

Bayer Waterhemp Control Systems.

Trial ID: 13-DSO-Bayer-BL9 Location: De Soto, IL Trial Year: 2013
Investigator: Bryan Young

Trial Status: F one-year/final Initiation Date: 5-20-13 Completion Date: 8-7-13		Trial Location
City: De Soto Country: USA State/Prov.: Illinois IL Postal Code: 62924		

Objectives:
Evaluate glyphosate-resistant waterhemp control from new herbicide systems.

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Crop 1: NONE - Non-crop Variety: NON-CROP		Crop Description
Planting Method: NA		

Pest 1 Type: W Code: AMATA <i>Amaranthus rudis</i> Sauer Common Name: waterhemp, common Description: glyphosate-resistant waterhemp		Pest Description
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Treated Plot Width: 6.67 FT Total Plot Width: 10 FT Treated Plot Length: 30 FT Total Plot Length: 30 FT		Site and Design	
		Site Type: FIELD Experimental Unit: 1 PLOT Tillage Type: NOTILL no-till Study Design: RACOB L Randomized Complete Block (RCB)	
Replications: 3 Untreated Arrangement: INCLUDED single control randomized in each block			
No.	Previous Crop	Year	
1.	GLXMA	2012	

Maintenance	
No.	Maintenance Product Name
1.	N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A

% Sand: 14 % OM: 2.12 Texture: SIL silt loam % Silt: 67 pH: 6.9 Soil Name: Okaw % Clay: 19 CEC: 12.7			Soil Description
Additional Measured Elements			
Element	Quantity	Unit	
P1	112	lb/A	
K	386	lb/A	

Moisture and Weather Conditions	
Overall Moisture Conditions: NORMAL Closest Weather Station: SOUTHERN IL AIRPORT (93810) Distance, Unit: 1.5 MI	

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No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	5-3-13	1.33	IN	RAIN	rain	3	DAY			
2.	5-5-13	0.75	IN	RAIN	rain	2	DAY			
3.	5-6-13					7	DAY	41	80	F
4.	5-10-13	0.17	IN	RAIN	rain	3	DAY			
5.	5-13-13					7	DAY	37	87	F
6.	5-16-13	0.23	IN	RAIN	rain	2	DAY			
7.	5-20-13					7	DAY	43	85	F
8.	5-21-13	0.91	IN	RAIN	rain	1	DAY			
9.	5-27-13					7	DAY	59	86	F
10.	5-31-13	0.7	IN	RAIN	rain	3	DAY			
11.	6-1-13	1.67	IN	RAIN	rain	2	DAY			
12.	6-3-13					7	DAY	50	82	F
13.	6-10-13	0.13	IN	RAIN	rain	5	DAY			
14.	6-10-13					7	DAY	57	93	F
15.	6-17-13	0.36	IN	RAIN	rain	2	DAY			
16.	6-17-13					7	DAY	61	92	F
17.	6-22-13	0.34	IN	RAIN	rain	2	DAY			
18.	6-24-13					7	DAY	64	93	F
19.	6-26-13	1.25	IN	RAIN	rain	2	DAY			
20.	6-30-13	0.3	IN	RAIN	rain	2	DAY			
21.	7-1-13					7	DAY	57	88	F
22.	7-2-13	1.16	IN	RAIN	rain	2	DAY			
23.	7-8-13					7	DAY	59	92	F
24.	7-14-13	0.05	IN	RAIN	rain	5	DAY			
25.	7-15-13					7	DAY	68	93	F
26.	7-20-13	1.24	IN	RAIN	rain	2	DAY			
27.	7-22-13					7	DAY	51	90	F
28.	7-27-13	0.13	IN	RAIN	rain	2	DAY			
29.	7-29-13					7	DAY	58	86	F
30.	7-30-13	0.98	IN	RAIN	rain	1	DAY			

Application Description

	A	B
Application Date:	5-20-13	7-3-13
Appl. Start Time:	19:15	10:30
Appl. Stop Time:	20:15	11:15
Application Method:	Spray	Spray
Application Timing:	PRE	3-5"W
Application Placement:	BROSOI	BROFOL
Applied By:	LXF	BCS
Air Temperature, Unit:	84 F	91 F
% Relative Humidity:	58	51
Wind Velocity, Unit:	6 MPH	2 MPH
Wind Direction:	SE	S
Dew Presence (Y/N):	N	N
Soil Temperature, Unit:	79 F	74 F
Soil Moisture:	NORMAL	ABONOR
% Cloud Cover:	5	25
Next Moisture Occurred On:	5-21-13	7-4-13
Time to Next Moisture, Unit:	7 HR	16 HR

