

Glyphosate AMS Replacements - Precision Labs.

Trial ID: 09-10A-E110

Location: Belleville Res. Center

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu
 City State Zip Country: Belleville IL 62221 USA
 Trial Status: FINAL Initiation Date: 07-01-09

Objectives: Evaluate the efficacy of AMS replacements for glyphosate applications applied with deionized and hard water as the carrier.

Crop 1: GLXMA Soybean Variety: AG 4404 Description: RR/STS
 Planting Method: SEEDED Planting Date: 07-01-09
 Rate, Unit: 75 LB/A Depth, Unit: 1.0 IN
 Row Spacing, Unit: 30 IN

Pest 1 Type: W Code: IPOHE Ipomoea hederacea (L.) Jacq. morningglory, ivyleaf
 Pest 2 Type: W Code: ABUTH Abutilon theophrasti Medicus velvetleaf
 Pest 3 Type: W Code: AMATA Amaranthus rudis Sauer waterhemp, common
 Pest 4 Type: W Code: AMBTR Ambrosia trifida L. ragweed, giant
 Pest 5 Type: W Code: SETFA Setaria faberi Herrm. foxtail, giant

Plot Width, Unit: 10 FT Site Type: FIELD
 Plot Length, Unit: 20 FT Tillage Type: REDUCED-TILL
 Replications: 3 Study Design: Randomized Complete Block

Prior Crops, Year
 1. GLXMA 2008

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

% OM: 2 Texture: SILT LOAM
 pH: 6.1 Soil Name: PIERRON
 CEC: 12 Fert. Level: P1 77 LB/A, K 441 LB/A

Application Description A

Application Date: 07-30-09
 Time of Day: 9:00
 Application Method: Spray
 Application Timing: 6-8"W
 Application Placement: BROFOL
 Applied By: DKP
 Air Temperature, Unit: 73 F
 % Relative Humidity: 92
 Wind Velocity, Unit: 1 MPH
 Wind Direction: E
 Dew Presence (Y/N): Y
 Soil Moisture: NORMAL
 % Cloud Cover: 95

07-30-09
 Crop stage at application: V2-V3
 Height Min, Max (inch): 6 10

Pest Stage At Each Application

Application Date: 07-30-09
 Weed Code: IPOHE
 Stage Majority (leaves): 12
 Stage Min, Max: 8 16
 Height Majority: 7 IN
 Height Min, Max: 5 9
 Density, Unit: 1 FT2
 Weed Code: ABUTH
 Stage Majority (leaves): 6
 Stage Min, Max: 4 8
 Height Majority: 8 IN
 Height Min, Max: 6 10
 Density, Unit: 0.25 FT2
 Weed Code: AMATA
 Stage Majority (leaves): 8
 Stage Min, Max: 4 14
 Height Majority: 8 IN
 Height Min, Max: 4 16
 Density, Unit: 8 FT2
 Weed Code: AMBTR
 Stage Majority (leaves): 8
 Stage Min, Max: 6 12
 Height Majority: 8 IN
 Height Min, Max: 5 14
 Density, Unit: 0.5 FT2
 Weed Code: SETFA
 Stage Majority (leaves): 5
 Stage Min, Max: 3 7
 Height Majority: 8 IN
 Height Min, Max: 5 14
 Density, Unit: 4 FT2

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Application Equipment

Appl. Equipment:	CO2 sprayer
Operating Pressure:	30 PSI
Nozzle Type:	Flat fan
Nozzle Size:	XR 8002
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	15 GPA

