

Evaluation of Soil and POST Herbicides for Palmer Amaranth Control.

Trial ID: 14-COL-SOIL_POST-MW60 Location: Collinsville, IL Trial Year: 2014
Investigator: Ronald F. Krausz

Trial Status: F one-year/final Initiation Date: 6-3-14 Completion Date: 8-20-14	Trial Location City: Collinsville Country: USA State/Prov.: Illinois IL Postal Code: 62234
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Objectives:
Evaluate the efficacy of a single herbicide for Palmer amaranth control.

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: P43T14L BBCH Scale: BSOY Description: LL	Crop Description Planting Rate, Unit: 140000 S/A Depth, Unit: 1 IN Row Spacing, Unit: 30 IN
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Pest 1 Type: W Code: AMAPA Amaranthus palmeri S.Wats. Common Name: amaranth, Palmer Description: glyphosate-resistant Palmer amaran h	Pest Description
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Treated Plot Width: 6.67 FT Total Plot Width: 10 FT Treated Plot Length: 25 FT Total Plot Length: 25 FT Replications: 3 Untreated Arrangement: INCLUDED single control randomized in each block	Site and Design Site Type: FIELD Experimental Unit: 1 PLOT Tillage Type: REDTIL reduced-till Study Design: RACOB L Randomized Complete Block (RCB)
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No.	Previous Crop	Year
1.	GLXMA	2013

Maintenance <table border="1"> <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
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1.	N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A			

% Sand: 14 % OM: 2.8 Texture: SIL silt loam % Silt: 70 pH: 7.07 Soil Name: Littleton/Haymond/Orion % Clay: 16 CEC: 11.2	Soil Description
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Element	Quantity	Unit
P1	63	lb/A
K	346	lb/A

Overall Moisture Conditions: NORMAL Closest Weather Station: WatchDog on-site	Moisture and Weather Conditions Distance, Unit: 0.5 Mi
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No.	Date	Amount	Unit	Type	Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	5-6-14					7	DAY	56	86	F
2.	5-8-14	0.13	IN	RAIN	rain	2	DAY			
3.	5-12-14	0.88	IN	RAIN	rain	4	DAY			
4.	5-13-14					7	DAY	37	76	F
5.	5-20-14					7	DAY	55	87	F
6.	5-21-14	0.06	IN	RAIN	rain	1	DAY			
7.	5-25-14	0.49	IN	RAIN	rain	2	DAY			
8.	5-27-14	0.08	IN	RAIN	rain	2	DAY			
9.	5-27-14					7	DAY	60	86	F
10.	5-31-14	0.14	IN	RAIN	rain	1	DAY			
11.	6-2-14	0.27	IN	RAIN	rain	1	DAY			
12.	6-3-14					7	DAY	62	91	F
13.	6-4-14	1.46	IN	RAIN	rain	1	DAY			
14.	6-7-14	0.22	IN	RAIN	rain	1	DAY			
15.	6-8-14	0.01	IN	RAIN	rain	1	DAY			
16.	6-9-14	0.6	IN	RAIN	rain	1	DAY			
17.	6-10-14	0.79	IN	RAIN	rain	1	DAY			
18.	6-10-14					7	DAY	54	90	F
19.	6-12-14	0.3	IN	RAIN	rain	1	DAY			
20.	6-13-14	0.01	IN	RAIN	rain	1	DAY			
21.	6-16-14	0.01	IN	RAIN	rain	1	DAY			
22.	6-17-14					7	DAY	67	94	F
23.	6-20-14	0.01	IN	RAIN	rain	1	DAY			
24.	6-21-14	0.39	IN	RAIN	rain	1	DAY			
25.	6-22-14	0.09	IN	RAIN	rain	1	DAY			
26.	6-23-14	0.02	IN	RAIN	rain	1	DAY			
27.	6-24-14	0.08	IN	RAIN	rain	1	DAY			
28.	6-24-14					7	DAY	67	92	F
29.	6-27-14	0.02	IN	RAIN	rain	1	DAY			
30.	7-1-14					7	DAY	56	92	F
31.	7-3-14	0.02	IN	RAIN	rain	1	DAY			
32.	7-7-14	0.03	IN	RAIN	rain	1	DAY			
33.	7-8-14	0.48	IN	RAIN	rain	1	DAY			
34.	7-8-14					7	DAY	59	95	F
35.	7-13-14	0.23	IN	RAIN	rain	1	DAY			
36.	7-14-14	0.2	IN	RAIN	rain	1	DAY			
37.	7-15-14	0.01	IN	RAIN	rain	1	DAY			
38.	7-15-14					7	DAY	54	90	F
39.	7-22-14					7	DAY	55	100	F
40.	7-25-14	0.03	IN	RAIN	rain	1	DAY			
41.	7-29-14					7	DAY	51	93	F
42.	8-5-14	0.33	IN	RAIN	rain	1	DAY			
43.	8-5-14					7	DAY	67	90	F
44.	8-6-14	0.08	IN	RAIN	rain	1	DAY			
45.	8-7-14	1.85	IN	RAIN	rain	1	DAY			
46.	8-8-14	0.65	IN	RAIN	rain	1	DAY			
47.	8-12-14					7	DAY	56	87	F
48.	8-15-14	0.01	IN	RAIN	rain	1	DAY			
49.	8-16-14	0.73	IN	RAIN	rain	1	DAY			
50.	8-17-14	0.7	IN	RAIN	rain	1	DAY			
51.	8-19-14					7	DAY	67	95	F
52.	8-20-14	0.76	IN	RAIN	rain	1	DAY			

