

Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
 Investigator: Karla L. Gage, Ph.D.

<p><b>Trial Status:</b> F one-year/final  <b>Initiation Date:</b> 6-9-16  <b>Completion Date:</b> 8-18-16</p>	<b>Trial Location</b>
<p><b>City:</b> Belleville    <b>Country:</b> USA  <b>State/Prov.:</b> Illinois IL  <b>Postal Code:</b> 62221</p>	

**Objectives:**  
 To demonstrate and evaluate glyphosate-susceptible Palmer amaranth control with two-pass programs.

<p><b>Study Director:</b> Karla Gage, Ph.D.    <b>Title:</b> Assistant Professor of Weed Science  <b>Organization:</b> Southern Illinois University Carbondale  <b>Address:</b> 1205 Lincoln Drive MC 4415    <b>Phone No.:</b> 618-453-7679  <b>City+State/Prov:</b> Carbondale, IL  <b>Postal Code:</b> 62901    <b>E-mail:</b> kgage@siu.edu  <b>Country:</b> USA</p>	<b>Contacts</b>
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<p><b>Crop 1:</b> GLXMA Glycine max    Soybean  <b>Variety:</b> See comments    <b>BBCH Scale:</b> BSOY  <b>Description:</b> See treatment list</p> <p><b>Planting Rate, Unit:</b> 140000 S/A    <b>Planting Date:</b> 6-9-16  <b>Depth, Unit:</b> 1 IN    <b>Planting Method:</b> SEEDED  <b>Row Spacing, Unit:</b> 30 IN</p>	<b>Crop Description</b>
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<p><b>Pest 1 Type:</b> W    <b>Code:</b> AMAPA Amaranthus palmeri S.Wats.  <b>Common Name:</b> amaranth, Palmer</p> <p><b>Pest 2 Type:</b> W    <b>Code:</b> ABUTH Abutilon theophrasti Medik.  <b>Common Name:</b> velvetleaf</p> <p><b>Pest 3 Type:</b> W    <b>Code:</b> IPOHE Ipomoea hederacea (L.) Jacq.  <b>Common Name:</b> morningglory, ivyleaf</p>	<b>Pest Description</b>
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<p><b>Treated Plot Width:</b> 7.5 FT    <b>Total Plot Width:</b> 10 FT  <b>Treated Plot Length:</b> 25 FT    <b>Total Plot Length:</b> 25 FT</p> <p><b>Replications:</b> 4  <b>Untreated Arrangement:</b> INCLUDED single control randomized in each block</p>	<p style="text-align: center;"><b>Site and Design</b></p> <p><b>Site Type:</b> FIELD  <b>Experimental Unit:</b> 1 PLOT  <b>Tillage Type:</b> REDTIL reduced-till  <b>Study Design:</b> RACOB� Randomized Complete Block (RCB)</p>						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">No.</th> <th style="width: 60%;">Previous Crop</th> <th style="width: 30%;">Year</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>GLXMA</td> <td style="text-align: center;">2015</td> </tr> </tbody> </table>		No.	Previous Crop	Year	1.	GLXMA	2015
No.	Previous Crop	Year					
1.	GLXMA	2015					

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No.	Maintenance Product Name				
1.	N 0 LB/A, P2O5 0 LB/A, K2O 150 LB/A				

<p><b>Description Name:</b> 09B_2013  <b>% OM:</b> 2.9    <b>Texture:</b> SIL silt loam  <b>pH:</b> 6.2    <b>Soil Name:</b> Bethalto  <b>CEC:</b> 11</p>	<b>Soil Description</b>									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Element</th> <th style="width: 30%;">Quantity</th> <th style="width: 50%;">Unit</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td style="text-align: center;">72</td> <td style="text-align: center;">lb/A</td> </tr> <tr> <td>K</td> <td style="text-align: center;">275</td> <td style="text-align: center;">lb/A</td> </tr> </tbody> </table>		Element	Quantity	Unit	P1	72	lb/A	K	275	lb/A
Element	Quantity	Unit								
P1	72	lb/A								
K	275	lb/A								

<p><b>Overall Moisture Conditions:</b> NORMAL  <b>Closest Weather Station:</b> ICN - Belleville IL</p>	<b>Moisture and Weather Conditions</b>
	<b>Distance, Unit:</b> 0.5 MI

## Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

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No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	4-1-16					7	DAY	32	75	F
2.	4-6-16	0.49	IN	RAIN	rain	1	DAY			
3.	4-8-16					7	DAY	28	71	F
4.	4-10-16	0.97	IN	RAIN	rain	2	DAY			
5.	4-15-16					7	DAY	48	81	F
6.	4-20-16	0.45	IN	RAIN	rain	3	DAY			
7.	4-22-16					7	DAY	47	85	F
8.	4-26-16	1.74	IN	RAIN	rain	2	DAY			
9.	4-29-16					7	DAY	46	75	F
10.	4-29-16	1.94	IN	RAIN	rain	2	DAY			
11.	5-4-16	0.02	IN	RAIN	rain	1	DAY			
12.	5-6-16					7	DAY	44	87	F
13.	5-7-16	0.07	IN	RAIN	rain	1	DAY			
14.	5-9-16	2.12	IN	RAIN	rain	5	DAY			
15.	5-13-16					7	DAY	41	76	F
16.	5-16-16	1.06	IN	RAIN	rain	2	DAY			
17.	5-20-16					7	DAY	51	83	F
18.	5-20-16	0.06	IN	RAIN	rain	1	DAY			
19.	5-25-16	0.68	IN	RAIN	rain	3	DAY			
20.	5-27-16					7	DAY	62	88	F
21.	5-31-16	0.03	IN	RAIN	rain	2	DAY			
22.	6-3-16					7	DAY	55	89	F
23.	6-3-16	0.01	IN	RAIN	rain	1	DAY			
24.	6-4-16	0.72	IN	RAIN	rain	1	DAY			
25.	6-10-16					7	DAY	65	96	F
26.	6-13-16	0.03	IN	RAIN	rain	1	DAY			
27.	6-17-16					7	DAY	67	97	F
28.	6-21-16	0.01	IN	RAIN	rain	1	DAY			
29.	6-24-16					7	DAY	57	95	F
30.	6-25-16	0.02	IN	RAIN	rain	1	DAY			
31.	6-30-16	0.03	IN	RAIN	rain	1	DAY			
32.	7-1-16					7	DAY	60	91	F
33.	7-1-16	2.26	IN	RAIN	rain	4	DAY			
34.	7-6-16	0.32	IN	RAIN	rain	3	DAY			
35.	7-8-16					7	DAY	67	93	F
36.	7-13-16	0.49	IN	RAIN	rain	2	DAY			
37.	7-15-16					7	DAY	68	93	F
38.	7-17-16	0.02	IN	RAIN	rain	1	DAY			
39.	7-19-16	1.47	IN	RAIN	rain	2	DAY			
40.	7-22-16					7	DAY	72	94	F
41.	7-25-16	0.1	IN	RAIN	rain	1	DAY			
42.	7-29-16					7	DAY	69	91	F
43.	7-31-16	0.52	IN	RAIN	rain	3	DAY			
44.	8-3-16	0.75	IN	RAIN	rain	1	DAY			
45.	8-5-16					7	DAY	66	93	F
46.	8-5-16	0.06	IN	RAIN	rain	1	DAY			
47.	8-12-16					7	DAY	68	91	F
48.	8-12-16	4.85	IN	RAIN	rain	5	DAY			
49.	8-19-16					7	DAY	57	93	F

**Comment:**

Rainfall was recorded on station and provided by Illinois Climate Network.  
Air temperature was recorded at Scott Air Force Base 2.5 miles north and provided by NOAA's National Centers for Environmental Information.  
Air temperatures given are summarized as weekly high and low, detailed weather data is available on request.

