

Water Conditioning Agents - Agrilience.

Project Code: 05-2C-ME60 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:** 11-14-05

Objective:

Compare AMS replacements using hard water for glyphosate applications.

Weed Code	Common Name	Scientific Name
1. PANDI	panicum, fall	Panicum dichotomiflorum Michx.
2. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
3. CYPES	nutsedge, yellow	Cyperus esculentus L.
4. AMATA	waterhemp, common	Amaranthus rudis Sauer
5. ABUTH	velvetleaf	Abutilon theophrasti Medicus
6. SETFA	foxtail, giant	Setaria faberi Herrm.

Crop 1: GLXMA soybean **Variety:** Asgrow 4403 RR
Planting Method: Seeded **Planting Date:** 5-12-05
Rate: 75 lb/A **Depth:** 1.0 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 28 FT **Reps:** 3
Tillage Type: No-Till **Study Design:** Randomized complete block
Previous Crop, Year: GLXMA, 2004

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K20 100 LB/A

Soil Name: Weir **% OM:** 1.6 **pH:** 6.4 **CEC:** 8
Texture: Silt loam **Fert. Level:** P1: 92 LB/A, K: 365 LB/A

APPLICATION DESCRIPTION

A
Application Date: 06-16-05
Time of Day: 13:30
Application Method: Spray
Application Timing: 6-8"W
Applic. Placement: BROFOL
Air Temp., Unit: 78 F
% Relative Humidity: 40
Wind Velocity, Unit: 3 MPH
Soil Moisture: ABONOR

CROP STAGE AT EACH APPLICATION

A
Crop 1 Code, Stage: GLXMA V2-V3
Height, Unit: 7-8 IN

WEED STAGE AT EACH APPLICATION

A
Weed 1 Code: PANDI
Stage (leaves): 5-7
Height (inches): 9-10
Density: High
Weed 2 Code: AMBEL
Stage (leaves): 8-10
Height (inches): 9-10
Density: High
Weed 3 Code: CYPES
Stage (leaves): 5-8
Height (inches): 8-10
Density: Low
Weed 4 Code: AMATA
Stage (leaves): 5-8
Height (inches): 6-8
Density: Medium
Weed 5 Code: ABUTH
Stage (leaves): 5-10
Height (inches): 8-10
Density: Low
Weed 6 Code: SETFA
Stage (leaves): 5-8
Height (inches): 9-10
Density: High

APPLICATION EQUIPMENT

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

NOTES:

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	GLXMA Injury Percent 06-30-05 14 DA-A	GLXMA Injury Percent 07-14-05 28 DA-A	PANDI Control Percent 06-30-05 14 DA-A	PANDI Control Percent 07-14-05 28 DA-A	AMBEL Control Percent 06-30-05 14 DA-A	AMBEL Control Percent 07-14-05 28 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code		
1	HARD WATER (350 PPM)									0	0
1	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	92	88
										83	92
2	HARD WATER (350 PPM)									0	0
2	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	97	96
2	N-PAK AMS	100	LIQ	5	% v/v	5	% v/v	6-8"W	A	88	88
										83	91
3	HARD WATER (350 PPM)									0	0
3	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	98	96
3	CLASS ACT NG	100	LIQ	2.5	% v/v	2.5	% v/v	6-8"W	A	83	91
										90	94
4	HARD WATER (350 PPM)									0	0
4	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	92	95
4	ALLIANCE	100	LIQ	1.25	% v/v	1.25	% v/v	6-8"W	A	84	91
										88	91
5	HARD WATER (350 PPM)									0	0
5	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	93	88
5	ALLIANCE	100	LIQ	0.75	% v/v	0.75	% v/v	6-8"W	A	84	91
										91	97
6	HARD WATER (350 PPM)									0	0
6	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	92	91
6	AG 03019	100	LIQ	0.5	% v/v	0.5	% v/v	6-8"W	A	91	97
										82	88
7	HARD WATER (350 PPM)									0	0
7	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	93	87
7	AG 03019	100	LIQ	1.0	% v/v	1	% v/v	6-8"W	A	82	88
										96	95
8	HARD WATER (350 PPM)									0	0
8	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	96	95
8	ALLIANCE	100	LIQ	1.25	% v/v	1.25	% v/v	6-8"W	A	86	89
8	AG 05017	100	LIQ	4	fl oz/a	4	fl oz/a	6-8"W	A	85	92
										99	98
9	HARD WATER (350 PPM)									0	0
9	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	99	98
9	CLASS ACT NG	100	LIQ	2.5	% v/v	2.5	% v/v	6-8"W	A	85	92
9	AG 05017	100	LIQ	4	fl oz/a	4	fl oz/a	6-8"W	A	87	90
										90	86
10	HARD WATER (350 PPM)									0	0
10	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	90	86
10	AG 05054	100	DRY	0.48	% w/w	4	lb/100 gal	6-8"W	A	87	90
										0	0
11	NONTREATED									0	0
										0	0
12	DEIONIZED WATER									0	0
12	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A	96	92
										85	93
	LSD (P=.05)									0.3	0.0
	Replicate F									1.000	0.000
	Replicate Prob(F)									0.3840	1.0000
	Treatment F									1.000	0.000
	Treatment Prob(F)									0.4767	1.0000
										2.888	1.098
										0.0770	0.3511
										0.8645	0.5403
										120.479	98.461
										17.764	166.182
										0.0001	0.0001
										0.0001	0.0001

