

Soybean response to in-furrow fertilizer, Carrington, 2011.

(Greg Endres and Paul Hendrickson)

A field experiment was conducted at the NDSU Carrington Research Extension Center in cooperation with Loveland Products to examine soybean response to selected in-furrow liquid fertilizer sources. Experimental design was a randomized complete block with four replications. The irrigated, conventional-till trial was conducted with wheat as the previous crop on a Heimdal Emrick loam soil with 63 lb/A (0-24") nitrate-N, 17 ppm P (low), 235 ppm K, 16 lb/A (0-24") Cl (low), 72 lb/A (0-24") S, 1.0 ppm B, 0.98 ppm Zn, 19.5 ppm Fe, 2.7 ppm Mn, 0.53 ppm Cu, 499 ppm Mg, 2679 ppm Ca, 42 ppm Na, 0.2% carbonate, 0.25 mmho/cm (0-6") and 0.24 mmho/cm (6-24") soluble salts, 18.3 meq CEC, 3.6% organic matter and 7.7 pH. On May 25, inoculated Dairyland Seeds 'DSR-0401/RR' was planted at about 167,000 seeds/A in 30-inch rows, and included in-furrow fertilizer. Hail damaged the trial on July 24 and a killing frost occurred on September 14 with soybean generally in the late R6 stage of growth. The trial was harvested with a plot combine on October 3.

Plant emergence was delayed 1 to 2 days with several in-furrow fertilizer treatments (Table). Average plant stand of the untreated checks was 139,600 plants/A. Stand was reduced with Accomplish LM at 16 fl oz/A, while treatments #3 to 7 had stands similar to the untreated checks, probably indicating an application error with treatment #2. Use of 10-34-0 and 6-24-6 generally reduced plant stand compare to untreated checks. Seed yield and test weight were similar among treatments. However, yield with in-furrow fertilizer tended to be slightly reduced compared to the untreated checks.

Table. Soybean response to in-furrow fertilizer, Carrington, 2011.

No.	Treatment	Plant ¹						
		Name	Rate fl oz/A	Emergence Jday	Height cm	Biomass reduction %	Stand plt/A	Seed yield bu/A
1	untreated check	x	158	25	0	148,078	44.8	57.0
2	Accomplish LM	16	160	21	14	90,639	39.5	57.0
3	Accomplish LM	32	158	24	0	140,773	42.3	56.8
4	Accomplish LM	16	158	24	0	147,081	42.8	57.1
	LI 6376	256						
5	Accomplish LM	32	159	26	5	136,125	43.0	57.0
	LI6376	256						
6	LI 6376	256	159	24	0	131,809	43.2	57.2
7	Awaken	64	158	27	0	141,437	42.0	57.2
8	10-34-0	256	159	25	0	114,876	41.2	56.9
9	6-24-6	384	159	23	0	102,260	41.2	56.9
10	untreated check	x	158	25	0	131,145	44.1	57.0
Mean			158	24	2	128,422	42.4	57.0
CV %			0.2	11.2	359.5	16.5	5.0	0.8
LSD (0.05)			1	NS	NS	30,704	NS	NS

¹Measurements for stand taken on June 10, and plant height and biomass reduction on July 5.