

## Evaluation of weed management systems for weed control in soybean at Rochester, MN in 2006.

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The objective of this trial was to evaluate weed management systems for weed control in soybean in southeastern Minnesota. The research site was a Lawler loam series with a pH of 6.9 and soil test P and K levels of 71 ppm and 224 ppm, respectively. The field was fall chisel plowed, spring disked, and field cultivated once prior to planting. The soybean variety, Dairyland 199 RR/STS, was planted on May 22, 2006 at a depth of 1.5 inches in 30 inch rows at 140,000 seeds per acre. A randomized complete block design was used with four replications. Preemergence (PRE) and postemergence (POST) treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 32 psi using TurboTee 11002 nozzles. Evaluations of the plots were taken on June 19, July 1, July 20, and September 26. Application dates, environmental conditions, and weed stages are listed below. The center two rows were machine harvested on October 14, 2006.

Date	May 22	May 23	June 19	June 23	July 10
<b>Treatment</b>	PPI	PRE	POST I	POST II	POST III
<b>Temperature (F)</b>					
air	78	81	76	70	72
soil	68	68.2	83.5	76.8	73.4
<b>Relative Humidity (%)</b>	33	32	44	70	66
<b>Wind (mph)</b>	17	16	16	6	9
<b>Soil moisture</b>	dry	dry	adequate	dry	dry
<b>Soybean</b>					
stage	--	--	V3	V5	V7-R2
height (inch)	--	--	5.5	6.3	11.0
<b>Velvetleaf</b>					
weed density (ft <sup>2</sup> )	--	--	2.1	2.1	2.1
height (inch)	--	--	5.5	11.0	--
<b>Common Lambsquarters</b>					
weed density (ft <sup>2</sup> )	--	--	2.3	2.3	2.3
height (inch)	--	--	6.0	7.5	4.0
<b>Common Waterhemp</b>					
weed density (ft <sup>2</sup> )	--	--	3.4	3.4	3.4
height (inch)	--	--	3.5	1.1	4.0
<b>Giant Foxtail</b>					
weed density (ft <sup>2</sup> )	--	--	4.9	4.9	4.9
height (inch)	--	--	8.0	7.5	6.0
<b>Rainfall after each application (inch)</b>					
week 1	0.11	0.11	0.43	0.27	0.90
week 2	0.25	0.25	0.00	0.00	1.86
week 3	2.53	2.53	0.12	0.12	0.02

### CONCLUSIONS

The glyphosate systems as a whole provided consistently good weed control and crop yield. The sequential PRE / POST II, sequential POST I / POST III, and the POST II glyphosate treatments all provided similar weed control and yield. The highest yielding glyphosate herbicide programs provided statistical higher yields than the highest yielding conventional herbicide programs. Two conventional herbicide programs, Gangster V + Gangster FR / FirstRate + Phoenix + Select Max + NIS + N-PAK AMS, and the Gangster V + Gangster FR / FirstRate + Cobra + Select Max + NIS + N-PAK AMS, resulted in statistically lower common lambsquarters control, 72 and 70%, respectively. Crop injury from 24 to 34% was a concern with the conventional PPO herbicide programs, those containing Phoenix, Cobra, and Flexstar. (University of Minnesota Extension Service, Regional Center, Rochester).

**Table. Performance of weed management systems for weed control in soybean on June 19, July 1, July 20, and September 26 at Rochester, MN in 2006.**

