

Rimsulfuron Tank Mixtures (S0913)

A field study was initiated near Clay Center, Nebraska at the South Central Agriculture Laboratory to evaluate efficacy and crop safety of rimsulfuron and rimsulfuron combinations applied postemergence to corn. The experimental design was a randomized complete block with four replications. Plots were 10 feet wide and 30 feet long and were located on a silt loam soil with an organic matter content of 2.5% and ph of 6.5. Corn, 'DKC61-69' RR2, was planted at 29,600 seeds/A on April 27 and emerged on May 10. Herbicides were applied POST on May 27. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 15 gallons of water per acre at 30 PSI using AIXR 110015 flat spray nozzles. The environmental conditions at the time of herbicide application are given in Table 1. Rainfall in the amount of 0.62 inch was received five days after POST application. . Rainfall received 10 days before and 10 days after herbicide applications is listed in Table 2. Plots received 13.97 inches of rain and 8.25 inches of irrigation water applied by lateral-move overhead sprinklers during growing season.

Primary weeds consisted of giant foxtail (SETFA), sorghum (SORVU), velvetleaf (ABUTH), common waterhemp (AMATA), and lambsquarters (CHEAL) at average densities of 55, 55, 122, 123, and 1 plants per one-half square meter. A percentage of the common waterhemp at the South Central Agricultural Laboratory is resistant to ALS-inhibiting herbicides.

Most of the applications of rimsulfuron caused some chlorosis of newly emerging tissue 8 days after treatment (DAT). The discoloration was temporary. At 35 DAT and 40 DAT there appeared to be slight stunting in some of the treatments, but was probably more attributable to competition from weeds than injury from the herbicide.

Control of the Sorghum and giant foxtail was excellent with all formulations. Control of giant foxtail dropped some at the lowest rate of Resolve. The cause of this difference is not known.

Control of velvetleaf appeared to respond to herbicide dose. Control of waterhemp and common lambsquarters was variable. In general, it appeared that CHA-024 at the highest rate was the most effective herbicide treatment for controlling waterhemp and common lambsquarters.

Corn yield across all herbicide treatments averaged 217.3 bu/A. Corn yield in the untreated plots averaged 74.2 bu/A.

Treatments (1 & 2) CHA-023 plus atrazine, (9) CHA-024 plus atrazine, (11) Resolve plus atrazine, and (12) Steadfast plus atrazine had lower corn yields than overall average.

Table 1. Environmental conditions at the time of herbicide application.

Appl. Date	Air Temperature (F)	Humidity (%)	Wind Speed & direction (mph)	Time of day	Application Timing	Weed and Corn Heights (in)					
						SETFA	SORSS	ABUTH	AMATA	CHEAL	CORN
May 27	60	55	10 N	6:32 pm	POST	3.0	3.0	3.0	3.0	2.5	6.0

Table 2. Rainfall received 10 days before and after herbicide application.

Appl. Date (May 27)	Amount (in)
May 23	0.17
May 26	0.17
June 1	0.62
June 2	0.22
June 5	0.16
June 6	0.52

Table 3. Rimsulfuron tank-mixtures (S0913)

Trt No.	Treatment Name	Rate		Appl Code	ZEAMX	ZEAMX	SORVU	ABUTH	AMATA	CHEAL	SETFA
		Rate	Unit		6/4/2009 PHYCHL %	6/13/2009 PHYCHL %	6/13/2009 CONTRO %	6/13/2009 CONTRO %	6/13/2009 CONTRO %	6/13/2009 CONTRO %	6/13/2009 CONTRO %
1	CHA-023	1	OZ/A	A	23	0	94.8	62.5	75	99.5	88.3
1	ATRAZINE	1.12	LB/A	A							
1	NIS	0.25	% V/V	A							
1	UAN	3	% V/V	A							
2	CHA-023	1.5	OZ/A	A	25	0	96.3	62.5	85	100	93.5
2	ATRAZINE	1.12	LB/A	A							
2	NIS	0.25	% V/V	A							
2	UAN	3	% V/V	A							
3	CHA-023	1	OZ/A	A	23	0	91.3	99.3	98.3	100	89.5
3	LUMAX	32.5	FL OZ/A	A							
3	NIS	0.25	% V/V	A							
3	UAN	3	% V/V	A							
4	CHA-023	1.5	OZ/A	A	24	0	91.8	99.5	95.8	100	95.3
4	LUMAX	32.5	FL OZ/A	A							
4	NIS	0.25	% V/V	A							
4	UAN	3	% V/V	A							
5	CHA-023	1	OZ/A	A	21	0	99.5	95	97.5	87.5	99.8
5	GLYFOS X-TRA	32	FL OZ/A	A							
6	CHA-023	1.5	OZ/A	A	24	0	100	94.3	96.3	88.8	100
6	GLYFOS X-TRA	32	FL OZ/A	A							

