Technical Bulletin

ESN® Blends for Corn Production in Missouri

STUDY DESCRIPTION

Fertilization programs for corn in central geographies are typically a one- to two-pass program, usually with some combination of nitrogen applied up to planting followed by a post-emergence, side-dress application. Polymer-coated, controlled-release fertilizers can be used as part of this two-pass program, or as a single application to apply all of the nitrogen needed for the entire growing season in one application. The following study was designed to evaluate ESN (a form of polymer-coated urea) as a controlled release fertilizer source for corn in the state of Missouri. ESN was applied either at pre-plant or side-dress.

RESULTS SUMMARY

- Corn yields increased as the percentage of total N supplied as ESN increased. When averaged over rate and application time, yields ranged from 97 bu/A for 100% urea to 106 bu/A for 100% ESN.
- Side-dressed nitrogen produced greater yields than pre-plant nitrogen application at all application rates.
- The 75:25 ESN:urea treatment resulted in the highest yields for both pre-plant and side-dress applications at 150 lbs N/acre, a typical application rate for the area.
- Side-dress ESN application did not cause leaf burn. Side-dress urea application did cause slight necrosis of the corn leaves.

TRIAL DETAIL

- *Conducted in Novelty, MO by Dr. Kelly Nelson, 2011*
- *Soil type = Putnam Silt Loam, pH = 5.8, OM = 2.5%*
- *Previous crop = Wheat followed by double-crop soybean*
- *Irrigation method = Rainfed*
- *Corn planted May 3*
- *Harvested September 14*

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Want To Know More?

To make ESN a part of your fertilization program, contact an authorized retailer or representative.

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FERTILIZER TREATMENTS

Fertilizer Treatment[1]	Comments[2]
Control	No fertilizer N applied
0:100	100% Urea PP and SD
25:75	25% ESN, 75% Urea PP and SD
50:50	50% ESN, 50% Urea PP and SD
75:25	75% ESN, 25% Urea PP and SD
100:0	100% ESN PP and SD

[1] All treatment were applied at 0, 75, 112 and 150 lbs N/A. Check yield was 40 bu/A.

[2] All applications were applied PP=pre-plant or SD=side-dress. The PP and SD applications was surface applied. ESN = Environmentally Smart Nitrogen (44-0-0).

SUPPORTING DATA

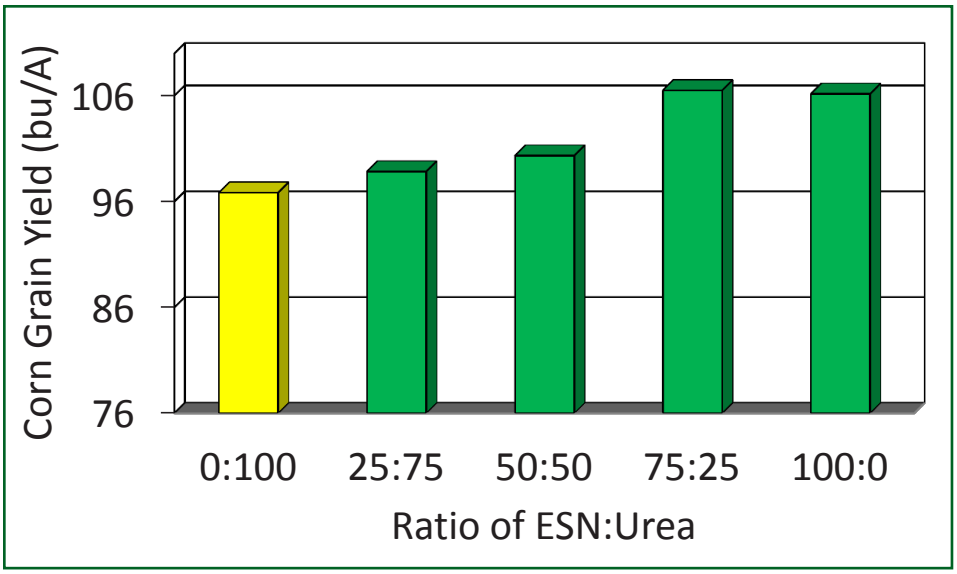

Fig. 1. Corn grain yield as affected by the ratio of ESN:urea when averaged over N rate and timing of application

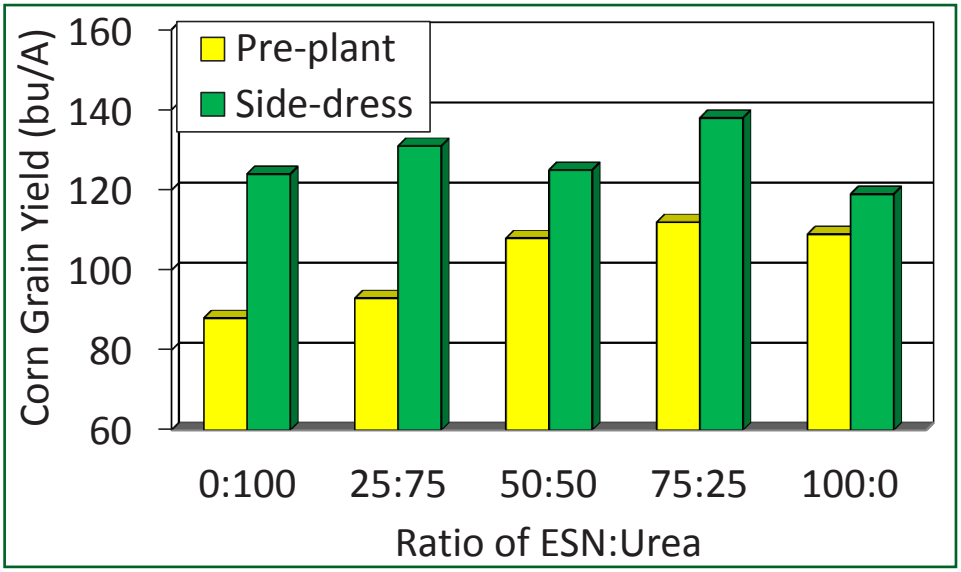

Fig. 2. Corn grain yield as affected by the timing of application at 150 lbs N/A of ESN:urea blends applied at either pre-plant or side-dress

ESN®

ESN Technology Goes Beyond Traditional Nitrogen

- *Enhances N use efficiency*
- *Improves crop yield and quality*
- *Provides convenience through ease of use*
- *Environmentally responsible*

How ESN Technology Works

ESN technology uses a flexible polymer coating to encapsulate a nitrogen (N) granule. The coating protects the N from loss mechanisms, releasing it when the crop needs it most.

Nitrogen release thru the polymer coating is controlled by two of the factors in crop growth: soil moisture and temperature. Moisture creates an N solution inside the coating, and the solution moves through the coating at a rate controlled by soil temperature. Nitrogen supply is, therefore, more closely matched with crop demand.

ESN is backed by over 600 crop years of testing by independent, third party researchers. The data is proof of performance for a unique product.

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