

Sequential Programs for Waterhemp Control in Soybean.

Trial ID: 10-DSO-Programs Location: De Soto, 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: Evaluate the extent of residual control provided by various preemergence herbicides followed by glyphosate and glyphosate tank-mixtures for control of glyphosate-resistant waterhemp.

Crop 1: GLXMA Soybean Variety: AG 4005 Description: RR
 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 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 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	B	C	D
Application Date:	05-08-10	05-28-10	06-04-10	06-25-10
Time of Day:	19:30	9:00	13:30	8:15
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	4"W	8"W	21DA-C
Application Placement:	BROFOL	BROFOL	BROFOL	BROFOL
Applied By:	DKP/NVH	NVH	DKP/NVH	NVH
Air Temperature, Unit:	60 F	79 F	91 F	75 F
% Relative Humidity:	50	54	52	84
Wind Velocity, Unit:	5 MPH	2 MPH	4 MPH	0 MPH
Wind Direction:	NW	N	S	
Dew Presence (Y/N):	N	Y	N	Y
Soil Temperature, Unit:	68 F	78 F	80 F	80 F
Soil Moisture:	NORMAL	ABONOR	NORMAL	NORMAL
% Cloud Cover:	30	5	60	10
Crop stage at application:	NA	V1-V2	V3	R2
Height Min, Max (inch):		4 6	5 9	36 40

	Pest Stage At Each Application			
	05-08-10	05-28-10	06-04-10	06-25-10
Application Date:	05-08-10	05-28-10	06-04-10	06-25-10
Weed Code:	AMATA	AMATA	AMATA	AMATA
Stage Majority (leaves):	NA	8	12	30
Stage Min, Max:		3 13	4 20	8 60
Height Majority:		4 IN	8 IN	20 IN
Height Min, Max:		2 5	2 11	6 12
Density, Unit:		25 FT2	50 FT2	0.5 FT2

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

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Pest Code										GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
Crop Code										09-25-10	05-29-10	06-04-10	06-25-10	07-16-10	09-16-10
Rating Date										Yield	Injury	Injury	Injury	Injury	Injury
Rating Data Type										bu/A	Percent	Percent	Percent	Percent	Percent
Rating Unit										21	7	7	0	21	09-16-10
Rating Timing										DA-A	DA-A	DA-B	DA-D	DA-D	Percent
Trt-Eval Interval										14	14	0	21	42	EOS
Trt	Treatment	Form	Form		Rate	Other	Other	Growth	Appl						
No.	Name	Conc	Type	Rate	Unit	Rate	Rate	Stage	Code						
1	NONTREATED									23 d	0 c	0 c	0 b	0 a	0 a
2	PREFIX	5.29	EC	1.32	lb ai/a	2	pt/a	PRE	A	43 a	0 c	0 c	0 b	0 a	0 a
2	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	8"W	C						
2	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
3	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	PRE	A	42 a	1 c	1 c	0 b	0 a	0 a
3	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	8"W	C						
3	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
4	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	4"W	B	35 c	0 c	0 c	0 b	0 a	0 a
4	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4"W	B						
4	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	21DA-C	D						
4	N-PAK AMS	100	SL	5	% v/v	5	% v/v	21DA-C	D						
5	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	8"W	C	36 bc			0 b	0 a	0 a
5	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
6	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	4"W	B	41 a	15 a	11 a	0 b	0 a	0 a
6	PREFIX	5.29	EC	1.32	lb ai/a	2	pt/a	4"W	B						
6	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4"W	B						
6	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	21DA-C	D						
6	N-PAK AMS	100	SL	5	% v/v	5	% v/v	21DA-C	D						
7	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	PRE	A	40 abc	1 c	0 c	4 a	0 a	0 a
7	FLEXSTAR GT	3.31	SL	1.24	lb ai/a	3	pt/a	8"W	C						
7	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
8	VALOR XLT	40.3	WG			3	oz/a	PRE	A	40 ab	0 c	0 c	0 b	0 a	0 a
8	VALOR SX	51	WG	0.056	lb ai/a			PRE	A						
8	CLASSIC	25	WG	0.0194	lb ai/a			PRE	A						
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C						
8	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
9	AUTHORITY FIRST	70	WG	0.14	lb ai/a	3.2	oz/a	PRE	A	42 a	0 c	0 c	0 b	0 a	0 a
9	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C						
9	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
10	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	PRE	A	43 a	0 c	0 c	0 b	0 a	0 a
10	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A						
10	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C						
10	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
11	FIERCE	76	WG	0.143	lb ai/a	3	oz/a	PRE	A	40 abc	6 b	3 b	0 b	0 a	0 a
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C						
11	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
12	ENVIVE	41.3	WG			3.5	oz/a	PRE	A	43 a	1 c	0 c	0 b	0 a	0 a
12	CLASSIC	25	WG	0.02	lb ai/a			PRE	A						
12	HARMONY SG	50	SG	0.00643	lb ai/a			PRE	A						
12	VALOR SX	51	WG	0.0635	lb ai/a			PRE	A						
12	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C						
12	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C						
LSD (P=.05)										5.2	1.6	1.6	0.6	0.0	0.0
Replicate F										3.653	0.325	1.932	1.000	0.000	0.000
Replicate Prob(F)										0.0427	0.7263	0.1709	0.3840	1.0000	1.0000
Treatment F										10.073	76.910	38.963	30.250	0.000	0.000
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	1.0000	1.0000

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

Sequential Programs for Waterhemp Control in Soybean.

