

# Nitrogen Response in Corn Study

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## Objective

To determine the effects of nitrogen rates on corn yields and provide data for nitrogen response curves.

## Background

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Crop Year: 2014	Tillage: No-Till
Location: Allen Township	Soil Test: pH 6.7, P 37 ppm M III, K 203 ppm
County/Town: Darke/Bradford	Planting Date: May 7, 2014
Soil Type: Celina Silt Loam	Nitrogen: Varied
Drainage: Systematic with 40 foot Laterals	Seeding Rate: 33,000
Previous Crop: Soybeans	Harvest Date: October 11, 2014

## Methods

Six nitrogen rates were replicated three times in a randomized complete block design. Treatments were planted with a 12 row Kinze planter. All treatments received the same tillage, herbicide applications. Seed used was Dekalb 6116. Planting included a 2x2 application of 28% at a rate of 35 pounds of actual N except for the zero N treatment. The other treatments were side dressed with 28% to reach the treatment levels. Stand counts were taken at V6 by obtaining 2 counts per treatment and calculating the simple average. Plots were harvested with a commercial combine equipped with a 6 row corn head. Yields and moistures were obtained by using a calibrated yield monitor. Yields were verified using a grain cart. Yields were shrunk to 15.5% moisture. Precipitation data was obtained from cocorahs.org and recorded daily.

### Treatments

1. 0 pounds of N
2. 50 lbs N
3. 100 lbs N
4. 150 lbs N
5. 200 lbs N
6. 250 lbs N

## Results

Nitrogen Treatment # Actual	Acres	Wet Moisture	Treatment Average	Return over N \$ of lower treatment
0	0.35	18.5%	71.5	
50	0.35	20%	114.8	\$104.90
100	0.35	20.6%	160.3	\$111.59
150	0.35	20.9%	195	\$70.10
200	0.35	21.1%	206.5	\$9.50
250	0.35	22.0%	214.8	-\$0.10

Total rainfall April 15 thru October 15 was 20.44 inches.

LSD = 13.75 (p<0.00); CV 6.31; Significant Difference.

## Summary

Corn yield was influenced by nitrogen rates. There was significant difference in yield of the corn as affected by the rate of nitrogen. Moisture levels at harvest increased as rates of Nitrogen increased. An economic comparison between the nitrogen rates of 200 and 250 pounds revealed a \$.10 loss over yield increase. Assumptions were nitrogen cost of \$.50 per pound and corn at \$3.00 per bushel.

## Acknowledgement

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