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**Application Description**

	A	B	C	D	E
<b>Application Date:</b>	6-10-16	6-23-16	6-23-16	6-23-16	6-23-16
<b>Appl. Start Time:</b>	13:00	6:00	6:00	6:00	6:00
<b>Appl. Stop Time:</b>	14:00	7:00	7:00	7:00	7:00
<b>Application Method:</b>	Spray	Spray	Spray	Spray	Spray
<b>Application Timing:</b>	PRE	3-4"W-1	3-4"W-1	3-4"W-2	3-4"W-2
<b>Application Placement:</b>	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL
<b>Applied By:</b>	BD	BD	BD	BD	BD
<b>Air Temperature, Unit:</b>	91 F	85 F	85 F	85 F	85 F
<b>% Relative Humidity:</b>	45	72	72	72	72
<b>Wind Velocity, Unit:</b>	3 MPH	5 MPH	5 MPH	5 MPH	5 MPH
<b>Wind Direction:</b>	S	WSW	WSW	WSW	WSW
<b>Dew Presence (Y/N):</b>	N	N	N	N	N
<b>Soil Temperature, Unit:</b>	81 F	81 F	81 F	81 F	81 F
<b>Soil Moisture:</b>	NORMAL	BELNOR	BELNOR	BELNOR	BELNOR
<b>% Cloud Cover:</b>	0	25	25	25	25
<b>Next Moisture Occurred On:</b>	6-30-16	6-30-16	6-30-16	6-30-16	6-30-16
<b>Time to Next Moisture, Unit:</b>	20 DAY	7 DAY	7 DAY	7 DAY	7 DAY

**Crop Stage At Each Application**

	A	B	C	D	E
<b>Crop 1 Code, BBCH Scale:</b>	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
<b>Stage Scale Used:</b>	DESC	DESC	DESC	DESC	DESC
<b>Stage Majority, Percent:</b>	NA	V2	V2	V2	V2
<b>Stage Minimum, Percent:</b>		V1	V1	V1	V1
<b>Stage Maximum, Percent:</b>		V2	V2	V2	V2
<b>Height, Unit:</b>		4 IN	4 IN	4 IN	4 IN
<b>Height Minimum, Maximum:</b>		3 4	3 4	3 4	3 4

**Pest Stage At Each Application**

	A	B	C	D	E
<b>Pest 1 Code, Type, Scale:</b>	AMAPA W	AMAPA W	AMAPA W	AMAPA W	AMAPA W
<b>Stage Majority, Percent:</b>	NA	10+	10+	10+	10+
<b>Stage Minimum, Percent:</b>		10+	10+	10+	10+
<b>Stage Maximum, Percent:</b>		10+	10+	10+	10+
<b>Height, Unit:</b>		5 IN	5 IN	5 IN	5 IN
<b>Height Minimum, Maximum:</b>		2 5	2 5	2 5	2 5
<b>Density, Unit:</b>		4 FT2	4 FT2	4 FT2	4 FT2
<b>Pest 2 Code, Type, Scale:</b>	ABUTH W	ABUTH W	ABUTH W	ABUTH W	ABUTH W
<b>Stage Majority, Percent:</b>	NA	6	6	6	6
<b>Stage Minimum, Percent:</b>		4	4	4	4
<b>Stage Maximum, Percent:</b>		6	6	6	6
<b>Height, Unit:</b>		4 IN	4 IN	4 IN	4 IN
<b>Height Minimum, Maximum:</b>		2 4	2 4	2 4	2 4
<b>Density, Unit:</b>		10 FT2	10 FT2	10 FT2	10 FT2
<b>Pest 3 Code, Type, Scale:</b>	IPOHE W	IPOHE W	IPOHE W	IPOHE W	IPOHE W
<b>Stage Majority, Percent:</b>	NA	4	4	4	4
<b>Stage Minimum, Percent:</b>		2	2	2	2
<b>Stage Maximum, Percent:</b>		4	4	4	4
<b>Height, Unit:</b>		3 IN	3 IN	3 IN	3 IN
<b>Height Minimum, Maximum:</b>		2 3	2 3	2 3	2 3
<b>Density, Unit:</b>		0.1 FT2	0.1 FT2	0.1 FT2	0.1 FT2

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Application Equipment					
	A	B	C	D	E
<b>Appl. Equipment:</b>	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
<b>Equipment Type:</b>	BACSPR	BACSPR	BACSPR	BACSPR	BACSPR
<b>Operation Pressure, Unit:</b>	30    PSI	30    PSI	30    PSI	30    PSI	30    PSI
<b>Nozzle Type:</b>	XR	XR	TTI	XR	TTI
<b>Nozzle Size:</b>	8002	8002	11002	8002	11002
<b>Boom Length, Unit:</b>	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT
<b>Spray Volume, Unit:</b>	15    GPA	15    GPA	15    GPA	15    GPA	15    GPA

