

Glyphosate-resistant volunteer corn control in glyphosate-resistant soybeans at Lamberton, MN in 2003. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate tank-mix partners with glyphosate for the control of glyphosate-resistant volunteer corn in glyphosate-resistant soybeans. This study was conducted on a Normania loam soil containing 4.4% organic matter, pH 5.3 and soil test P and K levels of 50 and 434 lb/A, respectively. A randomized complete block design with four replications and a plot size of 15 by 30 ft was used. The site was planted to glyphosate-resistant corn in 2002 and was fall chiseled. On May 20, 2003 Thompson '7227CR' glyphosate-resistant soybeans were planted in 30-inch rows at a seeding rate of 160,000 seeds/A. Glyphosate-resistant corn was broadcast seeded over the entire plot area. Ear corn was present from the previous crop year. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	June 13	June 30
Treatment	POST I	POST II
Temperature (F)		
air	72	72
soil (4 inch)	70	68
Relative humidity (%)	57	60
Wind (mph)	NW 5	calm
Sky	clear	clear
Soil moisture	dry	dry
Soybean		
leaf no.	V1	V3
height (inch)	4	9
Volunteer corn		
leaf no.	3-collar	6-collar
height (inch)	6	16 to 18
no./ft ²	3	3
Giant foxtail		
leaf no.	2 to 4	3 to 5
height (inch)	2 to 4	6 to 9
no./ft ²	5	7
Redroot pigweed		
leaf no.	2 to 4	5 to 8
height (inch)	1 to 3	6 to 9
no./ft ²	<1	<1
Rainfall after application (inch)		
1 week	0.01	0.03
2 week	3.43	0.64
3 week	0.50	0.63

Early season crop development was delayed due to a June 23 hailstorm, which resulted in 43% defoliation of soybean leaves. The precipitation received in July and August was below average with a total of 2.96 inches compared to the historical average of 7.07 inches. None of the herbicide treatments caused visible crop injury. On June 25, glyphosate applied alone POST I provided 0% volunteer corn control. Glyphosate tank-mixed with fluazifop-P and [fluazifop-P & fenoxaprop] provided 91 to 93% control. Glyphosate tank mixed with clethodim, quizalofop, V-10137, and V-10139 resulted in 94, 95, 95, and 97% control, respectively. All herbicide treatments provided 97% or greater control of giant foxtail and redroot pigweed. On July 11, glyphosate applied POST I followed by clethodim + glyphosate applied to 18-inch volunteer corn resulted in 91% control. All other POST I/POST II treatments had 97% or greater control. The POST I treatments had 90 to 94% control with new volunteer corn emerging. By August, POST I treatments had 78 to 86%, 83 to 90%, and 93 to 97% control of volunteer corn, giant foxtail, and redroot pigweed, respectively. Glyphosate followed by clethodim + glyphosate had 81% volunteer corn control. All other POST I/POST II treatments had 91% or greater control. All POST I/POST II herbicide treatments had 97% or greater giant foxtail control and 95% or greater redroot pigweed control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Glyphosate-resistant volunteer corn control in glyphosate-resistant soybeans at Lamberton, MN in 2003 (Getting and Potter).

Treatment ^a	Rate (lb/A or %)	ZEAMX			SETFA			AMARE		
		6/25	7/11	8/6	6/25	7/11	8/6	6/25	7/11	8/6
		-----(% control)-----								
<u>POST I (4-inch weeds)/POST II (18-inch volunteer corn)</u>										
Glyt/Clet+COC+AMS	0.75/0.078+1.25%+3.4	0	98	95	98	98	97	98	97	97
Glyt/V-10139+COC+AMS	0.75/0.075+1.25%+3.4	0	98	97	97	98	98	98	96	95
Glyt/V-10137+COC+AMS	0.75/0.073+1.25%+3.4	0	98	95	97	98	97	98	98	98
Glyt/Clet+Glyt+AMS	0.75/0.078+0.75+3.4	0	91	81	97	98	97	98	98	98
Glyt/V-10139+Glyt+AMS	0.75/0.075+0.75+3.4	0	97	91	97	98	98	98	98	98
Glyt/V-10137+Glyt+AMS	0.75/0.073+0.75+3.4	0	97	93	97	98	98	98	98	98
Glyt/Qufp-P+Glyt+AMS	0.75/0.034+0.75+3.4	0	96	93	97	98	97	98	98	98
Glyt/[Flfp-P&Fenx]+Glyt ¹ +AMS	0.75/[0.063&0.018]+0.75+3.4	0	97	95	97	98	98	98	98	98
Glyt/Flfp-P+Glyt ¹ +AMS	0.75/0.063+0.75+3.4	0	97	93	98	98	97	98	98	98
Glyt/[Flfp-P&Fenx]+Glyt+AMS	0.75/[0.063&0.018]+0.75+3.4	0	97	91	97	98	97	98	98	98
Glyt/Flfp-P+Glyt+AMS	0.75/0.063+0.75+3.4	0	98	93	97	98	98	98	98	98
<u>POST I (4-inch weeds)</u>										
Clet+Glyt+AMS	0.078+0.75+3.4	94	92	81	98	93	85	98	97	93
V-10139+Glyt+AMS	0.075+0.75+3.4	97	93	85	98	93	90	98	97	95
V-10137+Glyt+AMS	0.073+0.75+3.4	95	94	86	98	93	88	98	97	97
Qufp+Glyt+AMS	0.034+0.75+3.4	95	91	80	98	92	85	98	97	95
[Flfp-P&Fenx]+Glyt ¹ +AMS	[0.063&0.018]+0.75+3.4	93	91	79	98	93	86	98	95	93
Flfp-P+Glyt ¹ +AMS	0.063+0.75+3.4	93	91	81	98	92	85	98	97	96
[Flfp-P&Fenx]+Glyt+AMS	[0.063&0.018]+0.75+3.4	93	90	78	97	93	83	98	96	94
Flfp-P+Glyt+AMS	0.063+0.75+3.4	91	90	78	97	93	87	98	97	96
<u>Check</u>										
Weedy check		0	0	0	0	0	0	0	0	0
	LSD (0.10)	1.6	1.8	3.4	1.3	1.9	3.0	ns	2.0	2.4

^a Clet or clethodim = Select 2EC; Flfp-P or fluazifop-P = Fusilade 2E; [Flfp-P&Fenx] or [fluazifop-P & fenoxaprop] = Fusion 2.56E; Glyt or glyphosate = Roundup Weathermax 4.5L; Glyt¹ or glyphosate¹ = Touchdown KPMG; Qufp-P or quizalofop-P = Assure II 0.88EC; COC = crop oil concentrate; AMS = spray grade ammonium sulfate.