

Palmer Amaranth Control with Cobra plus Liberty.

Trial ID: 16-COL-Valent-6401 Location: Collinsville, IL Trial Year: 2016
Investigator: Karla L. Gage, Ph.D.

Trial Status: F one-year/final Initiation Date: 5-22-16 Completion Date: 7-14-16	Trial Location
City: Collinsville Country: USA State/Prov.: Illinois IL Postal Code: 62234	

Objectives:
 Demonstrate the benefit of adding Cobra at 8 to 12.5 fl oz/A to Liberty in a Liberty Link system for control of Palmer amaranth.

Study Director: Karla Gage, Ph.D. Title: Assistant Professor of Weed Science Organization: Southern Illinois University Carbondale Address: 1205 Lincoln Drive MC 4415 Phone No.: 618-453-7679 City+State/Prov: Carbondale, IL Postal Code: 62901 E-mail: kgage@siu.edu Country: USA	Contacts
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Crop 1: GLXMA Glycine max Soybean Variety: P37T09L BBCH Scale: BSOY Description: LL	Crop Description
Planting Rate, Unit: 140000 S/A Depth, Unit: 1 IN Row Spacing, Unit: 30 IN	Planting Date: 5-22-16 Planting Method: SEEDED

Pest 1 Type: W Code: AMAPA Amaranthus palmeri S.Wats. Common Name: amaranth, Palmer Description: glyphosate-resistant Palmer amaranth	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	Site and Design Site Type: FIELD Experimental Unit: 1 PLOT Tillage Type: REDTIL reduced-till Study Design: RACOB� Randomized Complete Block (RCB)						
Replications: 3 Untreated Arrangement: INCLUDED single control randomized in each block							
<table border="1"> <thead> <tr> <th>No.</th> <th>Previous Crop</th> <th>Year</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>GLXMA</td> <td>2015</td> </tr> </tbody> </table>		No.	Previous Crop	Year	1.	GLXMA	2015
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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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Description Name: Collinsville IL 2015 % Sand: 63.54 % OM: 2.17 Texture: SIL silt loam % Silt: 28.4 pH: 7.7 Soil Name: Littleton/Haymond/Orion % Clay: 8.06 CEC: 11.6	Soil Description									
Additional Measured Elements										
<table border="1"> <thead> <tr> <th>Element</th> <th>Quantity</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>204</td> <td>lb/A</td> </tr> <tr> <td>K</td> <td>476</td> <td>lb/A</td> </tr> </tbody> </table>		Element	Quantity	Unit	P1	204	lb/A	K	476	lb/A
Element	Quantity	Unit								
P1	204	lb/A								
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Moisture and Weather Conditions	
Overall Moisture Conditions: NORMAL Closest Weather Station: CLIMATE CORP	Distance, Unit: 1 MI

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No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	4-29-16					7	DAY	46	75	F
2.	4-29-16	1.17	IN	RAIN	rain	2	DAY			
3.	5-3-16	0.04	IN	RAIN	rain	1	DAY			
4.	5-6-16					7	DAY	44	87	F
5.	5-7-16	0.43	IN	RAIN	rain	1	DAY			
6.	5-9-16	2.21	IN	RAIN	rain	5	DAY			
7.	5-13-16					7	DAY	41	76	F
8.	5-16-16	0.74	IN	RAIN	rain	2	DAY			
9.	5-20-16					7	DAY	51	83	F
10.	5-26-16	0.8	IN	RAIN	rain	2	DAY			
11.	5-27-16					7	DAY	62	88	F
12.	5-31-16	0.18	IN	RAIN	rain	1	DAY			
13.	6-3-16					7	DAY	55	89	F
14.	6-3-16	0.28	IN	RAIN	rain	1	DAY			
15.	6-4-16	0.27	IN	RAIN	rain	1	DAY			
16.	6-10-16					7	DAY	65	96	F
17.	6-13-16	1	IN	RAIN	rain	1	DAY			
18.	6-17-16					7	DAY	67	97	F
19.	6-24-16					7	DAY	57	95	F
20.	6-25-16	1.42	IN	RAIN	rain	2	DAY			
21.	6-30-16	0.66	IN	RAIN	rain	1	DAY			
22.	7-1-16					7	DAY	60	91	F
23.	7-1-16	1.31	IN	RAIN	rain	4	DAY			
24.	7-6-16	0.85	IN	RAIN	rain	2	DAY			
25.	7-8-16					7	DAY	67	93	F
26.	7-12-16	1.07	IN	RAIN	rain	3	DAY			
27.	7-15-16					7	DAY	68	93	F

Comment:

The Climate Corporation provided estimates of rainfall at this Collinsville location. Air temperature was recorded at Scott Air Force Base 15 miles SE 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.