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Pest Code										GLXMA	GLXMA	GLXMA
Crop Code										7-7-16	7-21-16	8-18-16
Rating Date										Injury	Injury	Injury
Rating Type										Percent	Percent	Percent
Rating Unit										14 DA-B	28 DA-B	56 DA-B
Rating Timing												
Trt-Eval Interval												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Rate	Growth Unit Stage	Appl Code			
1	XTEND SOYBEAN NONTREATED									0	0	0
2	XTEND SOYBEAN FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE	A	0 a	0 a	0 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E			
3	XTEND SOYBEAN AUTHORITY XL	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A	0 a	0 a	0 a
	ZIDUA	85	WG	0.133	lb ai/a	2.5	oz/a	PRE	A			
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E			
4	XTEND SOYBEAN PREFIX	5.29	EC	1.65	lb ai/a	2.5	pt/a	PRE	A	0 a	0 a	0 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E			
5	XTEND SOYBEAN BOUNDARY	6.5	EC	1.63	lb ai/a	2	pt/a	PRE	A	0 a	0 a	0 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E			
6	XTEND SOYBEAN DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-1 C	0 a	0 a	0 a
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-1 C			
7	LIBERTY LINK SOYBEAN NONTREATED									0	0	0
8	LIBERTY LINK SOYBEAN FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE	A	0 a	0 a	0 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-2 D			
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D			
9	LIBERTY LINK SOYBEAN AUTHORITY XL	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A	0 a	0 a	0 a
	ZIDUA	85	WG	0.133	lb ai/a	2.5	oz/a	PRE	A			
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-2 D			
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D			
10	LIBERTY LINK SOYBEAN PREFIX	5.29	EC	1.65	lb ai/a	2.5	pt/a	PRE	A	0 a	0 a	0 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-2 D			
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D			
11	LIBERTY LINK SOYBEAN BOUNDARY	6.5	EC	1.63	lb ai/a	2	pt/a	PRE	A	0 a	0 a	0 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-2 D			
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D			

Means followed by same letter or symbol 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 5,11,15,6,8,7 because error mean square = 0.

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Pest Code									GLXMA	GLXMA	GLXMA
Crop Code									7-7-16	7-21-16	8-18-16
Rating Date									Injury	Injury	Injury
Rating Type											
Rating Unit									Percent	Percent	Percent
Rating Timing											
Trt-Eval Interval									14 DA-B	28 DA-B	56 DA-B
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Rate	Growth Unit Stage	Appl Code		
12	LIBERTY LINK SOYBEAN									0 a	0 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"W-1 B			
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"W-1 B			
LSD P=.05										.	.
Standard Deviation										0.0	0.0
CV										0.0	0.0
Replicate F										0.000	0.000
Replicate Prob(F)										1.0000	1.0000
Treatment F										0.000	0.000
Treatment Prob(F)										1.0000	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)  
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 Could not calculate LSD (% mean diff) for columns 5,11,15,6,8,7 because error mean square = 0.

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Pest Code		AMAPA		AMAPA		AMAPA		AMAPA						
Crop Code		7-7-16		7-7-16		7-21-16		8-18-16						
Rating Date		Burndown		Residual		Control		Control						
Rating Type		Percent		Percent		Percent		Percent						
Rating Unit		14 DA-B		14 DA-B		28 DA-B		56 DA-B						
Rating Timing														
Trt-Eval Interval														
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Rate	Growth Unit	Stage	Appl Code				
1	XTEND SOYBEAN NONTREATED										0	0	0	0
2	XTEND SOYBEAN FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE	A		99 a	99 a	99 a	99 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E					
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E					
3	XTEND SOYBEAN AUTHORITY XL	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A		99 a	99 a	99 a	99 a
	ZIDUA	85	WG	0.133	lb ai/a	2.5	oz/a	PRE	A					
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E					
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4	XTEND SOYBEAN PREFIX	5.29	EC	1.65	lb ai/a	2.5	pt/a	PRE	A		99 a	99 a	99 a	99 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E					
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E					
5	XTEND SOYBEAN BOUNDARY	6.5	EC	1.63	lb ai/a	2	pt/a	PRE	A		99 a	99 a	99 a	99 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-2 E					
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-2 E					
6	XTEND SOYBEAN DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"	W-1 C		99 a	99 a	63 b	63 b
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"	W-1 C					
7	LIBERTY LINK SOYBEAN NONTREATED										0	0	0	0
8	LIBERTY LINK SOYBEAN FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE	A		99 a	99 a	99 a	99 a
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	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D					
9	LIBERTY LINK SOYBEAN AUTHORITY XL	70	WG	0.28	lb ai/a	6.4	oz/a	PRE	A		99 a	99 a	99 a	99 a
	ZIDUA	85	WG	0.133	lb ai/a	2.5	oz/a	PRE	A					
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	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-2 D					
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D					
11	LIBERTY LINK SOYBEAN BOUNDARY	6.5	EC	1.63	lb ai/a	2	pt/a	PRE	A		99 a	99 a	96 a	96 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-2 D					
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-2 D					

