

# Nebraska On-Farm Research Network

## In-Season Additional N on Deficient Corn – Small Plot

**Study ID:** 014127201401

**County:** Nemaha

**Soil Type:** Nodaway silt loam

**Planting Date:** 4/28/2014

**Harvest Date:** 10/20/2014 hand harvested, shelled, and weighed

**Population:** 22,500

**Row Spacing:** 30"

**Hybrid:** Syngenta G14R38

**Reps:** 4 – small plot

**Soil Test Values:** Not available

**Previous Crop:** Corn

**Tillage:** No-till

**Herbicides: Pre:** None

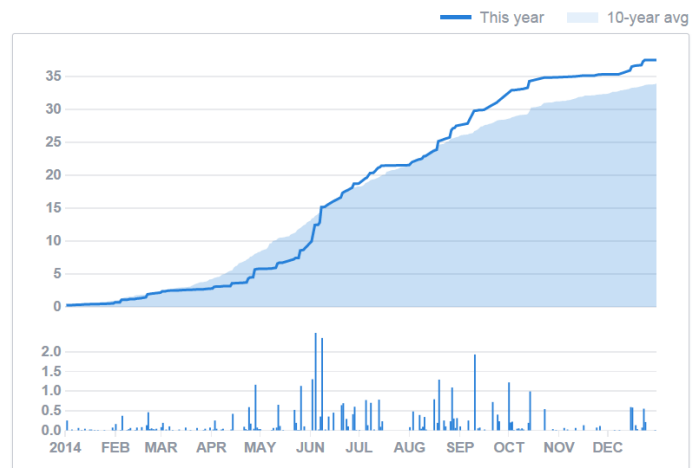
**Post:** 48 oz/acre Glyphosate in June

**Insecticides/Fungicides:** None

**Fertilizer:** 160 lbs/ac anhydrous ammonia in April, pre-plant 6 gal/ac Poly Phos, K, Zn, S as starter at planting.

**Irrigation:** not irrigated

**Rainfall:** Apr: 1.25" May: 3" June: 7.2" July: 4.72" Aug: 5.31" Sept: 3.73" Oct: 3.28" Total: 28.49"



**Introduction:** This study is evaluating mid-season nitrogen application to nitrogen deficient corn. This past spring with some heavy rains, corn showed significant nitrogen deficiencies in the growing season during a critical period of development (R1-R6). This was due to saturated soils which lead to denitrification. Previous on-farm research conducted in Nebraska in 2013 and in Missouri in previous years indicated mid-season nitrogen application may be economically feasible. In Northwest Missouri in 2013, local ag suppliers were flying on urea to nitrogen deficient corn fields. This experiment was conducted to test the feasibility of this management practice. In early July, the nitrogen deficient corn field was identified. On July 28th, nitrogen was applied at the rates of 0, 50, 75 and 100 lbs. N/ac. Nitrogen was applied in a dry form as urea (46-0-0). This method simulated nitrogen being top-dressed with a high clearance ground applicator or through aerial application. The experiment was designed as a complete randomized block design with 4 replications. Each plot was 20' x 10' (4-30" rows). At harvest time, 10' of the 2 middle rows were hand-harvested. Corn was shelled, tested for moisture and yields were calculated on a 15.5% moisture basis.

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## Results:

	Yield† (bu/acre)	Net Return ‡
0 lb N/acre	103 A*	\$360.50
50 lb N/acre	126 A	\$405.96
75 lb N/acre	126 A	\$391.55
100 lb N/acre	133 A	\$401.65
<i>P-Value</i>	0.2822	--

†Bushels per acre corrected to 15.5% moisture.

\*Values with the same letter are not significantly different at a 90% confidence level.

‡Net return based on \$3.50/bu corn, \$530/ton Urea 46-0-0 in July 2014, and \$6.24 custom dry fertilizer application.

**Summary:** With variable yield results between replications, there were no significant differences between treatments. There was a trend toward higher yields with the supplemental nitrogen application.

Note: In this analysis, N rate is treated as qualitative data; a quantitative data analysis may result in statistically significant yield response.

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