Residual activity of rimsulfuron applied postemergence with glyphosate. Sellers, Brent A., Jim D. Wait, Jianmei Li and Reid J. Smeda. The objective of this study was to evaluate residual weed control of rimsulfuron. This study was conducted at the Bradford Research and Extension Center near Columbia, MO. The soil was a Mexico silt loam with a pH of 6.5 and 2.0% organic matter. 'DeKalb 6019' glyphosate-resistant corn was planted 2.0-inches deep on May 24 in 30-inch rows. Treatments were arranged in a randomized complete block design with four replications of 5 by 35 foot plots. Herbicide applications were made with a CO_2 backpack sprayer equipped with XR8002 flat fan nozzles. Glyphosate was applied to the entire experimental area 14 days before planting.
Application data are listed below:

Date	May 27	June 12
Application	PRE	MPOST
Temperature (F)		
air	78	80
soil	67	78
Soil moisture	dry	moist
Wind (mph)	2	3
Cloud cover	10	100
Relative humidity (%)	65	75
Precipitation after application		
week 1 (inch)	1.31	0.74
week 2 (inch)	0.66	3.65
Corn		
stage	-	V3
height (inch)	-	7
Common waterhemp		
leaf no.	-	4
height (inch)	-	4
infestation (sq. ft.)	-	22
Giant foxtail		
leaf no.	-	4
height (inch)	-	2
infestation (sq. ft.)	-	14

Crop injury was minimal in all herbicide treatments at all evaluation times. Initial control of all species evaluated 13 days after application was >90% in all herbicide treatments with giant foxtail control following glyphosate application the only exception. The addition of rimsulfuron to glyphosate did not increase common waterhemp control 56 days after treatment, but other residual herbicides provided $\geq$93% control. Giant foxtail control was $\geq$90% in all treatments except the acetochlor followed by glyphosate treatment 56 days after treatment. Common cocklebur control was <60% with acetochlor PRE followed by glyphosate MPOST. Glyphosate (RU) applied MPOST with residual herbicides such as rimsulfuron and metolachlor provided >90% control of common cocklebur 56 days after treatment. Pennsylvania smartweed was controlled by all herbicide treatments 56 days after application. Residual control of large crabgrass was lacking 56 days after application of acetochlor followed by glyphosate. Glyphosate+*s*-metolachlor and acetochlor followed by glyphosate provided less residual control of common sunflower compared to other treatments 56 days after application. The addition of rimsulfuron to glyphosate did not improve weed control compared to glyphosate alone or to other residual herbicide treatments. (Department of Agronomy, University of Missouri-Columbia)

Table.

Treatment[a]	Rate	Time	Injury				AMATA			SETFA			XANST		
	(lb/A)		6-19	6-25	7-10	8-07	6-25	7-10	8-07	6-25	7-10	8-07	6-25	7-10	8-07
			----------						%						
Untreated			0	0	0	0	0	0	0	0	0	0	0	0	0
Glyphosate (RW)+AMS	0.70+2.5	MPOST	0	0	1	0	97	77	71	77	85	90	95	87	85
Glyphosate (RW) + rimsulfuron+AMS	0.70+0.02+ 2.5	MPOST	0	0	6	0	100	85	82	100	90	94	99	89	86
Glyphosate (RW)+ metolachlor (CIN)+ AMS	0.70+1.27+ 2.5	MPOST	0	0	1	0	100	93	96	100	91	93	95	83	78
Glyphosate (RW)+ metholachlor& atrazine (CIN-A)+AMS	0.70+ 1.26&1.63+ 2.5	MPOST	0	0	2	0	100	96	98	100	98	97	99	80	85
Glyphosate+*s*-metolachlor& atrazine (CIN-L)+AMS	0.70+ 1.25&1.00+ 2.5	MPOST	0	0	3	0	100	98	95	100	98	97	94	74	72
Glyphosate (RW)+ rimsulfuron+AMS	0.35+0.02+ 2.5	MPOST	0	0	5	0	99	78	85	100	92	94	99	80	85
Glyphosate (RW)+ rimsulfuron+AMS	0.18+0.02+ 2.5	MPOST	0	0	2	0	94	82	80	100	93	98	99	90	87
Nicosulfuron&rimsulfuron+ mesotrione+atrazine+COC +AMS	0.02&0.01+ 0.05+0.75+1% +1.3	MPOST	0	0	5	0	100	92	93	95	94	95	94	96	84
Metolachlor (CIN) / Glyphosate+AMS	1.24 0.70+2.5	PRE MPOST	0	0	2	0	100	84	85	100	95	96	99	85	89
Acetochlor / glyphosate (RW)+AMS	1.31 0.70+2.5	PRE MPOST	0	0	5	0	99	76	73	100	83	78	91	61	59
Metolachlor / nicosulfuron&rimsulfuron+ mesotrione+atrazine+COC +AMS	0.64 0.02&0.01+ 0.05+0.75+1% +1.3	PRE MPOST	0	0	3	0	100	95	97	97	93	95	99	82	84
Gyphosate (RU)+ rimsulfuron+AMS	0.71+0.01+ 2.5	MPOST	0	0	5	0	100	89	83	100	89	93	99	92	94
Glyphosate (RU)+ rimsulfuron+AMS	0.71+ 0.02+2.5	MPOST	0	0	6	0	100	87	74	100	89	93	100	97	91
Glyphosate (RU)+ metolachlor (CIN)+AMS	0.71+ 1.27+2.5	MPOST	0	0	2	0	100	96	100	100	96	98	93	93	95
LSD (0.05)			0	0	4	0	3	13	19	17	6	7	10	19	16