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 Could not calculate LSD (% mean diff) for columns 5,11,15,6,8,7 because error mean square = 0.

Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
 Investigator: Karla L. Gage, Ph.D.

										AMAPA	AMAPA	AMAPA	AMAPA	
										7-7-16	7-7-16	7-21-16	8-18-16	
										Burndown	Residual	Control	Control	
										Percent	Percent	Percent	Percent	
										14 DA-B	14 DA-B	28 DA-B	56 DA-B	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Other Rate	Other Rate	Growth Unit	Stage	Appl Code				
12	LIBERTY LINK SOYBEAN										99 a	99 a	35 c	35 c
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-1 B					
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-1 B					
LSD P=.05											.	.	14.7	14.7
Standard Deviation											0.0	0.0	10.1	10.1
CV											0.0	0.0	11.44	11.44
Replicate F											0.000	0.000	2.006	2.006
Replicate Prob(F)											1.0000	1.0000	0.1369	0.1369
Treatment F											0.000	0.000	18.819	18.819
Treatment Prob(F)											1.0000	1.0000	0.0001	0.0001

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 Could not calculate LSD (% mean diff) for columns 5,11,15,6,8,7 because error mean square = 0.



Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
 Investigator: Karla L. Gage, Ph.D.

Pest Code Crop Code Rating Date Rating Type  Rating Unit Rating Timing Trt-Eval Interval								ABUTH	ABUTH	ABUTH	ABUTH		
								7-7-16	7-7-16	7-21-16	8-18-16		
								Burndown	Residual	Control	Control		
								Percent	Percent	Percent	Percent		
							14 DA-B	14 DA-B	28 DA-B	56 DA-B			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Other Rate	Other Rate	Growth Unit Stage	Appl Code				
1	XTEND SOYBEAN NONTREATED									0	0	0	0
2	XTEND SOYBEAN FIERCE XLT DICAMBA DGA ROUNDUP POWERMAX	62.41 4 4.5	WG SL SL	0.176 0.5 1.13	lb ai/a lb ae/a lb ae/a	4.5 1 32	oz/a pt/a fl oz/a	PRE 3-4"W-2 3-4"W-2	A E E	99 a	99 a	99 a	99 a
3	XTEND SOYBEAN AUTHORITY XL ZIDUA DICAMBA DGA ROUNDUP POWERMAX	70 85 4 4.5	WG WG SL SL	0.28 0.133 0.5 1.13	lb ai/a lb ai/a lb ae/a lb ae/a	6.4 2.5 1 32	oz/a oz/a pt/a fl oz/a	PRE PRE 3-4"W-2 3-4"W-2	A A E E	99 a	99 a	99 a	99 a
4	XTEND SOYBEAN PREFIX DICAMBA DGA ROUNDUP POWERMAX	5.29 4 4.5	EC SL SL	1.65 0.5 1.13	lb ai/a lb ae/a lb ae/a	2.5 1 32	pt/a pt/a fl oz/a	PRE 3-4"W-2 3-4"W-2	A E E	99 a	64 b	59 bc	87 ab
5	XTEND SOYBEAN BOUNDARY DICAMBA DGA ROUNDUP POWERMAX	6.5 4 4.5	EC SL SL	1.63 0.5 1.13	lb ai/a lb ae/a lb ae/a	2 1 32	pt/a pt/a fl oz/a	PRE 3-4"W-2 3-4"W-2	A E E	99 a	58 bc	68 b	99 a
6	XTEND SOYBEAN DICAMBA DGA ROUNDUP POWERMAX	4 4.5	SL SL	0.5 1.13	lb ae/a lb ae/a	1 32	pt/a fl oz/a	3-4"W-1 3-4"W-1	C C	99 a	31 c	28 d	28 c
7	LIBERTY LINK SOYBEAN NONTREATED									0	0	0	0
8	LIBERTY LINK SOYBEAN FIERCE XLT LIBERTY 280 AMS - LIQUID	62.41 2.34 100	WG EC SL	0.176 0.53 5	lb ai/a lb ai/a % v/v	4.5 29 5	oz/a fl oz/a % v/v	PRE 3-4"W-2 3-4"W-2	A D D	99 a	99 a	99 a	99 a
9	LIBERTY LINK SOYBEAN AUTHORITY XL ZIDUA LIBERTY 280 AMS - LIQUID	70 85 2.34 100	WG WG EC SL	0.28 0.133 0.53 5	lb ai/a lb ai/a lb ai/a % v/v	6.4 2.5 29 5	oz/a oz/a fl oz/a % v/v	PRE PRE 3-4"W-2 3-4"W-2	A A D D	99 a	99 a	99 a	99 a
10	LIBERTY LINK SOYBEAN PREFIX LIBERTY 280 AMS - LIQUID	5.29 2.34 100	EC EC SL	1.65 0.53 5	lb ai/a lb ai/a % v/v	2.5 29 5	pt/a fl oz/a % v/v	PRE 3-4"W-2 3-4"W-2	A D D	99 a	63 b	46 cd	46 c
11	LIBERTY LINK SOYBEAN BOUNDARY LIBERTY 280 AMS - LIQUID	6.5 2.34 100	EC EC SL	1.63 0.53 5	lb ai/a lb ai/a % v/v	2 29 5	pt/a fl oz/a % v/v	PRE 3-4"W-2 3-4"W-2	A D D	99 a	50 bc	70 b	70 b

