

Growmark Adjuvant Study with Glyphosate.

Project Code: 06-10B-W120 Location: Belleville Research Center
 Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 8-4-06

Objective:

Determine the influence of AMS alternatives and carrier volume on glyphosate efficacy.

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 4403 RR
Planting Method:	Seeded	Planting Date:	5-30-06
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	20 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2005				
Field Prep./Maintenance:	N 0 LB/A, P205 0 LB/A, K20 100 LB/A				

Soil Name:	Weir	% OM:	2	pH:	6.2	CEC:	11
Texture:	Silt loam	Fert. Level:	P1: 88 LB/A, K: 445 LB/A				

APPLICATION DESCRIPTION

A

Application Date:	6-29-06
Time of Day:	15:00
Application Method:	Spray
Application Timing:	8-12"W
Applic. Placement:	BROFOL
Air Temp., Unit:	89 F
% Relative Humidity:	50
Wind Velocity, Unit:	1-2 MPH
Soil Moisture:	NORMAL

CROP STAGE AT EACH APPLICATION

A

Crop 1 Code, Stage:	GLXMA V2
Height, Unit:	6-7 IN

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code:	SETFA
Stage (leaves):	3-4
Height (inches):	8-12
Density:	High
Weed 2 Code:	XANST
Stage (leaves):	5-6
Height (inches):	8-12
Density:	High
Weed 3 Code:	ABUTH
Stage (leaves):	5-6
Height (inches):	8-12
Density:	High
Weed 4 Code:	IPOHE
Stage (leaves):	8-10
Height (inches):	8-12
Density:	Low

APPLICATION EQUIPMENT

A

Appl. Equipment:	CO2 sprayer
Operating Pressure:	40 PSI
Nozzle Type:	Flat fan
Nozzle Size:	See comment
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	See trts

NOTES:

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA	GLXMA	SETFA	SETFA	XANST	XANST
										Injury Percent	Injury Percent	Control Percent	Control Percent	Control Percent	Control Percent
										7-13-06	7-27-06	7-13-06	7-27-06	7-13-06	7-27-06
										14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A
1	NONTREATED									0	0	0	0	0	0
2	15 GPA									0	0	99	99	99	99
2	HARD WATER (350 PPM)														
2	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
3	15 GPA									0	0	99	99	99	99
3	HARD WATER (350 PPM)														
3	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
3	AMS	100	DRY	1.0	% w/w	8.5	lb/100 gal	8-12"W	A						
4	15 GPA									0	0	99	99	99	99
4	HARD WATER (350 PPM)														
4	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	8-12"W	A						
5	15 GPA									0	0	99	98	99	98
5	HARD WATER (350 PPM)														
5	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	8-12"W	A						
5	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A						
6	15 GPA									0	0	99	98	99	99
6	HARD WATER (350 PPM)														
6	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
6	REPLACE	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A						
7	15 GPA									0	0	99	99	99	99
7	HARD WATER (350 PPM)														
7	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
7	REPLACE	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A						
7	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A						
8	15 GPA									0	0	99	99	99	99
8	HARD WATER (350 PPM)														
8	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
8	REPLACE PLUS	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A						
9	15 GPA									0	0	99	99	99	99
9	HARD WATER (350 PPM)														
9	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
9	REPLACE PLUS	100	LIQ	0.5	% v/v	2	qt/100 gal	8-12"W	A						
10	15 GPA									0	0	99	99	99	99
10	HARD WATER (350 PPM)														
10	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
10	REPLACE PLUS	100	LIQ	0.75	% v/v	3	qt/100 gal	8-12"W	A						
11	15 GPA									0	0	99	99	99	99
11	HARD WATER (350 PPM)														
11	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
11	BORDER XTRA 8L	100	LIQ	2.5	% v/v	2.5	gal/100 gal	8-12"W	A						
12	15 GPA									0	0	99	99	99	99
12	HARD WATER (350 PPM)														
12	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
12	TRANSPORT ULTRA	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A						
13	15 GPA									0	0	99	99	99	99
13	HARD WATER (350 PPM)														
13	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
13	TRANSPORT PLUS	100	LIQ	0.5	% v/v	2	qt/100 gal	8-12"W	A						
14	15 GPA									0	0	99	99	99	99
14	HARD WATER (350 PPM)														
14	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
14	FRACTION	100	DRY	0.36	% w/w	3	lb/100 gal	8-12"W	A						
15	15 GPA									0	0	99	99	99	99
15	HARD WATER (350 PPM)														
15	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A						
15	FRACTION	100	DRY	0.36	% w/w	3	lb/100 gal	8-12"W	A						
15	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A						

