

Purdue University Weed Science

EVALUATION OF SYNGENTA TREATMENTS FOR CONTROL OF GLYPHOSATE-RESISTANT AMAPA IN CORN

Trial ID: 14S-CCP-CTC-04 Location: 12 MILE Trial Year: 2014
 Protocol ID: 14S-CCP-CTC-04 Investigator: Dr. Bill Johnson
 Project ID: HMS013A4-2014US Study Director: Joe Ikley
 Sponsor Contact: Syngenta - Steve Mroczkiewicz

General Trial Information

Study Director: Joe Ikley **Title:** Research Associate
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: F one-year/final
Initiation Date: 5/6/2014
Completion Date: 7/16/2014

Trial Location

City: Twelve Mile **Country:** USA United States
State/Prov.: Indiana
Postal Code: 46988

Contacts

Study Director: Joe Ikley **Title:** Research Associate
Organization: Purdue University
Address: 915 West State Street **Phone No.:** 765-494-0891
City+State/Prov: West Lafayette **Mobile No.:** 410-596-9091
Postal Code: 47907 **E-mail:** jikley@purdue.edu

Investigator: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
Address: 915 West State Street **Phone No.:** 765-494-4656
City+State/Prov: West Lafayette **Mobile No.:** 765-404-9801
Postal Code: 47907 **E-mail:** wgj@purdue.edu

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DKC 62-08
Description: RR/LL
Planting Date: 5/6/2014
Planting Rate, Unit: 32000 S/A **Planting Method:** PLANTD planted
Depth, Unit: 1.5 IN **Planting Equipment:** FPP Finger Pickup Planter
Row Spacing, Unit: 30 IN **Emergence Date:** 5/12/2014
Soil Temperature, Unit: 60 F
Soil Moisture: DRY dry

Pest Description

Pest 1 Type: W **Code:** AMAPA *Amaranthus palmeri*
Common Name: Palmer amaranth

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 30 FT
Treated Plot Area: 300 FT² **Treatments:** 25
Replications: 4 **Study Design:** RACOB L Randomized Complete Block (RCB)

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Application Description

	A	B	C
Application Date:	5/7/2014	6/6/2014	6/16/2014
Appl. Start Time:	6:30	13:00	13:30
Appl. Stop Time:	9:00 AM	2:00 PM	2:00 PM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	E POST	L POST
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Ikley	Devkota	Ikley
Air Temperature, Unit:	50 F	77 F	81 F
% Relative Humidity:	58	36	65
Wind Velocity, Unit:	5 MPH	2 MPH	3 MPH
Wind Direction:	E	ESE	S
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	55 F	80 F	72 F
Soil Moisture:	DRY	SLIWET	SLIWET
% Cloud Cover:	70	15	80

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		BBCH	BBCH
Stage Majority, Percent:		34	36
Stage Minimum, Percent:		33	35
Stage Maximum, Percent:		35	36
Height, Unit:		9 IN	16.5 IN
Height Minimum, Maximum:		6 12	13 20

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent:		19	
Stage Minimum, Percent:		14	
Stage Maximum, Percent:		19	
Height, Unit:		2 IN	
Height Minimum, Maximum:		1 3	
Density, Unit:		10 YD2	

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Application Equipment			
	A	B	C
Appl. Equipment:	CO2 Backpack	CO2 Backpack	CO2 Backpack
Equipment Type:	SPRBAC	SPRBAC	SPRBAC
Operation Pressure, Unit:	18 PSI	18 PSI	18 PSI
Nozzle Type:	Flat Fan	Flat Fan	Flat Fan
Nozzle Size:	XR11002	XR11002	XR11002
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN
Nozzles/Row:	6	6	6
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT
Boom Height, Unit:	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	H2O	H2O	H2O
Water Hardness (ppm CaCO3):	150	150	150
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size, Unit:	1.8 Liters	1.8 Liters	1.8 Liters
Propellant:	CO2	CO2	CO2
Tank Mix (Y/N):	N no	N no	N no

