

MSU Weed Science Research Program

Control of multiple-resistant Palmer amaranth with HPPD inhibitors postemergence

Trial ID: C13-14 Study Dir.: Kohrt, Sprague, and Powell  
 Conducted: Barry County Investigator: Christy Sprague

Date Planted: May/19/2014 Row Spacing: 30 IN  
 Variety: DKC 5204 No. of Reps: 4  
 Population: 30,000 seed/A % OM: 2.5  
 Soil Type: Sandy loam pH: 6.5  
 Plot Size: 10 X 30 FT Design: RANDOMIZED COMPLETE BLOCK

Tillage: Spring vertical tillage.

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1.	AMAPA	AMARANTH, PALMER	AMARANTHUS PALMERI S.WATS.
Crop	Code	Common Name	
1.	ZEAMX	CORN, FIELD	

Application Description

	A	B
Application Timing:	3-inch	6-inch
Date Treated:	Jun/09/2014	Jun/13/2014
Time Treated:	12:45 pm	10:00 am
% Cloud Cover:	10	40
Air Temp., Unit:	76 F	55 F
% Relative Humidity:	50	90
Wind Speed/Unit/Dir:	2 mph S	8 mph NW
Soil Temp., Unit:	77 F	66 F
Soil/Leaf Surface M:	5 5	4 5
Soil Moist (1=w 5=d):	5	4

Crop Stage at Each Application

	A	B
Crop Name:	ZEAMX	ZEAMX
Height (In.):	12"	17"
Stage (L):	V4	V5

Weed Stage at Each Application

	A	B
Weed 1 Name:	AMAPA	AMAPA
Height (In.):	3"	6"
Stage (L):	8	12

Weed Density (plants/sq. ft.)

1  
 Date: Jul/09/2014  
 Weed Name: AMAPA  
 Density: 4

Application Equipment

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Nozzle	Boom			
	Type	MPH	Type	Size	Height	Spacing	Width	GPA	Carrier	PSI
A	Backpack	3.8	AIXR	11003	24"	20"	100"	19	water	30
B	Backpack	3.8	AIXR	11003	33"	20"	100"	19	water	30

Comments: This population of Palmer amaranth is resistant to Site of Action Groups 2, 5, and 9.

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Weed Code								AMAPA		AMAPA		ZEAMX	
Crop Code								ZEAMX	control	ZEAMX	control	ZEAMX	
Rating Data Type								injury	percent	injury	percent	injury	
Rating Unit								percent	percent	percent	percent	percent	
Rating Date								Jun/19/2014	Jun/19/2014	Jun/26/2014	Jun/26/2014	Jul/09/2014	
Trt-Eval Interval								10 DA-A	10 DA-A	13 DA-B	13 DA-B	26 DA-B	
# Subsamples, Dec.								0	0	0	0	0	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
1	Untreated							0	0	0	0	0	0
2	Roundup PowerMax	4.5	SL	44	fl oz/a	3-inch	A	0	60	0	72	0	0
2	AMS		WG	17	lb/100 gal	3-inch	A						
2	Roundup PowerMax	4.5	SL	44	fl oz/a	6-inch	B						
2	AMS		WG	17	lb/100 gal	6-inch	B						
3	Atrazine	4	L	1	pt/a	3-inch	A	0	70	0	63	0	0
3	COC		L	1	% v/v	3-inch	A						
4	Callisto	4	L	3	fl oz/a	3-inch	A	0	75	0	85	0	0
4	COC		L	1	% v/v	3-inch	A						
4	AMS		WG	8.5	lb/100 gal	3-inch	A						
5	Callisto	4	L	3	fl oz/a	3-inch	A	0	95	1	99	0	0
5	Atrazine	4	L	1	pt/a	3-inch	A						
5	COC		L	1	% v/v	3-inch	A						
5	AMS		WG	8.5	lb/100 gal	3-inch	A						
6	Impact	2.8	L	0.75	fl oz/a	3-inch	A	0	84	1	99	0	0
6	MSO		L	1	% v/v	3-inch	A						
6	AMS		WG	8.5	lb/100 gal	3-inch	A						
7	Impact	2.8	L	0.75	fl oz/a	3-inch	A	0	96	0	99	0	0
7	Atrazine	4	L	1	pt/a	3-inch	A						
7	MSO		L	1	% v/v	3-inch	A						
7	AMS		WG	8.5	lb/100 gal	3-inch	A						
8	Laudis	3.5	L	3	fl oz/a	3-inch	A	0	86	0	98	0	0
8	MSO		L	1	% v/v	3-inch	A						
8	AMS		WG	8.5	lb/100 gal	3-inch	A						
9	Laudis	3.5	L	3	fl oz/a	3-inch	A	0	96	0	99	0	0
9	Atrazine	4	L	1	pt/a	3-inch	A						
9	MSO		L	1	% v/v	3-inch	A						
9	AMS		WG	8.5	lb/100 gal	3-inch	A						
10	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	3-inch	A	0	82	1	99	0	0
10	MSO		L	1	% v/v	3-inch	A						
10	AMS		WG	8.5	lb/100 gal	3-inch	A						
11	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	3-inch	A	0	95	3	99	0	0
11	Atrazine	4	L	1	pt/a	3-inch	A						
11	MSO		L	1	% v/v	3-inch	A						
11	AMS		WG	8.5	lb/100 gal	3-inch	A						
12	Atrazine	4	L	1	pt/a	6-inch	B	0	60	0	73	0	0
12	COC		L	1	% v/v	6-inch	B						
13	Callisto	4	L	3	fl oz/a	6-inch	B	0	56	0	76	0	0
13	COC		L	1	% v/v	6-inch	B						
13	AMS		WG	8.5	lb/100 gal	6-inch	B						
14	Callisto	4	L	3	fl oz/a	6-inch	B	0	86	0	99	0	0
14	Atrazine	4	L	1	pt/a	6-inch	B						
14	COC		L	1	% v/v	6-inch	B						
14	AMS		WG	8.5	lb/100 gal	6-inch	B						

