

Single-Pass Soil-Applied Residual Herbicide Control on Glyphosate-Resistant Waterhemp.

Trial ID: 15-DSO-SIU-PRE Location: De Soto, IL Trial Year: 2015
Investigator: Ronald F. Krausz

Trial Status: F one-year/final Initiation Date: 5-28-15 Completion Date: 10-12-15	Trial Location
City: De Soto Country: USA State/Prov.: Illinois IL Postal Code: 62924	

Objectives:
Compare single-pass soil applied tank mixes for control of glyphosate-resistant common waterhemp.

Study Director: Ronald F. Krausz Organization: Belleville Research Center - Southern Illinois Univ Carbondale Address: 2036 Charles Lane City+State/Prov: Belleville, IL Postal Code: 62221 Country: USA	Contacts Title: Researcher/Farm Manager Phone No.: 618-566-4761 E-mail: rkrausz@siu.edu
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Crop 1: GLXMA Glycine max Soybean Variety: AG3832 BBCH Scale: BSOY Description: RR2Y Planting Rate, Unit: 140000 S/A Depth, Unit: 1 IN Row Spacing, Unit: 30 IN	Crop Description
Planting Date: 5-28-15 Planting Method: SEEDED	

Pest 1 Type: W Code: AMATA Amaranthus rudis 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 Replications: 4 Untreated Arrangement: INCLUDED single control randomized in each block	Site and Design Site Type: FIELD Experimental Unit: 1 PLOT Tillage Type: NOTILL no-till Study Design: RACOB� Randomized Complete Block (RCB)
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No.	Previous Crop	Year
1.	GLXMA	2014

	Maintenance				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Maintenance Product Name</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A</td> </tr> </tbody> </table>	No.	Maintenance Product Name	1.	N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A	
No.	Maintenance Product Name				
1.	N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A				

Description Name: DSO_west_2011 % Sand: 15.4 % OM: 2.15 Texture: SIL silt loam % Silt: 64.7 pH: 6.9 Soil Name: Okaw % Clay: 19.9 CEC: 12.4	Soil Description									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Element</th> <th>Quantity</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>94</td> <td>lb/A</td> </tr> <tr> <td>K</td> <td>468</td> <td>lb/A</td> </tr> </tbody> </table>	Element	Quantity	Unit	P1	94	lb/A	K	468	lb/A	Additional Measured Elements
Element	Quantity	Unit								
P1	94	lb/A								
K	468	lb/A								

	Moisture and Weather Conditions																																												
Overall Moisture Conditions: ABONOR Closest Weather Station: SOUTHERN IL AIRPORT (93810) Distance, Unit: 1.5 MI																																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Date</th> <th>Amount</th> <th>Unit</th> <th>Type</th> <th>Type Description</th> <th>Interval</th> <th>Unit</th> <th>Min Temp</th> <th>Max Temp</th> <th>Temp Unit</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>4-22-15</td> <td></td> <td></td> <td></td> <td></td> <td>7</td> <td>DAY</td> <td>36</td> <td>77</td> <td>F</td> </tr> <tr> <td>2.</td> <td>4-25-15</td> <td>0.26</td> <td>IN</td> <td>RAIN</td> <td>rain</td> <td>1</td> <td>DAY</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.</td> <td>4-29-15</td> <td></td> <td></td> <td></td> <td></td> <td>7</td> <td>DAY</td> <td>36</td> <td>84</td> <td>F</td> </tr> </tbody> </table>	No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit	1.	4-22-15					7	DAY	36	77	F	2.	4-25-15	0.26	IN	RAIN	rain	1	DAY				3.	4-29-15					7	DAY	36	84	F	
No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit																																			
1.	4-22-15					7	DAY	36	77	F																																			
2.	4-25-15	0.26	IN	RAIN	rain	1	DAY																																						
3.	4-29-15					7	DAY	36	84	F																																			

