

Nontraditional Fertilization of Corn at Planting

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Objective

To evaluate several combinations of starter fertilizer and sidedress nitrogen applications for their effects on corn stand and yield.

Background

Cooperator:	Stephen Janos	Soil test:	pH 6.4, P 13 ppm, K 157 ppm
County:	Butler	Fertilizer:	See Methods below
Township:	Fairfield	Herbicides:	Harness Extra 2 qt/A, Hornet 4 oz/A, Attrex90
Drainage:	Moderately well to somewhat poorly drained		1.5 lb/A, Accent 2/3 oz/A
Soil type:	Fincastle, Dana, and Raub silt loams	Planting Date:	May 23, 2002
Tillage:	No till	Planting Rate:	28,200 seeds/A
Previous crop:	Soybeans	Row Width:	30-inch
Variety:	Fielders Choice 8412	Harvest Date:	October 22, 2002

Methods

The trial was established as a completely randomized design with six treatments replicated four times. The six treatments were as follows:

1. 45 gallons 28% N solution sidedressed (135 lb/A N). Cost = \$22.50.
2. 5 gallons 8-19-3 (4.0-9.5-1.5 lb/A of N-P₂O₅-K₂O) applied on seed at planting and 43 gallons 28% N solution (130 lb/ A of N) sidedressed. Cost = \$36.50.
3. 5 gallons 8-19-3 applied on seed at planting and 25 gallons 28% N solution (75 lb/A of N) placed 4 inches to side and 2 inches below the seed followed by 18 gallons 28% N solution (55 lb/ A of N) sidedressed. Cost = \$36.50.
4. 5 gallons 8-19-3 applied on seed at planting plus 25 gallons 28% N solution and 5 gallons 12-0-0-26 (6 lb/ A of N and 13 lb/ A of S) placed 4 inches to side and 2 inches below the seed. This was followed by 16.5 gallons 28% N solution (50 lb/ A of N) sidedressed. Cost = \$44.50.
5. 25 gallons 28% N solution placed 4 inches to side and 2 inches below the seed followed by 20 gallons 28% N solution (60 lb/ A of N) sidedressed. Cost = \$22.50.
6. 25 gallons 28% N solution and 5 gallons 12-0-0-26 placed 4 inches to side and 2 inches below the seed followed by 18 gallons 28% N solution sidedressed. Cost = \$30.50.

Individual treatment plots were 20 feet wide and 440 feet long. Measures of performance to be compared were the number of corn plants that emerged five weeks after planting and corn yields at harvest. The stand counts were evaluated by counting plants in 1/ 196 of an acre in three locations within each 0.2-acre plot. The yield was determined by weighing the corn from each plot at harvest and adjusting to 14.5 percent moisture.

Results

Table 1. Corn Plant Population and Yield.

Treatment Number	Population (plants/A)	Emerged Plant Yield (bu/A)
1	26,750	38.1
2	27,166	41.9
3	26,083	28.8
4	26,417	50.6
5	24,750	37.7
6	27,333	46.6
Critical value ^a	NS	NS
F test	1.9	1.1

^a Tukey comparison of means used for large number of comparisons.

Summary

There were no significant differences in emerged corn plant populations among the six fertilizer treatments. Yields were affected by drought conditions during the growing season. Significant differences were not found among the six fertilizer treatments.

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