

Influence of AMS and Hard Water on Ignite Efficacy.

Trial ID: 08-24B-S70 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: 06-23-08

Objectives: Determine the influence of AMS and hard water
 on the efficacy of glufosinate (Ignite 280).

Crop 1: GLXMA Soybean Variety: AG 4404 RR/STS
 Planting Method: SEEDED Planting Date: 06-23-08
 Rate, Unit: 75 LB/A Depth, Unit: 1.0 IN
 Row Spacing, Unit: 30 IN

Pest 1 Type: W Code: AMBTR Ambrosia trifida L. ragweed, giant
 Pest 2 Type: W Code: SETFA Setaria faberi Herrm. foxtail, giant
 Pest 3 Type: W Code: CYPES Cyperus esculentus L. nutsedge, yellow
 Pest 4 Type: W Code: AMATA Amaranthus rudis Sauer waterhemp, common
 Pest 5 Type: W Code: GLXMX Glycine max soybean, volunteer
 Pest Description: glyphosate-resistant

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. ZEAMD 2007

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

% OM: 2.3 Texture: SILT LOAM
 pH: 6 Soil Name: BETHALTO
 CEC: 12 Fert. Level: P1: 83 LB/A, K: 446 LB/A

Application Description

A
 Application Date: 07-11-08
 Time of Day: 13:00
 Application Method: Spray
 Application Timing: 6-8"W
 Application Placement: BROFOL
 Applied By: NRJ
 Air Temperature, Unit: 82 F
 % Relative Humidity: 82
 Wind Velocity, Unit: 4 MPH
 Dew Presence (Y/N): N
 Soil Temperature, Unit: 86 F
 Soil Moisture: NORMAL
 % Cloud Cover: 25

07-11-08
 Crop stage at application: V2
 Height Min, Max (inch): 5 7

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Pest Stage At Each Application

Application Date: 07-11-08
 Weed Code: AMBTR
 Stage Majority (leaves): 6
 Stage Min, Max: 4 8
 Height Majority: 8 IN
 Height Min, Max: 3 10
 Density, Unit: 3 FT2
 Weed Code: SETFA
 Stage Majority (leaves): 6
 Stage Min, Max: 2 8
 Height Majority: 6 IN
 Height Min, Max: 2 8
 Density, Unit: 0.5 FT2
 Weed Code: CYPES
 Stage Majority (leaves): 6
 Stage Min, Max: 3 8
 Height Majority: 6 IN
 Height Min, Max: 3 8
 Density, Unit: 2 FT2
 Weed Code: AMATA
 Stage Majority (leaves): 9
 Stage Min, Max: 2 20
 Height Majority: 7 IN
 Height Min, Max: 1 12
 Density, Unit: 3 FT2
 Weed Code: GLXMX
 Stage Majority (leaves): 3
 Stage Min, Max: 2 3
 Height Majority: 7 IN
 Height Min, Max: 5 7
 Density, Unit: 5 FT2

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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Pest Code	AMBTR	AMBTR	SETFA	SETFA	CYPES	CYPES
Crop Code						
Rating Date	07-25-08	08-08-08	07-25-08	08-08-08	07-25-08	08-08-08
Rating Data Type	Control	Control	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
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									90 a	53 g	10 b	0 e	0 c	0 a
1	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
2	DEIONIZED WATER									88 a	72 def	10 b	7 b-e	13 a	0 a
2	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
2	AMS	100	SG	0.51	% w/w	4.25	lb/100 gal	6-8"W	A						
3	DEIONIZED WATER									88 a	87 abc	7 bc	10 a-d	0 c	3 a
3	IGNITE 280	2.34	EC	0.293	lb ai/a	16	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									88 a	93 a	10 b	15 ab	0 c	0 a
4	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
4	AMS	100	SG	2.04	% w/w	17	lb/100 gal	6-8"W	A						
5	HARD WATER (250 PPM)									88 a	63 f	0 d	2 de	0 c	0 a
5	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
6	HARD WATER (250 PPM)									90 a	70 ef	0 d	3 cde	10 b	0 a
6	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
6	AMS	100	SG	0.51	% w/w	4.25	lb/100 gal	6-8"W	A						
7	HARD WATER (250 PPM)									90 a	78 cde	10 b	12 abc	0 c	0 a
7	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
7	AMS	100	SG	1.02	% w/w	8.5	lb/100 gal	6-8"W	A						
8	HARD WATER (250 PPM)									88 a	88 ab	3 cd	17 a	10 b	3 a
8	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
8	AMS	100	SG	2.04	% w/w	17	lb/100 gal	6-8"W	A						
9	HARD WATER (500 PPM)									83 bc	53 g	0 d	0 e	0 c	0 a
9	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
10	HARD WATER (500 PPM)									90 a	72 def	30 a	7 b-e	0 c	0 a
10	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
10	AMS	100	SG	0.51	% w/w	4.25	lb/100 gal	6-8"W	A						
11	HARD WATER (500 PPM)									82 c	70 ef	10 b	7 b-e	0 c	0 a
11	IGNITE 280	2.34	EC	0.293	lb ai/a	16	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 (500 PPM)									87 ab	80 bcd	27 a	13 ab	10 b	0 a
12	IGNITE 280	2.34	EC	0.293	lb ai/a	16	fl oz/a	6-8"W	A						
12	AMS	100	SG	2.04	% w/w	17	lb/100 gal	6-8"W	A						
LSD (P=.05)										3.7	9.9	6.2	9.3	2.8	4.1
Replicate F										2.714	7.436	3.943	0.442	1.000	0.478
Replicate Prob(F)										0.0884	0.0034	0.0344	0.6484	0.3840	0.6262
Treatment F										4.468	14.480	21.038	3.321	31.545	0.870
Treatment Prob(F)										0.0014	0.0001	0.0001	0.0080	0.0001	0.5803

