

Weed Control and Soybean Response to Glyphosate Replacement Products, Carrington, 2009

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A field study was conducted at the NDSU Carrington Research Extension Center in cooperation with Loveland Products to examine weed control and soybean performance with experimental glyphosate replacement products. Experimental design was a randomized complete block with three replications. Inoculated Dairyland Seed 'DSR0401' soybean was direct-planted in wheat stubble in 7-inch rows on May 18. Soybean stand was variable and averaged 85,000 plants/A on June 26. Treatments were applied with a CO₂-pressurized hand-boom sprayer delivering 10 gal/A at 35 psi with 8001 flat-fan nozzles. V1-2 soybean growth stage treatments were applied on June 26 with 84° F and 57% RH to headed quackgrass, 3- to 24-inch tall and bud stage Canada thistle, 6- to 16-inch tall horseweed and 2- to 16-inch tall common lambsquarters. Weed density was variable on June 26 with average stand of Canada thistle at 2 plants/square ft and horseweed at 4 plants/square ft. R2 growth stage treatments were applied on July 27 with 73° F and 56% RH to 10- to 34-inch tall quackgrass, 7- to 30-inch tall Canada thistle and 7- to 20-inch tall horseweed. The trial was harvested with a plot combine on October 14.

No crop response was observed from herbicide treatments when visually evaluated on July 2 and 10, and August 3 and 10 (data not shown). Physiological maturity (PM) and seed yield were similar among treatments (table). Weed control was similar when evaluated about two wk after application (WAA) of the V1-2 and R2 treatments. Common lambsquarters control was excellent (93-93%) 2 WAA of the V1-2 treatments. Quackgrass control was excellent (97-99%), and Canada thistle and horseweed control generally were good (78-82%) two WAA of the sequential treatments.

Treatment					Soybean		Weed control (%) ¹						
No.	Name	Rate	Unit	Timing	PM	Yield	7/10				8/10		
					Jday	bu/A	qugr	cath	howe	colq	qugr	cath	howe
1	Makaze	32	fl oz/a	V1-2	271	16.8	82	69	78	95	98	79	78
	Choice Weather Master	0.5	%v/v	V1-2									
	Makaze	32	fl oz/a	R2									
	Choice Weather Master	0.5	%v/v	R2									
2	LI6303	22	fl oz/a	V1-2	270	17.3	80	68	82	93	97	80	82
	Choice Weather Master	0.5	fl oz/a	V1-2									
	LI6303	22	fl oz/a	R2									
	Choice Weather Master	0.5	%v/v	R2									
3	Mad Dog Plus	32	fl oz/a	V1-2	270	20.6	75	67	82	95	97	80	82
	Choice Weather Master	0.5	%v/v	V1-2									
	Makaze	32	fl oz/a	R2									
	Choice Weather Master	0.5	%v/v	R2									
4	LI6285	32	fl oz/a	V1-2	270	18.7	77	55	80	95	98	80	80
	Choice Weather Master	0.5	%v/v	V1-2									
	Makaze	32	fl oz/a	R2									
	Choice Weather Master	0.5	%v/v	R2									
5	Makaze	32	fl oz/a	V1-2	270	21.3	75	65	81	93	98	82	81
	Choice Weather Master	0.5	%v/v	V1-2									
	LI6265	32	fl oz/a	R2									
	Choice Weather Master	0.5	%v/v	R2									
6	LI6285	32	fl oz/a	V1-2	270	20.8	80	67	80	93	99	82	80
	Choice Weather Master	0.5	%v/v	V1-2									
	LI6265	32	fl oz/a	R2									
	Choice Weather Master	0.5	%v/v	R2									
C.V. (%)					0.2	27.1	9.3	12.3	2.9	2.2	1.2	7.2	4.6
LSD (0.05)					NS	NS	NS	NS	NS	NS	NS	NS	NS

¹qugr = quackgrass; cath = Canada thistle; howe = horseweed; colq = common lambsquarters.