

Preemergence Herbicide Screen for Control of Palmer Amaranth - Non-Crop.

Trial ID: 16-COL-TRCR 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:** 7-5-16

**Trial Location**

**City:** Collinsville **Country:** USA  
**State/Prov.:** Illinois IL  
**Postal Code:** 62234

**Objectives:**  
 Demonstrate the pigweed activity of current preemergence herbicide technology - non-crop.

**Contacts**

**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

**Crop Description**

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

**Pest Description**

**Pest 1 Type:** W **Code:** AMAPA **Amaranthus palmeri** S.Wats.  
**Common Name:** amaranth, Palmer  
**Description:** glyphosate-resistant Palmer amaranth

**Site and Design**

**Treated Plot Width:** 6.67 FT **Total Plot Width:** 10 FT **Site Type:** FIELD  
**Treated Plot Length:** 25 FT **Total Plot Length:** 25 FT **Experimental Unit:** 1 PLOT  
**Tillage Type:** REDTIL reduced-till  
**Study Design:** RACOB� Randomized Complete Block (RCB)  
**Replications:** 4  
**Untreated Arrangement:** INCLUDED single control randomized in each block

No.	Previous Crop	Year
1.	ZEAMD	2015

**Maintenance**

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

**Soil Description**

**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

**Additional Measured Elements**

Element	Quantity	Unit
P1	204	lb/A
K	476	lb/A

**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.	4-1-16					7	DAY	32	75	F
2.	4-6-16	0.35	IN	RAIN	rain	1	DAY			
3.	4-8-16					7	DAY	28	71	F
4.	4-10-16	1.45	IN	RAIN	rain	2	DAY			
5.	4-15-16					7	DAY	48	81	F
6.	4-19-16	0.88	IN	RAIN	rain	3	DAY			
7.	4-22-16					7	DAY	47	85	F
8.	4-26-16	0.93	IN	RAIN	rain	2	DAY			
9.	4-29-16					7	DAY	46	75	F
10.	4-29-16	1.17	IN	RAIN	rain	2	DAY			
11.	5-3-16	0.04	IN	RAIN	rain	1	DAY			
12.	5-6-16					7	DAY	44	87	F
13.	5-7-16	0.43	IN	RAIN	rain	1	DAY			
14.	5-9-16	2.21	IN	RAIN	rain	5	DAY			
15.	5-13-16					7	DAY	41	76	F
16.	5-16-16	0.74	IN	RAIN	rain	2	DAY			
17.	5-20-16					7	DAY	51	83	F
18.	5-26-16	0.8	IN	RAIN	rain	2	DAY			
19.	5-27-16					7	DAY	62	88	F
20.	5-31-16	0.18	IN	RAIN	rain	1	DAY			
21.	6-3-16					7	DAY	55	89	F
22.	6-3-16	0.28	IN	RAIN	rain	1	DAY			
23.	6-4-16	0.27	IN	RAIN	rain	1	DAY			
24.	6-10-16					7	DAY	65	96	F
25.	6-13-16	1	IN	RAIN	rain	1	DAY			
26.	6-17-16					7	DAY	67	97	F
27.	6-24-16					7	DAY	57	95	F
28.	6-25-16	1.42	IN	RAIN	rain	2	DAY			
29.	6-30-16	0.66	IN	RAIN	rain	1	DAY			
30.	7-1-16					7	DAY	60	91	F
31.	7-1-16	1.31	IN	RAIN	rain	4	DAY			
32.	7-6-16	0.85	IN	RAIN	rain	2	DAY			
33.	7-8-16					7	DAY	67	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.

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**Application Description**

	A
Application Date:	5-22-16
Appl. Start Time:	11:30
Appl. Stop Time:	12:30
Application Method:	Spray
Application Timing:	PRE
Application Placement:	BROSOI
Applied By:	MCG
Air Temperature, Unit:	76 F
% Relative Humidity:	20
Wind Velocity, Unit:	3 MPH
Wind Direction:	NNW
Dew Presence (Y/N):	N
Soil Temperature, Unit:	70 F
Soil Moisture:	NORMAL
% Cloud Cover:	0
Next Moisture Occurred On:	5-26-16
Time to Next Moisture, Unit:	4 DAY