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Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
 Investigator: Karla L. Gage, Ph.D.

Pest Code								ABUTH	ABUTH	ABUTH	ABUTH
Crop Code								7-7-16	7-7-16	7-21-16	8-18-16
Rating Date								Burndown	Residual	Control	Control
Rating Type								Percent	Percent	Percent	Percent
Rating Unit								14 DA-B	14 DA-B	28 DA-B	56 DA-B
Rating Timing											
Trt-Eval Interval											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Unit	Other Rate	Other Rate	Growth Unit Stage	Appl Code		
12	LIBERTY LINK SOYBEAN									99 a	39 bc
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"	W-1 B		31 d
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"	W-1 B		31 c
LSD P=.05											
Standard Deviation											
CV											
Replicate F											
Replicate Prob(F)											
Treatment F											
Treatment Prob(F)											

Means followed by same letter or symbol 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 5,11,15,6,8,7 because error mean square = 0.

## Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
Investigator: Karla L. Gage, Ph.D.

Pest Code								IPOHE	IPOHE	IPOHE	
Crop Code								7-7-16	7-21-16	8-18-16	
Rating Date								Residual	Control	Control	
Rating Type								Percent	Percent	Percent	
Rating Unit								14 DA-B	28 DA-B	56 DA-B	
Rating Timing											
Trt-Eval Interval											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Other Rate	Other Rate	Growth Unit Stage	Appl Code			
1	XTEND SOYBEAN NONTREATED								0	0	0
2	XTEND SOYBEAN FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE A	99 a	98 a	98 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"W-2 E			
3	XTEND SOYBEAN AUTHORITY XL	70	WG	0.28	lb ai/a	6.4	oz/a	PRE A	99 a	99 a	99 a
	ZIDUA	85	WG	0.133	lb ai/a	2.5	oz/a	PRE A			
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"W-2 E			
4	XTEND SOYBEAN PREFIX	5.29	EC	1.65	lb ai/a	2.5	pt/a	PRE A	81 a	75 ab	94 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"W-2 E			
5	XTEND SOYBEAN BOUNDARY	6.5	EC	1.63	lb ai/a	2	pt/a	PRE A	78 ab	60 bc	99 a
	DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"W-2 E			
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"W-2 E			
6	XTEND SOYBEAN DICAMBA DGA	4	SL	0.5	lb ae/a	1	pt/a	3-4"W-1 C	75 abc	79 ab	79 ab
	ROUNDUP POWERMAX	4.5	SL	1.13	lb ae/a	32	fl oz/a	3-4"W-1 C			
7	LIBERTY LINK SOYBEAN NONTREATED								0	0	0
8	LIBERTY LINK SOYBEAN FIERCE XLT	62.41	WG	0.176	lb ai/a	4.5	oz/a	PRE A	99 a	99 a	99 a
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"W-2 D			
	AMS - LIQUID	100	SL	5 %	v/v	5 %	v/v	3-4"W-2 D			
9	LIBERTY LINK SOYBEAN AUTHORITY XL	70	WG	0.28	lb ai/a	6.4	oz/a	PRE A	99 a	99 a	99 a