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										GLXMA	GLXMA	IPOHE	IPOHE	ABUTH	ABUTH
										08-13-09	08-27-09	08-13-09	08-27-09	08-13-09	08-27-09
										Injury	Injury	Control	Control	Control	Control
										Percent	Percent	Percent	Percent	Percent	Percent
										14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A
Trt	Treatment	Form	Form	Rate	Other	Other	Growth	Appl							
No.	Name	Conc	Type	Unit	Rate	Rate	Stage	Code							
1	DEIONIZED WATER									0 a	0 a	53 bcd	52 cd	57 bcd	63 b-e
1	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
1	AMS	100	SG	1.02 % w/w	8.5 lb/100 gal	6-8"W	A								
2	DEIONIZED WATER									0 a	0 a	52 bcd	52 cd	57 bcd	52 f
2	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
2	AMS	100	SG	0.15 % w/w	1.25 lb/100 gal	6-8"W	A								
3	DEIONIZED WATER									0 a	0 a	52 bcd	53 bcd	55 b-e	55 ef
3	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
3	OMNIX LDF	100	SL	0.25 % v/v	1 qt/100 gal	6-8"W	A								
4	DEIONIZED WATER									0 a	0 a	47 d	50 cd	50 c-f	58 c-f
4	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
4	OMNIX LDF	100	SL	0.5 % v/v	2 qt/100 gal	6-8"W	A								
5	DEIONIZED WATER									0 a	0 a	50 bcd	50 cd	45 ef	52 f
5	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
5	SYNURGIZE	100	SL	0.25 % v/v	1 qt/100 gal	6-8"W	A								
6	DEIONIZED WATER									0 a	0 a	52 bcd	55 bc	48 def	53 f
6	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
6	SYNURGIZE	100	SL	0.5 % v/v	2 qt/100 gal	6-8"W	A								
7	DEIONIZED WATER									0 a	0 a	57 bc	55 bc	45 ef	52 f
7	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
7	IMPORT	100	SL	0.25 % v/v	1 qt/100 gal	6-8"W	A								
8	DEIONIZED WATER									0 a	0 a	68 a	64 a	60 abc	63 b-e
8	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
8	IMPORT	100	SL	0.5 % v/v	2 qt/100 gal	6-8"W	A								
9	DEIONIZED WATER									0 a	0 a	58 b	58 ab	55 b-e	57 def
9	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
9	IMPORT	100	SL	0.75 % v/v	3 qt/100 gal	6-8"W	A								
10	DEIONIZED WATER									0 a	0 a	57 bc	62 a	60 abc	66 bc
10	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
10	IMPORT	100	SL	1 % v/v	4 qt/100 gal	6-8"W	A								
11	HARD WATER (350 PPM)									0 a	0 a	58 b	62 a	70 a	75 a
11	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
11	AMS	100	SG	1.02 % w/w	8.5 lb/100 gal	6-8"W	A								
12	HARD WATER (350 PPM)									0 a	0 a	55 bcd	58 ab	56 bcd	64 bcd
12	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
12	AMS	100	SG	0.15 % w/w	1.25 lb/100 gal	6-8"W	A								
13	HARD WATER (350 PPM)									0 a	0 a	53 bcd	52 cd	45 ef	52 f
13	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
13	OMNIX LDF	100	SL	0.25 % v/v	1 qt/100 gal	6-8"W	A								
14	HARD WATER (350 PPM)									0 a	0 a	52 bcd	52 cd	50 c-f	53 f
14	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
14	OMNIX LDF	100	SL	0.5 % v/v	2 qt/100 gal	6-8"W	A								
15	HARD WATER (350 PPM)									0 a	0 a	53 bcd	51 cd	43 f	53 f
15	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
15	SYNURGIZE	100	SL	0.25 % v/v	1 qt/100 gal	6-8"W	A								
16	HARD WATER (350 PPM)									0 a	0 a	48 cd	48 d	50 c-f	55 ef
16	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
16	SYNURGIZE	100	SL	0.5 % v/v	2 qt/100 gal	6-8"W	A								
17	HARD WATER (350 PPM)									0 a	0 a	52 bcd	58 ab	60 abc	59 b-f
17	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
17	IMPORT	100	SL	0.25 % v/v	1 qt/100 gal	6-8"W	A								
18	HARD WATER (350 PPM)									0 a	0 a	57 bc	54 bc	48 def	53 f
18	ROUNDUP WEATHERMAX	4.5	SL	0.387 lb ae/a	11 fl oz/a	6-8"W	A								
18	IMPORT	100	SL	0.5 % v/v	2 qt/100 gal	6-8"W	A								

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Pest Code										08-13-09	08-27-09	08-13-09	08-27-09	08-13-09	08-27-09
Crop Code										Injury	Injury	Control	Control	Control	Control
Rating Date										Percent	Percent	Percent	Percent	Percent	Percent
Rating Data Type															
Rating Unit															
Rating Timing															
Trt-Eval Interval										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	Other Rate	Other Rate Unit	Growth Stage	Appl Code						
19	HARD WATER (350 PPM)									0 a	0 a	52 bcd	55 bc	63 ab	65 bcd
19	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
19	IMPORT	100	SL	0.75	% v/v	3	qt/100 gal	6-8"W	A						
20	HARD WATER (350 PPM)									0 a	0 a	57 bc	55 bc	65 ab	67 ab
20	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
20	IMPORT	100	SL	1	% v/v	4	qt/100 gal	6-8"W	A						
21	NONTREATED									0 a	0 a	0 e	0 e	0 g	0 g
LSD (P=.05)										0.0	0.0	9.4	5.8	10.5	8.8
Replicate F										0.000	0.000	0.086	0.356	2.381	1.762
Replicate Prob(F)										1.0000	1.0000	0.9179	0.7024	0.1054	0.1848
Treatment F										0.000	0.000	14.804	38.869	14.400	21.372
Treatment Prob(F)										1.0000	1.0000	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

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Location: Belleville Res. Center