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Weed Code								AMAPA		AMAPA		ZEAMX
Crop Code								ZEAMX	control	ZEAMX	control	ZEAMX
Rating Data Type								injury	percent	injury	percent	injury
Rating Unit								percent	percent	percent	percent	percent
Rating Date								Jun/19/2014	Jun/19/2014	Jun/26/2014	Jun/26/2014	Jul/09/2014
Trt-Eval Interval								10 DA-A	10 DA-A	13 DA-B	13 DA-B	26 DA-B
# Subsamples, Dec.								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
15	Impact	2.8	L	0.75	fl oz/a	6-inch	B	0	71	0	89	0
15	MSO		L	1	% v/v	6-inch	B					
15	AMS		WG	8.5	lb/100 gal	6-inch	B					
16	Impact	2.8	L	0.75	fl oz/a	6-inch	B	0	76	0	87	0
16	Atrazine	4	L	1	pt/a	6-inch	B					
16	MSO		L	1	% v/v	6-inch	B					
16	AMS		WG	8.5	lb/100 gal	6-inch	B					
17	Laudis	3.5	L	3	fl oz/a	6-inch	B	0	75	1	92	0
17	MSO		L	1	% v/v	6-inch	B					
17	AMS		WG	8.5	lb/100 gal	6-inch	B					
18	Laudis	3.5	L	3	fl oz/a	6-inch	B	1	87	2	98	0
18	Atrazine	4	L	1	pt/a	6-inch	B					
18	MSO		L	1	% v/v	6-inch	B					
18	AMS		WG	8.5	lb/100 gal	6-inch	B					
19	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	6-inch	B	0	76	0	95	0
19	MSO		L	1	% v/v	6-inch	B					
19	AMS		WG	8.5	lb/100 gal	6-inch	B					
20	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	6-inch	B	0	86	1	96	0
20	Atrazine	4	L	1	pt/a	6-inch	B					
20	MSO		L	1	% v/v	6-inch	B					
20	AMS		WG	8.5	lb/100 gal	6-inch	B					
LSD (P=.05)								0.5	12.9	1.5	10.4	0.0
CV								927.57	12.04	233.88	8.57	0.0

Means followed by same letter do not significantly differ (P=.05, LSD)