**Crop Stage At Each Application**

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

**Pest Stage At Each Application**

	A
Pest 1 Code, Type, Scale:	AMAPA 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	Crop Code	Rating Date	Rating Type	Rating Unit	Rating Timing	Trt-Eval Interval	AMAPA-HR	AMAPA-HR	AMAPA-HR	AMAPA-HR	AMAPA-HR					
							5-29-16 Control Percent	6-5-16 Control Percent	6-12-16 Control Percent	6-26-16 Control Percent	7-5-16 Control Percent					
							7 DA-A	14 DA-A	21 DA-A	35 DA-A	44 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	0		
2	TRICOR 4F	4	SC	0.375 lb ai/a		0.75 pt/a		PRE	A		90 de	97 a	28 g	18 ghi		
3	SATELLITE HYDROCAP	3.8	CS	0.95 lb ai/a		2 pt/a		PRE	A		83 f	90 c	19 g	0 i		
4	SATELLITE HYDROCAP TRICOR 4F	3.8 4	CS SC	0.95 lb ai/a 0.375 lb ai/a		2 pt/a 0.75 pt/a		PRE PRE	A A		96 abc	97 a	59 def	43 def		
5	DUAL MAGNUM	7.62	EC	1.05 lb ai/a		1.1 pt/a		PRE	A		92 bcd	95 ab	45 f	30 efg		
6	DUAL MAGNUM TRICOR 4F	7.62 4	EC SC	1.05 lb ai/a 0.35 lb ai/a		1.1 pt/a 0.7 pt/a		PRE PRE	A A		97 ab	98 a	81 abc	66 abc		
7	BOUNDARY	6.5	EC	1.3 lb ai/a		1.6 pt/a		PRE	A		95 abc	96 ab	54 ef	40 def		
8	SPARTAN 4F	4	SC	0.25 lb ai/a		0.5 pt/a		PRE	A		97 ab	97 a	66 cde	50 cde		
9	SPARTAN 4F TRICOR 4F	4 4	SC SC	0.25 lb ai/a 0.25 lb ai/a		0.5 pt/a 0.5 pt/a		PRE PRE	A A		95 a-d	96 ab	73 bcd	49 cde		
10	AUTHORITY MTZ	45	WG	0.394 lb ai/a		14 oz/a		PRE	A		96 abc	97 a	58 def	35 efg		
11	VALOR SX	51	WG	0.063 lb ai/a		1.98 oz/a		PRE	A		91 cd	96 ab	55 ef	26 fgh		
12	VALOR SX TRICOR 4F	51 4	WG SC	0.063 lb ai/a 0.375 lb ai/a		1.98 oz/a 0.75 pt/a		PRE PRE	A A		98 a	98 a	71 bcd	58 bcd		
13	ZIDUA	85	WG	0.106 lb ai/a		2 oz/a		PRE	A		92 bcd	94 b	63 de	39 def		
14	ZIDUA TRICOR 4F	85 4	WG SC	0.106 lb ai/a 0.375 lb ai/a		2 oz/a 0.75 pt/a		PRE PRE	A A		98 a	98 a	84 ab	74 ab		
15	CLARITY	4	SL	0.5 lb ae/a		1 pt/a		PRE	A		85 ef	93 b	14 g	9 hi		
16	CLARITY TRICOR 4F	4 4	SL SC	0.5 lb ae/a 0.375 lb ai/a		1 pt/a 0.75 pt/a		PRE PRE	A A		99 a	98 a	61 de	35 efg		
17	REFLEX	2	EC	0.25 lb ai/a		1 pt/a		PRE	A		95 abc	96 ab	63 de	50 cde		
18	PREFIX	5.29	EC	1.39 lb ai/a		2.1 pt/a		PRE	A		99 a	98 a	93 a	84 a		
LSD P=.05												5.1	3.1	16.2	20.8	
Standard Deviation													3.6	2.2	11.4	14.6
CV													3.83	2.29	19.74	35.3
Replicate F													2.708	1.299	2.692	2.665
Replicate Prob(F)													0.0555	0.2857	0.0565	0.0583
Treatment F													6.491	3.694	14.413	9.040
Treatment Prob(F)													0.0001	0.0002	0.0001	0.0001

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 because error mean square = 0.

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Trial Comments

1. Protocol: UPI (TRCR).
2. Ratings:  
CI none.  
WC 7, 14, 21, 28, 35, and 42 DA-A.
3. No yield (non-crop)
4. Blanket to start clean if needed (was not needed used tillage).
5. Photos that show differences or otherwise show residual power of each herbicide.
6. Rainfall following the PRE application (A) was 0.80 inch over 2 days beginning 4 days later.
7. On 5-29-16 at 7 DA-A there were very few weeds emerged in the nontreated areas,  
not possible to rate weed control.
8. AMAPA-HR = Herbicide-resistant Palmer amaranth (glyphosate).
9. Not harvested, non-crop.