										AMATA	AMATA	AMBTR	AMBTR	SETFA	SETFA
Pest Code										08-13-09	08-27-09	08-13-09	08-27-09	08-13-09	08-27-09
Crop Code										Control	Control	Control	Control	Control	Control
Rating Date										Percent	Percent	Percent	Percent	Percent	Percent
Rating Data Type															
Rating Unit															
Rating Timing															
Trt-Eval Interval										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	Other Rate	Other Rate Unit	Growth Stage	Appl Code						
1	DEIONIZED WATER									79 def	86 abc	58 bc	71 abc	99 a	99 a
1	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
1	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8"W	A						
2	DEIONIZED WATER									86 a-e	70 e	55 c	73 abc	99 a	99 a
2	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
2	AMS	100	SG	0.15	% w/w	1.25	lb/100 gal	6-8"W	A						
3	DEIONIZED WATER									86 a-e	83 abc	58 abc	71 abc	99 b	98 b
3	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
3	OMNIX LDF	100	SL	0.25	% v/v	1	qt/100 gal	6-8"W	A						
4	DEIONIZED WATER									82 c-f	82 a-d	57 bc	76 ab	99 a	99 a
4	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
4	OMNIX LDF	100	SL	0.5	% v/v	2	qt/100 gal	6-8"W	A						
5	DEIONIZED WATER									78 def	78 cde	58 bc	80 a	99 a	99 a
5	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
5	SYNURGIZE	100	SL	0.25	% v/v	1	qt/100 gal	6-8"W	A						
6	DEIONIZED WATER									88 abc	88 ab	50 c	75 ab	99 a	99 a
6	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
6	SYNURGIZE	100	SL	0.5	% v/v	2	qt/100 gal	6-8"W	A						
7	DEIONIZED WATER									89 abc	85 abc	52 c	81 a	99 b	98 b
7	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
7	IMPORT	100	SL	0.25	% v/v	1	qt/100 gal	6-8"W	A						
8	DEIONIZED WATER									93 ab	88 ab	74 a	85 a	99 a	99 a
8	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
8	IMPORT	100	SL	0.5	% v/v	2	qt/100 gal	6-8"W	A						
9	DEIONIZED WATER									90 abc	79 bcd	73 ab	85 a	99 a	99 a
9	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
9	IMPORT	100	SL	0.75	% v/v	3	qt/100 gal	6-8"W	A						
10	DEIONIZED WATER									88 abc	87 abc	58 abc	79 ab	99 a	99 a
10	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
10	IMPORT	100	SL	1	% v/v	4	qt/100 gal	6-8"W	A						
11	HARD WATER (350 PPM)									94 a	90 a	63 abc	85 a	99 a	99 a
11	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
11	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8"W	A						
12	HARD WATER (350 PPM)									73 f	73 de	62 abc	78 ab	99 a	99 a
12	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
12	AMS	100	SG	0.15	% w/w	1.25	lb/100 gal	6-8"W	A						
13	HARD WATER (350 PPM)									78 ef	82 a-d	60 abc	73 abc	99 a	99 a
13	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
13	OMNIX LDF	100	SL	0.25	% v/v	1	qt/100 gal	6-8"W	A						
14	HARD WATER (350 PPM)									84 cde	80 bcd	50 c	65 bc	99 a	99 a
14	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
14	OMNIX LDF	100	SL	0.5	% v/v	2	qt/100 gal	6-8"W	A						
15	HARD WATER (350 PPM)									86 a-e	73 de	50 c	60 c	99 a	99 a
15	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
15	SYNURGIZE	100	SL	0.25	% v/v	1	qt/100 gal	6-8"W	A						
16	HARD WATER (350 PPM)									85 b-e	82 a-d	48 c	65 bc	99 a	99 a
16	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
16	SYNURGIZE	100	SL	0.5	% v/v	2	qt/100 gal	6-8"W	A						
17	HARD WATER (350 PPM)									85 b-e	80 bcd	53 c	73 abc	99 a	99 a
17	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
17	IMPORT	100	SL	0.25	% v/v	1	qt/100 gal	6-8"W	A						
18	HARD WATER (350 PPM)									88 abc	83 abc	50 c	73 abc	99 a	99 a
18	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
18	IMPORT	100	SL	0.5	% v/v	2	qt/100 gal	6-8"W	A						

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Pest Code										08-13-09	08-27-09	08-13-09	08-27-09	08-13-09	08-27-09
Crop Code										Control	Control	Control	Control	Control	Control
Rating Date										Percent	Percent	Percent	Percent	Percent	Percent
Rating Data Type															
Rating Unit															
Rating Timing															
Trt-Eval Interval										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	Other Rate	Other Rate Unit	Growth Stage	Appl Code						
19	HARD WATER (350 PPM)									87 a-d	83 abc	53 c	77 ab	99 a	99 a
19	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
19	IMPORT	100	SL	0.75	% v/v	3	qt/100 gal	6-8"W	A						
20	HARD WATER (350 PPM)									83 cde	80 bcd	52 c	73 abc	99 a	99 a
20	ROUNDUP WEATHERMAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A						
20	IMPORT	100	SL	1	% v/v	4	qt/100 gal	6-8"W	A						
21	NONTREATED									0 g	0 f	0 d	0 d	0 c	0 c
LSD (P=.05)										8.6	9.1	15.8	14.8	0.3	0.6
Replicate F										1.349	8.011	4.788	0.204	2.105	2.105
Replicate Prob(F)										0.2710	0.0012	0.0149	0.8165	0.1351	0.1351
Treatment F										41.240	34.028	6.682	11.743	46395.532	11591.817
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Trial Comments

1. Protocol: Precision Labs.
2. Ratings: CI/WC at 14 and 28 DAT.
3. Use hardwater (350 ppm) and DI water, see treatment list.
4. Not harvested.