

Southern Illinois University

Burndown and Residual Programs for Glyphosate-Resistant Horseweed.

Trial ID: 12-FagerS-BDresid  
 Location: Murphysboro, IL

Investigator: Bryan Young

General Trial Information	
<b>Study Director:</b> Bryan Young	<b>Title:</b> Professor
<b>Investigator:</b> Bryan Young	
<b>Trial Status:</b> F - one-year/final	
<b>Initiation Date:</b> 4-17-12	
Trial Location	
<b>City:</b> Murphysboro	
<b>State/Prov.:</b> IL	
<b>Postal Code:</b> 62966	
<b>Country:</b> USA	

<b>Objectives:</b> Evaluate burndown and residual herbicide combinations for control of glyphosate-resistant horseweed and waterhemp.
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Personnel	
<b>Study Director:</b> Bryan Young	<b>Title:</b> Professor
<b>Investigator:</b> Bryan Young	
<b>Affiliation:</b> Southern Illinois University	
<b>Address:</b> 1205 Lincoln Drive - AG 176 - MC 4415	
<b>Location:</b> Carbondale IL	
<b>Postal Code:</b> 62901	<b>E-mail:</b> bgyoung@siu.edu
<b>Phone No.:</b> 618-453-7679	<b>Mobile No.:</b> 618-713-6471

Crop Description	
<b>Crop 1:</b> GLXMA Glycine max Soybean	<b>Description:</b> RR2Y
<b>Variety:</b> AG3832	<b>Planting Date:</b> 4-23-12
<b>BBCH Scale:</b> BSOY	<b>Rate, Unit:</b> 155000 S/A
<b>Planting Method:</b> SEEDED Seeded	
<b>Depth, Unit:</b> 2 IN	
<b>Row Spacing, Unit:</b> 30 IN	

Pest Description	
<b>Pest 1 Type:</b> W	<b>Code:</b> ERICA - Conyza canadensis (L.) Crong.
<b>Common Name:</b> horseweed	
<b>Description:</b> glyphosate-resistant marestail	
<b>Pest 2 Type:</b> W	<b>Code:</b> AMATA - Amaranthus rudis Sauer
<b>Common Name:</b> waterhemp, common	
<b>Description:</b> glyphosate-resistant waterhemp	

Site and Design	
<b>Plot Width, Unit:</b> 10 FT	<b>Site Type:</b> FIELD field
<b>Plot Length, Unit:</b> 30 FT	
<b>Plot Area, Unit:</b> 300 FT2	<b>Tillage Type:</b> NOTILL no-till
<b>Replications:</b> 3	<b>Study Design:</b> RACOB L Randomized Complete Block (RCB)

No.	Previous Crop	Year
1.	GLXMA	2011

Maintenance	
No.	Maintenance Treatment Name
1.	N 0 LB/A, P205 0 LB/A, K20 0 LB/A

Soil Description	
<b>% OM:</b> 1.87	<b>Texture:</b> SIL SILT LOAM
<b>pH:</b> 5.5	<b>Soil Name:</b> ALVIN
<b>CEC:</b> 7.06	

Element	Quantity	Unit
P1	172	LB/A
K	446	LB/A

Moisture and Weather Conditions	
<b>Overall Moisture Conditions:</b>	BELNOR below normal
<b>Closest Weather Station:</b> SOUTHERN IL AIRPORT (93810)	<b>Distance, Unit:</b> 3.5 MI

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Application Description			
	A	B	C
Application Date:	4-17-12	4-22-12	6-13-12
Time of Day:	12:00	7:30	8:00
Application Method:	Spray	Spray	Spray
Application Timing:	6-12"MT	V2-V3	V6
Application Placement:	BROFOL	BROFOL	BROFOL
Applied By:	LAH	LAH	RJW
Air Temperature, Unit:	67 F	58 F	70 F
% Relative Humidity:	48	80	76
Wind Velocity, Unit:	4 MPH	2 MPH	2 MPH
Wind Direction:	E	N	NW
Dew Presence (Y/N):	N no	Y yes	N no
Soil Temperature, Unit:	61 F	66 F	63 F
Soil Moisture:	ABONOR	NORMAL	NORMAL
% Cloud Cover:	100	0	10
Next Rain Occurred On:	4-20-12	4-30-12	6-17-12

Crop Stage At Each Application			
	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:	DESC	DESC	DESC
Stage Majority, Percent:	NA	V3	V6
Stage Minimum, Percent:		V2	V5
Stage Maximum, Percent:		V3	V6
Height, Unit:		6 IN	12 IN
Height Minimum, Maximum:		3 6	10 12

