

Glyphosate with Acidic AMS Replacement Adjuvants - Deionized Water.

Trial ID: 09-11C-E90

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: 06-30-09

Objectives: Evaluate the efficacy of acidic AMS replacement adjuvant products with glyphosate in the absence of hard water cations.

Crop 1: GLXMA Soybean	Variety: AG 4404	Description: RR/STS
Planting Method: SEEDED	Planting Date: 06-30-09	
Rate, Unit: 75 LB/A	Depth, Unit: 1.0 IN	
Row Spacing, Unit: 30 IN		

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

Plot Width, Unit: 10	FT	Site Type: FIELD
Plot Length, Unit: 27	FT	Tillage Type: REDUCED-TILL
Replications: 3		Study Design: Randomized Complete Block

Prior Crops, Year
1. ZEAMD 2008

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

% OM: 2.3	Texture: SILT LOAM
pH: 5.8	Soil Name: BETHALTO
CEC: 13	Fert. Level: P1 84 LB/A, K 456 LB/A

Application Description

Application Date:	07-30-09
Time of Day:	8:30
Application Method:	Spray
Application Timing:	6-8"W
Application Placement:	BROFOL
Applied By:	NVH
Air Temperature, Unit:	72 F
% Relative Humidity:	92
Wind Velocity, Unit:	1 MPH
Dew Presence (Y/N):	N
Soil Moisture:	NORMAL
% Cloud Cover:	75

	07-30-09
Crop stage at application:	V4
Height Min, Max (inch):	6 8

Pest Stage At Each Application

Application Date:	07-30-09
Weed Code:	ABUTH
Stage Majority (leaves):	4
Stage Min, Max:	2 5
Height Majority:	7 IN
Height Min, Max:	1.5 9
Density, Unit:	0.2 FT2
Weed Code:	IPOHE
Stage Majority (leaves):	6
Stage Min, Max:	4 8
Height Majority:	6.5 IN
Height Min, Max:	3.5 8
Density, Unit:	0.5 FT2
Weed Code:	AMATA
Stage Majority (leaves):	8
Stage Min, Max:	6 12
Height Majority:	7 IN
Height Min, Max:	3 7
Density, Unit:	15 FT2
Weed Code:	SETFA
Stage Majority (leaves):	3
Stage Min, Max:	2 5
Height Majority:	7.5 IN
Height Min, Max:	4 10
Density, Unit:	10 FT2

Application Equipment

Appl. Equipment:	CO2 sprayer
Operating Pressure:	30 PSI
Nozzle Type:	Flat fan
Nozzle Size:	TT 110015
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	10 GPA

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Pest Code Crop Code Rating Date Rating Data Type Rating Unit Rating Timing Trt-Eval Interval										07-30-09 Spray sol. pH after mixing	GLXMA 08-13-09 Injury Percent 14 DAT	GLXMA 08-27-09 Injury Percent 28 DAT	ABUTH 08-13-09 Control Percent 14 DAT	ABUTH 08-27-09 Control Percent 28 DAT	IPOHE 08-13-09 Control Percent 14 DAT	IPOHE 08-27-09 Control Percent 28 DAT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code								
1	DEIONIZED WATER									4.98	0 a	0 a	28 g	28 g	37 d	32 e	
1	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
2	DEIONIZED WATER									5.03	0 a	0 a	30 g	32 fg	45 bc	38 de	
2	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
2	R-11	100	SL	0.25	% v/v	0.25	% v/v	6-8" W	A								
3	DEIONIZED WATER									5.04	0 a	0 a	58 a	69 a	50 abc	52 a	
3	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
3	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8" W	A								
4	DEIONIZED WATER									4.98	0 a	0 a	48 bcd	60 b	48 abc	48 ab	
4	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
4	R-11	100	SL	0.25	% v/v	0.25	% v/v	6-8" W	A								
4	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8" W	A								
5	DEIONIZED WATER									3.30	0 a	0 a	42 def	42 de	43 cd	40 cd	
5	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
5	CUT RATE	100	SG	0.24	% w/w	2	lb/100 gal	6-8" W	A								
6	DEIONIZED WATER									3.13	0 a	0 a	57 ab	45 cd	52 ab	39 cde	
6	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
6	CUT RATE	100	SG	0.48	% w/w	4	lb/100 gal	6-8" W	A								
7	DEIONIZED WATER									2.66	0 a	0 a	40 def	42 de	48 abc	45 a-d	
7	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
7	HEL-FIRE	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A								
8	DEIONIZED WATER									2.29	0 a	0 a	37 efg	32 fg	43 cd	40 cd	
8	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
8	HEL-FIRE	100	SL	1	% v/v	1	% v/v	6-8" W	A								
9	DEIONIZED WATER									2.07	0 a	0 a	35 fg	35 efg	50 abc	47 abc	
9	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
9	IMPORT	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A								
10	DEIONIZED WATER									1.88	0 a	0 a	43 def	43 cde	52 ab	47 abc	
10	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
10	IMPORT	100	SL	1	% v/v	1	% v/v	6-8" W	A								
11	DEIONIZED WATER									2.40	0 a	0 a	37 efg	37 d-g	47 bc	43 bcd	
11	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
11	CT-301	100	SL	0.0313	% v/v	4	fl oz/100 gal	6-8" W	A								
12	DEIONIZED WATER									2.30	0 a	0 a	45 de	39 def	47 bc	45 a-d	
12	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
12	CT-301	100	SL	0.0625	% v/v	8	fl oz/100 gal	6-8" W	A								
13	DEIONIZED WATER									2.42	0 a	0 a	48 bcd	38 def	50 abc	45 a-d	
13	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
13	ET 4000	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A								
14	DEIONIZED WATER									2.13	0 a	0 a	55 abc	51 c	55 a	47 abc	
14	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
14	ET 4000	100	SL	1	% v/v	1	% v/v	6-8" W	A								
15	DEIONIZED WATER									2.59	0 a	0 a	40 def	32 fg	47 bc	39 cde	
15	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
15	N-TENSE	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A								
16	DEIONIZED WATER									2.20	0 a	0 a	47 cd	40 def	48 abc	47 abc	
16	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A								
16	N-TENSE	100	SL	1	% v/v	1	% v/v	6-8" W	A								
17	NONTREATED									.	0 a	0 a	0 h	0 h	0 e	0 f	
LSD (P=.05)											.	0.0	0.0	9.5	8.4	7.5	8.0
Replicate F												0.000	0.000	1.128	0.010	0.670	3.862
Replicate Prob(F)												1.0000	1.0000	0.3363	0.9900	0.5189	0.0314
Treatment F												0.000	0.000	16.902	24.858	22.000	17.537
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)

