

Comparison of sequential two-pass and single-pass herbicide systems with glyphosate and conventional herbicide programs for weed control in soybean at Potsdam, MN in 2004. Behnken, Lisa M., Fritz R. Breitenbach, Kira L. Stearns, and Angela L. White. The objective of this trial was to compare sequential two-pass and single-pass herbicide systems with glyphosate and conventional herbicide programs for weed control in soybean in southeastern Minnesota. The research site was a Port Byron silt loam containing 3.2% organic matter with a pH of 6.7 and soil test P and K levels of 66 ppm and 376 ppm, respectively. The previous crop was corn. The field was disked and field cultivated once prior to planting. The soybean variety, Pioneer 92-M00, was planted on May 28, 2004 at a depth of 1.5 inches in 30-inch rows at 150,000 seeds/A. A randomized complete block design with four replications was used. Preemergence (PRE) and postemergence (POST I, II, III, and IV) treatments were applied with a tractor-mounted sprayer, delivering 20 gpa at 32 psi using Turbo Tee 11002 nozzles. Evaluations of the plots were taken on July 1, July 20, and October 4, 2004. Application dates, environmental conditions, and crop and weed stages are listed below.

Date	May 28	July 1	July 12	July 14	July 23
Treatment	PRE	POST I	POST II	POST III	POST IV
Temperature (F)					
air	69	80	76	77	67
Relative humidity (%)	45	59	76	55	56
Wind (mph)	3	3	9	12	13
Soybean					
stage	seeded	V3	V4	V4-R1	R2
height (inches)		6.0	11.0	14.5	19
Giant ragweed					
weed density	--	moderate	moderate	moderate	moderate
height (inch)	--	5.8	16	20	30
Common lambsquarters					
weed density	--	moderate	moderate	moderate	moderate
height (inch)	--	2.5	5	7.5	9
Wild proso millet					
weed density	--	moderate	moderate	moderate	moderate
height (inch)	--	1.1	11	13.8	22
Rainfall after application (inch)					
week 1	1.30	2.08	0.04	0.0	0.65
week 2	4.32	0.93	0.75	0.75	0.58
week 3	3.19	0.19	0.68	1.11	0.11

Preemergence applications containing cloransulam provided close to 90 percent giant ragweed control (July 1 rating). A preemergence application of flumetsulam provided some giant ragweed control at 53 percent (July 1 rating). All other preemergence treatments resulted in 0 percent giant ragweed control. POST I, POST II, and POST III applications of fomesafen & adjuvant or glyphosate provided excellent control of giant ragweed. All preemergence applications resulted in excellent common lambsquarters control (July 1 rating). Late season common lambsquarters control decreased in the S-metolachlor & metribuzin +cloransulam / fluazifop-P & fenoxaprop treatment. The POST I applications of fomesafen & adjuvant + fluazifop-P & fenoxaprop + thifensulfuron provided the lowest lambsquarters control in the trial (75%). All treatments provide excellent wild proso millet control. (University of Minnesota Extension Service, Regional Center, Rochester, MN)

Table. Performance of sequential two-pass and single-pass herbicide systems for weed control in soybean on July 1, July 20 and October 4 at Potsdam, MN in 2004 (Behnken, Breitenbach, Stearns, and White).

Treatment	Rate (lb/A)	AMBTR control			CHEAL control			PANMI control			Soybean yield (bu/A)
		7/1	7/20	10/4	7/1	7/20	10/4	7/1	7/20	10/4	
		(%)			(%)			(%)			
Preemergence / Postemergence I											
S-metolachlor&metribuzin / fomesafen&adjuvant + fluazifop-P & fenoxaprop + MSO + 28% UAN	0.968 & 0.234 / 0.235 + 0.129 & 0.37 + 1% + 2.5%	0	99	96	97	98	92	88	98	100	39
S-metolachlor&metribuzin / fomesafen&adjuvant + fluazifop-P & fenoxaprop + cloransulam ¹ + MSO + 28% UAN	0.968 & 0.234 / 0.235 + 0.129 & 0.37 + 0.016 + 1% + 2.5%	0	99	100	99	99	99	87	97	99	40
S-metolachlor&metribuzin + sulfentrazone ² / fluazifop-P&fenoxaprop + MSO + 28% UAN	0.968 & 0.234 + 0.187 / 0.129 & 0.37 + 1% + 2.5%	0	0	0	99	99	100	87	98	100	19
S-metolachlor&metribuzin + flumetsulam / fluazifop-P&fenoxaprop + MSO + 28% UAN	0.968 & 0.234 + 0.045 / 0.129 & 0.37 + 1% + 2.5%	53	55	55	99	98	96	84	96	100	35
S-metolachlor&metribuzin + cloransulam ¹ / fluazifop-P&fenoxaprop + MSO + 28% UAN	0.968 & 0.234 + 0.021 / 0.129 & 0.37 + 1% + 2.5%	89	80	83	99	96	86	86	96	100	40
S-metolachlor&metribuzin + sulfentrazone ³ + cloransulam ³ / fluazifop-P & fenoxaprop + MSO + 28% UAN	0.968 & 0.234 + 0.168 + 0.022 / 0.129 & 0.37 + 1% + 2.5%	91	93	93	99	99	100	89	97	100	36
Preemergence / Postemergence II											
S-metolachlor&metribuzin / glyphosate ⁴ + AMS	0.818 & 0.196 / 0.78 + 3.0	0	94	99	96	99	100	84	99	100	41
S-metolachlor&metribuzin / glyphosate ⁴ + AMS	0.968 & 0.234 / 0.78 + 3.0	0	94	100	95	99	100	87	99	100	41
Postemergence I											
Fomesafen&adjuvant + fluazifop-P & fenoxaprop + thifensulfuron + MSO + 28% UAN	0.235 + 0.129 & 0.37 + 0.002 + 1% + 2.5%	0	95	95	0	88	75	0	94	98	36
Postemergence II / Postemergence IV											
Glyphosate ⁴ + AMS / glyphosate ⁴ + AMS	0.78 + 3 / 0.625 + 3.0	0	90	100	0	99	100	0	99	100	42
Postemergence III											
Glyphosate ⁵ + AMS	0.77 + 3.0	0	90	99	0	99	98	0	99	100	41
Untreated Check		0	0	0	0	0	0	0	0	0	20
LSD (0.05)		4	11	7	3	1	5	3	2	1	10

Cloransulam¹= FirstRate, Sulfentrazone²= Authority, sulfentrazone³ + cloransulam³ = Gauntlet (co-pack), glyphosate⁴ = Touchdown Total, glyphosate⁵ = Roundup WeatherMax, MSO = methylated sunflower oil, Loveland; 28% UAN = an aqueous solution of urea and ammonium nitrate, Helena; and AMS = spray grade ammonium sulfate, Helena.