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					6/4/2009	6/13/2009	6/13/2009	6/13/2009	6/13/2009	6/13/2009	6/13/2009
					PHYCHL %	PHYCHL %	CONTRO %	CONTRO %	CONTRO %	CONTRO %	CONTRO %
7	CHA-023	1	OZ/A	A	5	0	98.5	91.8	98.8	98.3	98.5
7	GLYFOS X-TRA	32	FL OZ/A	A							
7	STATUS	5	OZ/A	A							
8	CHA-023	1	OZ/A	A	18	0	95	47.5	95.5	74.3	71.3
8	BANVEL	12.2	FL OZ/A	A							
8	NIS	0.25	% V/V	A							
8	UAN	3	% V/V	A							
9	CHA-024	1.15	FL OZ/A	A	10	0	89.3	70	78.8	100	81.8
9	ATRAZINE	1.12	LB/A	A							
9	NIS	0.25	% V/V	A							
9	UAN	3	% V/V	A							
10	CHA-024	2.24	FL OZ/A	A	20	0	98.5	71.3	90	100	98.8
10	ATRAZINE	1.12	LB/A	A							
10	NIS	0.25	% V/V	A							
10	UAN	3	% V/V	A							
11	RESOLVE	1	OZ/A	A	20	0	70	42.5	82.5	100	60
11	ATRAZINE	1.12	LB/A	A							
11	NIS	0.25	% V/V	A							
11	UAN	3	% V/V	A							

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					6/4/2009	6/13/2009	6/13/2009	6/13/2009	6/13/2009	6/13/2009	6/13/2009
					PHYCHL	PHYCHL	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
					%	%	%	%	%	%	%
12	STEADFAST	0.75	OZ/A	A	21	0	97.5	52.5	81.5	100	94.3
12	ATRAZINE	1.12	LB/A	A							
12	NIS	0.25	% V/V	A							
12	UAN	3	% V/V	A							
13	UNTREATED				0	0	0	0	0	0	0
LSD (P=.05)					7.9	0	13.88	18.6	16.59	18.98	19.07

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Trt No.	Treatment Name	Rate Rate	Rate Unit	Appl Code	ZEAMX	SORVU	SETFA	ABUTH	AMATA	CHEAL	ZEAMX
					7/1/2009 PHYSTU %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	11/10/2009 YIELD bu/A
					35 DA-A	35 DA-A	35 DA-A	35 DA-A	35 DA-A	35 DA-A	
1	CHA-023	1	OZ/A	A	3.8	100	87.5	80	57.5	100	190.8
1	ATRAZINE	1.12	LB/A	A							
1	NIS	0.25	% V/V	A							
1	UAN	3	% V/V	A							
2	CHA-023	1.5	OZ/A	A	5	100	87.5	81.3	75	100	183.0
2	ATRAZINE	1.12	LB/A	A							
2	NIS	0.25	% V/V	A							
2	UAN	3	% V/V	A							
3	CHA-023	1	OZ/A	A	2.5	100	47.5	100	97	100	227.6
3	LUMAX	32.5	FL OZ/A	A							
3	NIS	0.25	% V/V	A							
3	UAN	3	% V/V	A							
4	CHA-023	1.5	OZ/A	A	2.5	100	73.8	100	96	100	242.6
4	LUMAX	32.5	FL OZ/A	A							
4	NIS	0.25	% V/V	A							
4	UAN	3	% V/V	A							
5	CHA-023	1	OZ/A	A	0	100	96	93.8	96.5	96.8	237.5
5	GLYFOS X-TRA	32	FL OZ/A	A							
6	CHA-023	1.5	OZ/A	A	0	100	95.5	96	96	99.3	242.1
6	GLYFOS X-TRA	32	FL OZ/A	A							

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		Rate	Unit		7/1/2009 PHYSTU %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	7/1/2009 CONTRO %	11/10/2009 YIELD bu/A
					35 DA-A	35 DA-A	35 DA-A	35 DA-A	35 DA-A	35 DA-A	
7	CHA-023	1	OZ/A	A	0	100	96.5	95.5	97	100	251.8
7	GLYFOS X-TRA	32	FL OZ/A	A							
7	STATUS	5	OZ/A	A							
8	CHA-023	1	OZ/A	A	10	100	62.5	87.5	96	100	228.6
8	BANVEL	12.2	FL OZ/A	A							
8	NIS	0.25	% V/V	A							
8	UAN	3	% V/V	A							
9	CHA-024	1.15	FL OZ/A	A	7.5	100	85	70	65	100	192.2
9	ATRAZINE	1.12	LB/A	A							
9	NIS	0.25	% V/V	A							
9	UAN	3	% V/V	A							
10	CHA-024	2.24	FL OZ/A	A	11.3	100	95.5	82.5	80	100	216.8
10	ATRAZINE	1.12	LB/A	A							
10	NIS	0.25	% V/V	A							
10	UAN	3	% V/V	A							
11	RESOLVE	1	OZ/A	A	7.5	100	77.5	63.3	68.8	100	198.6
11	ATRAZINE	1.12	LB/A	A							
11	NIS	0.25	% V/V	A							
11	UAN	3	% V/V	A							

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					35 DA-A	35 DA-A	35 DA-A	35 DA-A	35 DA-A	35 DA-A	
12	STEADFAST	0.75	OZ/A	A	8.8	100	91.8	62.5	63.8	100	196.0
12	ATRAZINE	1.12	LB/A	A							
12	NIS	0.25	% V/V	A							
12	UAN	3	% V/V	A							
13	UNTREATED				20	0	0		0	0	74.2
LSD (P=.05)					7.26	0	10.49	10.56	17.86	1.96	22.64