

Postemergence Tank-Mix Adjuvant Study - ISA.

Trial ID: 10-DSO-ISA-TMadj Location: DeSoto, IL

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu
 City State Zip Country: De Soto IL 62924 USA
 Trial Status: FINAL Initiation Date: 05-08-10

Objectives: Determine the role of adjuvants used in tank-mixtures
 of broadleaf herbicides with glyphosate.

Crop 1: GLXMA Soybean Variety: AG 4404 Description: RR/STS
 Planting Method: SEEDED Planting Date: 05-08-10
 Rate, Unit: 75 LB/A Depth, Unit: 1.0 IN
 Row Spacing, Unit: 30 IN

Pest 1 Type: W Code: AMATA Amaranthus tamariscinus Common waterhemp
 Pest Description: glyphosate-resistant waterhemp

Plot Width, Unit: 10 FT Site Type: FIELD
 Plot Length, Unit: 30 FT Tillage Type: NO-TILL
 Replications: 3 Study Design: Randomized Complete Block

Prior Crops, Year
 1. ZEAMD 2009

Field Prep./Maintenance: N 13 LB/A, P205 34 LB/A, K20 92 LB/A

% OM: 2.5 Texture: SILT LOAM
 pH: 6.8 Soil Name: OKAW
 CEC: 12 Fert. Level: P1 88 LB/A, K 207 LB/A

Application Description

A
 Application Date: 05-27-10
 Time of Day: 18:00
 Application Method: Spray
 Application Timing: MPOST
 Application Placement: BROFOL
 Applied By: DKP
 Air Temperature, Unit: 90 F
 % Relative Humidity: 51
 Wind Velocity, Unit: 4 MPH
 Wind Direction: NW
 Dew Presence (Y/N): N
 Soil Temperature, Unit: 82 F
 Soil Moisture: ABONOR
 % Cloud Cover: 60

05-27-10
 Crop stage at application: V1
 Height Min, Max (inch): 3 6

Pest Stage At Each Application

Application Date: 05-27-10
 Weed Code: AMATA
 Stage Majority (leaves): 6
 Stage Min, Max: COTY 10
 Height Majority: 3.75 IN
 Height Min, Max: 0.25 6
 Density, Unit: 20 FT2

Application Equipment

Appl. Equipment: CO2 sprayer
 Operating Pressure: 30 PSI
 Nozzle Type: Flat fan
 Nozzle Size: XR 8002
 Boom Length, Unit: 6.67 FT
 Spray Volume, Unit: 15 GPA

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Pest Code Crop Code Rating Date Rating Data Type Rating Unit Rating Timing Trt-Eval Interval											AMATA-HR		
											06-10-10	06-24-10	07-22-10
											Control	Control	Control
											Percent	Percent	Percent
											14 DA-A	28 DA-A	56 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code				
1	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		25 ef	0 i	0 f	0 e
1	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					15 d
2	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		33 a-d	24 e	12 d	2 de
2	COBRA	2 EC		0.094 lb ai/a	6 fl oz/a			MPOST A					92 abc
2	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					92 a-d
3	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		31 a-e	27 de	17 b	6 b
3	COBRA	2 EC		0.094 lb ai/a	6 fl oz/a			MPOST A					93 abc
3	PREFERENCE	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					90 bcd
3	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					86 cde
4	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		29 b-e	30 bcd	16 bc	6 b
4	COBRA	2 EC		0.094 lb ai/a	6 fl oz/a			MPOST A					94 abc
4	PRIME OIL COC	100 SL		1 % v/v	1 % v/v			MPOST A					93 a-d
4	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					87 b-e
5	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		31 a-e	27 de	14 cd	3 cd
5	COBRA	2 EC		0.094 lb ai/a	6 fl oz/a			MPOST A					93 abc
5	SUPERB HC	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					90 bcd
5	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					88 b-e
6	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		27 cde	28 cd	15 bc	4 bc
6	COBRA	2 EC		0.094 lb ai/a	6 fl oz/a			MPOST A					96 a
6	DESTINY HC	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					92 a-d
6	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					87 b-e
7	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		30 a-e	28 cd	15 bc	5 bc
7	COBRA	2 EC		0.188 lb ai/a	12 fl oz/a			MPOST A					95 ab
7	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					92 a-d
8	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		30 a-e	31 bc	17 b	6 b
8	COBRA	2 EC		0.188 lb ai/a	12 fl oz/a			MPOST A					95 a
8	PREFERENCE	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					91 a-d
8	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					87 b-e
9	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		28 b-e	33 ab	22 a	10 a
9	COBRA	2 EC		0.188 lb ai/a	12 fl oz/a			MPOST A					98 a
9	PRIME OIL COC	100 SL		1 % v/v	1 % v/v			MPOST A					98 a
9	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					96 a
10	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		20 f	31 bc	21 a	11 a
10	COBRA	2 EC		0.188 lb ai/a	12 fl oz/a			MPOST A					95 ab
10	SUPERB HC	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					94 a-d
10	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					92 a-d
11	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		27 de	34 a	22 a	10 a
11	COBRA	2 EC		0.188 lb ai/a	12 fl oz/a			MPOST A					97 a
11	DESTINY HC	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					96 abc
11	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					92 a-d
12	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		31 a-e	14 gh	5 e	0 e
12	FLEXSTAR	1.88 EC		0.147 lb ai/a	10 fl oz/a			MPOST A					89 bc
12	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					89 cd
13	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		34 abc	13 h	5 e	0 e
13	FLEXSTAR	1.88 EC		0.147 lb ai/a	10 fl oz/a			MPOST A					88 c
13	PREFERENCE	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					88 d
13	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					85 e
14	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		29 b-e	15 gh	6 e	0 e
14	FLEXSTAR	1.88 EC		0.147 lb ai/a	10 fl oz/a			MPOST A					98 a
14	PRIME OIL COC	100 SL		1 % v/v	1 % v/v			MPOST A					96 abc
14	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					94 ab
15	ROUNDUP POWERMAX	4.5 SL		0.77 lb ae/a	22 fl oz/a			MPOST A		33 a-d	13 h	4 e	0 e
15	FLEXSTAR	1.88 EC		0.147 lb ai/a	10 fl oz/a			MPOST A					92 abc
15	SUPERB HC	100 SL		0.5 % v/v	0.5 % v/v			MPOST A					92 a-d
15	N-PAK AMS	100 SL		5 % v/v	5 % v/v			MPOST A					86 de

