

Deep Placement Compared to Broadcast P & K on Corn

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Objective

To compare the effects of three different fertilizer programs on corn yields.

Background

| | | | |
|----------------|--------------------|----------------|-----------------------------|
| Cooperator: | Keith Dennis | Soil Test: | pH 6.5, P 23 ppm, K 114 ppm |
| County: | Perry | Herbicide: | Bicep (2.4 qt/A) |
| Nearest Town: | Rushville | Insecticide: | Force (4.4 lbs/A) |
| Soil Type: | Centerburg & Luray | Variety: | Seed Consultants 1170 |
| Drainage: | Improved | Planting Date: | April 25, 1998 |
| Tillage: | Minimum till | Planting Rate: | 27,000 seeds/A |
| Previous Crop: | Soybeans | | |

Methods

A study was designed to compare corn yields under three different phosphorus and potassium fertilizer programs. Plots were field length (>750 ft.) and 54 ft. wide, replicated six times, and completely randomized. Anhydrous ammonia was applied at a rate of 190 lb./acre actual nitrogen in all plots. One fertilizer program was 18-46-60 actual applied per acre by broadcasting. The second fertilizer program was 18-46-60 actual per acre applied with the anhydrous and placed about eight inches deep in the soil. The third program was a half rate or 9-23-30 actual per acre applied with the anhydrous and placed at the same depth as the second. All fertilizer applications were made on the same date, April 11, 1998.

Results

| Treatment | Harvest Population (plants/A) | Yield ¹ (bu/A) | Treatment Costs ² (\$/A) |
|--------------------------|----------------------------------|------------------------------|--|
| Broadcast Full Rate | 15,996 | 156.1 | 18.87 |
| Full Rate Deep Placement | 14,893 | 158.8 | 20.69 |
| Half Rate Deep Placement | 15,728 | 155.9 | 11.44 |
| LSD (0.05) | NS ³ | NS ⁴ | |

¹ @15% moisture.

² Includes actual fertilizer cost, plus estimated machinery and fuel cost based on Ohio Farm Machinery Economic Cost Estimates for 1998.

³ F = 1.37 No significant differences among population means at P = 0.05, CV = 7.8%

⁴ F = 0.43 No significant differences among yields at P = 0.05, CV = 3.8%

Summary and Notes

Due to heavy rains after planting and the soil crusting it created, stand emergence was poor and variable. We plan to repeat this experiment next year with the hope of obtaining normal stands.

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