Treatment	Rate	Velvetleaf control				Common lambsquarters control				Common waterhemp control				Giant foxtail control				Injury 7/1	Soybean yield (bu/A)
		6/19	7/1	7/20	9/26	6/19	7/1	7/20	9/26	6/19	7/1	7/20	9/26	6/19	7/1	7/20	9/26		
	(rate/A)	(%)				(%)				(%)				(%)				(%)	(bu/A)
<b>PPI / POST I</b>																			
Prowl H <sub>2</sub> O / Raptor + FirstRate + NIS + N-PAK AMS	43 oz / 4 oz + 0.3 oz + 0.25% v/v + 3 qt	55	98	99	99	69	87	96	87	90	87	97	89	71	76	94	88	0	37.8
Pursuit Plus / FirstRate + NIS + N-PAK AMS	2.5 pt / 0.3 oz + 0.25% v/v + 3 qt	75	97	92	94	94	92	91	91	97	86	97	90	84	72	81	83	0	39.5
Prowl H <sub>2</sub> O / Extreme + NIS + N-PAK AMS	43 oz / 3 pt + 0.125% v/v + 3 qt	50	97	84	99	76	99	98	98	84	97	96	99	71	97	91	98	0	43.0
Weedy Check		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.7
<b>PRE / POST I</b>																			
Gangster V + Gangster FR / FirstRate + Phoenix + Select Max + NIS + N-PAK AMS	2.5 oz + 0.5 oz / 0.3 oz + 8 oz + 9 oz + 0.25% v/v + 3 qt	73	98	96	98	50	40	65	72	88	96	98	93	54	68	81	87	34	36.1
Gangster V + Gangster FR / First Rate + Cobra + Select Max + NIS + N-PAK AMS	2.5 oz + 0.5 oz / 0.3 oz + 8 oz + 9 oz + 0.25% v/v + 3 qt	75	99	99	95	46	35	58	70	89	91	95	98	56	66	80	83	31	38.1
Boundary / Flexstar + Fusion + Harmony GT + MSO + 28%N	1.5 pt / 16 oz + 8 oz + 0.125 oz + 1% v/v + 2.5% v/v	0	98	95	92	25	93	97	93	63	96	98	98	51	74	79	78	24	32.7
<b>PRE / POST II</b>																			
IntRRo / Roundup WeatherMax + N-PAK AMS	2 qt / 22 oz + 3 qt	0	98	96	97	28	93	98	86	75	99	98	97	63	99	94	97	0	42.7
Prowl H <sub>2</sub> O + Outlook / Roundup WeatherMax + N-PAK AMS	1 pt + 12.6 oz / 22 oz + 3 qt	46	99	93	98	49	96	97	96	76	99	98	98	68	99	93	97	0	43.7
Gangster V + Gangster FR / Roundup Original Max + N-PAK AMS	1.5 oz + 0.3 oz / 22 oz + 3 qt	69	99	99	96	58	98	99	98	86	99	98	98	61	99	91	96	0	41.6
A14972A / Touchdown Total + N-PAK AMS	1 qt / 24 oz + 3 qt	34	99	98	98	33	99	83	98	81	99	97	99	62	99	94	99	0	44.7
Boundary / Touchdown Total + N-PAK AMS	1.5 pt / 24 oz + 3 qt	20	98	99	97	28	99	99	94	81	99	98	99	62	99	98	98	0	40.8

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		6/19	7/1	7/20	9/26	6/19	7/1	7/20	9/26	6/19	7/1	7/20	9/26	6/19	7/1	7/20	9/26		
	(rate/A)	(%)				(%)				(%)				(%)				(%)	(bu/A)
Valor / Roundup Original Max + N-PAK AMS	2 oz / 22 oz + 3 qt	40	98	97	97	35	98	98	96	86	99	98	98	53	99	92	92	0	42.1
Valor SX + Python / Roundup Original Max + N-PAK AMS	1.5 oz + 0.5 oz / 22 oz + 3 qt	46	99	97	99	30	98	99	96	76	99	98	98	55	98	91	94	0	40.8
Valor SX + Sencor / Roundup Original Max + N-PAK AMS	1.5 oz + 3 oz / 22 oz + 3 qt	35	98	97	96	35	99	97	98	83	99	98	99	51	99	92	94	0	40.5
Python / Glyphomax XRT + N-PAK AMS	0.5 oz / 24 oz + 3 qt	39	99	98	98	16	98	98	99	66	97	97	98	55	98	93	90	0	41.0
Python / Glyphomax XRT + N-PAK AMS	0.8 oz / 24 oz + 3 qt	48	98	98	99	25	99	95	99	78	99	98	99	57	99	95	95	0	40.6
FirstRate / Glyphomax XRT + N-PAK AMS	0.3 oz / 24 oz + 3 qt	59	98	96	97	25	92	91	92	70	97	96	98	55	98	93	93	0	44.4
Weed Free		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	41.6
<b>POST I / POST III</b>																			
Roundup WeatherMax +N-PAK AMS / Roundup WeatherMax +N-PAK AMS	22 oz + 3 qt / 22 oz + 3 qt	0	99	98	99	0	84	99	99	0	89	99	99	0	96	99	99	0	44.9
GF-1280 + N-PAK AMS / GF-1280 + N-PAK AMS	24 oz + 3 qt / 24 oz + 3 qt	0	99	99	99	0	81	98	99	0	90	98	99	0	97	98	99	0	44.3
<b>POST II</b>																			
Harmony GT + Roundup Original Max + NIS + N-PAK AMS	0.5 oz + 22 oz + 0.25% v/v + 3 qt	0	98	94	94	0	96	93	92	0	99	94	99	0	98	89	88	0	42.0
Harmony GT + Classic + Roundup Original Max + NIS + N-PAK AMS	0.5 oz + 0.33 oz + 22 oz + 0.25% v/v + 3 qt	0	99	97	98	0	99	98	96	0	99	98	98	0	98	91	94	0	43.6
Roundup WeatherMax + N-PAK AMS	22 oz + 3qt	0	99	96	98	0	92	88	91	0	95	93	90	0	98	91	90	0	41.6
<b>LSD (P=0.10)</b>		<b>11</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>20</b>	<b>7</b>	<b>14</b>	<b>8</b>	<b>19</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>11</b>	<b>4</b>	<b>8</b>	<b>6</b>	<b>3</b>	<b>5.2</b>