Pest Stage At Each Application			
	A	B	C
Pest 1 Code, Type, Scale:	ERICA W DESC	ERICA W DESC	ERICA W DESC
Stage Majority, Percent:	35	10	NA
Stage Minimum, Percent:	2	8	
Stage Maximum, Percent:	50+	18	
Height, Unit:	8 IN	4 IN	
Height Minimum, Maximum:	0.5 12	4 8	
Density, Unit:	10 FT2	0.01 FT2	
Pest 2 Code, Type, Scale:	AMATA W DESC	AMATA W DESC	AMATA W DESC
Stage Majority, Percent:	NA	8	16
Stage Minimum, Percent:		Coty	4
Stage Maximum, Percent:		14	50+
Height, Unit:		4 IN	6 IN
Height Minimum, Maximum:		0.25 8	1 18
Density, Unit:		0.1 FT2	0.5 FT2

Application Equipment			
	A	B	C
Appl. Equipment:	C02 sprayer	C02 sprayer	C02 sprayer
Equipment Type:	BACSPR	BACSPR	BACSPR
Operation Pressure, Unit:	30 PSI	30 PSI	30 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan
Nozzle Size:	XR 8002	XR 8002	XR 8002
Boom Length, Unit:	6.67 FT	6.67 FT	6.67 FT
Spray Volume, Unit:	15 GPA	15 GPA	15 GPA

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Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	GLXMA 5-8-12 Injury Percent 14 DAP	GLXMA 5-22-12 Injury Percent 28 DAP	GLXMA 6-19-12 Injury Percent 56 DAP
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code
1	NONTREATED								0 a
2	VALOR XLT ROUNDUP POWERMAX MSO (MSO ULTRA) AMS	40.3 4.5 100 100	WG SL SL SG	0.0756 0.77 1 2.5	lb ai/a lb ae/a qt/a lb/a	3 22 1 2.5	oz/a fl oz/a qt/a lb/a	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A	0 a
3	VALOR XLT ROUNDUP POWERMAX MSO (MSO ULTRA) AMS	40.3 4.5 100 100	WG SL SL SG	0.101 0.77 1 2.5	lb ai/a lb ae/a qt/a lb/a	4 22 1 2.5	oz/a fl oz/a qt/a lb/a	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A	0 a
4	VALOR XLT ROUNDUP POWERMAX SHARPEN MSO (MSO ULTRA) AMS	40.3 4.5 2.85 100 100	WG SL SC SL SG	0.0756 0.77 0.0223 1 2.5	lb ai/a lb ae/a lb ai/a qt/a lb/a	3 22 1 1 2.5	oz/a fl oz/a fl oz/a qt/a lb/a	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A	0 a
5	VALOR XLT ROUNDUP POWERMAX SHARPEN MSO (MSO ULTRA) AMS	40.3 4.5 2.85 100 100	WG SL SC SL SG	0.101 0.77 0.0223 1 2.5	lb ai/a lb ae/a lb ai/a qt/a lb/a	4 22 1 1 2.5	oz/a fl oz/a fl oz/a qt/a lb/a	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A	0 a
6	VALOR XLT LIBERTY 280 AMS	40.3 2.34 100	WG EC SG	0.0756 0.53 3	lb ai/a lb ai/a lb/a	3 29 3	oz/a fl oz/a lb/a	6-12"MT A 6-12"MT A 6-12"MT A	0 a
7	VALOR XLT ROUNDUP POWERMAX LIBERTY 280 AMS	40.3 4.5 2.34 100	WG SL EC SG	0.0756 0.77 0.402 3	lb ai/a lb ae/a lb ai/a lb/a	3 22 22 3	oz/a fl oz/a fl oz/a lb/a	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A	0 a
8	GRAMOXONE 2 SL PREFIX 2,4-D LV 4 NIS (ACTIVATOR 90) TOUCHDOWN TOTAL N-PAK AMS	2 5.29 3.8 100 4.17 100	SL EC EC SL SL SL	1 1.32 0.475 0.25 0.78 5	lb ai/a lb ai/a lb ae/a % v/v lb ae/a % v/v	64 2 1 0.25 24 5	fl oz/a pt/a pt/a % v/v fl oz/a % v/v	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A V2-V3 B V2-V3 B	0 a
9	GRAMOXONE 2 SL BOUNDARY SHARPEN MSO (MSO ULTRA) N-PAK AMS FLEXSTAR GT 3.5 MSO (MSO ULTRA) N-PAK AMS	2 6.5 2.85 100 100 2.82 100 100	SL EC SC SL SL SL SL SL	1 1.22 0.0223 1 5 1.23 1 5	lb ai/a lb ai/a lb ai/a % v/v % v/v lb ae/a % v/v % v/v	64 1.5 1 1 5 3.5 1 5	fl oz/a pt/a fl oz/a % v/v % v/v pt/a % v/v % v/v	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A V2-V3 B V2-V3 B V2-V3 B	0 a
10	GRAMOXONE 2 SL BOUNDARY SHARPEN MSO (MSO ULTRA) N-PAK AMS SEQUENCE N-PAK AMS FLEXSTAR GT 3.5 MSO (MSO ULTRA) N-PAK AMS	2 6.5 2.85 100 100 5.25 100 2.82 100 100	SL EC SC SL SL SL SL SL SL SL	1 1.22 0.0223 1 5 1.64 5 1.23 1 5	lb ai/a lb ai/a lb ai/a % v/v % v/v lb ae/a % v/v % v/v lb ae/a % v/v % v/v	64 1.5 1 1 5 2.5 5 3.5 1 5	fl oz/a pt/a fl oz/a % v/v % v/v pt/a % v/v % v/v pt/a % v/v % v/v	6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A 6-12"MT A V2-V3 B V2-V3 B V6 C V6 C V6 C	0 a