Trial Comments

Plots that were drowned out did not receive late-season efficacy ratings

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Reps: 4 Plots: 10 by 30 feet
 Spray vol: 15 gal/ac Mix size: 1.8 liters (min 1.5642)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Appl Code	Appl Description	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
20	LEXAR EZ	3.704	LB/GAL	L	3.5	qt/a	A	PRE	105.0 ml/mx	210	309	609	907
21	LEXAR EZ	3.704	LB/GAL	L	2.5	qt/a	A	PRE	75.0 ml/mx	301	403	608	902
	HALEX GT	4.389	LBAE/GAL	L	3.6	pt/a	B	4 WAAA	53.99 ml/mx				
	AATREX	4	LB/GAL	L	1	pt/a	B	4 WAAA	15.0 ml/mx				
	ACTIVATOR 90 - NIS	90	%	L	0.25	% v/v	B	4 WAAA	4.5 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5	% v/v	B	4 WAAA	45.0 ml/mx				
22	LEXAR EZ	3.704	LB/GAL	L	2.5	qt/a	A	PRE	75.0 ml/mx	302	401	706	1004
	HALEX GT	4.389	LBAE/GAL	L	3.6	pt/a	B	4 WAAA	53.99 ml/mx				
	STATUS	61.1	%	WG	2.5	oz/a	B	4 WAAA	2.247 g/mx				
	ACTIVATOR 90 - NIS	90	%	L	0.25	% v/v	B	4 WAAA	4.5 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5	% v/v	B	4 WAAA	45.0 ml/mx				
23	LEXAR EZ	3.704	LB/GAL	L	2.5	qt/a	A	PRE	75.0 ml/mx	303	409	705	1008
	HALEX GT	4.389	LBAE/GAL	L	3.6	pt/a	B	4 WAAA	53.99 ml/mx				
	AATREX	4	LB/GAL	L	1	pt/a	B	4 WAAA	15.0 ml/mx				
	ACTIVATOR 90 - NIS	90	%	L	0.25	% v/v	B	4 WAAA	4.5 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5	% v/v	B	4 WAAA	45.0 ml/mx				
	STATUS	61.1	%	WG	5	oz/a	C	6-7 WAAA	4.493 g/mx				
	ACTIVATOR 90 - NIS	90	%	L	0.25	% v/v	C	6-7 WAAA	4.5 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5	% v/v	C	6-7 WAAA	45.0 ml/mx				
24	LEXAR EZ	3.704	LB/GAL	L	3.5	qt/a	A	PRE	105.0 ml/mx	304	406	709	1005
	STATUS	61.1	%	WG	5	oz/a	B	4 WAAA	4.493 g/mx				
	ACTIVATOR 90 - NIS	90	%	L	0.25	% v/v	B	4 WAAA	4.5 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5	% v/v	B	4 WAAA	45.0 ml/mx				
25	Untreated Check								305	308	606	904	

Sort Order: Replicate 1

Product quantities required for listed treatments and applications of trials included in this table:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
434.999	ml	LEXAR EZ	3.704	L	
161.982	ml	HALEX GT	4.389	L	
29.997	ml	AATREX	4	L	
22.498	ml	ACTIVATOR 90 - NIS	90	L	
224.976	ml	N-PAK - AMS	3.4	SL	
11.234	g	STATUS	61.1	WG	

* 'Per area' calculations based on spray volume= 15 gal/ac, mix size= 1.8 liters (mix size basis).

* 'Per volume' calculations use spray volume= 15 gal/ac, mix size= 1.8 liters.

