

Corn Yield Response to Starter Fertilizer

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Objective

To determine the effects of starter fertilizer on corn yields.

Background

Crop Year:	2016	Tillage:	Conventional
Location:	Zanesville, OH	Planting Date:	19 May
County/Town:	Muskingum County	Nitrogen:	28-0-0
Soil Type:	Tioga fine sandy loam, Nolin silt loam	Seeding Rate:	32,000
Drainage:	Non systematic	Harvest Date:	31 Oct
Previous Crop:	Soybean		

Methods

Three treatments of starter fertilizer were applied at planting in a semi-randomized design with three applications. A traditional corn hybrid was used (non-engineered). Swine manure was broadcast in the fall and 35 gallons of 28% UAN was applied at planting. Plots were planted in 12 rows at 30 inch spacing and harvested with a commercial combine. Plots were field length at approximately 1,000 feet and individually measured for yield calculations. Conventional chemical weed control was applied preplant.

Results

Treatment (lbs/ac)	Yield (bushels/acre) ^z
No starter	135.0
3-18-18 (3 gal/ac)	146.1
3-18-18-1S (3 gal/ac)	143.9

^z Overall Mean: 141.7

Summary

The 2016 growing season in Muskingum County was characterized by above normal rainfall in April that delayed planting and below normal rainfall for the rest of the season. Total rainfall from 1 Apr to 30 Sep was 17.46 in, which is 4.24 in below normal for the time period (Zanesville Municipal Airport, USW00093824, Midwestern Regional Climate Center). Monthly average air temperatures recorded at the same weather station during April (53.0 °F) and May (62.5 °F) were near normal (51.5 °F and 60.6 °F, respectively) following a period of warmer than normal conditions in February and March. Additional weather stations in the region reflected a similar pattern (USC00335747, USC00331890).



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The average temperature from three days before planting to three days after planting (May 16-22) was 56.9 °F with a maximum high of 75.0 °F.

Application of starter fertilizer did not demonstrate a statistically different response in yield. It is possible results are also impacted by the change in soil type across plots with the presence of two soil types in the planted area. Across all treatments, replication 1 yielded 128.0 bushels per acre and replication 3 yielded 164.1 bushels per acre at difference of 36.1 bushels.

Acknowledgement

The authors expresses appreciation our on-farm collaborators for conducting Corn Yield Response to Starter Fertilizer on-farm research trials.

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