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Trial ID: 10-DSO-ISA-TMadj Location: DeSoto, IL

Pest Code										AMATA-HR													
Crop Code										GLXMA	GLXMA	GLXMA	GLXMA										
Rating Date										09-24-10	06-03-10	06-10-10	06-24-10	06-10-10	06-24-10	07-22-10							
Rating Data Type										Yield	Injury	Injury	Injury	Control	Control	Control							
Rating Unit										bu/A	Percent	Percent	Percent	Percent	Percent	Percent							
Rating Timing																							
Trt-Eval Interval										7 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	56 DA-A								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code														
16	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	MPOST	A	35	ab	15	gh	6	e	94	ab	93	a-d	90	a-e		
16	FLEXSTAR	1.88	EC	0.147	lb ai/a	10	fl oz/a	MPOST	A														
16	DESTINY HC	100	SL	0.5	% v/v	0.5	% v/v	MPOST	A														
16	N-PAK AMS	100	SL	5	% v/v	5	% v/v	MPOST	A														
17	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	MPOST	A	29	a-e	14	gh	5	e	0	e	94	ab	95	a-d	92	a-d
17	FLEXSTAR	1.88	EC	0.294	lb ai/a	20	fl oz/a	MPOST	A														
17	N-PAK AMS	100	SL	5	% v/v	5	% v/v	MPOST	A														
18	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	MPOST	A	24	ef	15	gh	5	e	0	e	89	bc	89	cd	89	a-e
18	FLEXSTAR	1.88	EC	0.294	lb ai/a	20	fl oz/a	MPOST	A														
18	PREFERENCE	100	SL	0.5	% v/v	0.5	% v/v	MPOST	A														
18	N-PAK AMS	100	SL	5	% v/v	5	% v/v	MPOST	A														
19	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	MPOST	A	34	abc	17	fg	6	e	0	e	96	a	96	ab	95	a
19	FLEXSTAR	1.88	EC	0.294	lb ai/a	20	fl oz/a	MPOST	A														
19	PRIME OIL COC	100	SL	1	% v/v	1	% v/v	MPOST	A														
19	N-PAK AMS	100	SL	5	% v/v	5	% v/v	MPOST	A														
20	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	MPOST	A	35	ab	15	gh	7	e	0	e	94	abc	95	a-d	93	abc
20	FLEXSTAR	1.88	EC	0.294	lb ai/a	20	fl oz/a	MPOST	A														
20	SUPERB HC	100	SL	0.5	% v/v	0.5	% v/v	MPOST	A														
20	N-PAK AMS	100	SL	5	% v/v	5	% v/v	MPOST	A														
21	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	MPOST	A	36	a	19	f	6	e	0	e	97	a	96	ab	93	abc
21	FLEXSTAR	1.88	EC	0.294	lb ai/a	20	fl oz/a	MPOST	A														
21	DESTINY HC	100	SL	0.5	% v/v	0.5	% v/v	MPOST	A														
21	N-PAK AMS	100	SL	5	% v/v	5	% v/v	MPOST	A														
22	NONTREATED									26	ef	0	i	0	f	0	e	0	e	0	f	0	f
LSD (P=.05)										6.8		3.1		2.8		2.1		6.3		7.2		7.0	
Replicate F										8.219		1.153		1.446		0.177		0.897		3.011		0.757	
Replicate Prob(F)										0.0010		0.3256		0.2474		0.8386		0.4155		0.0602		0.4753	
Treatment F										2.897		82.026		51.201		26.530		134.630		108.688		115.197	
Treatment Prob(F)										0.0016		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001	

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

Trial Comments

1. Protocol: ISA.
2. Ratings: Visual crop response estimates at 7, 14, and 28 DAT.
Visual estimates of control, by species, at 14 and 28 DAT; late-season rating of all plots at 56 DAT or at crop harvest.
3. MPOST = 3-5"W.
4. Take weed counts in nontreated at the "A" application timing (No./0.5 m2).
5. Yield if possible.
6. AMATA-HR = Herbicide-resistant waterhemp (glyphosate).
7. AMATA-HR plants per 0.5 square meter in the nontreated plots on 5-27-10 at the MPOST (A) application were 61, 123, and 77 in plots 122, 203, and 322, respectively.
8. Harvested 9-24-10, (2) 30 inch rows by 26.5 ft.