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Application Description

	A	B
Application Date:	6-4-14	6-25-14
Appl. Start Time:	10:30	14:20
Appl. Stop Time:	11:30	14:50
Application Method:	Spray	Spray
Application Timing:	PRE	3-4"W
Application Placement:	BROSOI	BROFOL
Applied By:	EAE	LXF
Air Temperature, Unit:	87 F	92 F
% Relative Humidity:	56	48
Wind Velocity, Unit:	8 MPH	2 MPH
Wind Direction:	W	NW
Dew Presence (Y/N):	N	N
Soil Temperature, Unit:	79 F	96 F
Soil Moisture:	ABONOR	NORMAL
% Cloud Cover:	20	40
Next Moisture Occurred On:	6-4-14	6-27-14
Time to Next Moisture, Unit:	6 HR	2 DAY

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA	GLXMA
Stage Scale Used:	DESC	DESC
Stage Majority, Percent:	NA	V2
Stage Minimum, Percent:		V2
Stage Maximum, Percent:		V2
Height, Unit:		7 IN
Height Minimum, Maximum:		6 7

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W
Stage Majority, Percent:	NA	18
Stage Minimum, Percent:		4
Stage Maximum, Percent:		36
Height, Unit:		6 IN
Height Minimum, Maximum:		2 8
Density, Unit:		6 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

