

Rosen's Glyphosate Adjuvant Study.

02-21N-W220

OBJECTIVE: Evaluate various adjuvants for use with Roundup Original, Roundup UltraMax, and MON 78270.

SUMMARY: This study was designed to evaluate the effect of various adjuvants on weed control with three different glyphosate formulations. No soybean injury was observed from any treatment. All herbicide treatments controlled 99% of giant foxtail at 14 days after treatment (DAT). Roundup UltraMax, Roundup Original, and MON 78270 controlled 82 to 88% of common cocklebur and 52 to 60% of ivyleaf morningglory at 14 DAT. Common cocklebur and ivyleaf morningglory control was not increased with the addition of any adjuvant to the three glyphosate products. Roundup UltraMax controlled 27% of velvetleaf at 14 DAT. Velvetleaf control was increased at least 24% when AMS, 40204, or CB-2002 was added to Roundup UltraMax. Roundup Original and MON 78270 controlled 35 and 38% of velvetleaf at 14 DAT, respectively. Adding AMS or 40204 at 1.5 lb/A to Roundup Original increased velvetleaf control compared to Roundup Original alone. However, none of the adjuvants significantly increased velvetleaf control from MON 78270.

HERBICIDES/ADJUVANTS

MON 78270 4.5 SL
 ROUNDUP ORIGINAL 3 SL
 ROUNDUP ULTRA MAX 3.7 SL
 40204 100 DRY
 AMS 100 DRY
 CB-2002 100 DRY
 LANDOIL 100 LIQ
 RUSA 703 100 DRY

WEEDS

cocklebur, common
 foxtail, giant
 morningglory, ivyleaf
 velvetleaf

CROP

soybean

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Rosen's Glyphosate Adjuvant Study.

Project Code: 02-21N-W220 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 10-31-02

Objective:

Evaluate various adjuvants for use with Roundup Original, Roundup Ultra Max, and MON 78270.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. XANST	cocklebur, common	Xanthium strumarium L.
3. ABUTH	velvetleaf	Abutilon theophrasti Medicus
4. IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.

Crop 1:	GLXMA soybean	Variety:	Asgrow 4602 RR
Planting Method:	Seeded	Planting Date:	6-3-02
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	30 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2001				

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K20 150 LB/A

Soil Name:	Ebbert	% OM:	1.4	pH:	5.7	CEC:	14
Texture:	Silt loam	Fert. Level:	P1: 97 LB/A, K: 291 LB/A				

APPLICATION DESCRIPTION

A

Application Date:	6-27-02
Time of Day:	10:00
Application Method:	Spray
Application Timing:	6-8"W
Applic. Placement:	BROFOL
Air Temp., Unit:	88 F
% Relative Humidity:	50
Wind Velocity, Unit:	3-5 MPH
Soil Moisture:	NORMAL
% Cloud Cover:	20

CROP STAGE AT EACH APPLICATION

A

Crop 1 Code, Stage:	GLXMA V2
Height, Unit:	5 IN

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code:	SETFA
Stage(leaves):	2-4
Height(inches):	4-6
Density:	High
Weed 2 Code:	XANST
Stage(leaves):	3-5
Height(inches):	6-7
Density:	Medium
Weed 3 Code:	ABUTH
Stage(leaves):	3-5
Height(inches):	4-6
Density:	Low
Weed 4 Code:	IPOHE
Stage(leaves):	3-5
Height(inches):	4-8
Density:	Low

APPLICATION EQUIPMENT

A

Appl. Equipment: CO2 sprayer
Operating Pressure: 40 PSI
Nozzle Type: Flat fan
Nozzle Size: TT 110015
Boom Length, Unit: 7.5 FT
Spray Volume, Unit: 10 GPA

NOTES:

This study was not harvested.

Rosen's Glyphosate Adjuvant Study.

Project Code: 02-21N-W220 Location: Belleville Research Center

Weed Code									SETFA	SETFA	SETFA	XANST	XANST	XANST	ABUTH	ABUTH	ABUTH
Crop Code									GLXMA	GLXMA	GLXMA						
Rating Data Type									Injury	Injury	Injury	Control	Control	Control	Control	Control	Control
Rating Unit									Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date									7-11-02	7-25-02	8-22-02	7-11-02	7-25-02	8-22-02	7-11-02	7-25-02	8-22-02
Trt-Eval Interval									14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Injury Percent	GLXMA Injury Percent	GLXMA Injury Percent	SETFA Control Percent	SETFA Control Percent	SETFA Control Percent	XANST Control Percent	XANST Control Percent	XANST Control Percent	ABUTH Control Percent	ABUTH Control Percent	ABUTH Control Percent
1	NONTREATED									0	0	0	0	0	0	0	0	0	0	0	0
2	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	90	82	85	87	27	23	13
3	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	92	87	85	83	63	63	53
3	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"	W A												
4	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	90	90	90	86	45	40	33
4	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"	W A												
5	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	90	88	87	78	67	62	40
5	40204	100	DRY	1.5	LB/A	1.5	LB/A	6-8"	W A												
6	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	92	85	85	82	63	60	53
6	40204	100	DRY	2.25	LB/A	2.25	LB/A	6-8"	W A												
7	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	90	90	88	87	73	67	52
7	CB-2002	100	DRY	1.08	% W/W	9	LB/100 GAL	6-8"	W A												
8	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	0	0	0	99	99	90	81	78	77	50	45	27
8	LANDOIL	100	LIQ	1.0	PT/A	1	PT/A	6-8"	W A												
9	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	92	88	92	88	35	40	48
10	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	90	78	82	82	62	63	48
10	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"	W A												
11	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	93	88	90	92	58	45	35
11	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"	W A												
12	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	93	88	88	87	70	62	40
12	40204	100	DRY	1.5	LB/A	1.5	LB/A	6-8"	W A												
13	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	90	91	92	91	38	40	35
13	40204	100	DRY	2.25	LB/A	2.25	LB/A	6-8"	W A												
14	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	90	90	92	93	30	33	27
14	CB-2002	100	DRY	1.08	% W/W	9	LB/100 GAL	6-8"	W A												
15	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	0	0	0	99	99	93	94	95	90	27	27	27
15	LANDOIL	100	LIQ	1.0	PT/A	1	PT/A	6-8"	W A												
16	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	90	88	90	87	38	35	10