Means followed by same letter do not significantly differ (P=.05, LSD)  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Pest Code								GLXMA	GLXMA	GLXMA		
Crop Code								5-8-12	5-22-12	6-19-12		
Rating Date								Injury	Injury	Injury		
Rating Type								Percent	Percent	Percent		
Rating Unit								14 DAP	28 DAP	56 DAP		
Rating Timing								16 DA-B	30 DA-B	6 DA-C		
Trt-Eval Interval												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Unit	Growth Stage	Appl Code			
11	GRAMOXONE 2 SL	2	SL	1 lb ai/a		64 fl oz/a		6-12"MT A	A	0 a	0 a	4 c
	BOUNDARY	6.5	EC	1.22 lb ai/a		1.5 pt/a		6-12"MT A	A			
	SHARPEN	2.85	SC	0.0223 lb ai/a		1 fl oz/a		6-12"MT A	A			
	MSO (MSO ULTRA)	100	SL	1 % v/v		1 % v/v		6-12"MT A	A			
	N-PAK AMS	100	SL	5 % v/v		5 % v/v		6-12"MT A	A			
	PREFIX	5.29	EC	1.65 lb ai/a		2.5 pt/a		V2-V3	B			
	NIS (ACTIVATOR 90)	100	SL	0.25 % v/v		0.25 % v/v		V2-V3	B			
	N-PAK AMS	100	SL	5 % v/v		5 % v/v		V2-V3	B			
LSD (P=.05)								0.0	0.0	0.6		
Standard Deviation								0.0	0.0	0.3		
CV								0.0	0.0	15.74		
Replicate F								0.000	0.000	1.000		
Replicate Prob(F)								1.0000	1.0000	0.3855		
Treatment F								0.000	0.000	532.000		
Treatment Prob(F)								1.0000	1.0000	0.0001		

