

Corn response to in-furrow fertilizer and growth regulators, Carrington, 2013.

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Trial objective was to examine corn response to in-furrow applied Ascend (Winfield growth regulator) and potassium (K). The dryland field trial was established at the NDSU Carrington Research Extension Center on a conventionally-tilled Heimdal-Emrick loam soil. Experimental design was a RCB with four replications. Spring soil analysis indicated 11 ppm phosphorus, 142 ppm potassium, 3.4% organic matter, and 6.2 pH. Preplant incorporated urea plus zinc sulfate were broadcast-applied May 8 for a yield potential of >150 bu/A. DeKalb Roundup Ready 'DKC31-10' (81-day relative maturity) was planted in 30-inch row spacing on May 23 and included application of in-furrow treatments. The trial was harvested with a plot combine on October 9.

Timing of plant emergence date was similar among treatments (Table). Plant stand generally tended to be slightly less with in-furrow treatments compared to the untreated check. Silk date was 1 to 2 days earlier with treatments that included 10-34-0. Grain yield was similar among treatments including the untreated check. This likely was due to plant stress during reproductive stages from deficient soil moisture. Seed moisture tended to be less than the untreated check with treatments that included 10-34-0.

Table.									
In-furrow treatment			Plant				Seed		
No.	Product ¹	Rate gal/A	Emergence Jday	Stand (June 14; V2 stage) plants/A	Height (July 10) cm	Silk date Jday	Yield bu/A	Test weight lb/bu	Moisture %
1	untreated check	x	159	39177	73	219	84.9	48.7	31.7
2	10-34-0	4	159	37849	73	218	81.9	49.8	25.8
	water	1							
3	Ascend	4.5 fl oz	159	38181	68	219	85.7	48.3	30.8
	water	5							
4	10-34-0	4	160	38181	74	218	84.1	48.7	27.4
	water	1							
	Ascend	4.5 fl oz							
5	10-34-0	4	159	37849	79	217	82.5	49.9	26.7
	water	0.75							
	Ascend	4.5 fl oz							
	Zinc	32 fl oz							
6	KTS	1	159	42166	71	219	84.8	48.9	30.8
	water	4							
7	KTS	1	160	36853	74	217	86.4	49.3	24.9
	10-34-0	4							
mean			159	38610	73	218	84.3	49.1	28.3
C.V. (%)			0.4	10.7	8.6	0.5	8.0	2.3	15.8
LSD (0.05)			NS	NS	NS	1	NS	NS	NS

¹Ascend (Winfield)=growth regulator; Zinc=9.5-0-0+4S+10Zn (NW Chemical); KTS=potassium thiosulfate, 0-0-25+17S (Gavilon).