

Roundup Original / Cornerstone Adjuvant Study.

01-10C-M90

OBJECTIVE: Evaluate experimental and commercial adjuvants that provide complete adjuvant requirements for Roundup Original and Cornerstone (glyphosate products with minimal surfactant load).

SUMMARY: No soybean injury was observed in this study. Giant foxtail control was at least 92% from all treatments with no significant differences between treatments. Yellow nutsedge control 14 days after treatment (DAT) was similar for all herbicide treatments except Roundup Original plus the low rate of DE 500-TM, which controlled significantly less yellow nutsedge than Roundup Original applied alone. Yellow nutsedge control was 50% from Roundup Original alone at 28 DAT. Adding either AR 581-1P at 9.5 lb/100 gal or SE581-1P at 1.77 lb/A to Roundup Original increased yellow nutsedge control to 62%. There were no significant differences in common cocklebur or morningglory species control among herbicide treatments. Roundup Original alone controlled 90% of common ragweed at 28 DAT. Adding SE 581-1P at 1.33 lb/A to Roundup Original decreased common ragweed control to 77%. Velvetleaf control was increased when Activator-90 plus AMS, AR 581-1P at 9.5 or 12.5 lb/100 gal, or AR 200 TM at the high rate were tank mixed with Roundup Original.

HERBICIDES / ADJUVANTS

CORNERSTONE 3 SL
 ROUNDUP ORIGINAL 3 SL
 ROUNDUP ULTRA MAX 3.7 SL
 ACTIVATOR 90 100 LIQ
 AMS 100 DRY
 AR 200-TM
 AR 581-1P 100 DRY
 AR-A 100 LIQ
 AR-B 100 DRY
 CLASS ACT NG 100 LIQ
 DE 500-TM
 DE-A 100 DRY
 DE-B 100 DRY
 SE 581-1P 100 DRY

WEEDS

cocklebur, common
 foxtail, giant
 morningglory, species
 nutsedge, yellow
 ragweed, common
 velvetleaf

CROP

soybean

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Roundup Original / Cornerstone Adjuvant Study.

Project Code: 01-10C-M90 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final Initiation Date: 5-11-01**Objective:**

Evaluate experimental and commercial adjuvants that provide complete adjuvant requirements for Roundup Original and Cornerstone (glyphosate products with minimal surfactant load).

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. CYPES	nutsedge, yellow	Cyperus esculentus L.
3. XANST	cocklebur, common	Xanthium strumarium L.
4. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
5. IPOSS	morningglory, species	Ipomoea sp.
6. ABUTH	velvetleaf	Abutilon theophrasti Medicus

Crop 1:	GLXMA soybean	Variety:	B-T 398CR
Planting Method:	Seeded	Planting Date:	5-16-01
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	24 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2000				
Field Prep./Maintenance:	N 0 LB/A, P205 50 LB/A, K20 150 LB/A				

Soil Name:	Weir	% OM:	2.0	pH:	6.1	CEC:	11
Texture:	Silt loam	Fert. Level:	P1: 65 LB/A, K: 240 LB/A				

APPLICATION DESCRIPTION

	A
Application Date:	6-18-01
Time of Day:	9:30
Application Method:	Spray
Application Timing:	4-6"W
Applic. Placement:	BROFOL
Air Temp., Unit:	87 F
% Relative Humidity:	46
Wind Velocity, Unit:	3-5 MPH
Dew Presence (Y/N):	N
Soil Moisture:	BELNOR

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GLXMA V3
Height, Unit:	4-6 IN

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	SETFA
Stage(leaves):	3-4
Height(inches):	4-6
Density:	Medium
Weed 2 Code:	CYPES
Stage(leaves):	4-6
Height(inches):	4-6
Density:	Medium
Weed 3 Code:	XANST
Stage(leaves):	5-6
Height(inches):	4-6
Density:	Medium

Weed 4 Code: AMBEL
Stage(leaves): 6-8
Height(inches): 4-6
Density: Low

Weed 5 Code: IPOSS
Stage(leaves): 5-6
Height(inches): 2-4
Density: Low

Weed 6 Code: ABUTH
Stage(leaves): 3-4
Height(inches): 2-3
Density: Low

APPLICATION EQUIPMENT

A

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

NOTES: NOT HARVESTED.

Roundup Original / Cornerstone Adjuvant Study.