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Pest Code							ERICA-HR	ERICA-HR	ERICA-HR	AMATA-HR	AMATA-HR
Crop Code							5-8-12	5-22-12	6-19-12	5-22-12	6-19-12
Rating Date							Control	Control	Control	Control	Control
Rating Type							Percent	Percent	Percent	Percent	Percent
Rating Unit							14 DAP	28 DAP	56 DAP	28 DAP	56 DAP
Rating Timing							16 DA-B	30 DA-B	6 DA-C	30 DA-B	6 DA-C
Trt-Eval Interval											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
1	NONTREATED									0 e	0 c
2	VALOR XLT	40.3	WG	0.0756	lb ai/a	3	oz/a	6-12"MT A		89 d	87 b
	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1	qt/a	1	qt/a	6-12"MT A			
	AMS	100	SG	2.5	lb/a	2.5	lb/a	6-12"MT A			
3	VALOR XLT	40.3	WG	0.101	lb ai/a	4	oz/a	6-12"MT A		92 c	88 b
	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1	qt/a	1	qt/a	6-12"MT A			
	AMS	100	SG	2.5	lb/a	2.5	lb/a	6-12"MT A			
4	VALOR XLT	40.3	WG	0.0756	lb ai/a	3	oz/a	6-12"MT A		99 ab	98 a
	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	6-12"MT A			
	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1	qt/a	1	qt/a	6-12"MT A			
	AMS	100	SG	2.5	lb/a	2.5	lb/a	6-12"MT A			
5	VALOR XLT	40.3	WG	0.101	lb ai/a	4	oz/a	6-12"MT A		99 ab	97 a
	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	6-12"MT A			
	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1	qt/a	1	qt/a	6-12"MT A			
	AMS	100	SG	2.5	lb/a	2.5	lb/a	6-12"MT A			
6	VALOR XLT	40.3	WG	0.0756	lb ai/a	3	oz/a	6-12"MT A		97 ab	96 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	6-12"MT A			
	AMS	100	SG	3	lb/a	3	lb/a	6-12"MT A			
7	VALOR XLT	40.3	WG	0.0756	lb ai/a	3	oz/a	6-12"MT A		96 b	94 a
	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	6-12"MT A			
	LIBERTY 280	2.34	EC	0.402	lb ai/a	22	fl oz/a	6-12"MT A			
	AMS	100	SG	3	lb/a	3	lb/a	6-12"MT A			
8	GRAMOXONE 2 SL	2	SL	1	lb ai/a	64	fl oz/a	6-12"MT A		96 b	95 a
	PREFIX	5.29	EC	1.32	lb ai/a	2	pt/a	6-12"MT A			
	2,4-D LV 4	3.8	EC	0.475	lb ae/a	1	pt/a	6-12"MT A			
	NIS (ACTIVATOR 90)	100	SL	0.25	% v/v	0.25	% v/v	6-12"MT A			
	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	V2-V3 B			
	N-PAK AMS	100	SL	5	% v/v	5	% v/v	V2-V3 B			
9	GRAMOXONE 2 SL	2	SL	1	lb ai/a	64	fl oz/a	6-12"MT A		99 a	97 a
	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	6-12"MT A			
	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1	% v/v	1	% v/v	6-12"MT A			
	N-PAK AMS	100	SL	5	% v/v	5	% v/v	6-12"MT A			
	FLEXSTAR GT 3.5	2.82	SL	1.23	lb ae/a	3.5	pt/a	V2-V3 B			
	MSO (MSO ULTRA)	100	SL	1	% v/v	1	% v/v	V2-V3 B			
	N-PAK AMS	100	SL	5	% v/v	5	% v/v	V2-V3 B			
10	GRAMOXONE 2 SL	2	SL	1	lb ai/a	64	fl oz/a	6-12"MT A		98 ab	97 a
	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	6-12"MT A			
	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1	% v/v	1	% v/v	6-12"MT A			
	N-PAK AMS	100	SL	5	% v/v	5	% v/v	6-12"MT A			
	SEQUENCE	5.25	SL	1.64	lb ae/a	2.5	pt/a	V2-V3 B			
	N-PAK AMS	100	SL	5	% v/v	5	% v/v	V2-V3 B			
	FLEXSTAR GT 3.5	2.82	SL	1.23	lb ae/a	3.5	pt/a	V6 C			
	MSO (MSO ULTRA)	100	SL	1	% v/v	1	% v/v	V6 C			
	N-PAK AMS	100	SL	5	% v/v	5	% v/v	V6 C			

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Crop Code											
Rating Date							5-8-12	5-22-12	6-19-12	5-22-12	6-19-12
Rating Type							Control	Control	Control	Control	Control
Rating Unit							Percent	Percent	Percent	Percent	Percent
Rating Timing							14 DAP	28 DAP	56 DAP	28 DAP	56 DAP
Trt-Eval Interval							16 DA-B	30 DA-B	6 DA-C	30 DA-B	6 DA-C
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
11	GRAMOXONE 2 SL	2	SL	1 lb ai/a		64 fl oz/a		6-12"MT A		98 ab	97 a
	BOUNDARY	6.5	EC	1.22 lb ai/a		1.5 pt/a		6-12"MT A			
	SHARPEN	2.85	SC	0.0223 lb ai/a		1 fl oz/a		6-12"MT A			
	MSO (MSO ULTRA)	100	SL	1 % v/v		1 % v/v		6-12"MT A			
	N-PAK AMS	100	SL	5 % v/v		5 % v/v		6-12"MT A			
	PREFIX	5.29	EC	1.65 lb ai/a		2.5 pt/a		V2-V3 B			
	NIS (ACTIVATOR 90)	100	SL	0.25 % v/v		0.25 % v/v		V2-V3 B			
	N-PAK AMS	100	SL	5 % v/v		5 % v/v		V2-V3 B			
	LSD (P=.05)									2.6	4.9
	Standard Deviation									1.5	2.9
	CV									1.71	3.31
	Replicate F									0.497	0.582
	Replicate Prob(F)									0.6155	0.5682
	Treatment F									1136.750	305.441
	Treatment Prob(F)									0.0001	0.0001

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Trial Comments

1. Protocol: Valent (Valor MD64.01), Syngenta (HSC051A4).
2. Ratings: CI/WC 14, 28, and 56 DAP.
3. Trial should be planted within 7 days of application "A".
4. Possible POST application of glyphosate to treatments 2-7 after 14 DAP rating, to be determined.
5. ERICA-HR = Herbicide-resistant marestail (glyphosate).  
AMATA-HR = Herbicide-resistant waterhemp (glyphosate).  
DAP = Days after planting.
6. Not harvested.