



Nitrogen Fertilizer Comparisons in Furrow-Irrigated Corn.

Real Farm Research. Aurora, NE

Experiment Info:

Planted:	4/19/201
Harvest:	11/1/201
Yield Goal:	200
Target Fert.	200-0-0
Variety:	Curry830-39
Population:	
Row Width:	30"
Prev. Crop:	Soybean
Plot Size:	10x157'
Replications:	2

Soil Test Values (ppm):

pH:	5.2
CEC:	16
%OM:	3.5
Bray P1:	75
Bicarb P:	
K:	364
S:	8
%K:	6
%Mg:	12
%Ca:	56
%H:	26
Zn:	0.9
Mn:	45
B:	

Objective:

Compare different broadcast surface-applied solution fertilizers and fall applied anhydrous ammonia for yield affects on furrow-irrigated corn.

Different regions of the country have more-or-less set cultural practices for growing corn. Here in South Central Nebraska, furrow irrigation is commonly used. Thus, nitrogen application methods are limited in covering large acreage and so fall anhydrous or surface broadcast of UAN after planting are the main methods. The common rate of application is 200 lb-N/A, and high yields are attained even though it would appear that more N is needed in order to achieve these yields. This is the second year of an experiment comparing different fertilizers applied at rates recommended here for 200lb-N/A. Average yields for the two years appear in the table below, and are ranked from highest to lowest yields over the two years. The percent of 200lb-N/A applied is also given for the full rate and the "high efficiency" N fertilizers.

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rank	treatment	Rate/A	% N/A	2013	2014	avg
1	N Blend*	43 gal	68.7	242.3	277.9	260.1
2	32% + eNhance** + CalSip	46 + 4 gal	80.5	242.2	270.7	256.5
3	High NRG-N	47 gal	68.2	246	265.6	255.8
4	High NRG-N	40 gal	58	242.8	266.9	254.9
5	anhydrous ammonia (fall)	200 lb-N	100	240.1	258.5	249.3
6	32% UAN	57 gal	100	234.6	262	248.3
7	32% + eNhance	46 gal	80.5	238.8	254.2	246.5
8	NF-13	53 gal	76.8	231.4	253.4	242.4
--	32% + eNhance	57 gal	100	--	261.7	261.7

N solutions were broadcast after planting. Anhydrous ammonia was applied the previous fall.

*N Blend: by volume: 50% High NRG-N and 50% 32% UAN + eNhance

** - 32% + eNhance: eNhance added to 32% UAN at 2.25 gallons per ton.

Data average of two replications.

Conclusions:

- The N Blend treatment had the highest two-year average yield with one of the lowest application rates (68.7%appliedNrate.) This blend has performed well in situations of more immediate N needs and then delayed N release for sustained sufficiency. Similarly, the two rates of HighNRG-N also resulted in high yields with reduced N application compared to the full rate standards. Surface applications of HighNRG-N appear to work well to preserve N from loss.
- Addition of CalSip to a 46 gal/A rate of 32%+eNhance did increase yield with application of sulfur and calcium in this low pH soil.
- Application of eNhance did not perform as well as expected at the reduced rate or the full rate of N. But eNhance is not positioned as a full stabilizer, but as an aide to N uptake, and that happened anyway.