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4.	5-6-15					7	DAY	49	85	F
5.	5-7-15	1.59	IN	RAIN	rain	5	DAY			
6.	5-13-15					7	DAY	45	83	F
7.	5-14-15	0.49	IN	RAIN	rain	5	DAY			
8.	5-20-15					7	DAY	44	85	F
9.	5-20-15	0.46	IN	RAIN	rain	1	DAY			
10.	5-24-15	0.46	IN	RAIN	rain	1	DAY			
11.	5-25-15	0.05	IN	RAIN	rain	1	DAY			
12.	5-27-15					7	DAY	55	84	F
13.	5-27-15	0.13	IN	RAIN	rain	1	DAY			
14.	5-29-15	0.07	IN	RAIN	rain	1	DAY			
15.	5-30-15	0.62	IN	RAIN	rain	1	DAY			
16.	6-3-15					7	DAY	53	89	F
17.	6-5-15	0.1	IN	RAIN	rain	1	DAY			
18.	6-8-15	1.13	IN	RAIN	rain	1	DAY			
19.	6-10-15					7	DAY	64	91	F
20.	6-13-15	0.39	IN	RAIN	rain	2	DAY			
21.	6-16-15	1.78	IN	RAIN	rain	2	DAY			
22.	6-17-15					7	DAY	71	91	F
23.	6-19-15	3.17	IN	RAIN	rain	1	DAY			
24.	6-24-15					7	DAY	61	91	F
25.	6-25-15	0.18	IN	RAIN	rain	2	DAY			
26.	6-28-15	0.15	IN	RAIN	rain	1	DAY			
27.	7-1-15					7	DAY	65	85	F
28.	7-1-15	0.49	IN	RAIN	rain	1	DAY			
29.	7-2-15	0.86	IN	RAIN	rain	1	DAY			
30.	7-7-15	1.6	IN	RAIN	rain	1	DAY			
31.	7-8-15					7	DAY	64	93	F
32.	7-8-15	0.54	IN	RAIN	rain	1	DAY			
33.	7-9-15	0.27	IN	RAIN	rain	1	DAY			
34.	7-10-15	0.49	IN	RAIN	rain	1	DAY			
35.	7-15-15					7	DAY	68	92	F
36.	7-19-15	0.38	IN	RAIN	rain	1	DAY			
37.	7-20-15	0.25	IN	RAIN	rain	1	DAY			
38.	7-22-15					7	DAY	64	85	F
39.	7-26-15	1.63	IN	RAIN	rain	4	DAY			
40.	7-29-15					7	DAY	66	92	F
41.	8-5-15					7	DAY	63	87	F
42.	8-5-15	0.74	IN	RAIN	rain	2	DAY			
43.	8-9-15	0.62	IN	RAIN	rain	2	DAY			
44.	8-12-15					7	DAY	62	87	F
45.	8-18-15	1.1	IN	RAIN	rain	2	DAY			
46.	8-19-15					7	DAY	52	82	F
47.	8-22-15	0.12	IN	RAIN	rain	1	DAY			
48.	8-26-15					7	DAY	51	87	F
49.	8-29-15	0.09	IN	RAIN	rain	1	DAY			
50.	9-2-15					7	DAY	66	92	F
51.	9-8-15	1.82	IN	RAIN	rain	2	DAY			
52.	9-9-15					7	DAY	45	83	F
53.	9-11-15	0.17	IN	RAIN	rain	2	DAY			
54.	9-16-15					7	DAY	48	88	F
55.	9-19-15	0.04	IN	RAIN	rain	1	DAY			
56.	9-23-15					7	DAY	50	85	F
57.	9-27-15	0.05	IN	RAIN	rain	2	DAY			
58.	9-29-15	0.95	IN	RAIN	rain	1	DAY			

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Application Description

	A
Application Date:	5-29-15
Appl. Start Time:	8:30
Appl. Stop Time:	9:00
Application Method:	Spray
Application Timing:	PRE
Application Placement:	BROSOI
Applied By:	EAE
Air Temperature, Unit:	80 F
% Relative Humidity:	73
Wind Velocity, Unit:	3 MPH
Wind Direction:	S
Dew Presence (Y/N):	N
Soil Temperature, Unit:	68 F
Soil Moisture:	NORMAL
% Cloud Cover:	75
Next Moisture Occurred On:	5-29-15
Time to Next Moisture, Unit:	12 HR

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA
Stage Scale Used:	DESC
Stage Majority, Percent:	NA

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMATA W
Stage Majority, Percent:	NA