Southern Illinois University

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Pest Code Crop Code Rating Date Rating Type Rating Unit Rating Timing Trt-Eval Interval							GLXMA	GLXMA	GLXMA	AMAPA-HR	AMAPA-HR	AMAPA-HR
							Injury Percent	Injury Percent	Injury Percent	Control Percent	Control Percent	Control Percent
							14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit	Appl Stage	Code			
1	NONTREATED											
2	ANTHEM	2.15	SE	0.134 lb ai/a	8 fl oz/a		PRE	A		0 d	0 a	0 a
3	DUAL MAGNUM	7.62	EC	1.27 lb ai/a	1.33 pt/a		PRE	A		0 d	0 a	0 a
4	WARRANT	3	CS	1.13 lb ai/a	3 pt/a		PRE	A		0 d	0 a	0 a
5	PROWL H2O	3.8	CS	1.19 lb ai/a	2.5 pt/a		PRE	A		0 d	0 a	0 a
6	ZIDUA	85	WG	0.133 lb ai/a	2.5 oz/a		PRE	A		0 d	0 a	0 a
7	SHARPEN	2.85	SC	0.0223 lb ai/a	1 fl oz/a		PRE	A		1 d	0 a	0 a
8	SPARTAN 4F	4	SC	0.25 lb ai/a	8 fl oz/a		PRE	A		1 d	0 a	0 a
9	SPARTAN 4F	4	SC	0.313 lb ai/a	10 fl oz/a		PRE	A		4 c	0 a	0 a
10	SPARTAN 4F	4	SC	0.375 lb ai/a	12 fl oz/a		PRE	A		5 c	0 a	0 a
11	VALOR SX	51	WG	0.063 lb ai/a	2 oz/a		PRE	A		0 d	0 a	0 a
12	VALOR SX	51	WG	0.08 lb ai/a	2.5 oz/a		PRE	A		0 d	0 a	0 a
13	VALOR SX	51	WG	0.096 lb ai/a	3 oz/a		PRE	A		3 cd	0 a	0 a
14	COBRA COC (PRIME OIL) N-PAK AMS	2 EC 100 SL 100 SL		0.188 lb ai/a 1 % v/v 5 % v/v	12 fl oz/a 1 % v/v 5 % v/v		3-4"W 3-4"W 3-4"W	B B B		15 a	0 a	0 a
15	FLEXSTAR COC (PRIME OIL) N-PAK AMS	1.88 EC 100 SL 100 SL		0.353 lb ai/a 1 % v/v 5 % v/v	24 fl oz/a 1 % v/v 5 % v/v		3-4"W 3-4"W 3-4"W	B B B		5 c	0 a	0 a
16	CADET COC (PRIME OIL) N-PAK AMS	0.91 EC 100 SL 100 SL		0.0064 lb ai/a 1 % v/v 5 % v/v	0.9 fl oz/a 1 % v/v 5 % v/v		3-4"W 3-4"W 3-4"W	B B B		5 c	0 a	0 a
17	RESOURCE COC (PRIME OIL) N-PAK AMS	0.86 EC 100 SL 100 SL		0.054 lb ai/a 1 % v/v 5 % v/v	8 fl oz/a 1 % v/v 5 % v/v		3-4"W 3-4"W 3-4"W	B B B		10 b	0 a	0 a
18	LIBERTY 280 N-PAK AMS	2.34 EC 100 SL		0.58 lb ai/a 5 % v/v	31.7 fl oz/a 5 % v/v		3-4"W 3-4"W	B B		0 d	0 a	0 a
LSD (P=.05)							3.0	0.0	0.0	2.2	20.0	20.3
Standard Deviation							1.8	0.0	0.0	1.3	12.0	12.2
CV							61.88	0.0	0.0	1.63	16.93	18.26
Replicate F							4.012	0.000	0.000	1.633	0.807	1.556
Replicate Prob(F)							0.0279	1.0000	1.0000	0.2112	0.4553	0.2264
Treatment F							16.894	0.000	0.000	2366.726	28.723	25.123
Treatment Prob(F)							0.0001	1.0000	1.0000	0.0001	0.0001	0.0001

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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Trial Comments

1. Protocol: SIU.
2. Ratings: CI 14, 28, and 56 DA-A, CI 14, 28, and 56 DA-B;
WC 14, 28, and 56 DA-A, WC 14, 28, and 56 DA-B
3. No yield.
4. Photos at 28 and 56 DA-A.
5. Rainfall following the PRE application was 3.08 inch within the next week.
The first significant rainfall event following the 3-4"W application was 0.51 inch 13 days later.
6. AMAPA-HR = Herbicide-resistant Palmer amaranth (glyphosate).
7. Blanket at PRE timing (start-clean) of Gramoxone (3 pt/A) was applied to all plots on 6-5-14.
On 6-18-14 at 14 DA-A AMAPA-HR control in the nontreated plots was 90-97 percent.
8. DAT = Days after treatment.
Ratings at 14 DA PRE (A) and 3-4"W (B) applications were on 6-18-14 and 7-9-14, respectively
Ratings at 28 DA PRE (A) and 3-4"W (B) applications were on 7-2-14 and 7-23-14, respectively
Ratings at 56 DA PRE (A) and 3-4"W (B) applications were on 7-30-14 and 8-20-14, respectively
9. Not harvested.