

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.

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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 FirstRate or Gauntlet (co-pack) provided close to 90 percent giant ragweed control (July 1 rating). A preemergence application of Python provided some giant ragweed control at 53 percent (July 1 rating). Preemergence treatments with only Boundary or Boundary + Authority resulted in 0 percent giant ragweed control. POST I, POST II, and POST III applications of Flexstar 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 Boundary + Firstrate / Fusion treatment. The POST I applications of Flexstar + Fusion+ Harmony GT provided the lowest common lambsquarters control in the trial (75%). All treatments provide excellent wild proso millet control. Soybean yields were similar across all treatments, except one. Boundary + Authority / Fusion provided no giant ragweed control, resulting in soybean yields similar to the untreated check, 19 and 20 bu/A, respectively. (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	Giant ragweed control			Common lambsquarters control			Wild-proso millet control			Soybean yield
		7/1	7/20	10/4	7/1	7/20	10/4	7/1	7/20	10/4	
	(rate/A)	(%)			(%)			(%)			(bu/A)
Preemergence / Postemergence I											
Boundary / Flexstar + Fusion+ MSO + 28% UAN	1.5 pt / 1 pt + 8 oz + 1 % v/v + 2.5 % v/v	0	99	96	97	98	92	88	98	100	39
Boundary / Flexstar + Fusion+ FirstRate + MSO + 28% UAN	1.5 pt / 1 pt + 8 oz + 0.3 oz + 1 % v/v + 2.5 % v/v	0	99	100	99	99	99	87	97	99	40
Boundary + Authority / Fusion + MSO + 28% UAN	1.5 pt + 4 oz / 8 oz + 1 % v/v + 2.5 % v/v	0	0	0	99	99	100	87	98	100	19
Boundary + Python / Fusion + MSO + 28% UAN	1.5 pt + 0.89 oz / 8 oz + 1 % v/v + 2.5 % v/v	53	55	55	99	98	96	84	96	100	35
Boundary + FirstRate / Fusion + MSO + 28% UAN	1.5 pt + 0.4 oz / 8 oz + 1 % v/v + 2.5 % v/v	89	80	83	99	96	86	86	96	100	40
Boundary + Gauntlet (co-pack) ¹ / Fusion+ MSO + 28% UAN	1.5 pt + (3.59 oz + 0.41 oz) / 8 oz + 1 % v/v + 2.5 % v/v	91	93	93	99	99	100	89	97	100	36
Preemergence / Postemergence II											
Boundary / Touchdown Total + AMS	1.25 pts / 1.5 pts + 3 lbs	0	94	99	96	99	100	84	99	100	41
Boundary / Touchdown Total + AMS	1.5 pts / 1.5 pts + 3 lbs	0	94	100	95	99	100	87	99	100	41
Postemergence I											
Flexstar + Fusion + Harmony GT + MSO + 28% UAN	1 pt + 8 oz + 0.042 oz + 1 % v/v + 2.5 % v/v	0	95	95	0	88	75	0	94	98	36
Postemergence II / Postemergence IV											
Touchdown Total + AMS / Touchdown Total + AMS	1.5 pts + 3 lbs / 1.5 pts + 3 lbs	0	90	100	0	99	100	0	99	100	42
Postemergence III											
Roundup WeatherMax + AMS	22 oz + 3 lbs	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

1. Gauntlet (co-pack) = Gauntlet (sulfentrazone) + Gauntlet (cloransulam), MSO = methylated sunflower oil, Loveland; 28% UAN = an aqueous solution of urea and ammonium nitrate, Helena; and AMS = spray grade ammonium sulfate, Helena.