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Weed Code	GLXMA	GLXMA	SETFA	SETFA	CYPES	CYPES	XANST	XANST	AMBEL	AMBEL	IPOSS	IPOSS	ABUTH	ABUTH
Crop Code	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01
Rating Date	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A
Trt-Eval Interval	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 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	SETFA Control Percent	SETFA Control Percent	CYPES Control Percent	CYPES Control Percent	XANST Control Percent	XANST Control Percent	AMBEL Control Percent	AMBEL Control Percent	IPOSS Control Percent	IPOSS Control Percent	ABUTH Control Percent	ABUTH Control Percent
1	NONTREATED									0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	95	93	62	50	93	96	87	90	58	47	45	38
3	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	96	95	65	57	89	98	86	87	57	43	63	63
3	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"	W A														
3	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	4-6"	W A														
4	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	97	99	63	53	89	96	91	93	57	47	52	50
4	AR 581-1P	100	DRY	0.912	% W/W	7.6	LB/100 GAL	4-6"	W A														
5	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	97	97	65	62	87	94	86	82	58	40	60	58
5	AR 581-1P	100	DRY	1.14	% W/W	9.5	LB/100 GAL	4-6"	W A														
6	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	97	95	67	55	93	97	88	89	53	37	55	53
6	AR 581-1P	100	DRY	1.5	% W/W	12.5	LB/100 GAL	4-6"	W A														
7	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	97	97	68	53	95	95	88	87	60	50	55	42
7	SE 581-1P	100	DRY	1.06	LB A/A	1.06	LB/A	4-6"	W A														
8	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	97	93	62	57	92	95	81	77	58	50	53	40
8	SE 581-1P	100	DRY	1.33	LB A/A	1.33	LB/A	4-6"	W A														
9	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	98	92	67	62	86	92	83	82	62	45	65	43
9	SE 581-1P	100	DRY	1.77	LB A/A	1.77	LB/A	4-6"	W A														
10	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	98	95	70	60	94	96	88	87	53	50	53	50
10	AR 200-TM																						
10	->AR-A	100	LIQ	0.125	% V/V	0.125	%V/V	4-6"	W A														
10	->AR-B	100	DRY	1.08	% W/W	9	LB/100 GAL	4-6"	W A														
11	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	97	95	62	55	91	95	81	80	58	42	65	58
11	AR 200-TM																						
11	->AR-A	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"	W A														
11	->AR-B	100	DRY	1.08	% W/W	9	LB/100 GAL	4-6"	W A														
12	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	98	95	53	48	93	94	89	86	53	37	53	42
12	DE 500-TM																						
12	->DE-A	100	DRY	1.14	% W/W	9.5	LB/100 GAL	4-6"	W A														
12	->DE-B	100	DRY	0.45	LB A/A	0.45	LB/A	4-6"	W A														
13	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	98	94	63	58	85	90	90	85	60	43	67	48
13	DE 500-TM																						
13	->DE-A	100	DRY	1.14	% W/W	9.5	LB/100 GAL	4-6"	W A														
13	->DE-B	100	DRY	0.9	LB A/A	0.9	LB/A	4-6"	W A														
14	CORNERSTONE	3	SL	0.188	LB AE/A	0.5	PT/A	4-6"	W A	0	0	96	93	68	58	96	97	92	94	58	50	55	50
14	CLASS ACT NG	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"	W A														
15	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	0.406	PT/A	4-6"	W A	0	0	97	96	63	57	96	97	87	87	57	42	62	60
15	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	4-6"	W A														
LSD (P=.05)										0.0	0.0	1.9	5.3	8.3	10.7	8.3	6.4	7.7	11.5	9.4	12.2	14.1	14.9

Weed Code						SETFA	SETFA	CYPES	CYPES	XANST	XANST	AMBEL	AMBEL	IPOSS	IPOSS	ABUTH	ABUTH									
Crop Code	GLXMA	GLXMA				Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control									
Rating Data Type	Injury	Injury				Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent									
Rating Unit	Percent	Percent				Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent									
Rating Date	7-2-01	7-16-01				7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01	7-2-01	7-16-01									
Trt-Eval Interval	14 DA-A	28 DA-A				14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code																	
Replicate F		0.000	0.000	22.899		1.050		2.075		1.510		1.712		2.677		6.927		11.466		0.228		2.154		4.327		2.405
Replicate Prob(F)		1.0000	1.0000	0.0001		0.3632		0.1444		0.2383		0.1989		0.0863		0.0036		0.0002		0.7973		0.1349		0.0230		0.1087
Treatment F		0.000	0.000	1400.818		182.465		35.739		16.466		69.441		122.544		73.636		32.467		21.413		8.518		10.770		8.546
Treatment Prob(F)		1.0000	1.0000	0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001

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Trial Comments

1. Protocol: Rosens (trts 4-13); Agrilience (trt 14); SIU - BGY (trts 2, 3 + 15).
2. DA-A = days after 4-6"W application.