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	NONE	NONE
Stage Scale Used:	DESC	DESC
Stage Majority, Percent:	NA	NA

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	AMATA W	AMATA W
Stage Majority, Percent:	NA	18
Stage Minimum, Percent:		2
Stage Maximum, Percent:		50+
Height, Unit:		5 IN
Height Minimum, Maximum:		1 15
Density, Unit:		5 FT2

Application Equipment

	A	B
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Equipment Type:	BACSPR	BACSPR
Operation Pressure, Unit:	30 PSI	30 PSI
Nozzle Type:	XR	XR
Nozzle Size:	8002	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 Type Rating Unit Rating Timing Trt-Eval Interval										AMATA-HR 6-24-13 Control Percent 35 DA-A	AMATA-HR 7-1-13 Control Percent -2 DA-B	AMATA-HR 8-7-13 Control Percent 35 DA-B
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 e	0 f
2	SONIC 2,4-D AMINE 4 ROUNDUP POWERMAX AMS	70 WG 3.8 SL 4.5 SL 100 SG		0.35 lb ai/a 0.475 lb ae/a 1.13 lb ae/a 1.02 % w/w		8 oz/a 1 pt/a 32 fl oz/a 8.5 lb/100 gal		PRE A 3-5"W B 3-5"W B 3-5"W B		95 ab	91 a	95 a
3	WARRANT CLARITY ROUNDUP POWERMAX AMS	3 CS 4 SL 4.5 SL 100 SG		1.13 lb ai/a 0.25 lb ae/a 1.13 lb ae/a 1.02 % w/w		3 pt/a 8 fl oz/a 32 fl oz/a 8.5 lb/100 gal		PRE A 3-5"W B 3-5"W B 3-5"W B		79 c	60 c	85 b
4	VALOR XLT CLARITY WARRANT ROUNDUP POWERMAX AMS	40.3 WG 4 SL 3 CS 4.5 SL 100 SG		0.126 lb ai/a 0.5 lb ae/a 0.75 lb ai/a 1.13 lb ae/a 1.02 % w/w		5.0 oz/a 16 fl oz/a 2 pt/a 32 fl oz/a 8.5 lb/100 gal		PRE A 3-5"W B 3-5"W B 3-5"W B 3-5"W B		96 a	89 a	98 a
5	CLARITY ROUNDUP POWERMAX AMS CLARITY WARRANT ROUNDUP POWERMAX AMS	4 SL 4.5 SL 100 SG 4 SL 3 CS 4.5 SL 100 SG		0.5 lb ae/a 1.13 lb ae/a 1.02 % w/w 0.5 lb ae/a 0.75 lb ai/a 1.13 lb ae/a 1.02 % w/w		16 fl oz/a 32 fl oz/a 8.5 lb/100 gal 16 fl oz/a 2 pt/a 32 fl oz/a 8.5 lb/100 gal		PRE A PRE A PRE A 3-5"W B 3-5"W B 3-5"W B 3-5"W B		47 d	25 d	81 bc
6	PREFIX HALEX GT NIS (ACTIVATOR 90) AMS	5.29 EC 4.389 CS 100 SL 100 SG		1.65 lb ai/a 1.1 lb ai/a 0.25 % v/v 1.02 % w/w		2.5 pt/a 2 pt/a 0.25 % v/v 8.5 lb/100 gal		PRE A 3-5"W B 3-5"W B 3-5"W B		96 a	89 a	88 b
7	ZEMAX FLEXSTAR LIBERTY 280 AMS	3.67 SC 1.88 EC 2.34 EC 100 SG		1.84 lb ai/a 0.352 lb ai/a 0.66 lb ai/a 1.02 % w/w		2 qt/a 1.5 pt/a 36 fl oz/a 8.5 lb/100 gal		PRE A 3-5"W B 3-5"W B 3-5"W B		97 a	95 a	87 b
8	CLARITY ZIDUA ROUNDUP POWERMAX AMS	4 SL 85 WG 4.5 SL 100 SG		0.5 lb ae/a 0.08 lb ai/a 1.13 lb ae/a 1.02 % w/w		16 fl oz/a 1.5 oz/a 32 fl oz/a 8.5 lb/100 gal		PRE A PRE A 3-5"W B 3-5"W B		87 bc	71 b	35 e
9	BALANCE PRO SENCOR LIBERTY 280 AMS	4 SC 75 WG 2.34 EC 100 SG		0.094 lb ai/a 0.375 lb ai/a 0.66 lb ai/a 1.02 % w/w		3 fl oz/a 8 oz/a 36 fl oz/a 8.5 lb/100 gal		PRE A PRE A 3-5"W B 3-5"W B		96 a	95 a	67 d
10	BALANCE PRO SENCOR 2,4-D AMINE 4 LIBERTY 280 AMS	4 SC 75 WG 3.8 SL 2.34 EC 100 SG		0.094 lb ai/a 0.375 lb ai/a 0.475 lb ae/a 0.66 lb ai/a 1.02 % w/w		3 fl oz/a 8 oz/a 1 pt/a 36 fl oz/a 8.5 lb/100 gal		PRE A PRE A 3-5"W B 3-5"W B 3-5"W B		96 a	91 a	67 d
11	BALANCE PRO SENCOR CLARITY LIBERTY 280 AMS	4 SC 75 WG 4 SL 2.34 EC 100 SG		0.094 lb ai/a 0.375 lb ai/a 0.5 lb ae/a 0.66 lb ai/a 1.02 % w/w		3 fl oz/a 8 oz/a 16 fl oz/a 36 fl oz/a 8.5 lb/100 gal		PRE A PRE A 3-5"W B 3-5"W B 3-5"W B		96 a	94 a	74 c
12	BALANCE PRO SENCOR ROUNDUP POWERMAX AMS	4 SC 75 WG 4.5 SL 100 SG		0.094 lb ai/a 0.375 lb ai/a 1.13 lb ae/a 1.02 % w/w		3 fl oz/a 8 oz/a 32 fl oz/a 8.5 lb/100 gal		PRE A PRE A 3-5"W B 3-5"W B		96 a	93 a	61 d

