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OHIO STATE UNIVERSITY EXTENSION

Evaluating Nitrogen Placement Methods

Chris Zoller, Associate Professor & Extension Educator, ANR, Tuscarawas County, New Philadelphia, OH 44663 (zoller.1@osu.edu)
Elizabeth Hawkins, Field Specialist, Agronomic Systems, The Ohio State University, Wilmington, OH 45177-2099

Objective

To determine whether the use of Y-drops or coulters for sidedress nitrogen placement make a difference in corn final yield.

Study Design

This study analyzed two treatments, coulters and Y-drops, in a randomized complete block design replicated four times. Field length strips of 45 gallons of 28% nitrogen (134 lbs/ac) were applied at sidedress using each application method to directly compare and determine if either contributed to an increase in yield. Yield and moisture was estimated using a combine equipped with a calibrated yield monitor.

Figure 1. Placement of nitrogen with coulter method (left) and Y-drop method (right).

Observations and Results

The trial was planted May 17 and harvested September 16, 2020. During the season, little evidence of disease or insect pressure was observed. Below average precipitation resulted in dry conditions at pollination that likely impacted final yield potential. No statistical significance in yield was observed between the two placement methods was observed in this study in Tuscarawas County in 2020.

Treatments	Avg. Emergence (plants/ac)	Moisture (%)	Yield (bu/ac)
Coulters	29,450	20.6	196 a
Y-drops	29,450	20.7	196 a
Treatment Means with the same letter are not significantly different according to Fisher's Protected Least Significant Differences (LSD) test at alpha = 0.1.			LSD: 11.98 CV: 3.68%

Figure 2. Yield results by nitrogen placement method in the Tuscarawas County trials conducted in 2020.

Figure 3. Applying nitrogen treatments in the placement trial.

Conclusions

Similar studies conducted through the eFields programs have shown that yield response to nitrogen placement varies depending on site-specific environmental conditions year to year. Additional research is needed to understand the conditions where these application methods are most profitable.

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Acknowledgments

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