

DESIGN: Replicated strip plots, 3 per treatment

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OBJECTIVE

The current study was conducted to determine the effects of Excelis Maxx treated UAN at planting on final grain yield in corn compared to other nitrogen stabilizers. The secondary objectives were to evaluate the effects of lower initial N application rates and to compare the 2x2 and tubular application methods.

INTRODUCTION

Excelis Maxx is a fertilizer additive that is more than just a stabilizer. It is designed to protect urea-based fertilizers from various loss pathways. It contains NBPT, DCD, LCN Complex, and other proprietary technology that controls volatility, denitrification and leaching. With the addition of our patented root biostimulant (Rhizovit) and organic acids, Excelis Maxx enhances nutrient availability and stimulates root growth and nutrient uptake.

MATERIALS AND METHODS

Liquid UAN (29.6% N) was applied at planting and then again as side-dress treatments at both V3 and V4. **Only the application of N at planting was stabilized using the following treatments:**

- 1) Excelis Maxx treated UAN
- 2) Agrotain treated UAN
- 3) Nutrisphere treated UAN
- 4) and untreated UAN (Control)

Two additional factors were evaluated, namely, initial planting rate of N (100% vs 80% initial) and application method (2x2 vs Tubular). Nitrogen rates at planting were 35.4 (100%) and 28.3 (80%) lb/ac. All plots received an additional 141.6 lb of N/ac as untreated UAN split between 2 applications, one at V3 and one at V4. Excelis Maxx was applied at 25 oz/ton, Agrotain and Nutrisphere were applied at 2 qt/ton. The complete list of treatments is shown in Table 1.

KEY FINDINGS

+ 16.6 bu/ac
Excelis Maxx vs.
Untreated Control

DETAILED RESULTS

UAN that was stabilized with Excelis Maxx showed the highest average yields of all treatments. Reducing the initial N rate by 20% did not negatively affect yield. Application method did appear to influence yield, with the 2x2 application having a small advantage overall. **With the 2x2 application method, the Excelis Maxx treatment produced a 17.6 bu/ac higher yield than the control and outperformed the other stabilizers, even with 20% less nitrogen at planting.** With the tubular application method, the Excelis Maxx treatment produced a 10.0 bu/ac higher yield than the control, while the 80% Excelis Maxx treatment out-yielded the control by 8.2 bu/ac. Loss of yield due to nitrogen loss was likely a limiting factor in this study since the N stabilizer products reduced yield loss compared to untreated UAN. Excelis Maxx appears to reduce yield loss more than the other stabilizers tested; this product contains Rhizovit technology, a root biostimulant that substantially enhances root growth and nutrient uptake. **This innovation may explain the higher yields and the higher nitrogen use efficiencies observed.**

Table 1. Treatments and Corn Grain Yield*

Treatment	Total N applied @ planting	Yield (bu/ac)**	Yield Difference vs. Control
Excelis Maxx - 100% - 2x2	35.4 lb N/ac	124.4 ^a	+16.6 bu/ac
Excelis Maxx – 80% – 2x2	28.3 lb N/ac	122.4 ^a	+14.6 bu/ac
Agrotain UAN – 100% – 2x2	35.4 lb N/ac	122.1 ^a	+14.3 bu/ac
Excelis Maxx UAN – 100% - Tubular	35.4 lb N/ac	117.8 ^b	+11 bu/ac
Excelis Maxx – 80% - Tubular	28.3 lb N/ac	116 ^{b,c}	+9.2 bu/ac
Nutrisphere-N 100% – 2x2	35.4 lb N/ac	115 ^c	+7.2 bu/ac
Control – 100% – 2x2	35.4 lb N/ac	107.8 ^d	-
Control – 100% – Tubular	35.4 lb N/ac	106.8 ^d	-

*Initial stabilized fertilizer was applied at planting. Thereafter, 2 additional application of N were side-dressed @ V4 and V5, each supplying 70.8 lb N/ac, respectively.

**Yields with different superscripts are different at ($P < 0.05$)