

Comparisons of residual and non-residual herbicide systems in glyphosate-resistant soybean. Urbana, Illinois, 2005. Lake, Jeremy T., Dawn E. Nordby, and Aaron G. Hager. The objective of this research was to evaluate residual and non-residual herbicide systems for weed control in glyphosate-resistant soybean. The study was established at the Northern Illinois Agronomy Research Center at Urbana, IL. The soil was a Drummer silty-clay loam with a pH of 6.2 and 4.8% organic matter. DeKalb 3852 soybean was planted 1.5 inches deep on May 13 in 30 inch rows. Treatments were arranged in randomized complete blocks with four replications of plots 10 by 30 feet. Herbicides were applied with a CO<sub>2</sub> backpack sprayer delivering 20 gpa and equipped with 80025 air induction nozzles. Application information is listed below:

Date	May 13	June 7	June 13	June 15	June 21	June 28
Application	pre	epost	post	lpost	vlpost	podir
Temperature (F)						
Air	81	93	89	77	85	90
Soil	73	85	81	74	81	86
Soil Moisture	dry	dry	dry	moist	dry	dry
Wind (mph)	10-SW	7-N	7-SW	7-S	8-W	5-W
Sky Cover (%)	0	0	50	50	0	0
Precip. after application						
Week 1 (inch)	0.74	1.67	1.57	0.00	0.36	0.08
Week 2 (inch)	0.02	0.00	0.00	0.37	0.08	1.01
Relative humidity (%)	42	33	42	50	40	62
Soybean						
Leaf no.	-	2-rif	3-trif	4-trif	5-trif	6-trif
Height (inch)	-	5	6	8	10	14
Giant foxtail						
Leaf no.	-	3	4	6	7	8
Height (inch)	-	4	8	10	12	16
Common lambsquarters						
Leaf no.	-	>9	>9	>9	>9	>9
Height (inch)	-	2	4	5	8	12
Common waterhemp						
Leaf no.	-	8	>9	>9	>9	>9
Height (inch)	-	3	4	5	8	10
Tall morningglory						
Leaf no.	-	4	8	>9	>9	>9
Height (inch)	-	2	4	5	8	12

The sequential treatment of glyphosate followed by glyphosate was comparable to the weed-free yield. Glyphosate late postemergence, S-metolachlor and metribuzin followed by glyphosate, and chlorimuron plus metribuzin followed by glyphosate yielded slightly less than the weed-free treatment. Many treatments demonstrated similar biomass measurements compared to the weed-free. These treatments include: chlorimuron plus metribuzin followed by fomesafen plus fluzifop-p and fenoxaprop; S-metolachlor plus metribuzin followed by glyphosate; chlorimuron plus metribuzin followed by glyphosate; S-metolachlor plus metribuzin followed by lactofen plus clethodim; chlorimuron plus metribuzin followed by lactofen plus clethodim; glyphosate; and glyphosate followed by glyphosate. The remaining treatments had biomass measurements similar to the weedy check. These treatments included: S-metolachlor plus metribuzin plus imazaquin; clomazone plus metribuzin plus chlorimuron; S-metolachlor plus metribuzin followed by fomesafen plus fluzifop-p and fenoxaprop; imazethapyr plus glyphosate; and fomesafen with fluzifop-p and fenoxaprop. (Dept. of Crop Sciences, University of Illinois, Urbana).

Table. Comparisons of residual and non-residual herbicide systems in glyphosate-resistant soybean. Urbana, Illinois, 2005. (Lake, Nordby, and Hager).

Treatment	Appl Rate (lb/A)	Time	Biomass Yield	
			total grams	10-28 Bu/A
S-metolachlor&metribuzin +imazaquin	1.32+0.31 0.123	pre	287.2	18.1
Clomazone+metribuzin +chlorimuron	0.56+0.24 0.04	pre	325.4	16.4
S-metolachlor&metribuzin +fomesafen&adjuvant +fluazifop-p&fenoxaprop +MSO <sup>1</sup> +28%N	1.32+0.31 0.294 0.16+0.04 1.0%+2.5%	pre post	415.7	31.2
Chlorimuron+metribuzin +fomesafen&adjuvant +fluazifop-p&fenoxaprop +MSO <sup>1</sup> +28%N	0.04+0.24 0.294 0.16+0.04 1.0%+2.5%	pre post	179.7	27.6
S-metolachlor&metribuzin +glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	1.32+0.31 0.75+2.5%	pre post	181.9	42.8
S-metolachlor&metribuzin +glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	0.65+0.16 0.75+2.5%	pre post	149.7	46.7
Chlorimuron+metribuzin +glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	0.04+0.24 0.75+2.5%	pre post	121.3	43.9
Chlorimuron+metribuzin +glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	0.02+0.12 0.75+2.5%	pre post	139.6	45.0
S-metolachlor&metribuzin +lactofen+clethodim <sup>4</sup> +COC <sup>5</sup> +28%N	0.65+0.16 0.094+0.125 1.0%+2.5%	pre post	245.8	19.6
Chlorimuron+metribuzin +lactofen+clethodim <sup>4</sup> +COC <sup>5</sup> +28%N	0.02+0.12 0.094+0.125 1.0%+2.5%	pre post	228.1	20.3
Imazethapyr&glyphosate +Activator90 <sup>6</sup> +N-Pak AMS <sup>3</sup>	0.058+0.75 0.25%+2.5%	post	753.1	31.5
Fomesafen&adjuvant +fluazifop-p&fenoxaprop +MSO <sup>1</sup> +28%N	0.294 0.16+0.04 1.0%+2.5%	post	487.4	21.0
Glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	0.75+2.5%	lpost	178.1	44.7
Glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	0.75+2.5%	post	85.1	54.9
Glyphosate <sup>2</sup> +N-Pak AMS <sup>3</sup>	0.75+2.5%	vlpost		
Check	-	-	378.4	3.5
Hand Weeded	-	-	0.0	57.7
LSD (0.05)			402	9

<sup>1</sup> MSO is a methylated seed oil and surfactant blend from Loveland Products, Inc. ; <sup>2</sup> Weathermax; <sup>3</sup> N-Pak AMS is an ammonium sulfate solution from Agrilience LLC; <sup>4</sup> Select; <sup>5</sup> Herbimax is an oil, emulsifier, and surfactant blend from Loveland Products, Inc; <sup>6</sup> Activator 90 is a non-ionic surfactant blend from Loveland Products, Inc.