AMS Replacements for Glyphosate Applications.

01-2A-ME70

OBJECTIVE: Evaluate replacements for AMS in simulated hard water applications of glyphosate.

SUMMARY: No soybean injury was observed in this study. Roundup Ultra Max in distilled water controlled 48% of fall panicum and 60% of common ragweed at 28 days after treatment (DAT). Adding AMS to Roundup Ultra Max in distilled water did not significantly increase control of fall panicum or common ragweed. Applying Roundup Ultra Max in hard water reduced fall panicum control by 36%. Fall panicum control 28 DAT was increased with the addition of AMS, MCFC-UP-1, 28% UAN, or Array to Roundup Ultra Max in hard water. Similarly, common ragweed control in hard water was increased with the addition of AMS, MCFC-UP-1 at 5 lb/100 gal, 28% UAN, or Array. Roundup Ultra Max controlled 47% of Pennsylvania smartweed in distilled water. There was no decrease in Pennsylvania smartweed control when Roundup was applied in hard water. Smartweed control was increased when AMS at 8.5 lb/100 gal or 28% UAN was added to Roundup Ultra Max in distilled or hard water.

HERBICIDES / ADJUVANTS / OTHER	WEEDS	CROP
ROUNDUP ULTRA MAX 3.7 SL	panicum, fall	soybean
28% UAN 100 LIQ	ragweed, common	
AMS 100 DRY	smartweed, Pennsylvania	
CALFA 100 LIQ		
CHOICE 100 LIQ		
MCFC-UP-1 100 DRY		
RUSA 703 100 DRY		
HARD WATER		

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

AMS Replacements for Glyphosate Applications.

Project Code: 01-2A-ME70 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:** 5-1-01

Objective:
Evaluate replacements for AMS in simulated hard water applications of glyphosate.

Weed Code	Common Name	Scientific Name
1.	PANDI panicum, fall	Panicum dichotomiflorum Michx.
2.	AMBEL ragweed, common	Ambrosia artemisiifolia L.
3.	POLPY smartweed, Pennsylvania	Polygonum pensylvanicum L.

Crop 1: GLXMA soybean **Variety:** B-T 371CR
Planting Method: Seeded **Planting Date:** 5-11-01
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: Reduced-Till **Study Design:** Randomized complete block
Previous Crop, Year: ZEAMX, 2000
Field Prep./Maintenance: N 0 LB/A, P2O5 0 LB/A, K2O 150 LB/A

Soil Name: Weir **% OM:** 1.5 **pH:** 6.4 **CEC:** 10
Texture: Silt loam **Fert. Level:** P1: 81 LB/A, K: 274 LB/A

APPLICATION DESCRIPTION

	A
Application Date:	6-20-01
Time of Day:	15:30
Application Method:	Spray
Application Timing:	8"W
Applic. Placement:	BROFOL
Air Temp., Unit:	85 F
% Relative Humidity:	60
Wind Velocity, Unit:	5-7 MPH
Soil Moisture:	BELNOR
% Cloud Cover:	70

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GLXMA V4
Height, Unit:	7-8 IN

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	PANDI
Stage(leaves):	6-8
Height(inches):	6-8
Density:	Medium
Weed 2 Code:	AMBEL
Stage(leaves):	4-8
Height(inches):	3-5
Density:	High
Weed 3 Code:	POLPY
Stage(leaves):	2-4
Height(inches):	2-4
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.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Injury Percent 7-4-01 14 DA-A	GLXMA Injury Percent 7-18-01 28 DA-A	PANDI Control Percent 7-4-01 14 DA-A	PANDI Control Percent 7-18-01 28 DA-A	AMBEL Control Percent 7-4-01 14 DA-A	AMBEL Control Percent 7-18-01 28 DA-A	POLPY Control Percent 7-4-01 14 DA-A	POLPY Control Percent 7-18-01 28 DA-A
1	NONTREATED									0	0	0	0	0	0	0	0
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A	0	0	50	48	58	60	42	47
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A	0	0	60	52	70	63	55	60
3	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	8"W	A								
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A	0	0	57	47	68	62	47	55
4	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	8"W	A								
5	HARD WATER									0	0	25	12	43	38	43	48
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
6	HARD WATER									0	0	65	53	70	65	67	62
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
6	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	8"W	A								
7	HARD WATER									0	0	57	48	72	60	65	58
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
7	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	8"W	A								
8	HARD WATER									0	0	32	17	50	32	42	32
8	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
8	CALFA	100	LIQ	0.125	% V/V	1	PT/100 GAL	8"W	A								
9	HARD WATER									0	0	32	20	52	37	33	42
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
9	CALFA	100	LIQ	0.25	% V/V	2	PT/100 GAL	8"W	A								
10	HARD WATER									0	0	42	28	50	57	40	45
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
10	MCFC-UP-1	100	DRY	0.36	% W/W	3	LB/100 GAL	8"W	A								
11	HARD WATER									0	0	58	40	62	45	48	50
11	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
11	MCFC-UP-1	100	DRY	0.6	% W/W	5	LB/100 GAL	8"W	A								
12	HARD WATER									0	0	43	17	53	35	45	33
12	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
12	CHOICE	100	LIQ	0.75	% V/V	6	PT/100 GAL	8"W	A								
13	HARD WATER									0	0	62	38	68	60	65	65
13	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
13	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	8"W	A								
14	HARD WATER									0	0	57	47	60	58	43	47
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	8"W	A								
14	RUSA 703	100	DRY	1.68	% W/W	14	LB/100 GAL	8"W	A								
LSD (P=.05)										0.0	0.0	13.5	10.8	13.3	7.4	13.7	8.9
Replicate F										0.000	0.000	0.563	13.580	15.020	0.213	1.784	1.046
Replicate Prob(F)										1.0000	1.0000	0.5764	0.0001	0.0001	0.8095	0.1880	0.3657
Treatment F										0.000	0.000	15.393	22.194	16.052	50.700	12.369	29.458
Treatment Prob(F)										1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Trial Comments

1. Protocol: Miller Chemical.
2. DA-A = days after 8"W application.
3. All treatments originated from a deionized water source.
   Hard water was created by adding $CaCl_2$ at a concentration of 12.5 mM (500 ppm Ca).