

Water Conditioning Efficacy with Unloaded Glyphosate - United Suppliers.

Project Code: 05-22-N50      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 glyphosate efficacy in hard water with three experimental water conditioners compared to Fasttrack and AMS.

Weed Code	Common Name	Scientific Name
1.	SETFA foxtail, giant	Setaria faberi Herrm.
2.	AMATA waterhemp, common	Amaranthus rudis Sauer
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:	5-18-05
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	23 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2004				

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

Soil Name:	Clarksdale	% OM:	2.1	pH:	6.5	CEC:	10
Texture:	Silt loam	Fert. Level:	P1: 99 LB/A, K: 493 LB/A				

**APPLICATION DESCRIPTION**

A	
Application Date:	06-16-05
Time of Day:	11:15
Application Method:	Spray
Application Timing:	3-5"W
Applic. Placement:	BROFOL
Air Temp., Unit:	78 F
% Relative Humidity:	40
Wind Velocity, Unit:	4 MPH
Soil Moisture:	ABONOR

**CROP STAGE AT EACH APPLICATION**

A	
Crop 1 Code, Stage:	GLXMA V2-V3
Height, Unit:	5-6 IN

**WEED STAGE AT EACH APPLICATION**

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

**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:	12.5 GPA

NOTES:

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Weed Code								GLXMA	GLXMA	GLXMA	GLXMA	SETFA	SETFA	SETFA
Crop Code								Injury	Injury	Injury	Injury	Control	Control	Control
Rating Data Type								Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit								06-19-05	06-23-05	06-30-05	07-07-05	06-23-05	06-30-05	07-07-05
Rating Date								3 DA-A	7 DA-A	14 DA-A	21 DA-A	7 DA-A	14 DA-A	21 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	HARD WATER (350 PPM)									0	0	0	0	
1	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A					
1	FASTTRACK	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
2	HARD WATER (350 PPM)									0	0	0	0	
2	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A					
2	USEXP5	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
3	HARD WATER (350 PPM)									0	0	0	0	
3	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A					
3	USEXP6	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
4	HARD WATER (350 PPM)									0	0	0	0	
4	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A					
4	USEXP7	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
5	HARD WATER (350 PPM)									0	0	0	0	
5	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A					
5	CHEMSURF	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	3-5"	W A					
6	HARD WATER (350 PPM)									0	0	0	0	
6	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A					
6	FASTTRACK	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
7	HARD WATER (350 PPM)									0	0	0	0	
7	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A					
7	USEXP5	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
8	HARD WATER (350 PPM)									0	0	0	0	
8	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A					
8	USEXP6	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
9	HARD WATER (350 PPM)									0	0	0	0	
9	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A					
9	USEXP7	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
10	HARD WATER (350 PPM)									1	8	0	0	
10	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A					
10	CHEMSURF	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A					
10	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	3-5"	W A					
11	NONTREATED									0	0	0	0	
LSD (P=.05)										0.3	0.9	0.0	0.0	
Replicate F										1.000	1.000	0.000	0.000	
Replicate Prob(F)										0.3855	0.3855	1.0000	1.0000	
Treatment F										16.000	64.000	0.000	0.000	
Treatment Prob(F)										0.0001	0.0001	1.0000	1.0000	

