

## Glyphosate Surfactant Comparison in Soybean.

01-51E-M120

**OBJECTIVE:** Determine if the efficacy of glyphosate is influenced by surfactant application rate, active ingredient load, or specific product.

**SUMMARY:** No soybean injury was observed from any treatment. All herbicide treatments controlled 99% of giant foxtail at 14 days after treatment (DAT). However, giant foxtail control 28 DAT was slightly less from Roundup Custom alone and Roundup Custom plus CHEM-SURF at 0.25% v/v compared to other treatments. Roundup Custom alone controlled 48, 58, and 52% of ivyleaf morningglory, giant ragweed, and common waterhemp, respectively, at 28 DAT. Adding HM 9680 at 0.25% v/v to Roundup Custom increased control of common waterhemp at 14 DAT, and giant ragweed and ivyleaf morningglory at 14 and 28 DAT. Overall weed control was greatest with Roundup Custom plus HM 9680 at 0.25% v/v.

### HERBICIDES / ADJUVANTS

ROUNDUP CUSTOM 4 SL  
 ROUNDUP ULTRA MAX 3.7 SL  
 ACTIVATOR 90 100 LIQ  
 AQUAGENE 90 100 LIQ  
 CHEM-SURF 100 LIQ  
 CHEM-SURF 90 100 LIQ  
 HM 9110 100 LIQ  
 HM 9121-A 100 LIQ  
 HM 9633 100 LIQ  
 HM 9680 100 LIQ  
 LI 700 100 LIQ  
 PENETRATE II 100 LIQ  
 PREFERENCE 100 LIQ  
 RUSA 093 100 LIQ  
 RUSA 100 100 LIQ  
 SURF-AC 820 100 LIQ  
 SURF-AC 910 100 LIQ

### WEEDS

foxtail, giant  
 morningglory, species  
 ragweed, giant  
 waterhemp, common

### CROP

soybean

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

## Glyphosate Surfactant Comparison in Soybean.

Project Code: 01-51E-M120      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: 5-8-01**Objective:**

Determine if the efficacy of glyphosate is influenced by surfactant application rate, active ingredient load, or specific product.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. IPOSS	morningglory, species	Ipomoea sp.
3. AMBTR	ragweed, giant	Ambrosia trifida L.
4. AMATA	waterhemp, common	Amaranthus rudis Sauer

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:	27 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 0 LB/A, K20 200 LB/A				

Soil Name:	Weir	% OM:	1.7	pH:	7.1	CEC:	11
Texture:	Silt loam	Fert. Level:	P1: 84 LB/A, K: 172 LB/A				

**APPLICATION DESCRIPTION**

A	
Application Date:	6-19-01
Time of Day:	15:00
Application Method:	Spray
Application Timing:	4-6"W
Applic. Placement:	BROFOL
Air Temp., Unit:	92 F
% Relative Humidity:	44
Wind Velocity, Unit:	0-5 MPH
Soil Moisture:	BELNOR
% Cloud Cover:	60

**CROP STAGE AT EACH APPLICATION**

A	
Crop 1 Code, Stage:	GLXMA V3
Height, Unit:	4-8 IN

**WEED STAGE AT EACH APPLICATION**

A	
Weed 1 Code:	SETFA
Stage(leaves):	4-6
Height(inches):	4-6
Density:	High
Weed 2 Code:	IPOSS
Stage(leaves):	4-8
Height(inches):	2-4
Density:	High
Weed 3 Code:	AMBTR
Stage(leaves):	6-10
Height(inches):	6-8
Density:	High

Weed 4 Code: AMATA  
Stage(leaves): 2-7  
Height(inches): 1-3  
Density: High

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  
Incorporation Equip.: NA  
Spray Volume, Unit: 10 GPA

NOTES: NOT HARVESTED.

