Starter Fertilizer Response in Corn Study

Samuel G. Custer, Ohio State University Extension Educator, Darke County

Objective

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

Background

Crop Year: 2016
Location: Allen Township
County/Town: Darke/Bradford
Soil Type: Celina Silt Loam
Drainage: Not patterned
Previous Crop: Soybeans
Tillage: No-Till

Soil Test: pH 6.6, P 23 ppm M III, K 141 ppm
Planting Date: April 27, 2016
Nitrogen: 200 Pounds per acre
Seeding Rate: 33,000
Harvest Date: September 23, 2016
Rainfall: 16.98 in. - 4/15-9/23

Methods

Five starter fertilizer treatments 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 and herbicide applications. Seed used was Dekalb 6067. Treatments were made at planting included with a 2x2 application. Nitrogen levels were balanced at sidedress with appropriate rates of 28% to equal 200 units per acre. 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 adjusted to 15.5% moisture. Precipitation data was obtained from cocorahs.org and recorded daily.

Treatments:

1. 28% only – 43# Actual N/acre
2. Starter fertilizer (10-34-0 and 28%) 43# N, 23# P2O5/acre
3. Starter fertilizer (10-34-0 and 28%) with 2 gallons sulfur per acre
4. Starter fertilizer (10-34-0 and 28%) with Sulfur and 1 quart Zinc per acre
5. No starter fertilizer

Results

Treatment #	Wet Moisture %	Treatment Average Yield (Bu.)
1	19.66	166.87
2	19.94	174
3	18.83	165.76
4	18.73	162.63
5	20.39	166.77

CV 3.80; No Significant Difference in yield.

Summary

Corn yield was not influenced by the addition of any form of starter fertilizer including 10-34-0, sulfur and zinc. There was no significant difference in yield of the corn as affected by the addition of starter.

Acknowledgement

The author expresses appreciation to on-farm collaborators Overholser Farms for the land use, planting and harvesting of this plot.