Application Description

	A
Application Date:	6-16-16
Appl. Start Time:	9:00
Appl. Stop Time:	9:30
Application Method:	Spray
Application Timing:	6"PA
Application Placement:	BROFOL
Applied By:	KNW
Air Temperature, Unit:	91 F
% Relative Humidity:	64
Wind Velocity, Unit:	6 MPH
Wind Direction:	N
Dew Presence (Y/N):	N
Soil Temperature, Unit:	80 F
Soil Moisture:	NORMAL
% Cloud Cover:	0
Next Moisture Occurred On:	6-25-16
Time to Next Moisture, Unit:	9 DAY

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Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA
Stage Scale Used:	DESC
Stage Majority, Percent:	V3
Stage Minimum, Percent:	V2
Stage Maximum, Percent:	V3
Height, Unit:	6 IN
Height Minimum, Maximum:	5 6

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMAPA W
Stage Majority, Percent:	8
Stage Minimum, Percent:	4
Stage Maximum, Percent:	10+
Height, Unit:	4 IN
Height Minimum, Maximum:	2 6
Density, Unit:	50 FT2

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	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	GLXMA 6-23-16 Injury Percent	GLXMA 6-30-16 Injury Percent	GLXMA 7-14-16 Injury Percent	AMAPA-HR 6-23-16 Control Percent	AMAPA-HR 6-30-16 Control Percent	AMAPA-HR 7-14-16 Control Percent
							7 DA-A	14 DA-A	28 DA-A	7 DA-A	14 DA-A	28 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NONTREATED									0	0	0
2	LIBERTY 280 AMS DRY	2.34 100	EC SG	0.53 lb ai/a 3 lb/a	ai/a	29 fl oz/a 3 lb/a	oz/a	6"PA 6"PA	A A	0 b	0 b	0 a
3	LIBERTY 280 COBRA AMS DRY	2.34 2 100	EC EC SG	0.53 lb ai/a 0.125 lb ai/a 3 lb/a	ai/a	29 fl oz/a 8 fl oz/a 3 lb/a	oz/a	6"PA 6"PA 6"PA	A A A	33 a	20 a	0 a
4	LIBERTY 280 COBRA AMS DRY	2.34 2 100	EC EC SG	0.53 lb ai/a 0.156 lb ai/a 3 lb/a	ai/a	29 fl oz/a 10 fl oz/a 3 lb/a	oz/a	6"PA 6"PA 6"PA	A A A	30 a	20 a	0 a
5	LIBERTY 280 COBRA AMS DRY	2.34 2 100	EC EC SG	0.53 lb ai/a 0.195 lb ai/a 3 lb/a	ai/a	29 fl oz/a 12.5 fl oz/a 3 lb/a	oz/a	6"PA 6"PA 6"PA	A A A	35 a	15 a	0 a
6	LIBERTY 280 COBRA COC AMS DRY	2.34 2 100 100	EC EC SL SG	0.53 lb ai/a 0.125 lb ai/a 0.83 % v/v 3 lb/a	ai/a	29 fl oz/a 8 fl oz/a 1 pt/a 3 lb/a	oz/a	6"PA 6"PA 6"PA 6"PA	A A A A	32 a	17 a	0 a
7	LIBERTY 280 FLEXSTAR COC AMS DRY	2.34 1.88 100 100	EC EC SL SG	0.53 lb ai/a 0.235 lb ai/a 0.83 % v/v 3 lb/a	ai/a	29 fl oz/a 16 fl oz/a 1 pt/a 3 lb/a	oz/a	6"PA 6"PA 6"PA 6"PA	A A A A	32 a	13 a	0 a
8	LIBERTY 280 ULTRA BLAZER 2 EC COC AMS DRY	2.34 2 100 100	EC EC SL SG	0.53 lb ai/a 0.25 lb ai/a 0.83 % v/v 3 lb/a	ai/a	29 fl oz/a 16 fl oz/a 1 pt/a 3 lb/a	oz/a	6"PA 6"PA 6"PA 6"PA	A A A A	30 a	17 a	0 a
LSD P=.05							10.4	7.2	.	2.0	6.2	21.0
Standard Deviation							5.9	4.1	0.0	1.1	3.5	11.8
CV							21.4	27.94	0.0	1.19	3.98	24.98
Replicate F							0.555	4.627	0.000	0.442	1.023	5.356
Replicate Prob(F)							0.5882	0.0324	1.0000	0.6530	0.3888	0.0218
Treatment F							13.017	8.554	0.000	7.018	2.412	0.936
Treatment Prob(F)							0.0001	0.0009	1.0000	0.0022	0.0916	0.5045

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 9 because error mean square = 0.

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Trial Comments

1. Protocol: Valent (6401).
2. Ratings:
CI 7, 14, and 28 DA-A.
WC 7, 14, and 28 DA-A.
3. No yield.
4. Blanket as needed to start clean, not needed, used tillage.
Blanket POST of Select Max (12 floz/A) if needed for control of grasses
but at least 1 week prior to application A, was not needed.
5. Photos not required but would be nice at 14 DA-A.
6. Rainfall following the 6"PA application A was 1.42 inch over 2 days beginning 9 days later.
7. AMAPA-HR = Herbicide-resistant Palmer amaranth (glyphosate).
8. Not harvested.