

## In-season Nitrogen Application on Corn Following Rye Cover Crop

**Study ID:** 710067201701

**County:** Gage

**Soil Type:** Wymore silty clay loam 2-6% slopes

**Planting Date:** 4/26/17

**Harvest Date:** 10/12/17

**Population:** Variable Rate 20-28,000

**Row Spacing (in):** 30

**Hybrid:** Channel 214-00D6T2 RIB

**Reps:** 4

**Previous Crop:** Soybean

**Tillage:** No-Till

**Herbicides:** *Early post to kill rye (planted into green rye):* 17 lb AMS/100 gal, 1.3 oz/ac Sharpen®, 1.2 lb Citric acid/100 gal, 1 gal MSO™/100 gal, 1 pt/ac generic Dual, 40 oz/ac Roundup Ultra® MAX at 8.5 gal/ac on 5/6/17 *Post:* 17 lb/ac AMS, 0.5 lb/ac Aatrex® Nine-O® Atrazine, 3 oz/ac Callisto®, 1 pt/ac 90-10 spreader sticker, and 32 oz/ac Roundup ULTRA® MAX

**Seed Treatment:** None

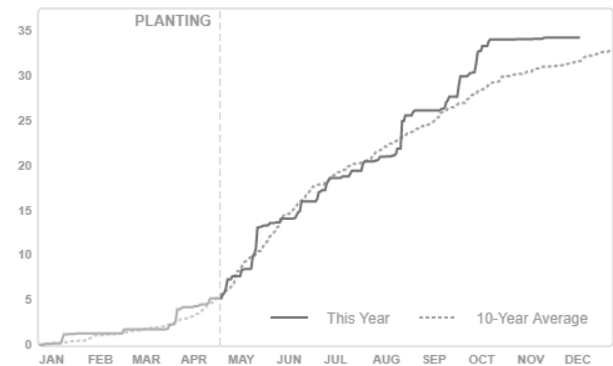
**Foliar Insecticides:** None

**Foliar Fungicides:** Fungicide applied aerially

**Fertilizer:** 42 gal/ac 32% (149 lb N/ac) injected on 4/18/17; 5 gal/ac 10-34-0 (5.8 lb N/ac) with planter on 4/26/17

**Irrigation:** None

**Rainfall (in):**



### Soil Test (2017):

ID	Soil pH 1:1	WDRF Buffer pH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI %	FIA Nitrate ppm N	Nitrate lb N/A	Mehlich P-III ppm P	Sulfate-S ppm S	Zn (ppm)	Ammonium Acetate (ppm)				CEC me/100g	% Base Saturation				
											K	Ca	Mg	Na		H	K	Ca	Mg	Na
1	6.3	6.6	0.35	NONE	4.0	39.1	94	24	10	0.88	262	2432	326	17	19.2	19	3	63	14	0

**Introduction:** The corn in this study followed a rye cover crop. Rye was noticeably taller where directly over the nitrogen injected knife marks. The whole field was grazed from January through April 1. Corn was planted on 4/26/17 into a standing rye cover crop. The rye was terminated on 5/6/17 with herbicide. As the rye cover crop breaks down, nitrogen may be temporarily unavailable to the growing corn crop. Because of this, many growers are trying to better understand nitrogen management for corn following a rye cover crop. A total of 155 lb/ac N was applied prior to planting or at planting.

This study tested three rates of nitrogen sidedress applied as 46-0-0 broadcast urea on May 24 at the V5-V6 growth stage.

For analysis, two rows of 15 foot length were hand harvested, shelled, and weighed. Plant counts and ear counts represent the same two rows and 15 foot length; values were converted to plants/ac and ears/ac for reporting.

**Results:**

	Harvest Stand Count	Ears Count (ears/ac)	Moisture (%)	Yield (bu/acre) <sup>†</sup>	Marginal Net Return <sup>‡</sup> (\$/ac)
0 lb/ac Sidedress	23,513 A*	22,932 A	15.2 A	190 A	598.89 A
50 lb/ac Sidedress	23,803 A	24,819 A	15.6 A	194 A	586.13 A
100 lb/ac Sidedress	24,093 A	24,819 A	15.5 A	198 A	580.15 A
P-Value	0.692	0.110	0.781	0.815	0.875

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

<sup>†</sup>Bushels per acre corrected to 15.5% moisture.

<sup>‡</sup>Marginal net return based on \$3.15/bu corn, \$0.36/lb N, and \$6.17/ac broadcast application cost.

**Summary:** There was no difference in number of plants, number of ears, moisture, yield, or net return between the in-season nitrogen rates tested.

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