

Fall Strip Tillage and Fall Fertilizer for Corn

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Objective

To compare yields and stand counts for corn receiving strip tillage and no tillage as well as to investigate fertilizer placement programs for strip tillage.

Background

Cooperator:	Dave Lotz	Fertilizer:	10 gal/A 28% N and 10-34-0 (5 gal/A) at planting
County:	Hardin		40 gal/A 28% N sidedressed
Nearest Town:	Kenton	Herbicide:	2,4-D (0.5 pt/A), Princep (0.75 lb/A)
Previous Crop:	Soybeans	Variety:	Midwest 7667
Soil Test:	pH 6.7, P 31 ppm, K 205 ppm, OM 3.3%, CEC 13.9	Planting Date:	May 14, 1998
		Emergence Date:	May 21, 1998
		Harvest Date:	October 27, 1998

Methods

Experiment design was a randomized complete block design with three replications of each treatment. Strip tillage was performed in late November of 1997. Broadcast and deep placement (8" deep in zone) of 150# 0-46-0 and 200# 0-0-60 was applied to the two strip till treatments in the fall. Individual strip plots were 24 rows in width and varied in length from 750' to 950' in length.

Results

	Emerged Population (plants/A)	Harvest Population (plants/A)	Yield (bu/A)
No-till/No pre-fertilizer	27,000 A	26,333 A	134.3 A
Strip till/No pre-fertilizer	31,667 A	32,667 B	147.5 A
Strip till/Broadcast fertilizer	29,833 A	27,667 A	138.4 A
Strip till/Deep fertilizer	30,000 A	28,000 A	140.4 A
F-statistic	2	4.68	1.2
CV (%)	8	7.7	6.2

Treatment means followed by same letter are not significantly different from each other at P = 0.05

Summary and Notes

Overall, strip tillage plots yielded 7.8 bushels/acre more than the no-till plots. However, no statistically significant differences among yields were found at the 5% and 10% levels of probability. When a contrast comparison is made between the strip-till treatments as a group (average = 142.1 bushels/acre) and the no-till treatment, the F-statistic is 1.80 with the probability of a greater F being 23%. This means the odds are about 3:1 that there is a real difference between strip till yields and the no-till yield which is not due to chance variation.

Averages of emerged and harvest populations among the four treatments were not significantly different from each other at the 5% level of significance. However, at the 10% level of significance (10% probability differences are due to chance alone), there are significant differences among the harvest population means. Pairwise comparisons indicate harvest plant population for strip-till/no pre-fertilizer was significantly higher than all other treatments.

However, the population comparison of more interest is the contrast between strip till populations as a group versus the no-till treatment. The emerged and harvest populations of the strip till treatments as a group (average 30,500 emerged and 29,444 harvested) were significantly different from the no-till treatment (27,000 emerged and 26,333 harvested) at the 10% level of probability.

With relatively high phosphorous and potassium soil test levels, no yield advantage was shown with the extra pre-fertilizer applied either broadcast or deep placement in the strip tillage plots in the fall.

For additional information, contact:

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