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Weed Code	GLXMA	SETFA	SETFA	IPOSS	IPOSS	AMBTR	AMBTR	AMATA	AMATA
Crop Code	Injury	Control	Control	Control	Control	Control	Control	Control	Control
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	Jul-3-01	Jul-3-01	Jul-17-01	Jul-3-01	Jul-17-01	Jul-3-01	Jul-17-01	Jul-3-01	Jul-17-01
Rating Date	14 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									

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code									
1	NONTREATED									0	0	0	0	0	0	0	0	
2	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	90	45	48	57	58	47	52
3	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	91	50	60	62	60	52	47
3	US-1	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	A									
4	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	98	50	58	63	68	55	50
4	US-1	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
5	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	96	52	57	63	52	52	50
5	US-2	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	A									
6	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	96	42	52	62	58	50	43
6	US-2	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
7	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	95	50	55	72	60	60	52
7	HM 9633	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	A									
8	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	96	52	50	60	57	57	48
8	HM 9633	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
9	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	98	70	70	77	74	80	63
9	HM 9680	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	A									
10	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	99	50	57	65	68	62	55
10	HM 9680	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
11	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	99	65	58	62	50	52	53
11	D-1	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	A									
12	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	99	52	58	67	60	55	57
12	D-1	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
13	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	98	63	53	72	73	60	57
13	D-2	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	A									
14	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	97	43	43	60	47	43	45
14	D-2	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
15	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	99	53	57	65	53	50	48
15	L-1	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
16	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	99	38	42	52	48	33	40
16	L-2	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
17	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	98	52	58	65	55	50	57
17	UC-1	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									
18	ROUNDUP CUSTOM	4	SL	0.188	LB AE/A	0.376	PT/A	4-6"W	A	0	99	99	53	52	63	55	50	42
18	A-1	100	LIQ	0.5	% V/V	0.5	%V/V	4-6"W	A									

Weed Code		SETFA	SETFA	IPOSS	IPOSS	AMBTR	AMBTR	AMATA	AMATA
Crop Code		GLXMA							
Rating Data Type		Injury	Control	Control	Control	Control	Control	Control	Control
Rating Unit		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date		Jul-3-01	Jul-3-01	Jul-17-01	Jul-3-01	Jul-17-01	Jul-3-01	Jul-17-01	Jul-3-01
Trt-Eval Interval		14 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code									
19	ROUNDUP CUSTOM 19 PL-1	4 100	SL LIQ	0.188 0.5	LB AE/A % V/V	0.376 0.5	PT/A %V/V	4-6"W 4-6"W	A A	0	99	99	58	50	65	52	60	55
20	ROUNDUP CUSTOM 20 HM 9121-A	4 100	SL LIQ	0.188 0.5	LB AE/A % V/V	0.376 0.5	PT/A %V/V	4-6"W 4-6"W	A A	0	99	97	47	53	65	61	48	42
21	ROUNDUP CUSTOM 21 RUSA 100	4 100	SL LIQ	0.188 0.5	LB AE/A % V/V	0.376 0.5	PT/A %V/V	4-6"W 4-6"W	A A	0	99	98	52	63	71	60	45	50
22	ROUNDUP CUSTOM 22 RUSA 093	4 100	SL LIQ	0.188 0.5	LB AE/A % V/V	0.376 0.5	PT/A %V/V	4-6"W 4-6"W	A A	0	99	99	48	60	67	57	53	50
23	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	0.406	PT/A	4-6"W	A	0	99	97	53	58	67	57	55	57
24	ROUNDUP CUSTOM 24 HM 9110	4 100	SL LIQ	0.188 0.5	LB AE/A % V/V	0.376 0.5	PT/A %V/V	4-6"W 4-6"W	A A	0	99	98	53	48	60	48	42	43
LSD (P=.05)										0.0	0.0	5.4	14.3	12.1	10.3	11.9	14.8	11.6
Replicate F										0.000	0.000	3.762	1.903	5.125	2.844	2.795	9.422	1.197
Replicate Prob(F)										1.0000	1.0000	0.0307	0.1607	0.0098	0.0685	0.0715	0.0004	0.3113
Treatment F										0.000	0.000	110.687	6.496	9.124	15.315	11.081	7.182	8.436
Treatment Prob(F)										1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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#### Trial Comments

1. Protocol: SIU - BGY.
2. Ratings: CI and WC at 14 and 28 DAT, possible 56 DAT.
3. DA-A = days after 4-6"W application.