Weed Control in Irrigated Glyphosate-Resistant Corn with Glyphosate plus Agriliance Adjuvants.

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A field study was initiated near Scottsbluff, Nebraska to compare the effectiveness of various adjuvants in combination with Roundup WeatherMax for selective weed control in glyphosate-tolerant corn. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 50 feet long and were located on a loamy sand soil with a pH of 7.8 and organic matter content of 1.3%. Corn, 'Pioneer 36K69', was planted on May 3 and irrigated on May 10, May 25, and June 8 to enhance corn seed germination and early season crop and weed vigor. Herbicides were applied postemergence on June 4 when average weed height was 6 inches and corn was 12 inches tall. Environmental conditions at the time of herbicide application were: air temperature, 79F; humidity, 27%; wind, 6 mph out of the NW and herbicides were applied between 1:30 to 3:00 p.m. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 36-psi pressure with Spraying Systems 11002 VS nozzles.

When compared to nontreated plots, none of the herbicide treatments reduced corn stand or caused corn injury (Table 1). When compared to the standard Roundup WeatherMax plus AMS treatment, some adjuvants were comparable to AMS and there was a trend for others to be less effective. When combined with Roundup WeatherMax, NPAK AMS at 2.5 gallons per 100 gallons of water, AG 07046 at 2% v/v, and AG 05055 at 2.5% v/v were similar to AMS at 17 lb per 100 gallons of water in controlling weeds. There was a trend for Alliance at 1.25% v/v and AG 07046 at 1% v/v in combination with Roundup WeatherMax to be less effective than AMS in controlling weeds.

Table 1. Weed Control in Irrigated Glyphosate-Resistant Corn with Glyphosate plus Agriliance Adjuvants.

				Corn								
				Visual injury		Stand	Percent weed control 6/22 [2]					
Herbicide treatments [1]	Rate	Adjuvant	Rate	6/11	6/19	6/18	Colq	Hans	Rrpw	Kocz	Wibw	Avg
	lb/acre			---- (%) ----		(plants/acre)	---------- (%) ----------					
Nontreated	—	—	—	0	0	30800	0	0	0	0	0	0
Roundup WeatherMax	0.75	AMS	17 lb/100 g	0	0	32600	75	80	88	74	94	82
Roundup WeatherMax	0.75	NPAK AMS	2 .5 g/100 g	0	0	32300	77	88	84	95	94	88
Roundup WeatherMax	0.75	Class Act NG	2.5% v/v	0	0	33300	78	64	89	87	74	78
Roundup WeatherMax	0.75	Alliance	1.25% v/v	0	0	34200	67	71	91	95	40	73
Roundup WeatherMax	0.75	Placement ProPak	1.0% v/v	0	0	33700	68	75	87	70	85	77
Roundup WeatherMax	0.75	AG 07046	1.0% v/v	0	0	32900	39	65	90	87	89	74
Roundup WeatherMax	0.75	AG 07046	1.25% v/v	0	0	33300	69	73	88	87	75	78
Roundup WeatherMax	0.75	AG 07046	2.0% v/v	0	0	33900	77	89	86	99	65	83
Roundup WeatherMax	0.75	AG05055	2.5% v/v	1	0	31900	70	82	93	95	90	86
LSD at 5%	—	—	—	NS	NS	NS	38	41	10	33	36	17

[1] Herbicide treatments were applied on June 4 when average broadleaf weed height was 6 inches.

[2] Percent weed control calculated from weed counts taken in the center of each plot on June 22; weed density in herbicide treated plots were compared to weed density in the nontreated. Weed abbreviations were as follows: common lambsquarters (Colq), hairy nightshade (Hans), redroot pigweed (Rrpw), kochia (Kocz) and wild buckwheat (Wibw).