

Quick Details: Excelis Maxx was applied at 25 oz/ton of liquid 30% UAN and compared to untreated UAN (Control). N Rates tested were 0, 135, 180, and 216 lb N/ac and were equivalent to 0%, 75%, 100%, and 125% of the recommended N, respectively.

Hybrid: AgVenture 9583YHR planted at 34,000 plants/ac.

Design: Replicated plots, 4 per treatment. Plots were 10' x 40', 30-inch on center.

Researcher(s): Data compiled and submitted by Dr. Ron Heiniger, North Carolina State University. Final write-up by John D. Bailey, PhD, Timac Agro USA.

OBJECTIVE

Excelis Maxx is a fertilizer additive that is more than just a stabilizer to reduce volatility, denitrification and leaching. With the addition of our patented root biostimulant (Rhizovit) and organic acids, Excelis Maxx is designed to improve root growth and enhance nutrient availability and uptake. The current study was conducted to determine the effects of Excelis Maxx treated UAN on grain yield and tissue nitrogen levels when rates were reduced by 25%.

MATERIALS AND METHODS

This study tested the impact of different rates and combinations of 30% UAN with and without Excelis Maxx. UAN was applied at V3. The location of this study was the Upper Coastal Plain Research Station (UCPRS) on a Norfolk sandy loam. A soil test indicated that pH was above 6.0 and with the exception of P nutrient levels were good or very good and no lime or nutrients were applied prior to planting. The experimental design was a randomized complete block with four replications. AgVenture 9583YHR was seeded at a seeding rate of 34,000 seeds/ac using conventional tillage in four 30-inch rows in plots that were 40 ft long by 10 ft wide on 2 May. At planting time a starter fertilizer (10-27-0 with 2% Zn) applied at a rate of 10 gal acre⁻¹ in a 2 x 2 band supplied approximately 12 lbs of N/ac.

The following 30% UAN treatments were then applied at V3 as follows:

1. No N Check – no additional N applied
2. 75% rec N (135 lb N/ac)
3. 100% rec N (180 lb N/ac)
4. 125% rec N (216 lbs N/ac)
5. 75% rec N (135 lb N/ac) with Excelis Maxx (25 oz/ton of fertilizer)
6. 100% rec N (180 lb N/ac) with Excelis Maxx (25 oz/ton of fertilizer)

RESULTS

There were significant differences in tissue N concentration at tassel (Figure 1) and grain yield (Figure 2) among the treatments. The no N Check and Treatment 2 (75% rec N) had the lowest tissue N concentrations, lowest grain moisture at harvest (data not shown), and also had the lowest yield. Two treatments had yield levels that exceeded 170 bu/ac and were 125% rec N (177 bu/ac) and 100% rec N with Excelis Maxx treated UAN (174 bu/ac). While the yields from several of the intermediate treatments were not significantly different from these two treatments, there was a clear numerical separation between these treatments and the others. **It is worth noting that the Excelis Maxx treatment at 75% rec N had the third highest yield (159 bu/ac) and was 13 bu/ac higher compared to untreated UAN at 100% rec N (146 bu/ac).**

CONCLUSIONS

Overall the use of Excelis Maxx improved N use efficiency with greater yield at lower N rates compared to the use of 30% UAN alone. The addition of 216 lb N/ac (125% rec N) did not significantly improve yields above treating 180 lb N/ac with Excelis Maxx.

**+28 bu/ac Excelis Maxx
UAN vs. Untreated UAN at
180 lb N/ac**

**+13 bu/ac Excelis Maxx
UAN vs. Untreated UAN at
135 lb N/ac**

Figure 1.

Effect of Excelis Maxx on Leaf N % at tassel in corn fertilized with various rates of N at V3.

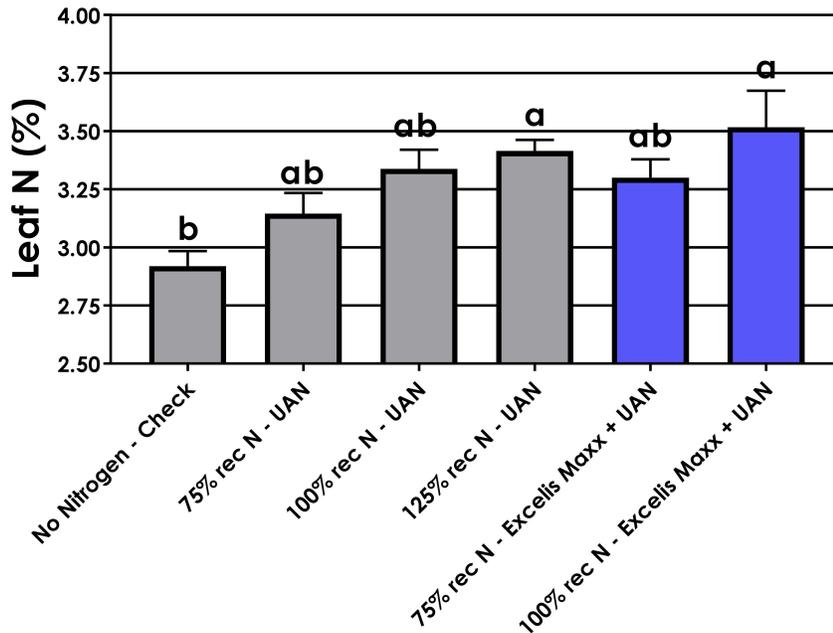
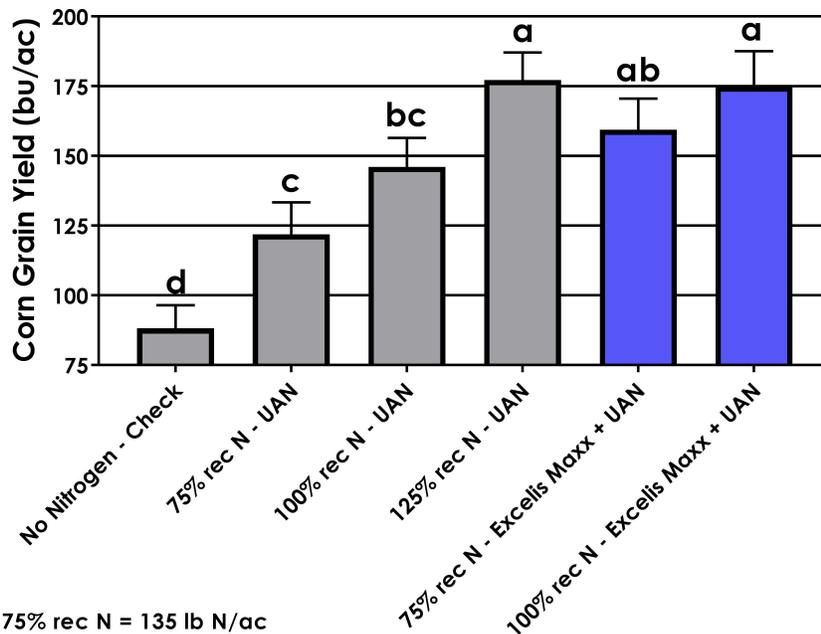


Figure 2.

Effect of Excelis Maxx on Grain Yield in corn fertilized with various rates of N applied at V3.



75% rec N = 135 lb N/ac
 100% rec N = 180 lb N/ac
 125% rec N = 216 lb N/ac