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Conducted: Barry County

Investigator: Christy Sprague

Weed Code

AMAPA

Crop Code

Rating Data Type

control

Rating Unit

percent

Rating Date

Jul/09/2014

Trt-Eval Interval

26 DA-B

# Subsamples, Dec.

0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated							0
2	Roundup PowerMax	4.5	SL	44	fl oz/a	3-inch	A	52
2	AMS		WG	17	lb/100 gal	3-inch	A	
2	Roundup PowerMax	4.5	SL	44	fl oz/a	6-inch	B	
2	AMS		WG	17	lb/100 gal	6-inch	B	
3	Atrazine	4	L	1	pt/a	3-inch	A	68
3	COC		L	1	% v/v	3-inch	A	
4	Callisto	4	L	3	fl oz/a	3-inch	A	85
4	COC		L	1	% v/v	3-inch	A	
4	AMS		WG	8.5	lb/100 gal	3-inch	A	
5	Callisto	4	L	3	fl oz/a	3-inch	A	99
5	Atrazine	4	L	1	pt/a	3-inch	A	
5	COC		L	1	% v/v	3-inch	A	
5	AMS		WG	8.5	lb/100 gal	3-inch	A	
6	Impact	2.8	L	0.75	fl oz/a	3-inch	A	99
6	MSO		L	1	% v/v	3-inch	A	
6	AMS		WG	8.5	lb/100 gal	3-inch	A	
7	Impact	2.8	L	0.75	fl oz/a	3-inch	A	99
7	Atrazine	4	L	1	pt/a	3-inch	A	
7	MSO		L	1	% v/v	3-inch	A	
7	AMS		WG	8.5	lb/100 gal	3-inch	A	
8	Laudis	3.5	L	3	fl oz/a	3-inch	A	96
8	MSO		L	1	% v/v	3-inch	A	
8	AMS		WG	8.5	lb/100 gal	3-inch	A	
9	Laudis	3.5	L	3	fl oz/a	3-inch	A	99
9	Atrazine	4	L	1	pt/a	3-inch	A	
9	MSO		L	1	% v/v	3-inch	A	
9	AMS		WG	8.5	lb/100 gal	3-inch	A	
10	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	3-inch	A	99
10	MSO		L	1	% v/v	3-inch	A	
10	AMS		WG	8.5	lb/100 gal	3-inch	A	
11	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	3-inch	A	99
11	Atrazine	4	L	1	pt/a	3-inch	A	
11	MSO		L	1	% v/v	3-inch	A	
11	AMS		WG	8.5	lb/100 gal	3-inch	A	
12	Atrazine	4	L	1	pt/a	6-inch	B	75
12	COC		L	1	% v/v	6-inch	B	
13	Callisto	4	L	3	fl oz/a	6-inch	B	81
13	COC		L	1	% v/v	6-inch	B	
13	AMS		WG	8.5	lb/100 gal	6-inch	B	
14	Callisto	4	L	3	fl oz/a	6-inch	B	98
14	Atrazine	4	L	1	pt/a	6-inch	B	
14	COC		L	1	% v/v	6-inch	B	
14	AMS		WG	8.5	lb/100 gal	6-inch	B	

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Weed Code AMAPA  
 Crop Code  
 Rating Data Type control  
 Rating Unit percent  
 Rating Date Jul/09/2014  
 Trt-Eval Interval 26 DA-B  
 # Subsamples, Dec. 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	
15	Impact	2.8	L	0.75	fl oz/a	6-inch	B	96
15	MSO		L	1	% v/v	6-inch	B	
15	AMS		WG	8.5	lb/100 gal	6-inch	B	
16	Impact	2.8	L	0.75	fl oz/a	6-inch	B	98
16	Atrazine	4	L	1	pt/a	6-inch	B	
16	MSO		L	1	% v/v	6-inch	B	
16	AMS		WG	8.5	lb/100 gal	6-inch	B	
17	Laudis	3.5	L	3	fl oz/a	6-inch	B	97
17	MSO		L	1	% v/v	6-inch	B	
17	AMS		WG	8.5	lb/100 gal	6-inch	B	
18	Laudis	3.5	L	3	fl oz/a	6-inch	B	99
18	Atrazine	4	L	1	pt/a	6-inch	B	
18	MSO		L	1	% v/v	6-inch	B	
18	AMS		WG	8.5	lb/100 gal	6-inch	B	
19	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	6-inch	B	99
19	MSO		L	1	% v/v	6-inch	B	
19	AMS		WG	8.5	lb/100 gal	6-inch	B	
20	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	6-inch	B	99
20	Atrazine	4	L	1	pt/a	6-inch	B	
20	MSO		L	1	% v/v	6-inch	B	
20	AMS		WG	8.5	lb/100 gal	6-inch	B	
LSD (P=.05)								14.7
CV								12.02

Means followed by same letter do not significantly differ (P=.05, LSD)