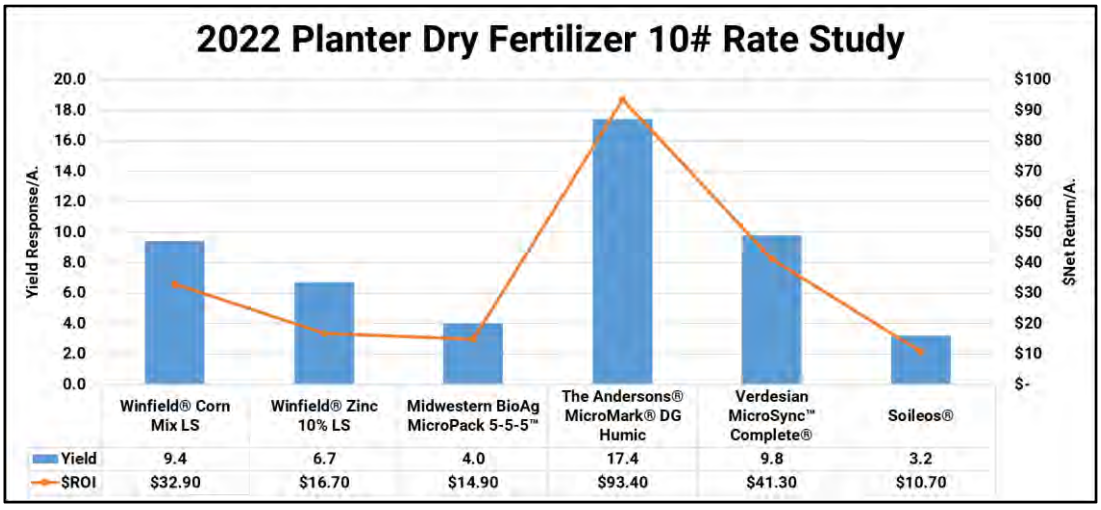
Results: All six products resulted in positive yield gains at the 5#/A. rate, however The Andersons® MicroMark® DG Humic offered highest yield gains of +7.2 Bu/A. with positive net returns of +$37.70/A. Verdesian MicroSync™ Complete® also performed well at +3.5 Bu/A. with net returns of +$12.25/A.

As rates climbed to 10#/A., all products resulted in positive yield gain and net return. The Andersons® MicroMark® DG Humic again offered highest yield gains of +17.4 Bu/A. with positive net returns of +$93.40/A. Verdesian MicroSync™ Complete® also performed well again at +9.8 Bu/A. with net returns of +$41.30/A. All other products resulted in yield gains of +3.2 to +9.4 Bu/A. with net returns of +$10.70 to +$32.90/A.





Planting Date: 4/27 *Hybrid: Golden Harvest® 11V76* *Population: 36K* *Row Width: 30"* *Rotation: CAB, Strip-Till* *Corn Price: $6.00*

Winfield Zinc 10% LS: #2.35/#, Corn Mix LS: $2.35/# *MicroMark® DG: $1.10/#* *MicroPack 5-5-5™: $.91/#* *MicroSync™ Complete®: $1.75/#* *Soileous®: $0.85/A#*