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Weed Code						GLXMA	GLXMA	SETFA	SETFA	XANST	XANST			
Crop Code						Injury	Injury	Control	Control	Control	Control			
Rating Data Type						Percent	Percent	Percent	Percent	Percent	Percent			
Rating Unit						7-13-06	7-27-06	7-13-06	7-27-06	7-13-06	7-27-06			
Rating Date						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	Prod Rate	Prod Unit	Grow Stg	Appl Code						
16	7.5 GPA								0	0	99	99		
16	HARD WATER (350 PPM)													
16	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
17	7.5 GPA								0	0	99	99		
17	HARD WATER (350 PPM)													
17	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
17	AMS	100	DRY	2.0 % w/w	17 lb/100 gal		8-12"W	A						
18	7.5 GPA								0	0	99	99		
18	HARD WATER (350 PPM)													
18	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
18	AMS	100	DRY	2.0 % w/w	17 lb/100 gal		8-12"W	A						
18	AIM (ADJUVANT)	100	LIQ	0.0078 % v/v	1 fl oz/100 gal		8-12"W	A						
19	7.5 GPA								0	0	99	99		
19	HARD WATER (350 PPM)													
19	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
19	REPLACE PLUS	100	LIQ	0.5 % v/v	2 qt/100 gal		8-12"W	A						
20	7.5 GPA								0	0	99	99		
20	HARD WATER (350 PPM)													
20	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
20	TRANSPORT PLUS	100	LIQ	0.5 % v/v	2 qt/100 gal		8-12"W	A						
21	7.5 GPA								0	0	99	99		
21	HARD WATER (350 PPM)													
21	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
21	ARRAY	100	DRY	1.08 % w/w	9 lb/100 gal		8-12"W	A						
22	7.5 GPA								0	0	99	99		
22	HARD WATER (350 PPM)													
22	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22 fl oz/a		8-12"W	A						
22	FRACTION	100	DRY	0.36 % w/w	3 lb/100 gal		8-12"W	A						
22	AIM (ADJUVANT)	100	LIQ	0.0078 % v/v	1 fl oz/100 gal		8-12"W	A						
LSD (P=.05)									0.0	0.0	0.0	0.4	0.3	0.5
Replicate F									0.000	0.000	0.000	4.385	2.100	0.589
Replicate Prob(F)									1.0000	1.0000	1.0000	0.0186	0.1351	0.5595
Treatment F									0.000	0.000	0.000	20312.354	46281.028	17280.049
Treatment Prob(F)									1.0000	1.0000	1.0000	0.0001	0.0001	0.0001

