

Clover Cover Crop & Nitrogen Rate Effect on Corn Production

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Objective

To evaluate the effect of clover cover crop and nitrogen rates on corn production.

Background

Cooperator:	O.A.R.D.C. NW Branch	Fertilizer:	300 lb/ac 10-27-25, urea at planting, sidedress 28% N
County:	Wood	Planting Date:	5-24-08
Nearest Town:	Hoytville	Planting Rate:	30,000
Drainage:	Tile, well-drained	Row Width:	30 in.
Soil type:	Hoytville, clay	Herbicides:	Lexar, Honcho
Tillage:	notill	Harvest Date:	10-15-08
Previous Crop:	wheat		
Variety:	Pioneer 34M78		

Methods

The entries were replicated four times in a randomized complete block design. Plot size- 10 x 70 feet each entry. Harvest data was collected from the center rows. All systems in this comparison were no-till. Medium red clover was frost seeded in wheat early spring 2007. After wheat harvest, clover was allowed to grow until 10-8-07 when Roundup and Clarity herbicides were applied to kill the clover. Corn was planted at same time in all plots as no-till. Sidedress nitrogen was applied on 6-18-08 at V6 growth stage. All plots harvested center two rows.

Results

Cover Crop	Sidedress Nitrogen Rate	Corn Yield bu/ac
No clover	0	28.9 a
Clover	0	30.2 a
No clover	80	84.4 b
Clover	80	95.4 c
No clover	160	115.5 d
Clover	160	125.1 e
	LSD (0.10)	9.4

Summary

Cost of clover analysis:

At 80 lb/ac sidedress nitrogen clover cover crop increased corn yield by 11.0 bu/ac.

$$\$38.50 = 11.0 \text{ bu/ac} \times \$3.50 / \text{bu}$$

$$\$18.00 = \text{cost of clover} - 12 \text{ lb/ac} \times \$1.50/\text{lb}$$

$$\$20.50 = \text{net return on clover}$$

At 160 lb/ac sidedress nitrogen clover cover crop increased corn yield by 9.6 bu/ac

$$\$33.60 = 9.6 \text{ bu/ac} \times \$3.50 / \text{bu}$$

$$\$18.00 = \text{cost of clover} - 12 \text{ lb/ac} \times \$1.50/\text{lb}$$

$$\$15.60 = \text{net return on clover}$$

In this analysis the investment in a red clover cover crop return a positive net return. The optimum N rate, however, was similar whether a cover crop was present or not. There may have been some nitrogen benefit to the cover crop, but the rates evaluated within this study did not allow for a clear distinction.

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