# Evaluating Nitrogen Rates in Corn

**Study ID:** 1528011202402
**County:** Boone
**Soil Type:** Nora silt loam 6-11% slopes, eroded
**Planting Date:** 5/17/24
**Population:** 34,000
**Row Spacing (in):** 30"
**Hybrid:** DEKALB® DKC62-89RIB
**Reps:** 4
**Previous Crop:** Soybean
**Tillage:** No-Till
**Herbicides:** *Pre:* 5 pt/ac 2,4-D + 8 oz/ac Sterling Blue® + 30 oz/ac Roundup PowerMAX® + 2.5 qt/ac Degree Xtra® + 2.5 oz/ac Balance Flex® *Post:* 2.1 qt/ac Acuron® + 30 oz/ac Roundup PowerMAX®
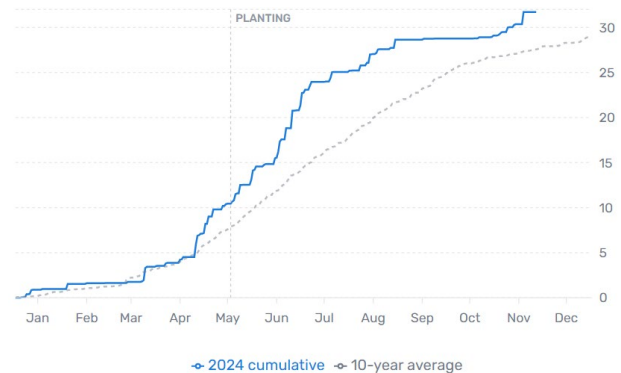**Foliar Insecticides:** 6.4 oz/ac Tundra® EC
**Foliar Fungicides:** 8 oz/ac Delaro®

**Fertilizer:** 5 gal/ac starter (10-34-0), 100 lb/ac (11-52-0), 100 lb/ac MESZ (12-40-10), 5 lb/ac boron
**Irrigation:** Pivot
**Rainfall (in):**



**Introduction:** This study evaluated the impact of reduced N rate applied at V4-V5 sidedress. Prior to in-season N application, all treatments received 200 lb N/ac from a spring anhydrous application . One treatment, which was the grower standard, had an additional 50 lb N/ac applied during sidedress application fertilizer (32%-0-0) at V4-V5 corn growth stage. This was compared against a reduced N rate of 200 lbs N/ac which was achieved by not applying the sidedress application. The traditional rate of N applied was 250 lb/ac.

**Results:**

| Treatment | Moisture (%) | Yield (bu/ac)† | Partial factor productivity (lb grain/ lb N) | NUE (lb N/ bu) | Marginal Net Return‡ ($/ac) |
|---|---|---|---|---|---|
| 200 lb N/acre | 18.4 A* | 269 A | 63.4 A | 0.88 B | 1,171 A |
| 250 lb N/acre (50 lb N/ac sidedress) | 18.1 A | 272 A | 50.9 B | 1.1 A | 1,151 A |
| P-Value: | 0.16 | 0.68 | 0.006 | 0.0013 | 0.56 |

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $4.30/bu corn and $0.60/N dry fertilizer.

**Summary:**

- There were no significant differences in moisture, yield or marginal net return between treatments.
- If the regular practice for this site to apply 250 ln N/ac, a reduction of 25% in the N rate would have no yield penalty for this growing season.
- Further testing should be conducted to find the optimal N rate in this field.