

Nontraditional Fertilization of Corn at Planting

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Objective

To evaluate the impact of applying different combinations of pop up and starter fertilizer to corn at planting on grain yield, moisture and initial plant population.

Background

Cooperator:	Stephan Janos	Soil test:	pH 7.7 P 21ppm K 99 ppm
County:	Butler	Fertilizer:	See Methods
Township:	Milford	Herbicide:	Lexar 2.78 lbs., Mirage 1 lb
Drainage:	Well drained	Row width:	30 inches
Soil Type:	Genesee	Planting date:	April 13
Tillage:	No till	Planting rate (seeds/A):	31,000
Previous crop:	Soybeans	Harvest date:	October 3
Hybrid :	Eberts 2611		

Methods

Treatments were planted in blocks and the treatments were randomized within each block. The four treatments were replicated four times. Each treatment was 8 rows wide and of various length. The treatments were:

1. 50 gallons of 28% N solution through the planter in a 5 in by 2 in. placement, 150-0-0.
2. 43 gallons of 28% N solution plus 7 gallons of 12-0-0-26 through the planter in a 5 in. by 2 in. placement, 137-0-0-18.
3. 50 gallons of 28% N solution in a 5 in by 2 in. placement through the planter plus 3.5 gallons of 9-19-3 placed on the seed as a pop up, 153-7-1.
4. 43 gallons of 28 % N solution plus 7 gallons of 12-0-0-26 through the planter in a 5 in. by 2 in. placement plus 3.5 gallons of 9-19-3 placed on the seed as a pop up, 140-7-1-18.

Population was estimated by counting plants in 1/1000 acre in three different areas in each treatment five weeks after emergence. Yield was determined by weighing and adjusting to 15.5% moisture.

Results

Table 1. Starter and Pop-up Fertilizer Treatment Effect on Early Population, Grain Moisture, and Grain Yield

Treatment	Population	Yield Bu./A	Moisture
28%	28,375	143.1	12.7
28%+ sulfur	28,167	143.9	13.3
28%+ pop up	28,916	150.2	13.1
28%+ sulfur+ pop up	29,000	155.3	13.0

LSD (0.1)	NS	NS	0.33
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Summary

There was no significant difference in initial plant populations or yield for any of the treatments. The treatment using only 28% solution in a 5 inch by 2 inch placement was significantly dried at harvest. The treatment which used 28% solution plus sulfur added to the 28% and a pop-up, 9-19-9 placed on the seed produced the highest yield and the highest population. This treatment did not increase yield sufficiently with corn priced at \$2.00 per bushel to cover the cost of the treatment. With corn priced at \$2.00 per bushel, the most cost effective treatment was 28% alone.