

Soybean response to special foliar inputs, Carrington, 2011.

(Greg Endres and Blaine Schatz)

A field experiment was conducted at the NDSU Carrington Research Extension Center to examine the impact of foliar inputs on soybean seed yield and quality. 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, 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. Inoculated Dairyland Seeds ‘DSR-0401/RR’ was planted at about 167,000 seeds/A in 30-inch rows on May 25. POST foliar treatments were applied with a CO₂-pressurized hand-boom sprayer delivering 17 gal/A at 35 psi with 8001 flat-fan nozzles. Treatments application dates: V2-3 = July 5, R1 = July 21, and R2 = July 27. 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 4.

Soybean response was visually evaluated on August 3 at the R3 growth stage and on August 25 at the R5-6 stages. Plant biomass was reduced 10 to 21% with the early (V2-3) application of Cobra and reduced 5 to 14% with the late (R1) application of Cobra compared to untreated plants (data not shown). Plants appeared similar with all other treatments including the untreated check. ‘GreenSeeker’ readings taken August 11 indicated no difference among treatments for green plant color (Table). Soybean seed yield was reduced with Cobra (treatments 8 and 9) compared to the untreated check while other treatments had similar yield as the untreated check. Soybean test weight, and seed oil and protein were similar among treatments compared to the untreated check. Compared to the untreated check, seed size was larger with Headline plus Fastac, Quadris Xcel plus Warrior T and Stratego YLD plus Leverage (treatments 4, 6 and 7).

Table 1. Soybean response to special foliar inputs. (Page 1 of 2)

No.	Company	Treatment				Plant Green Color ² NDVI	Seed				
		Name ¹	Rate	Unit	Timing		Yield bu/A	Test Weight lb/bu	Seeds/lb	Oil %	Protein %
1	x	untreated check	x	x	x	0.9	42.1	57.4	3684	18.5	32.9
2	BASF	Priaxor	4	fl oz/a	R2	0.9	43.6	57.0	3600.1	18.6	32.8
	WinField Solutions	Preference	0.25	% v/v		0.9	42.5	57.0	3623.9	18.8	32.9
3	Syngenta	Quilt Xcel	10.5	fl oz/a	R2	0.9	46.2	57.3	3544.1	18.5	32.8
	WinField Solutions	Preference	0.25	% v/v							
4	BASF	Headline	6	fl oz/a	R2	0.9	45.6	57.6	3587.5	18.7	32.9
	WinField Solutions	Preference	0.25	% v/v							
5	BASF	Priaxor	4	fl oz/a	R2	0.9	45.5	57.1	3492.5	18.7	32.7
	WinField Solutions	Preference	0.25	% v/v							
6	Syngenta	Quilt Xcel	10.5	fl oz/a	R2	0.9	45.2	57.4	3522.3	18.7	32.7
	WinField Solutions	Preference	0.25	% v/v							
7	Syngenta	Stratego YLD	4	fl oz/a	R2	0.9	45.2	57.4	3522.3	18.7	32.7
	WinField Solutions	Preference	0.25	% v/v							

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8	WinField Solutions	Valent	Cobra	6	fl oz/a	V2-3	0.9	36.3	57.3	3867.6	18.4	33.1	
			Destiny	8	fl oz/a								
			Preference	0.25	% v/v								
9	WinField Solutions	Valent	Cobra	6	fl oz/a	R1	0.9	39.2	56.9	3762	18.5	32.6	
			Destiny	8	fl oz/a								
			Preference	0.25	% v/v								
10	TJ Technologies	Sufl/Can/Soy Mix	48	fl oz/a	V2-3	0.9	43.9	57.4	3709	18.5	33.0		
11	Novozymes	Ratchet	4	fl oz/a	V2-3	0.9	42.7	57.0	3662	18.7	32.9		
12	WinField Solutions	BASF	Headline	6	fl oz/a	R2	0.9	44	57.2	3609	18.6	32.9	
			Preference	0.25	% v/v								
			Stratego YLD	2.5	fl oz/a			0.9	44.5	57.1	3626	18.6	32.7
13	WinField Solutions	Preference	0.25	% v/v	R2								
14	Loveland	Makaze Yield Pro	32	fl oz/a	V2-3	0.9	43.7	57.5	3707	18.2	32.8		
			Weather Gard Complete	0.50		% v/v							
15		Bin Buster XP	8	fl oz/a	V2-3	0.9	44.3	57.2	3635	18.5	33.0		
16	Kugler	Bin Buster XP	8	fl oz/a	V2-3	0.9	43.8	57.1	3683	18.5	32.7		
			KQ-XRN	128	fl oz/a	R1							
17	CoRon	Helena	10	gal/a	R2	0.9	41.9	57.3	3687	18.6	33.0		
18	9.5-0-0-5-10	North West Chemical	32	fl oz/a	R2	0.9	41.9	57.8	3710	18.6	33.1		
19	EBmix	West Central	64	fl oz/a	R2	0.9	42.7	56.9	3653	18.5	32.9		
20	WinField Solutions	TJ Technologies	Sufl/Can/Soy Mix	48	fl oz/a	V2-3	0.9	43.3	57.4	3592	18.7	32.9	
			Novozymes	Ratchet	4		fl oz/a						
			BASF	Headline	6		fl oz/a						
			Preference	0.25	% v/v		R2						
Mean						0.9	43.2	57.2	3648	18.6	32.9		
C.V. (%)						1.4	5.6	1.0	1.6	1.5	0.7		
LSD (0.05)						NS	3.4	NS	80	NS	NS		

¹Preference=NIS; Destiny=MSO.

²GreenSeeker readings on August 11.