

Nontraditional Fertilization of Corn at Planting

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Objective

To evaluate effects of pop-up and starter fertilizer application on yield and plant population of corn.

Background

Cooperator:	Stephen Janos	Soil test:	pH 7.4 P 72ppm K 124ppm
County:	Butler	Fertilizer:	See Methods Below
Township:	Milford	Herbicide:	Fieldmaster 4lbs/A
Drainage:	Well drained to somewhat poorly drained	Planting date:	5/8/04
Soil Type:	Russell-Miamian silt loam Raub silt loam	Planting rate (seeds/A):	30,000
Tillage:	No till	Row width:	30 inches
Previous crop:	Wheat	Harvest date:	10/28/05
Hybrid :	Becks 5538	Insecticide:	Poncho 250

Methods

The study employed a randomized complete block design with four replications. The treatments were:

1. 55 gallons of 28% UAN solution through the planter in a 5 in.x 2 in. placement, 165-0-0.
2. 48 gallons of 28% UAN solution plus 7 gallons of 12-0-0-26, ammonium sulfate, through the planter in a 5 in.x 2 in. placement, 152-0-0-18.
3. 55 gallons of 28% UAN solution in a 5 in x 2 in. placement through the planter plus 3.5 gallons of 9-19-3 placed on the seed as a pop up, 168-6-1.
4. 48 gallons of 28 % UAN solution plus 7 gallons of 12-0-0-26, ammonium sulfate, through the planter in a 5 in.x 2 in. placement plus 3.5 gallons of 9-19-3 placed on the seed as a pop up, 155-6-1-18.

Each plot was 20 ft. wide and ran the length of the field. The shortest plot was 485 feet and the longest was 763 feet. Five weeks after planting, plant population was determined for each plot by counting plants in a 1/1000 acre area in three locations in each plot. Grain yield and moisture of each plot was measured and adjusted to 14.5% moisture.

Results

Table 1. Effects of Pop-up and Starter Fertilizer Application on Plant Population, Grain Moisture and Grain Yield

<u>Treatment Number</u>	<u>Emerged Plant Population</u>	<u>Yield Bu./A</u>	<u>Grain Moisture</u>
UAN row placement	28,438	227.4	16.3
UAN + NH ₄ SO ₂ row placement	28,875	222.2	15.6
UAN row placement + pop-up seed placement	29,188	218.6	16.2
UAN + NH ₄ SO ₂ row placement + pop-up seed placement	28,250	223.3	16.1
LSD (0.05)	NS	NS	NS

Summary

There was no significant difference in plant population, grain yield or grain moisture at harvest among the treatments. Since the UAN row placement was the least cost, it was the most cost effective.

Acknowledgments

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