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				W Weed AMAPA Amaranthus pal> Palmer amaranth		W Weed AMAPA Amaranthus pal> Palmer amaranth		W Weed AMAPA Amaranthus pal> Palmer amaranth	
Pest Type	Pest Code	Pest Scientific Name	Pest Name						
Crop Code	BBCH Scale	Crop Scientific Name	Crop Name	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Part Rated	Rating Date	Rating Type	Rating Unit	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Days After First/Last Applic.	Trt-Eval Interval	ARM Action Codes	Number of Decimals	%	%	%	%	%	%
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	Plot	1	2	3	4	5	6
20 LEXAR EZ	3.5 qt/a	A	210	0	100	0	95	0*	98*
			309	0	100	0	100	0	95
			609	0	95	0	95	0*	98*
			907	0	100	0	95	0	100
			Mean =	0	99	0	96	0	98
21 LEXAR EZ	2.5 qt/a	A	301	0	100	0	95	0*	100
HALEX GT	3.6 pt/a	B	403	0	95	0	100	0*	100*
AATREX	1 pt/a	B	608	0	95	0*	100	0*	100*
ACTIVATOR 90 - NIS	0.25 % v/v	B	902	0	100	0	100	0	100
N-PAK - AMS	2.5 % v/v	B							
			Mean =	0	98	0	99	0	100
22 LEXAR EZ	2.5 qt/a	A	302	0	100	0*	100	0*	100
HALEX GT	3.6 pt/a	B	401	0	100	0	100	0	100
STATUS	2.5 oz/a	B	706	0	100	0	100	0	100
ACTIVATOR 90 - NIS	0.25 % v/v	B	1004	0	100	0	100	0	100
N-PAK - AMS	2.5 % v/v	B							
			Mean =	0	100	0	100	0	100
23 LEXAR EZ	2.5 qt/a	A	303	0*	95*	0*	96*	0*	100*
HALEX GT	3.6 pt/a	B	409	0	100	0	100	0	100
AATREX	1 pt/a	B	705	0	95	0*	95	0*	100
ACTIVATOR 90 - NIS	0.25 % v/v	B	1008	0	100	0	100	0	100
N-PAK - AMS	2.5 % v/v	B							
STATUS	5 oz/a	C							
ACTIVATOR 90 - NIS	0.25 % v/v	C							
N-PAK - AMS	2.5 % v/v	C							
			Mean =	0	98	0	98	0	100
24 LEXAR EZ	3.5 qt/a	A	304	0	80	0	95	0*	100
STATUS	5 oz/a	B	406	0	100	0	100	0	99
ACTIVATOR 90 - NIS	0.25 % v/v	B	709	0	100	0*	100	0*	100*
N-PAK - AMS	2.5 % v/v	B	1005	0	100	0	100	0	100
			Mean =	0	95	0	99	0	100
25 Untreated Check			305	0	0	0	0	0	0
			308	0	0	0	0	0	0
			606	0	0	0	0	0	0
			904	0	0	0	0	0	0
			Mean =	0	0	0	0	0	0

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Pest Type				W Weed
Pest Code				AMAPA
Pest Scientific Name				Amaranthus pal>
Pest Name				Palmer amaranth
Crop Code				
BBCH Scale				
Crop Scientific Name				
Crop Name				
Part Rated				PLOT P
Rating Date				7/16/2014
Rating Type				CONTRO
Rating Unit				%
Days After First/Last Applic.				70 30
Trt-Eval Interval				30 DA-C
ARM Action Codes				P
Number of Decimals				0
Trt No.	Treatment Name	Rate	Appl Code	Plot
		Rate Unit		
				7
20	LEXAR EZ	3.5 qt/a	A	210
				309
				609
				907
				Mean =
				90*
				80
				90*
				100
				90
21	LEXAR EZ	2.5 qt/a	A	301
	HALEX GT	3.6 pt/a	B	403
	AATREX	1 pt/a	B	608
	ACTIVATOR 90 - NIS	0.25 % v/v	B	902
	N-PAK - AMS	2.5 % v/v	B	
				Mean =
				100
				100*
				100*
				100*
				100
22	LEXAR EZ	2.5 qt/a	A	302
	HALEX GT	3.6 pt/a	B	401
	STATUS	2.5 oz/a	B	706
	ACTIVATOR 90 - NIS	0.25 % v/v	B	1004
	N-PAK - AMS	2.5 % v/v	B	
				Mean =
				100
				100
				95
				100
23	LEXAR EZ	2.5 qt/a	A	303
	HALEX GT	3.6 pt/a	B	409
	AATREX	1 pt/a	B	705
	ACTIVATOR 90 - NIS	0.25 % v/v	B	1008
	N-PAK - AMS	2.5 % v/v	B	
	STATUS	5 oz/a	C	
	ACTIVATOR 90 - NIS	0.25 % v/v	C	
	N-PAK - AMS	2.5 % v/v	C	
				Mean =
				100*
				100
				100
				100
24	LEXAR EZ	3.5 qt/a	A	304
	STATUS	5 oz/a	B	406
	ACTIVATOR 90 - NIS	0.25 % v/v	B	709
	N-PAK - AMS	2.5 % v/v	B	1005
				Mean =
				95
				95
				97*
				100
				97
25	Untreated Check			305
				308
				606
				904
				Mean =
				0
				0
				0
				0
				0