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										CYPES	CYPES	AMATA	AMATA	ABUTH	ABUTH
Trt	Treatment	Form	Form	Rate	Prod	Prod	Grow	Appl		Control	Control	Control	Control	Control	Control
No.	Name	Conc	Type	Unit	Rate	Unit	Stg	Code		Percent	Percent	Percent	Percent	Percent	Percent
										06-30-05	07-14-05	06-30-05	07-14-05	06-30-05	07-14-05
										14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A
1	HARD WATER (350 PPM)									89	92	89	83	86	94
1	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
2	HARD WATER (350 PPM)									96	96	91	86	93	94
2	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
2	N-PAK AMS	100	LIQ	5 % v/v	5 % v/v		6-8"W	A							
3	HARD WATER (350 PPM)									91	93	98	97	99	99
3	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
3	CLASS ACT NG	100	LIQ	2.5 % v/v	2.5 % v/v		6-8"W	A							
4	HARD WATER (350 PPM)									90	95	87	87	81	85
4	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
4	ALLIANCE	100	LIQ	1.25 % v/v	1.25 % v/v		6-8"W	A							
5	HARD WATER (350 PPM)									94	93	95	94	83	83
5	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
5	ALLIANCE	100	LIQ	0.75 % v/v	0.75 % v/v		6-8"W	A							
6	HARD WATER (350 PPM)									94	96	97	94	70	85
6	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
6	AG 03019	100	LIQ	0.5 % v/v	0.5 % v/v		6-8"W	A							
7	HARD WATER (350 PPM)									83	88	95	85	89	91
7	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
7	AG 03019	100	LIQ	1.0 % v/v	1 % v/v		6-8"W	A							
8	HARD WATER (350 PPM)									93	93	97	96	85	83
8	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
8	ALLIANCE	100	LIQ	1.25 % v/v	1.25 % v/v		6-8"W	A							
8	AG 05017	100	LIQ	4 fl oz/a	4 fl oz/a		6-8"W	A							
9	HARD WATER (350 PPM)									91	95	99	96	93	89
9	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
9	CLASS ACT NG	100	LIQ	2.5 % v/v	2.5 % v/v		6-8"W	A							
9	AG 05017	100	LIQ	4 fl oz/a	4 fl oz/a		6-8"W	A							
10	HARD WATER (350 PPM)									95	91	90	85	97	99
10	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
10	AG 05054	100	DRY	0.48 % w/w	4 lb/100 gal		6-8"W	A							
11	NONTREATED									0	0	0	0	0	0
12	DEIONIZED WATER									88	96	97	97	99	97
12	ROUNDUP W-MAX	4.5	SL	0.387 lb ae/a	11 fl oz/a		6-8"W	A							
LSD (P=.05)										12.3	7.0	10.3	12.8	24.3	22.8
Replicate F										1.280	6.608	1.000	3.746	1.737	2.843
Replicate Prob(F)										0.2978	0.0057	0.3840	0.0398	0.1994	0.0798
Treatment F										40.577	129.081	61.161	37.539	10.560	11.921
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Weed Code	SETFA	SETFA
Crop Code		
Rating Data Type	Control	Control
Rating Unit	Percent	Percent
Rating Date	06-30-05	07-14-05
Trt-Eval Interval	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		
1	HARD WATER (350 PPM)									99	99
1	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
2	HARD WATER (350 PPM)									99	99
2	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
2	N-PAK AMS	100	LIQ	5	% v/v	5	% v/v	6-8"W	A		
3	HARD WATER (350 PPM)									99	99
3	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
3	CLASS ACT NG	100	LIQ	2.5	% v/v	2.5	% v/v	6-8"W	A		
4	HARD WATER (350 PPM)									99	99
4	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
4	ALLIANCE	100	LIQ	1.25	% v/v	1.25	% v/v	6-8"W	A		
5	HARD WATER (350 PPM)									99	99
5	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
5	ALLIANCE	100	LIQ	0.75	% v/v	0.75	% v/v	6-8"W	A		
6	HARD WATER (350 PPM)									99	99
6	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
6	AG 03019	100	LIQ	0.5	% v/v	0.5	% v/v	6-8"W	A		
7	HARD WATER (350 PPM)									99	99
7	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
7	AG 03019	100	LIQ	1.0	% v/v	1	% v/v	6-8"W	A		
8	HARD WATER (350 PPM)									99	99
8	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
8	ALLIANCE	100	LIQ	1.25	% v/v	1.25	% v/v	6-8"W	A		
8	AG 05017	100	LIQ	4	fl oz/a	4	fl oz/a	6-8"W	A		
9	HARD WATER (350 PPM)									99	99
9	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
9	CLASS ACT NG	100	LIQ	2.5	% v/v	2.5	% v/v	6-8"W	A		
9	AG 05017	100	LIQ	4	fl oz/a	4	fl oz/a	6-8"W	A		
10	HARD WATER (350 PPM)									99	99
10	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
10	AG 05054	100	DRY	0.48	% w/w	4	lb/100 gal	6-8"W	A		
11	NONTREATED									0	0
12	DEIONIZED WATER									99	99
12	ROUNDUP W-MAX	4.5	SL	0.387	lb ae/a	11	fl oz/a	6-8"W	A		
LSD (P=.05)										0.0	0.0
Replicate F										0.000	0.000
Replicate Prob(F)										1.0000	1.0000
Treatment F										0.000	0.000
Treatment Prob(F)										1.0000	1.0000

Trial Comments

1. Protocol: Agrilience.
2. Ratings: CI/WC 14 and 28 DAT.
3. Hard water was created by adding CaCl₂ at concentration of 350 ppm of CaCO₃ equivalent.
4. DA-A = Days after 6-8"W application.