

Corn response to zinc, Carrington, 2007

Greg Endres and Paul Hendrickson

The conventional-till, irrigated field trial with soybean as the previous crop was established on a Heimdal Emrick loam soil with 106 lb/A nitrate-N, ppm P205, 141 ppm potassium, 0.51 ppm Zn, 2.8% organic matter and 7.7 pH at the NDSU Carrington Research Extension Center. Zinc sulfate (35.5% ai) was preplant (PPI) applied on May 10 and lightly incorporated twice with a harrow. DeKalb 'DKC38-33' was planted in 30-inch row spacing on May 11 and thinned to about 27,000 plants/acre on June 22. APSA-80 is a non-ionic surfactant from Access Business Group, Ada Michigan and was applied pre-emergence May 13 using a hand-boom sprayer with XR 8003 flat fan nozzles delivering 20 gal/A. Foliar treatments were applied using a hand-boom sprayer with 8002 flat fan nozzles delivering 16 gal/A on June 16 to V4-stage corn. Leaf tissue analysis was done on whole plants collected on June 18 from all treatments and on leaf samples collected on June 25 from treatment numbers 1 and 6 to 9. The trial was harvested with a plot combine on November 8.

No statistical differences occurred among treatments for days from planting to silk, and seed yield and quality among treatments (Table). Seed yield and test weight tended to increase with all treatments compared to the untreated check. Plant tissue analysis indicated sufficient levels of zinc with all treatments including the untreated check.

Table. Corn response to zinc, Carrington, 2007.

No.	Treatment				Days to Silk Jday	Seed Yield bu/A	Test Weight lb/bu	Seed Moisture	Seed Protein %	Seed Starch
	Name	Rate	Unit	Application						
1	untreated check	x	x	x	209	144.2	55.7	22.2	8.8	70.0
2	AGM 05024	6	oz wt/cwt	seed	209	155.5	56.1	23.0	9.0	70.5
3	AGST 07008	6	oz wt/cwt	seed	208	150.3	57.2	20.8	9.2	69.8
4	AGST 07012	6	oz wt/cwt	seed	209	155.0	56.9	21.3	8.7	70.2
5	AGM 05024	6	oz wt/cwt	seed	208	172.7	56.6	22.2	8.8	70.4
	AGM 04024	4	oz wt/cwt	seed						
6	AGM 06019	32	fl oz/a	FOLIAR	208	157.0	56.7	21.9	9.0	70.0
7	AGM 06020	32	fl oz/A	FOLIAR	209	158.4	56.7	22.2	8.7	69.8
8	AGM 07027	32	fl oz/A	FOLIAR	209	172.9	56.8	21.4	8.8	69.9
9	AGM 05024	6	oz wt/cwt	seed	209	175.0	56.0	22.2	8.8	70.1
	AGM 06020	32	fl oz/A	FOLIAR						
10	ZINC SULFATE	10	lb/A	PPI	209	166.8	56.9	22.9	8.7	70.0
11	APSA-80	15	fl oz/A	PRE	209	161.0	57.0	22.1	8.8	70.1
12	APSA-80	30	fl oz/A	PRE	208	157.3	57.4	21.7	8.7	70.1
mean					209	159.4	56.7	22.0	8.8	70.1
CV (%)					0.5	11.7	1.9	5.5	3.3	0.8
LSD (0.05)					NS	NS	NS	NS	NS	NS