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								AMATA-HR	AMATA-HR	AMATA-HR
Crop Code								6-24-13	7-1-13	8-7-13
Rating Date								Control	Control	Control
Rating Type								Percent	Percent	Percent
Rating Unit										
Rating Timing										
Trt-Eval Interval								35 DA-A	-2 DA-B	35 DA-B
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	
13	BALANCE PRO	4	SC	0.094	lb ai/a		3 fl oz/a	PRE	A	96 a
	SENCOR	75	WG	0.375	lb ai/a		8 oz/a	PRE	A	90 a
	CLARITY	4	SL	0.5	lb ae/a		16 fl oz/a	3-5"W	B	75 c
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a		32 fl oz/a	3-5"W	B	
	AMS	100	SG	1.02	% w/w		8.5 lb/100 gal	3-5"W	B	
LSD (P=.05)								8.1	10.8	6.9
Standard Deviation								4.8	6.4	4.1
CV								5.79	8.45	5.81
Replicate F								3.001	1.936	1.808
Replicate Prob(F)								0.0686	0.1661	0.1856
Treatment F								106.156	67.311	129.172
Treatment Prob(F)								0.0001	0.0001	0.0001

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Trial Comments

1. Protocol: Bayer (BL9).
2. Ratings: WC 0 and 35 DA-B.
An additional rating at 35 DA-A was made due to the extended time before the 3-5"W application.
3. Blanket burndown application of glyphosate (1.5 lbae/A) plus Salvo (12 floz/A) was applied to all plots on 4-2-13.
Blanket prior to planting of Gramoxone (3 pt/A) + Warrior (1.92 oz/A) was applied to all plots on 5-20-13.
4. No yield (non-crop).
5. At the 3-5"W application, weed size and density was highly variable depending on the PRE herbicide that was used, treatments 3, 5, and 8 had densities of 80 plants per square ft.
6. Following the PRE application the first rainfall event, the next day, was 0.91 inch, then 2.36 inch, over 3 days, beginning 10 days after the PRE application.
Following the 3-5"W application on 7-3-13, total rainfall over the next 16 days was only 0.05 inch, then 1.24 inch beginning 17 days after application over 2 days.
7. AMATA-HR = Herbicide-resistant waterhemp (glyphosate).
8. Not harvested (non-crop).