Trial ID: 10-DSO-Programs Location: De Soto, IL

								AMATA-HR	AMATA-HR	AMATA-HR	AMATA-HR
Pest Code								06-04-10	06-25-10	07-16-10	09-16-10
Crop Code								Control	Control	Control	Control
Rating Date								Percent	Percent	Percent	Percent
Rating Data Type								7 DA-B	0 DA-D	21 DA-D	Control
Rating Unit								0 DA-C	21 DA-C	42 DA-C	Percent
Rating Timing											
Trt-Eval Interval											EOS
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code		
1	NONTREATED									0 d	0 e
2	PREFIX	5.29	EC	1.32	lb ai/a	2	pt/a	PRE	A	98 a	98 ab
2	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	8"W	C	96 ab	93 a
2	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
3	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	PRE	A	98 a	92 ab
3	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	8"W	C	80 bc	83 ab
3	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
4	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	4"W	B	63 c	28 d
4	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4"W	B	3 d	10 d
4	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	21DA-C	D		
4	N-PAK AMS	100	SL	5	% v/v	5	% v/v	21DA-C	D		
5	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	8"W	C		45 c
5	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C	13 d	7 d
6	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	4"W	B	99 a	98 ab
6	PREFIX	5.29	EC	1.32	lb ai/a	2	pt/a	4"W	B	99 a	99 a
6	N-PAK AMS	100	SL	5	% v/v	5	% v/v	4"W	B	97 a	97 a
6	TOUCHDOWN TOTAL	4.17	SL	0.78	lb ae/a	24	fl oz/a	21DA-C	D		
6	N-PAK AMS	100	SL	5	% v/v	5	% v/v	21DA-C	D		
7	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	PRE	A	98 a	98 a
7	FLEXSTAR GT	3.31	SL	1.24	lb ai/a	3	pt/a	8"W	C	97 ab	95 a
7	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
8	VALOR XLT	40.3	WG			3	oz/a	PRE	A	97 a	96 ab
8	VALOR SX	51	WG	0.056	lb ai/a			PRE	A	91 ab	92 a
8	CLASSIC	25	WG	0.0194	lb ai/a			PRE	A		
8	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C		
8	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
9	AUTHORITY FIRST	70	WG	0.14	lb ai/a	3.2	oz/a	PRE	A	91 b	92 ab
9	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C	83 abc	75 b
9	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
10	SHARPEN	2.85	SC	0.0223	lb ai/a	1	fl oz/a	PRE	A	97 a	94 ab
10	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	PRE	A	83 abc	50 c
10	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C		
10	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
11	FIERCE	76	WG	0.143	lb ai/a	3	oz/a	PRE	A	98 a	89 b
11	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C	68 c	71 b
11	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
12	ENVIVE	41.3	WG			3.5	oz/a	PRE	A	98 a	97 ab
12	CLASSIC	25	WG	0.02	lb ai/a			PRE	A	95 ab	94 a
12	HARMONY SG	50	SG	0.00643	lb ai/a			PRE	A		
12	VALOR SX	51	WG	0.0635	lb ai/a			PRE	A		
12	ROUNDUP POWERMAX	4.5	SL	0.77	lb ae/a	22	fl oz/a	8"W	C		
12	N-PAK AMS	100	SL	5	% v/v	5	% v/v	8"W	C		
LSD (P=.05)								4.5	8.7	17.3	16.1
Replicate F								0.868	0.806	0.640	1.026
Replicate Prob(F)								0.4349	0.4593	0.5367	0.3751
Treatment F								397.153	126.288	42.279	47.194
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

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

Sequential Programs for Waterhemp Control in Soybean.

Trial ID: 10-DSO-Programs

Location: De Soto, IL

Trial Comments

1. Protocol: Syngenta (CNN02A), Valent, FMC, BASF, DuPont.
2. CI/WC at 0, 21, and 42 DA-C and at harvest; CI at 14 DAE.
3. Yield if possible.
4. Application timings: B = 4"W but no later than V3 soybean, C = 8"W in treatment #5.
5. AMATA-HR = Herbicide-resistant waterhemp (glyphosate). EOS = End of season.
6. Blanket burndown application of glyphosate (1.12 lbae/A) plus 2,4-D (0.475 lbae/A) plus AMS was applied 4-13-10.
Blanket preemergence application of Gramoxone (3 pt/A) plus NIS (0.5% v/v) was applied 5-8-10.
7. Harvested 9-25-10, (2) 30 inch rows by 26.5 ft.