[a] Glyphosate (RW)=Roundup WeatherMax; glyphosate (RU)=Roundup UltraMax; *s*-metolachlor (CIN)=Cinch; *s*-metolachlor&atrazine (CIN-A)=Cinch ATZ; *s*-metolachlor&atrazine (CIN-L)=Cinch ATZ Lite acetochlor&atrazine (HAR)=Harness 5.6L from Monsanto; glyphosate (RW)=Roundup Weathermax from Monsanto.
COC=Relay, crop oil concentrate from MFA Crop Advantage.
AMS=ammonium sulfate from MFA Crop Advantage

Table (continued)

Treatment[a]	Rate	Time	DIGSA			POLPY			HELAN		
			6-25	7-10	8-07	6-25	7-10	8-07	6-25	7-10	8-07
	(lb/A)		----------	----------	----------	----------	%----------	----------	----------	----------	----------
Untreated			0	0	0	0	0	0	0	0	0
Glyphosate (RW)+AMS	0.70+2.5	MPOST	100	88	91	100	98	100	100	97	100
Glyphosate (RW) + rimsulfuron+AMS	0.70+0.02+ 2.5	MPOST	100	98	99	100	100	100	100	97	100
Glyphosate (RW)+ metolachlor (CIN)+ AMS	0.70+1.27+ 2.5	MPOST	100	98	95	100	98	100	100	98	96
Glyphosate (RW)+ metholachlor& atrazine (CIN-A)+AMS	0.70+ 1.26&1.63+ 2.5	MPOST	100	98	99	100	100	100	100	99	100
Glyphosate+*s*-metolachlor& atrazine (CIN-L)+AMS	0.70+ 1.25&1.00+ 2.5	MPOST	100	99	97	100	96	100	100	98	100
Glyphosate (RW)+ rimsulfuron+AMS	0.35+0.02+ 2.5	MPOST	100	94	96	100	99	100	100	100	100
Glyphosate (RW)+ rimsulfuron+AMS	0.18+0.02+ 2.5	MPOST	100	98	100	96	99	100	100	100	100
Nicosulfuron&rimsulfuron+ mesotrione+atrazine+COC+ AMS	0.02&0.01+ 0.05+0.75+1% +1.3	MPOST	96	95	96	100	100	100	100	100	100
Metolachlor (CIN) / Glyphosate+AMS	1.24 0.70+2.5	PRE MPOST	100	96	97	100	98	100	100	98	100
Acetochlor / glyphosate (RW)+AMS	1.31 0.70+2.5	PRE MPOST	100	95	83	100	98	85	100	89	82
Metolachlor / nicosulfuron&rimsulfuron+ mesotrione+atrazine+COC+ AMS	0.64 0.02&0.01+ 0.05+0.75+1% +1.3	PRE MPOST	98	97	97	100	100	100	100	99	95
Gyphosate (RU)+ rimsulfuron+AMS	0.71+0.01+ 2.5	MPOST	100	93	94	100	98	96	100	95	95
Glyphosate (RU)+ rimsulfuron+AMS	0.71+ 0.02+2.5	MPOST	100	96	97	99	98	100	100	98	100
Glyphosate (RU)+ metolachlor (CIN)+AMS	0.71+ 1.27+2.5	MPOST	100	98	100	99	95	96	100	91	88
LSD (0.05)			2	6	6	2	5	6	0	7	7

[a]Glyphosate (RW)=Roundup WeatherMax; glyphosate (RU)=Roundup UltraMax; *s*-metolachlor (CIN)=Cinch; *s*-metolachlor&atrazine (CIN-A)=Cinch ATZ; *s*-metolachlor&atrazine (CIN-L)=Cinch ATZ Lite acetochlor&atrazine (HAR)=Harness 5.6L from Monsanto; glyphosate (RW)=Roundup Weathermax from Monsanto.
COC=Relay, crop oil concentrate from MFA Crop Advantage.
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