Application Equipment

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

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Pest Code								GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	
Crop Code								10-12-15	6-12-15	6-26-15	7-10-15	7-24-15	
Rating Date								Yield	Injury	Injury	Injury	Injury	
Rating Type								bu/A	Percent	Percent	Percent	Percent	
Rating Unit													
Rating Timing													
Trt-Eval Interval									14 DA-A	28 DA-A	42 DA-A	56 DA-A	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit Stage	Appl Code					
1	NONTREATED								48 a	0	0	0	0
2	FIERCE XLT	62.41	WG	0.176 lb ai/a	4.5 oz/a		PRE A		45 a	5 b	8 a	0 a	0 a
3	FIERCE FIRSTRATE	76	WG	0.214 lb ai/a	4.5 oz/a		PRE A		52 a	4 b	5 a	0 a	0 a
		84	WG	0.0315 lb ai/a	0.6 oz/a		PRE A						
4	AUTHORITY FIRST DF ZIDUA	70	WG	0.282 lb ai/a	6.45 oz/a		PRE A		45 a	0 c	0 a	0 a	0 a
		85	WG	0.117 lb ai/a	2.2 oz/a		PRE A						
5	AUTHORITY FIRST DF DUAL MAGNUM	70	WG	0.282 lb ai/a	6.45 oz/a		PRE A		48 a	9 a	10 a	0 a	0 a
		7.62	EC	1.27 lb ai/a	1.33 pt/a		PRE A						
LSD P=.05								8.1	3.0	7.4	.	.	
Standard Deviation								5.3	1.9	4.6	0.0	0.0	
CV								11.04	42.59	82.49	0.0	0.0	
Replicate F								2.606	5.400	2.032	0.000	0.000	
Replicate Prob(F)								0.0999	0.0211	0.1799	1.0000	1.0000	
Treatment F								1.196	15.000	3.387	0.000	0.000	
Treatment Prob(F)								0.3621	0.0008	0.0676	1.0000	1.0000	

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.
 Could not calculate LSD (% mean diff) for columns 13,15 because error mean square = 0.

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Pest Code								AMATA-HR	AMATA-HR	AMATA-HR		
Crop Code												
Rating Date								6-26-15	7-10-15	7-24-15		
Rating Type								Control	Control	Control		
Rating Unit								Percent	Percent	Percent		
Rating Timing												
Trt-Eval Interval								28 DA-A	42 DA-A	56 DA-A		
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NONTREATED									0	0	0
2	FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE	A	95 ab	64 c	0 c
3	FIERCE FIRSTRATE	76	WG	0.214	lb ai/a	4.5	oz/a	PRE	A	98 a	65 bc	30 b
		84	WG	0.0315	lb ai/a	0.6	oz/a	PRE	A			
4	AUTHORITY FIRST DF ZIDUA	70	WG	0.282	lb ai/a	6.45	oz/a	PRE	A	89 b	73 b	24 b
		85	WG	0.117	lb ai/a	2.2	oz/a	PRE	A			
5	AUTHORITY FIRST DF DUAL MAGNUM	70	WG	0.282	lb ai/a	6.45	oz/a	PRE	A	97 a	85 a	55 a
		7.62	EC	1.27	lb ai/a	1.33	pt/a	PRE	A			
LSD P=.05								6.5	7.8	10.8		
Standard Deviation								4.0	4.9	6.8		
CV								4.27	6.81	24.95		
Replicate F								0.454	0.416	1.845		
Replicate Prob(F)								0.7208	0.7458	0.2093		
Treatment F								3.954	16.007	44.411		
Treatment Prob(F)								0.0473	0.0006	0.0001		

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Trial Comments

1. Protocol: SIU/RFK.
2. Ratings:
 - CI 14, 28, 42, and 56 DA-A.
 - WC 28, 42, and 56 DA-A.
 - Photos at all ratings.
3. Yield not requested.
4. Blanket burndown (start clean) was Gramoxone (3 pt/A) on 5-15-15 and again 5-29-15.
Blanket glyphosate application after 56 DA-A rating if desired, was not applied.
5. Rainfall following the PRE application was 0.69 inch over two days beginning 12 hours later
6. AMATA-HR = Herbicide-resistant waterhemp (glyphosate).
7. Harvested 10-12-15, (2) 30 inch rows by 27 ft.