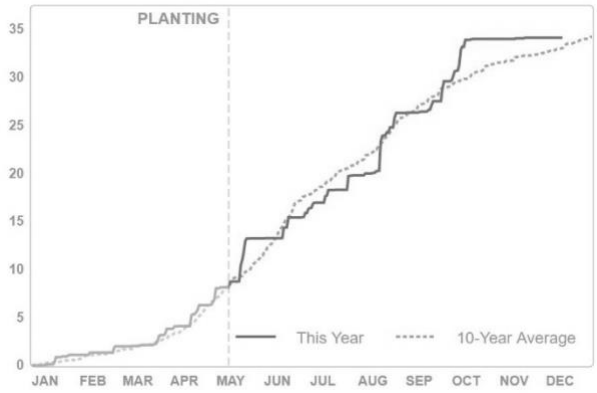
# Nitrification Inhibitor

**Study ID:** 711053201701
**County:** Dodge
**Soil Type:** Calco silty clay loam 0-2% slope; Alcester silty clay loam 2-6% slopes
**Planting Date:** 5/9/17
**Harvest Date:** 10/27/17
**Population:** 30,000
**Row Spacing (in):** 30
**Hybrid:** Golden Harvest G12J11-3111A
**Reps:** 4
**Previous Crop:** Soybean
**Tillage:** No-Till
**Herbicides:** ***Pre:*** 13 oz/ac Verdict®, 24 oz/ac Atrazine, and 32 oz/ac Durango® at 15 gal water/acre on 5/9/17 ***Post:*** 1.5 qt/ac Resicore®, 8 oz/ac Atrazine, and 23 oz/ac Durango® at 15 gal water/acre on 6/6/17
**Seed Treatment:** Avicta® 500
**Foliar Insecticides:** None
**Foliar Fungicides:** None
**Fertilizer:** 10-34-0 applied in furrow at planting on 5/9/17; other N applied is detailed in treatments

**Irrigation:** None
**Rainfall (in):**




**Soil Test (April 2017):**

| OM | N (0-6") | N (0-24") | P1 | P2 | K | Mg | S | Zn | Mn | Fe | Cu | B | Ca | $CO_2C$ Burst |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| % | ppm | | | | | | | | | | | | | |
| 3.1 | 7 | 8 | 39 | 69 | 309 | 367 | 17 | 1.2 | 7 | 51 | 1.1 | 0.5 | 2772 | 134 |

**Introduction:** This study is evaluating Instinct® nitrification inhibitor (product information at right). Nitrification inhibitors reduce the rate at which ammonium is converted to nitrate. This can help reduce N losses through denitrification and leaching. Nitrogen was applied on 4/11/17 at a rate of 38 gal/ac of 32% UAN (135 lb N/ac). The nitrification inhibitor was applied at a rate of 40 oz/ac for the Instinct® treatments.

Ear leaf N concentrations were taken at R2. Aerial imagery was collected in September to observe differences in plant vegetation. Aerial imagery was used to calculate the normalized difference vegetative index (NDVI). This index is indicative of overall plant biomass and greenness. True color imagery and NDVI are presented in *Figure 1*.

Instinct® II

NITROGEN STABILIZER

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**Use to delay nitrification of ammoniacal and urea nitrogen fertilizer compositions in the soil by controlling the nitrification process.**

Active Ingredient:
nitrapyrin: 2-chloro-6-(trichloromethyl) pyridine..... 16.95%
Other Ingredients..... 83.05%
Total..... 100.00%

Contains Petroleum Distillate
Contains 1.58 lb of active ingredient per gallon.

Product information from:
*http://msdssearch.dow.com/PublishedLiteratureDAS/dh_0968/0901b80380968548.pdf?filepath=pdfs/noreg/010-02288.pdf&fromPage=GetDoc*

**Results:**

| | Ear Leaf N (%) | Moisture (%) | Yield (bu/acre)† | Marginal Net Return‡ ($/ac) |
|---|---|---|---|---|
| 135 lb N/ac | 3.07 A* | 17.2 B | 239 B | 754.21 A |
| 135 lb N/ac with 40 oz/ac Instinct | 3.08 A | 17.4 A | 243 A | 752.83 A |
| P-Value | 0.964 | 0.023 | 0.077 | 0.752 |

*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 $3.15/bu corn and $11.90 for 40 oz Instinct.


**Figure 1.** True color (red-green-blue) imagery (left) and NDVI (right) from September 11, 2017.

**Summary:**

- There was no difference in ear leaf N percent between the treatments with and without Instinct®.
- Grain moisture was higher for the Instinct® treatment.
- Yield was 4 bu/ac higher where Instinct® was used.
- There was no difference in marginal net return between the with and without Instinct® treatments.

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