

Rimsulfuron Rate and Formulation Trial (S0912)

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 and May 28. 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 four 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.

Crop response (chlorosis in the whorl) appeared to relate to herbicide dose rate for all formulations. The addition of the safener to CHA-023 and CHA-024 appeared to reduce the crop response. There was no effect on plant height.

Primary weeds consisted of giant foxtail (SETFA), sorghum (SORVU), velvetleaf (ABUTH), common waterhemp (AMATA), and lambsquarters (CHEAL) at average densities of 1, 52, 145, 80, 12 plants per one-half square meter. A percentage of the common waterhemp at the South Central Agricultural Laboratory is resistant to ALS-inhibiting herbicides.

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 172.2 bu/A. Corn yield in the untreated plots averaged 90.9 bu/A.

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	58	8 NNW	4:30 pm	POST	2.3	3.0	3.0	3.0	2.5	6.0
May 28	78	26	3 N	4:09 pm	POST	2.3	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)		Appl. Date (May 28)	Amount (in)
May 23	0.17		May 23	0.17
May 26	0.17		May 26	0.17
June 1	0.62		June 1	0.62
June 2	0.22		June 2	0.22
June 5	0.16		June 5	0.16
June 6	0.52		June 6	0.52

Table 3A. Rimsulfuron Rate and Formulation (S0912)

Trt No.	Treatment Name	Rate	Rate Unit	Appl Timing	ZEAMX	AMATA	ABUTH	CHEAL	SORSS	SETFA	DIGSA
					6/4/2009 PHYCHL 0-100 7 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B
1	CHA-023	0.5	OZ/A	POST	15	54	58	23	93	60	48
1	NIS	0.25	% V/V	POST							
1	UAN	3	% V/V	POST							
2	CHA-023	1	OZ/A	POST	21	53	65	30	94	73	58
2	NIS	0.25	% V/V	POST							
2	UAN	3	% V/V	POST							
3	CHA-023	2	OZ/A	POST	24	60	74	28	98	88	76
3	NIS	0.25	% V/V	POST							
3	UAN	3	% V/V	POST							
4	RESOLVE	0.5	OZ/A	POST	11	40	58	23	93	50	43
4	NIS	0.25	% V/V	POST							
4	UAN	3	% V/V	POST							
5	RESOLVE	1	OZ/A	POST	13	45	60	25	96	79	75
5	NIS	0.25	% V/V	POST							
5	UAN	3	% V/V	POST							
6	RESOLVE	2	OZ/A	POST	25	57	70	27	96	82	85
6	NIS	0.25	% V/V	POST							
6	UAN	3	% V/V	POST							
7	CHA-024	1.15	FL OZ/A	POST	16	40	58	33	95	84	80
7	NIS	0.25	% V/V	POST							
7	UAN	3	% V/V	POST							

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Trt No.	Treatment Name	Rate	Unit	Appl Timing	ZEAMX	AMATA	ABUTH	CHEAL	SORSS	SETFA	DIGSA
					6/4/2009 PHYCHL 0-100 7 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B	6/11/2009 CONTRO % 14 DA-B
8	CHA-024	2.24	FL OZ/A	POST	23	61	65	58	97	94	94
8	NIS	0.25	% V/V	POST							
8	UAN	3	% V/V	POST							
9	STEADFAST	0.38	OZ/A	POST	13	50	55	30	98	85	74
9	NIS	0.25	% V/V	POST							
9	UAN	3	% V/V	POST							
10	STEADFAST	0.75	OZ/A	POST	24	38	68	30	97	88	84
10	NIS	0.25	% V/V	POST							
10	UAN	3	% V/V	POST							
11	UNTREATED				0	0	0	0	0	0	0
12	CHA-023	2	OZ/A	POST	13	63	80	27	96	90	80
12	Isoxadifen	0.46	OZ/A	POST							
12	NIS	0.25	% V/V	POST							
12	UAN	3	% V/V	POST							
13	CHA-024	2.24	FL OZ/A	POST	10	73	75	45	99	94	94
13	Isoxadifen	0.25	OZ/A	POST							
13	NIS	0.25	% V/V	POST							
13	UAN	3	% V/V	POST							
LSD (P=.05)					13.1	18.2	9.8	12.8	3.1	10.2	16.5

Table 3B. Rimsulfuron Rate and Formulation (S0912)

Trt No.	Treatment Name	Rate	Rate Unit	Appl Timing	SORSS	SETFA	ABUTH	AMATA	CHEAL	ZEAMX
					7/2/2009 CONTRO %	7/2/2009 CONTRO %	7/2/2009 CONTRO %	7/2/2009 CONTRO %	7/2/2009 CONTRO %	11/9/2009 YIELD BU/A
					35 DA-B	35 DA-B	35 DA-B	35 DA-B	35 DA-B	
1	CHA-023	0.5	OZ/A	POST	100	98	68	58	44	171.3
1	NIS	0.25	% V/V	POST						
1	UAN	3	% V/V	POST						
2	CHA-023	1	OZ/A	POST	100	96	83	55	84	164.9
2	NIS	0.25	% V/V	POST						
2	UAN	3	% V/V	POST						
3	CHA-023	2	OZ/A	POST	100	98	89	81	74	173.6
3	NIS	0.25	% V/V	POST						
3	UAN	3	% V/V	POST						
4	RESOLVE	0.5	OZ/A	POST	100	89	68	60	81	166.3
4	NIS	0.25	% V/V	POST						
4	UAN	3	% V/V	POST						
5	RESOLVE	1	OZ/A	POST	100	96	79	60	83	161.5
5	NIS	0.25	% V/V	POST						
5	UAN	3	% V/V	POST						
6	RESOLVE	2	OZ/A	POST	100	99	83	70	70	174.6
6	NIS	0.25	% V/V	POST						
6	UAN	3	% V/V	POST						
7	CHA-024	1.15	FL OZ/A	POST	100	100	71	40	89	148.4
7	NIS	0.25	% V/V	POST						
7	UAN	3	% V/V	POST						

Table 3B. Rimsulfuron Rate and Formulation (S0912)

Trt No.	Treatment Name	Rate	Unit	Appl Timing	SORSS	SETFA	ABUTH	AMATA	CHEAL	ZEAMX
					7/2/2009	7/2/2009	7/2/2009	7/2/2009	7/2/2009	11/9/2009
					CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	YIELD
					%	%	%	%	%	BU/A
					35 DA-B	35 DA-B	35 DA-B	35 DA-B	35 DA-B	
8	CHA-024	2.24	FL OZ/A	POST	100	100	79	64	93	180.7
8	NIS	0.25	% V/V	POST						
8	UAN	3	% V/V	POST						
9	STEADFAST	0.38	OZ/A	POST	100	100	65	68	79	184.9
9	NIS	0.25	% V/V	POST						
9	UAN	3	% V/V	POST						
10	STEADFAST	0.75	OZ/A	POST	100	100	85	65	71	176.2
10	NIS	0.25	% V/V	POST						
10	UAN	3	% V/V	POST						
11	UNTREATED				0	0	0	0	0	90.9
12	CHA-023	2	OZ/A	POST	100	97	97	80	72	192.4
12	Isoxadifen	0.46	OZ/A	POST						
12	NIS	0.25	% V/V	POST						
12	UAN	3	% V/V	POST						
13	CHA-024	2.24	FL OZ/A	POST	100	98	85	84	86	181
13	Isoxadifen	0.25	OZ/A	POST						
13	NIS	0.25	% V/V	POST						
13	UAN	3	% V/V	POST						
LSD (P=.05)					0	4.1	20.5	19.5	27.8	32.9