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										AMATA	AMATA	AMATA	ABUTH	ABUTH	ABUTH
										Control	Control	Control	Control	Control	Control
										Percent	Percent	Percent	Percent	Percent	Percent
										06-23-05	06-30-05	07-07-05	06-23-05	06-30-05	07-07-05
										7 DA-A	14 DA-A	21 DA-A	7 DA-A	14 DA-A	21 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)									95	99	99	62	68	72
1	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a		3-5"W A						
1	FASTTRACK	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
2	HARD WATER (350 PPM)									95	99	99	63	67	73
2	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a		3-5"W A						
2	USEXP5	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
3	HARD WATER (350 PPM)									96	99	99	62	78	78
3	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a		3-5"W A						
3	USEXP6	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
4	HARD WATER (350 PPM)									95	99	99	73	75	77
4	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a		3-5"W A						
4	USEXP7	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
5	HARD WATER (350 PPM)									95	99	99	87	95	99
5	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a		3-5"W A						
5	CHEMSURF	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal		3-5"W A						
6	HARD WATER (350 PPM)									94	99	99	63	67	72
6	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a		3-5"W A						
6	FASTTRACK	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
7	HARD WATER (350 PPM)									95	99	99	62	70	73
7	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a		3-5"W A						
7	USEXP5	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
8	HARD WATER (350 PPM)									85	91	99	60	68	72
8	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a		3-5"W A						
8	USEXP6	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
9	HARD WATER (350 PPM)									95	99	99	70	70	75
9	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a		3-5"W A						
9	USEXP7	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
10	HARD WATER (350 PPM)									95	99	99	85	96	99
10	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a		3-5"W A						
10	CHEMSURF	100	LIQ	0.25	% v/v	1	qt/100 gal		3-5"W A						
10	AMS	100	DRY	2.0	% w/w	17	lb/100 gal		3-5"W A						
11	NONTREATED									0	0	0	0	0	0
LSD (P=.05)										2.8	3.6	0.0	4.8	4.5	3.6
Replicate F										0.708	1.000	0.000	0.377	3.265	3.276
Replicate Prob(F)										0.5046	0.3855	1.0000	0.6904	0.0593	0.0588
Treatment F										889.007	578.621	0.000	193.509	264.879	458.560
Treatment Prob(F)										0.0001	0.0001	1.0000	0.0001	0.0001	0.0001

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Weed Code	IPOHE	IPOHE	IPOHE
Crop Code			
Rating Data Type	Control	Control	Control
Rating Unit	Percent	Percent	Percent
Rating Date	06-23-05	06-30-05	07-07-05
Trt-Eval Interval	7 DA-A	14 DA-A	21 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	IPOHE	IPOHE	IPOHE
1	HARD WATER (350 PPM)									50	60	55
1	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A			
1	FASTTRACK	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
2	HARD WATER (350 PPM)									50	60	55
2	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A			
2	USEXP5	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
3	HARD WATER (350 PPM)									50	60	55
3	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A			
3	USEXP6	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
4	HARD WATER (350 PPM)									50	60	55
4	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A			
4	USEXP7	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
5	HARD WATER (350 PPM)									55	60	55
5	GLY STAR ORIGINAL	3	SL	0.75	lb ae/a	32	fl oz/a	3-5"	W A			
5	CHEMSURF	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	3-5"	W A			
6	HARD WATER (350 PPM)									50	60	55
6	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A			
6	FASTTRACK	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
7	HARD WATER (350 PPM)									50	60	55
7	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A			
7	USEXP5	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
8	HARD WATER (350 PPM)									50	60	55
8	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A			
8	USEXP6	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
9	HARD WATER (350 PPM)									52	60	55
9	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A			
9	USEXP7	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
10	HARD WATER (350 PPM)									55	60	55
10	TOUCHDOWN HI-TECH	5	SC	0.75	lb ae/a	19.2	fl oz/a	3-5"	W A			
10	CHEMSURF	100	LIQ	0.25	% v/v	1	qt/100 gal	3-5"	W A			
10	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	3-5"	W A			
11	NONTREATED									0	0	0
LSD (P=.05)										1.5	0.0	0.0
Replicate F										1.000	0.000	0.000
Replicate Prob(F)										0.3855	1.0000	1.0000
Treatment F										958.000	0.000	0.000
Treatment Prob(F)										0.0001	1.0000	1.0000

Trial Comments

1. Protocol: United Suppliers.
2. Ratings: CI 3 DAT; CI/WC 7, 14, and 21 DAT.
3. All treatments use hard water.
4. Hard water was created by adding CaCl2 at concentration of 350 ppm of CaCO3 equivalent.
5. DA-A = Days after 3-5"W application.