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

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								AMATA	AMATA	GLXMX	GLXMX	
								07-25-08	08-08-08	07-25-08	08-08-08	
								Control	Control	Control	Control	
								Percent	Percent	Percent	Percent	
								14 DA-A	28 DA-A	14 DA-A	28 DA-A	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Stage	Appl Code				
1	DEIONIZED WATER								0 a	0 b	40 a	28 bc
1	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
2	DEIONIZED WATER								0 a	0 b	40 a	35 ab
2	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
2	AMS	100	SG	0.51 % w/w	4.25 lb/100 gal		6-8"W	A				
3	DEIONIZED WATER								0 a	0 b	40 a	37 a
3	IGNITE 280	2.34	EC	0.293 lb ai/a	16 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								0 a	10 a	40 a	37 a
4	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
4	AMS	100	SG	2.04 % w/w	17 lb/100 gal		6-8"W	A				
5	HARD WATER (250 PPM)								0 a	0 b	37 b	27 c
5	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
6	HARD WATER (250 PPM)								0 a	0 b	40 a	28 bc
6	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
6	AMS	100	SG	0.51 % w/w	4.25 lb/100 gal		6-8"W	A				
7	HARD WATER (250 PPM)								0 a	0 b	40 a	30 abc
7	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
7	AMS	100	SG	1.02 % w/w	8.5 lb/100 gal		6-8"W	A				
8	HARD WATER (250 PPM)								0 a	0 b	40 a	33 abc
8	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
8	AMS	100	SG	2.04 % w/w	17 lb/100 gal		6-8"W	A				
9	HARD WATER (500 PPM)								0 a	0 b	40 a	28 bc
9	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
10	HARD WATER (500 PPM)								0 a	3 ab	40 a	28 bc
10	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
10	AMS	100	SG	0.51 % w/w	4.25 lb/100 gal		6-8"W	A				
11	HARD WATER (500 PPM)								0 a	3 ab	40 a	30 abc
11	IGNITE 280	2.34	EC	0.293 lb ai/a	16 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 (500 PPM)								0 a	3 ab	40 a	35 ab
12	IGNITE 280	2.34	EC	0.293 lb ai/a	16 fl oz/a		6-8"W	A				
12	AMS	100	SG	2.04 % w/w	17 lb/100 gal		6-8"W	A				
LSD (P=.05)									0.0	7.1	2.8	7.1
Replicate F									0.000	0.478	1.000	8.260
Replicate Prob(F)									1.0000	0.6262	0.3840	0.0021
Treatment F									0.000	1.565	1.000	2.292
Treatment Prob(F)									1.0000	0.1785	0.4767	0.0471

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

Trial Comments

1. Protocol: NDSU.
2. Ratings: CI/WC 14 + 28 DAT.
3. Hard water was created using deionized water and the addition of CaCl₂ to the desired level.
4. Mixing instructions: Use deionized and hard water (250 ppm and 500 ppm).
5. DA-A = Days after 6-8"W application.
6. At the Belleville Research Center the above normal rainfall in spring 2008 (no more than four consecutive rain-free days between March 22 and June 15) delayed corn and soybean planting until mid-June.
7. Not harvested.