

Effect of Nitrogen Rate on Corn Yield

Steve Prochaska, AGNR Extension Educator, Crawford County

Objective

To compare corn yields over 3 nitrogen rates.

Background

Crop Year:	2008	Soil test:	pH 6.8, P 26 ppm K 124 ppm (2004)
Test Location:	OSU Unger Farm	Planting Date:	April 25, 2008
County:	Crawford	Planting Rate:	31,000 seeds/a
Nearest Town:	Bucyrus	Row Width:	30 inches
Drainage:	systematic subsurface	Fertilizer:	starter, 10 gallons 9-18-9
Soil type:	Blount	Fertilizer:	side-dress -3 rates
Tillage:	field cultivator	Rainfall:	May 1 - Oct. 1, 18.1 inches
Previous Crop:	soybeans	Harvest Date:	October 16, 2008
Variety:	Pioneer 34K77		
Herbicide:	Laudus 3 oz/ac+ atrazine 1 pt/ac		

Methods

This study used a randomized complete block design to compare corn yields over 3 nitrogen rates. The three treatments were replicated four times. Corn was planted with a 12 row cyclone planter on April 24, 2008. Starter fertilizer at the rate of 9-18-9/acre was applied at planting. Treatments were applied on July 2 with a John Blue 28% nitrogen applicator. Plots were from 609 to 625 feet long and 30 feet wide and were harvested with a 6 row combine on October 16, 2008.

Treatments

- 30 gallon 28% (90 lbs/a) nitrogen
- 40 gallon 28% (120 lbs/a) nitrogen
- 50 gallon 28% (150 lbs/a) nitrogen

Results

Treatment (N/ac)	Moisture %	Test Weight lb/bu	Corn Yield bu/ac
90lbs/a	18.0	58.4	182.0 a
120 lbs/a	18.0	58.0	178.5 a
150 lbs/a	18.0	58.0	185.2 a

LSD (P=0.025)

Summary

Yield differences between the side dress nitrogen treatments were not statistically significant in 2008. In 2007, there was not a statistical difference between the 2 higher side dress nitrogen rates. Only the low rate of side dress nitrogen was statically different. These studies do support current OSU recommendations published in the Tri-State Fertility Guide as well as new economic based recommendations available at agcrops.osu.edu.

For more information contact:

Steve Prochaska
112 E. Mansfield Street
Bucyrus, Ohio 44820
419-562- 8731
prochaska.1@osu.edu