	ZIDUA	85	WG	0.133	lb ai/a	2.5	oz/a	PRE A			
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"W-2 D			
	AMS - LIQUID	100	SL	5 %	v/v	5 %	v/v	3-4"W-2 D			
10	LIBERTY LINK SOYBEAN PREFIX	5.29	EC	1.65	lb ai/a	2.5	pt/a	PRE A	89 a	60 bc	60 bc
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"W-2 D			
	AMS - LIQUID	100	SL	5 %	v/v	5 %	v/v	3-4"W-2 D			
11	LIBERTY LINK SOYBEAN BOUNDARY	6.5	EC	1.63	lb ai/a	2	pt/a	PRE A	48 bc	41 c	41 cd
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"W-2 D			
	AMS - LIQUID	100	SL	5 %	v/v	5 %	v/v	3-4"W-2 D			

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Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
 Investigator: Karla L. Gage, Ph.D.

								IPOHE	IPOHE	IPOHE		
								7-7-16	7-21-16	8-18-16		
								Residual	Control	Control		
								Percent	Percent	Percent		
Trt-Eval Interval								14 DA-B	28 DA-B	56 DA-B		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Other Rate	Other Rate	Growth Unit Stage	Appl Code			
12	LIBERTY LINK SOYBEAN									44 c	35 c	35 d
	LIBERTY 280	2.34	EC	0.53	lb ai/a	29	fl oz/a	3-4"W-1 B				
	AMS - LIQUID	100	SL	5	% v/v	5	% v/v	3-4"W-1 B				
LSD P=.05								33.1	26.4	24.4		
Standard Deviation								22.8	18.2	16.8		
CV								28.16	24.51	20.99		
Replicate F								0.591	0.137	0.386		
Replicate Prob(F)								0.6261	0.9373	0.7640		
Treatment F								3.347	7.206	9.170		
Treatment Prob(F)								0.0071	0.0001	0.0001		

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Glyphosate-Susceptible Palmer Amaranth Control with Two-Pass Programs.

Trial ID: 16-9B-N170 Location: Belleville Res. Center Trial Year: 2016  
Investigator: Karla L. Gage, Ph.D.

Trial Comments

1. Protocol: SIU/RFK.
2. Ratings:  
CI 14 and 28 DA-A (PRE); 14, 28, and 56 DA-B+C (3-4"W-1); 14, 28, and 56 DA-D+E (3-4"W-2).  
WC 14 and 28 DA-A (PRE); 14, 28, and 56 DA-B+C (3-4"W-1); 14, 28, and 56 DA-D+E (3-4"W-2).  
Rate before spray applications D and E.
3. No yield;
4. Soybean varieties are Pioneer 37T09L (LL) and Asgrow 38X6 (Xtend).
5. Applications A (PRE), B (Liberty), and D (Liberty) use XR 8002 nozzles.  
Applications C (Dicamba) and E (Dicamba) use TTI 11002 nozzels.
6. Photos as appropriate.
7. POST application -1 and -2 were sprayed on the same day because there was no rain for activation of the PRE herbicides.
8. Rainfall following the PRE application A was 2.61 inch over 9 days beginning 20 days later.  
Rainfall following the 3-4"W-1 and -2 applications B-E was 2.61 inch over 9 days beginning 7 days later.
9. Ratings at 14, 28 and 56 DA-B were also 14, 28 and 56 DA-C+D+E,  
all POSTs applied on the same day.
10. Not harvested.