Glyphosate with Acidic AMS Replacement Adjuvants - Deionized Water.

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								AMATA	AMATA	SETFA	SETFA
Pest Code								08-13-09	08-27-09	08-13-09	08-27-09
Crop Code								Control	Control	Control	Control
Rating Date								Percent	Percent	Percent	Percent
Rating Data Type											
Rating Unit											
Rating Timing											
Trt-Eval Interval								14 DAT	28 DAT	14 DAT	28 DAT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
1	DEIONIZED WATER									45 f	45 ef
1	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	90 e	85 e
2	DEIONIZED WATER									62 de	53 b-f
2	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	95 a-d	96 ab
2	R-11	100	SL	0.25	% v/v	0.25	% v/v	6-8" W	A		
3	DEIONIZED WATER									86 a	75 a
3	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	98 ab	98 a
3	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8" W	A		
4	DEIONIZED WATER									83 ab	66 ab
4	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	99 ab	98 a
4	R-11	100	SL	0.25	% v/v	0.25	% v/v	6-8" W	A		
4	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8" W	A		
5	DEIONIZED WATER									60 de	47 ef
5	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	92 de	95 ab
5	CUT RATE	100	SG	0.24	% w/w	2	lb/100 gal	6-8" W	A		
6	DEIONIZED WATER									65 d	48 def
6	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	91 de	90 cd
6	CUT RATE	100	SG	0.48	% w/w	4	lb/100 gal	6-8" W	A		
7	DEIONIZED WATER									65 d	54 b-f
7	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	99 a	98 a
7	HEL-FIRE	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A		
8	DEIONIZED WATER									68 cd	63 abc
8	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	98 ab	98 a
8	HEL-FIRE	100	SL	1	% v/v	1	% v/v	6-8" W	A		
9	DEIONIZED WATER									79 abc	55 b-f
9	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	99 a	99 a
9	IMPORT	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A		
10	DEIONIZED WATER									70 bcd	60 bcd
10	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	99 a	99 a
10	IMPORT	100	SL	1	% v/v	1	% v/v	6-8" W	A		
11	DEIONIZED WATER									58 def	45 ef
11	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	95 a-d	93 bc
11	CT-301	100	SL	0.0313	% v/v	4	fl oz/100 gal	6-8" W	A		
12	DEIONIZED WATER									50 ef	43 f
12	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	94 b-e	96 ab
12	CT-301	100	SL	0.0625	% v/v	8	fl oz/100 gal	6-8" W	A		
13	DEIONIZED WATER									70 bcd	48 def
13	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	93 cde	88 de
13	ET 4000	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A		
14	DEIONIZED WATER									67 cd	57 b-e
14	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	97 abc	97 ab
14	ET 4000	100	SL	1	% v/v	1	% v/v	6-8" W	A		
15	DEIONIZED WATER									67 cd	52 c-f
15	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	99 a	99 a
15	N-TENSE	100	SL	0.5	% v/v	0.5	% v/v	6-8" W	A		
16	DEIONIZED WATER									88 a	63 abc
16	TOUCHDOWN HI-TECH	5	SL	0.28	lb ae/a	7.2	fl oz/a	6-8" W	A	99 a	99 a
16	N-TENSE	100	SL	1	% v/v	1	% v/v	6-8" W	A		
17	NONTREATED									0 g	0 g
LSD (P=.05)								13.9	13.1	4.9	4.5

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Pest Code	AMATA	AMATA	SETFA	SETFA
Crop Code				
Rating Date	08-13-09	08-27-09	08-13-09	08-27-09
Rating Data Type	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent
Rating Timing				
Trt-Eval Interval	14 DAT	28 DAT	14 DAT	28 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Other Rate	Other Rate Unit	Growth Stage	Appl Code
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Replicate F	4.082	4.101	2.282	0.043
Replicate Prob(F)	0.0264	0.0260	0.1184	0.9584
Treatment F	17.264	12.237	191.674	225.736
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001

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

Trial Comments

1. Protocol: NDSU/UNL/KSU/SIU.
2. Ratings: WC at 14 & 28 DAT.
3. Measure and record spray solution pH after mixing.
4. Mixing instructions: Use DI water.
5. Spray sol. = Spray solution after mixing.
6. Not harvested.