

Evaluation of Tank-Mix Partners with Kixor for Control of Glyphosate-Resistant  
Horseweed.

Trial ID: 11-FagerS-KixorTM Location: Fager South

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu  
 City State Zip Country: Murphysboro IL 62966 USA  
 Trial Status: FINAL Initiation Date: 4-29-11

Objectives: Evaluate tank-mix options for improved horseweed control with Kixor applied preplant burndown in soybean.

Crop 1: GLXMA Soybean Variety: AG 4005 Description: RR  
 Planting Method: SEEDED Planting Date: 5-20-11  
 Rate, Unit: 75 LB/A Depth, Unit: 1.0 IN  
 Row Spacing, Unit: 30 IN

Pest 1 Type: W Code: ERICA Conyza canadensis (L.) Crong. horseweed  
 Pest Description: glyphosate-resistant marestail  
 Pest 2 Type: W Code: AMATA Amaranthus rudis Sauer waterhemp, common  
 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. GLXMA 2010

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

## Application Description

	A	B
Application Date:	4-29-11	6-10-11
Time of Day:	10:00	11:00
Application Method:	Spray	Spray
Application Timing:	14EPP	POST
Application Placement:	BROFOL	BROFOL
Applied By:	LAH	JRK
Air Temperature, Unit:	64 F	85 F
% Relative Humidity:	52	64
Wind Velocity, Unit:	1 MPH	5 MPH
Wind Direction:	NE	N
Dew Presence (Y/N):	N	N
Soil Temperature, Unit:	59 F	79 F
Soil Moisture:	ABONOR	NORMAL
% Cloud Cover:	0	0

	A	B
Crop stage at application:	NA	V2-V3
Height Min, Max (inch):	4	10

## Pest Stage At Each Application

	A	B
Application Date:	4-29-11	6-10-11
Weed Code:	ERICA	ERICA
Stage Majority (leaves):	12	13
Stage Min, Max:	4 22	8 20
Height Majority:	5 IN	6 IN
Height Min, Max:	0.25 8	3 12
Density, Unit:	2 FT2	1 FT2
Weed Code:	AMATA	AMATA
Stage Majority (leaves):	NA	6
Stage Min, Max:		coty 12
Height Majority:		8 IN
Height Min, Max:		0.5 14
Density, Unit:		2 FT2

## Application Equipment

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

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Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit	Rating Timing	Tri-Eval Interval	ERICA-HR									
							GLXMA 6-10-11 Injury Percent 0 DA-B 42 DA-A	GLXMA 7-8-11 Injury Percent 28 DA-B 70 DA-A	ERICA-HR 5-4-11 Control Percent 5 DA-A	ERICA-HR 5-13-11 Control Percent 14 DA-A	ERICA-HR 6-10-11 Control Percent 0 DA-B 42 DA-A	ERICA-HR 7-8-11 Control Percent 28 DA-B 70 DA-A				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code							
1	NONTREATED										0 b	0 a	0 f	0 d	0 c	0 d
2	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		0 b	0 a	57 e	84 c	81 b	71 c
2	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	14EPP	A							
2	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
2	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
2	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
2	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
3	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		0 b	0 a	71 d	98 a	98 a	96 ab
3	2,4-D LV 4	3.8	EC	0.475	lb ae/a	16	fl oz/a	14EPP	A							
3	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	14EPP	A							
3	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
3	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
3	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
3	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
4	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	14EPP	A		0 b	0 a	96 ab	98 a	96 a	93 b
4	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A							
4	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A							
4	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
4	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
4	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
4	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
5	SHARPEN	2.85	SC	0.0334	lb ai/a	1.5	fl oz/a	14EPP	A		0 b	0 a	93 b	99 a	99 a	96 ab
5	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A							
5	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A							
5	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
5	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
5	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
5	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
6	VERDICT	5.57	EC	0.218	lb ai/a	5	fl oz/a	14EPP	A		3 a	0 a	93 b	99 a	98 a	96 ab
6	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A							
6	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A							
6	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
6	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
6	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
6	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
7	VERDICT	5.57	EC	0.326	lb ai/a	7.5	fl oz/a	14EPP	A		1 b	0 a	96 ab	99 a	99 a	97 ab
7	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A							
7	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A							
7	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
7	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
7	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
7	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
8	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	14EPP	A		0 b	0 a	93 b	99 a	98 a	94 ab
8	2,4-D LV 4	3.8	EC	0.475	lb ae/a	16	fl oz/a	14EPP	A							
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A							
8	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A							
8	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
8	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
8	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							
9	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	14EPP	A		0 b	0 a	99 a	99 a	99 a	92 b
9	IGNITE 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	14EPP	A							
9	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A							
9	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A							
9	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B							
9	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B							
9	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B							

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Trial ID: 11-FagerS-KixorTM Location: Fager South