Weed Code									SETFA	SETFA	SETFA	XANST	XANST	XANST	ABUTH	ABUTH	ABUTH
Crop Code									GLXMA	GLXMA	GLXMA						
Rating Data Type									Injury	Injury	Injury	Control	Control	Control	Control	Control	Control
Rating Unit									Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date									7-11-02	7-25-02	8-22-02	7-11-02	7-25-02	8-22-02	7-11-02	7-25-02	8-22-02
Trt-Eval Interval									14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code												
17	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	93	92	93	88	57	52	40
17	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"	W A												
18	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	92	90	92	93	42	33	17
18	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"	W A												
19	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	92	93	92	95	53	55	45
19	40204	100	DRY	1.5	LB/A	1.5	LB/A	6-8"	W A												
20	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	92	92	93	88	57	55	48
20	40204	100	DRY	2.25	LB/A	2.25	LB/A	6-8"	W A												
21	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	90	93	93	90	48	45	38
21	CB-2002	100	DRY	1.08	% W/W	9	LB/100 GAL	6-8"	W A												
22	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	0	0	0	99	99	90	87	88	78	40	30	13
22	LANDOIL	100	LIQ	1.0	PT/A	1	PT/A	6-8"	W A												
LSD (P=.05)										0.0	0.0	0.0	0.0	0.0	4.6	10.4	9.4	12.2	24.4	20.4	23.1
Replicate F										0.000	0.000	0.000	0.000	0.000	11.924	0.199	0.422	4.371	1.686	2.037	4.128
Replicate Prob(F)										1.0000	1.0000	1.0000	1.0000	1.0000	0.0001	0.8199	0.6583	0.0189	0.1976	0.1431	0.0231
Treatment F										0.000	0.000	0.000	0.000	0.000	144.910	27.896	35.053	20.129	4.183	5.309	3.613
Treatment Prob(F)										1.0000	1.0000	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002

Weed Code									IPOHE	IPOHE	IPOHE
Crop Code											
Rating Data Type									Control	Control	Control
Rating Unit									Percent	Percent	Percent
Rating Date									7-11-02	7-25-02	8-22-02
Trt-Eval Interval									14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code			
1	NONTREATED									0	0	0
2	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	57	57	57
3	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	70	70	70
3	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"	W A			
4	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	58	60	55
4	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"	W A			
5	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	65	70	62
5	40204	100	DRY	1.5	LB/A	1.5	LB/A	6-8"	W A			
6	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	57	60	57
6	40204	100	DRY	2.25	LB/A	2.25	LB/A	6-8"	W A			
7	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	53	53	50
7	CB-2002	100	DRY	1.08	% W/W	9	LB/100 GAL	6-8"	W A			
8	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"	W A	60	65	53
8	LANDOIL	100	LIQ	1.0	PT/A	1	PT/A	6-8"	W A			
9	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	65	63	63
10	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	65	67	62
10	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"	W A			
11	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	63	63	62
11	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"	W A			
12	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	55	57	50
12	40204	100	DRY	1.5	LB/A	1.5	LB/A	6-8"	W A			
13	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	62	63	60
13	40204	100	DRY	2.25	LB/A	2.25	LB/A	6-8"	W A			
14	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	50	53	50
14	CB-2002	100	DRY	1.08	% W/W	9	LB/100 GAL	6-8"	W A			
15	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	OZ/A	6-8"	W A	52	50	48
15	LANDOIL	100	LIQ	1.0	PT/A	1	PT/A	6-8"	W A			
16	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	57	57	57
17	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	65	67	62
17	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"	W A			
18	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"	W A	53	55	50
18	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"	W A			

Weed Code	IPOHE	IPOHE	IPOHE
Crop Code			
Rating Data Type	Control	Control	Control
Rating Unit	Percent	Percent	Percent
Rating Date	7-11-02	7-25-02	8-22-02
Trt-Eval Interval	14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code			
19	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"W	A	57	57	53
19	40204	100	DRY	1.5	LB/A	1.5	LB/A	6-8"W	A			
20	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"W	A	53	55	50
20	40204	100	DRY	2.25	LB/A	2.25	LB/A	6-8"W	A			
21	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"W	A	60	62	57
21	CB-2002	100	DRY	1.08	% W/W	9	LB/100 GAL	6-8"W	A			
22	MON 78270	4.5	SL	0.188	LB AE/A	5.35	OZ/A	6-8"W	A	57	60	53
22	LANDOIL	100	LIQ	1.0	PT/A	1	PT/A	6-8"W	A			
LSD (P=.05)										19.1	17.4	14.6
Replicate F										3.556	4.184	3.014
Replicate Prob(F)										0.0374	0.0220	0.0598
Treatment F										4.133	5.252	6.685
Treatment Prob(F)										0.0001	0.0001	0.0001

Rosen's Glyphosate Adjuvant Study.

Project Code: 02-21N-W220 Location: Belleville Research Center

Trial Comments

1. Protocol: Rosen's.
2. DA-A = days after 6-8"W application.