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ABUTH	ABUTH	IPOHE	IPOHE
										Control Percent	Control Percent	Control Percent	Control Percent
1	NONTREATED									0	0	0	0
2	15 GPA									42	40	38	62
2	HARD WATER (350 PPM)												
2	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
3	15 GPA									73	74	46	73
3	HARD WATER (350 PPM)												
3	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
3	AMS	100	DRY	1.0	% w/w	8.5	lb/100 gal	8-12"W	A				
4	15 GPA									87	83	42	72
4	HARD WATER (350 PPM)												
4	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	8-12"W	A				
5	15 GPA									88	89	45	72
5	HARD WATER (350 PPM)												
5	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	8-12"W	A				
5	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A				
6	15 GPA									50	53	38	65
6	HARD WATER (350 PPM)												
6	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
6	REPLACE	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A				
7	15 GPA									55	63	45	71
7	HARD WATER (350 PPM)												
7	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
7	REPLACE	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A				
7	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A				
8	15 GPA									48	48	37	62
8	HARD WATER (350 PPM)												
8	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
8	REPLACE PLUS	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A				
9	15 GPA									60	60	42	67
9	HARD WATER (350 PPM)												
9	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
9	REPLACE PLUS	100	LIQ	0.5	% v/v	2	qt/100 gal	8-12"W	A				
10	15 GPA									58	62	43	65
10	HARD WATER (350 PPM)												
10	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
10	REPLACE PLUS	100	LIQ	0.75	% v/v	3	qt/100 gal	8-12"W	A				
11	15 GPA									81	83	43	72
11	HARD WATER (350 PPM)												
11	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
11	BORDER XTRA 8L	100	LIQ	2.5	% v/v	2.5	gal/100 gal	8-12"W	A				
12	15 GPA									50	47	40	65
12	HARD WATER (350 PPM)												
12	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
12	TRANSPORT ULTRA	100	LIQ	0.25	% v/v	1	qt/100 gal	8-12"W	A				
13	15 GPA									50	54	38	67
13	HARD WATER (350 PPM)												
13	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
13	TRANSPORT PLUS	100	LIQ	0.5	% v/v	2	qt/100 gal	8-12"W	A				
14	15 GPA									48	50	44	64
14	HARD WATER (350 PPM)												
14	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
14	FRACTION	100	DRY	0.36	% w/w	3	lb/100 gal	8-12"W	A				
15	15 GPA									52	54	37	65
15	HARD WATER (350 PPM)												
15	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
15	FRACTION	100	DRY	0.36	% w/w	3	lb/100 gal	8-12"W	A				
15	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A				

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Weed Code	ABUTH	ABUTH	IPOHE	IPOHE
Crop Code				
Rating Data Type	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent
Rating Date	7-13-06	7-27-06	7-13-06	7-27-06
Trt-Eval Interval	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				
16	7.5 GPA									62	60	43	68
16	HARD WATER (350 PPM)												
16	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
17	7.5 GPA									79	83	43	72
17	HARD WATER (350 PPM)												
17	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
17	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	8-12"W	A				
18	7.5 GPA									78	80	47	72
18	HARD WATER (350 PPM)												
18	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
18	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	8-12"W	A				
18	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A				
19	7.5 GPA									57	68	42	67
19	HARD WATER (350 PPM)												
19	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
19	REPLACE PLUS	100	LIQ	0.5	% v/v	2	qt/100 gal	8-12"W	A				
20	7.5 GPA									58	67	43	70
20	HARD WATER (350 PPM)												
20	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
20	TRANSPORT PLUS	100	LIQ	0.5	% v/v	2	qt/100 gal	8-12"W	A				
21	7.5 GPA									68	68	46	73
21	HARD WATER (350 PPM)												
21	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
21	ARRAY	100	DRY	1.08	% w/w	9	lb/100 gal	8-12"W	A				
22	7.5 GPA									48	45	42	63
22	HARD WATER (350 PPM)												
22	ROUNDUP W-MAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8-12"W	A				
22	FRACTION	100	DRY	0.36	% w/w	3	lb/100 gal	8-12"W	A				
22	AIM (ADJUVANT)	100	LIQ	0.0078	% v/v	1	fl oz/100 gal	8-12"W	A				
LSD (P= 0.05)										15.2	17.1	6.9	8.5
Replicate F										4.565	0.367	2.707	4.419
Replicate Prob(F)										0.0161	0.6950	0.0783	0.0181
Treatment F										12.682	10.603	15.258	25.387
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001

Trial Comments

1. Protocol: Growmark.
2. Ratings: CI/WC 14 + 28 DAT.
3. Mixing instructions: All treatments use hardwater (350 ppm).
Treatments at 15 GPA use mix size of 0.175 gallon / mix.
Treatments at 7.5 GPA use mix size of 0.0975 gallon / mix.
4. Spraying instructions:
Treatments at 15 GPA use XR 11002 tips.
Treatments at 7.5 GPA use XR 110015 tips.
5. DA-A = Days after 8-12"W application.
6. Not harvested.