Pest Code	Crop Code	GLXMA	GLXMA	ERICA-HR	ERICA-HR	ERICA-HR	ERICA-HR
Rating Date	Rating Data Type	6-10-11	7-8-11	5-4-11	5-13-11	6-10-11	7-8-11
Rating Unit	Rating Timing	Injury	Injury	Control	Control	Control	Control
Trt-Eval Interval		Percent	Percent	Percent	Percent	Percent	Percent
		0 DA-B	28 DA-B	5 DA-A	14 DA-A	0 DA-B	28 DA-B
		42 DA-A	70 DA-A			42 DA-A	70 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code						
10	AUTHORITY FIRST	70	WG	0.131	lb ai/a	3	oz/a	14EPP	A	0 b	0 a	77 c	91 b	96 a	96 ab
10	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A						
10	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A						
10	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A						
10	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B						
10	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B						
10	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B						
11	VALOR XLT	40.3	WG			3	oz/a	14EPP	A	0 b	0 a	81 c	98 a	97 a	98 a
11	VALOR SX	51	WG	0.056	lb ai/a			14EPP	A						
11	CLASSIC	25	WG	0.0194	lb ai/a			14EPP	A						
11	2,4-D LV 4	3.8	EC	0.475	lb ae/a	16	fl oz/a	14EPP	A						
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A						
11	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A						
11	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A						
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B						
11	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B						
11	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B						

LSD (P=.05)		1.5	0.0	5.6	4.1	3.0	4.8
Replicate F		1.892	0.000	0.442	1.615	1.178	1.902
Replicate Prob(F)		0.1768	1.0000	0.6487	0.2237	0.3285	0.1753
Treatment F		2.633	0.000	233.499	449.320	812.547	311.882
Treatment Prob(F)		0.0313	1.0000	0.0001	0.0001	0.0001	0.0001

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

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Pest Code	AMATA-HR	AMATA-HR
Crop Code		
Rating Date	6-10-11	7-8-11
Rating Data Type	Control	Control
Rating Unit	Percent	Percent
Rating Timing	0 DA-B	28 DA-B
Trt-Eval Interval	42 DA-A	70 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
1	NONTREATED									0 c	0 b
2	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A	0 c	27 a
2	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	14EPP	A		
2	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
2	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
2	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
2	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
3	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A	0 c	23 a
3	2,4-D LV 4	3.8	EC	0.475	lb ae/a	16	fl oz/a	14EPP	A		
3	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	14EPP	A		
3	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
3	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
3	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
3	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
4	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	14EPP	A	3 c	23 a
4	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
4	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
4	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
4	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
4	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
4	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
5	SHARPEN	2.85	SC	0.0334	lb ai/a	1.5	fl oz/a	14EPP	A	0 c	25 a
5	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
5	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
5	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
5	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
5	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
5	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
6	VERDICT	5.57	EC	0.218	lb ai/a	5	fl oz/a	14EPP	A	20 b	28 a
6	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
6	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
6	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
6	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
6	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
6	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
7	VERDICT	5.57	EC	0.326	lb ai/a	7.5	fl oz/a	14EPP	A	20 b	22 a
7	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
7	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
7	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
7	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
7	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
7	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
8	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	14EPP	A	0 c	25 a
8	2,4-D LV 4	3.8	EC	0.475	lb ae/a	16	fl oz/a	14EPP	A		
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
8	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
8	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
8	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
8	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
9	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	14EPP	A	0 c	27 a
9	IGNITE 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	14EPP	A		
9	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
9	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
9	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
9	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
9	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		

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Pest Code		AMATA-HR	AMATA-HR
Crop Code			
Rating Date		6-10-11	7-8-11
Rating Data Type		Control	Control
Rating Unit		Percent	Percent
Rating Timing		0 DA-B	28 DA-B
Trt-Eval Interval		42 DA-A	70 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
10	AUTHORITY FIRST	70	WG	0.131	lb ai/a	3	oz/a	14EPP	A	35	a
10	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
10	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
10	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
10	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
10	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
10	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
11	VALOR XLT	40.3	WG			3	oz/a	14EPP	A	37	a
11	VALOR SX	51	WG	0.056	lb ai/a			14EPP	A		
11	CLASSIC	25	WG	0.0194	lb ai/a			14EPP	A		
11	2,4-D LV 4	3.8	EC	0.475	lb ae/a	16	fl oz/a	14EPP	A		
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	14EPP	A		
11	MSO	100	SL	1	% v/v	1	% v/v	14EPP	A		
11	AMS	100	SG	2	% w/w	17	lb/100 gal	14EPP	A		
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	POST	B		
11	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	POST	B		
11	AMS	100	SG	2	% w/w	17	lb/100 gal	POST	B		
LSD (P=.05)										8.7	10.9
Replicate F										1.127	1.245
Replicate Prob(F)										0.3437	0.3092
Treatment F										24.931	4.502
Treatment Prob(F)										0.0001	0.0021

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

Trial Comments

1. Protocol: BASF.
2. Ratings: CI at 2-3, 6-8, and 10-12 WAT; WC 5-7 DAT, 2-3, 6-8, and 10-12 WAT.
3. Record % residue cover at application.  
At application A, 90% residue cover, mostly wheat.
4. POST applition timing after 6-8 wk evaluation.
5. Target last week of April for A timing.
6. ERICA-HR = Herbicide-resistant marestail (glyphosate).  
AMATA-HR = Herbicide-resistant waterhemp (glyphosate).
7. For ERICA-HR ratings at 42 and 70 DAT control decreased primarily due to new emergence with a slight decrease in control due to regrowth.
8. Not harvested.