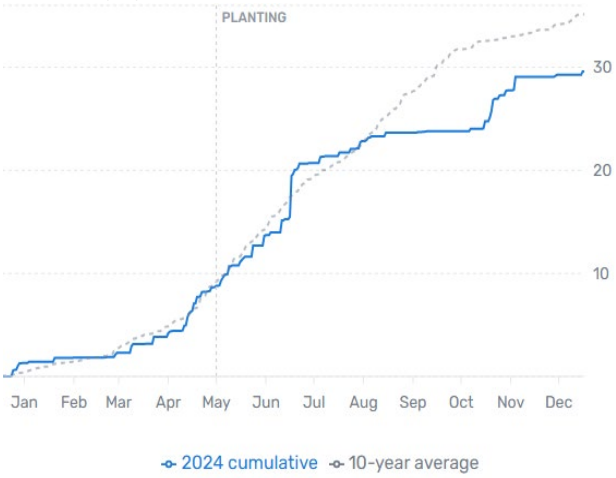
Evaluating N Fertilizer in the Waverly Wellhead Protection Area

Study ID: 1545109202401
County: Lancaster
Soil Type: Aksarben silty clay loam; Judson silt loam
Planting Date: 5/15/24
Harvest Date: 10/14/24
Population: 28,500
Row Spacing (in): 30”
Hybrid: LG® 646C43
Reps: 3
Previous Crop: Soybeans
Tillage: No-till
Herbicides: ***Pre:*** Trivolt® + 2,4-D + atrazine
Foliar Fungicides: 8 oz/ac Delaro® Complete applied 7/15/24
Fertilizer: Variable, applied preplant

Irrigation: None
Rainfall (in):



Introduction: The Lower Platte South Natural Resources District (LPSNRD) and the City of Waverly have recently developed joint Drinking Water Protection Management and Wellhead Protection plans to address high nitrate concentrations detected in several of Waverly’s municipal wells. One focus of these efforts is public outreach and education on agricultural Best Management Practices (BMPs). This farmer was interested in evaluating lower nitrogen rates in dryland corn to understand how his N management could be adjusted to the BMP goals in the Waverly Wellhead Protection Area. The two treatments applied were the farmer’s rate of 150 lb N/ac and the reduced rate of 115 lb N/ac. The UNL N recommendation for this field, with a 185 bu/ac yield goal, was 77 lb N/ac. Nitrogen was broadcast on both treatments as 28% UAN preplant in early May.

Results:

	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
115 lb N/ac	11.1 A*	172 A	689 A
150 lb N/ac (Check)	11.1 A	174 A	680 A
P-Value:	0.99	0.92	0.89

*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 $4.35/bu corn, $57.50/ac 115 lb N/ac, $75/ac 150 lb N/ac.

Summary:

- There were no significant differences in moisture, yield or marginal net return between the treatments.
- For 2024 weather conditions at this site, results show that a reduction of 35 lb N/ac was possible without yield penalty.