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Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Part Rated

PLOT = plot

C = Crop is Part Rated

P = Pest is Part Rated

Rating Type

PHYGEN = phytotoxicity - general / injury

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

ARM Action Codes

P = Rating scale of 0 to 100 (e.g. % control or injury)

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Pest Type		W Weed		W Weed		W Weed		
Pest Code		AMAPA		AMAPA		AMAPA		
Pest Scientific Name		Amaranthus pal>		Amaranthus pal>		Amaranthus pal>		
Pest Name		Palmer amaranth		Palmer amaranth		Palmer amaranth		
Crop Code	ZEAMX		ZEAMX		ZEAMX			
BBCH Scale	BCOR		BCOR		BCOR			
Crop Scientific Name	Zea mays		Zea mays		Zea mays			
Crop Name	Corn		Corn		Corn			
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P		
Rating Date	6/6/2014	6/6/2014	6/19/2014	6/19/2014	7/3/2014	7/3/2014		
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO		
Rating Unit	%	%	%	%	%	%		
Days After First/Last Applic.	30 30	30 30	43 3	43 3	57 17	57 17		
Trt-Eval Interval	0 DA-B	0 DA-B	13 DA-B	13 DA-B	17 DA-C	17 DA-C		
ARM Action Codes	P	P	P	P	P	P		
Number of Decimals	0	0	0	0	0	0		
Trt Treatment No. Name	Rate Unit	Appl Code	1	2	3	4	5	6
20 LEXAR EZ	3.5 qt/a	A	0 a	99 a	0 a	96 a	0 a	98 a
21 LEXAR EZ	2.5 qt/a	A	0 a	98 a	0 a	99 a	0 a	100 a
HALEX GT	3.6 pt/a	B						
AATREX	1 pt/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
N-PAK - AMS	2.5 % v/v	B						
22 LEXAR EZ	2.5 qt/a	A	0 a	100 a	0 a	100 a	0 a	100 a
HALEX GT	3.6 pt/a	B						
STATUS	2.5 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
N-PAK - AMS	2.5 % v/v	B						
23 LEXAR EZ	2.5 qt/a	A	0 a	98 a	0 a	98 a	0 a	100 a
HALEX GT	3.6 pt/a	B						
AATREX	1 pt/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
N-PAK - AMS	2.5 % v/v	B						
STATUS	5 oz/a	C						
ACTIVATOR 90 - NIS	0.25 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
24 LEXAR EZ	3.5 qt/a	A	0 a	95 a	0 a	99 a	0 a	100 a
STATUS	5 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
N-PAK - AMS	2.5 % v/v	B						
25 Untreated Check			0 a	0 b	0 a	0 b	0 a	0 b
LSD (P=.05)			0.0	7.1	0.0	2.7	0.0	1.7
Standard Deviation			0.0	4.7	0.0	1.8	0.0	1.1
CV			0.0	5.75	0.0	2.17	0.0	1.28
Bartlett's X2			0.0	7.854	0.0	0.067	0.0	3.859
P(Bartlett's X2)			.	0.049*	.	0.996	.	0.049*
Skewness			.	-1.7935*	.	-1.8297*	.	-1.4581*
Kurtosis			.	1.4059	.	1.4947	.	0.1325

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Missing data estimates are included in columns: Yates=1,2,4; Average=3,5,6,7

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Pest Type	W Weed				
Pest Code	AMAPA				
Pest Scientific Name	Amaranthus pal>				
Pest Name	Palmer amaranth				
Crop Code					
BBCH Scale					
Crop Scientific Name					
Crop Name					
Part Rated	PLOT P				
Rating Date	7/16/2014				
Rating Type	CONTRO				
Rating Unit	%				
Days After First/Last Applic.	70 30				
Trt-Eval Interval	30 DA-C				
ARM Action Codes	P				
Number of Decimals	0				
Trt No.	Treatment Name	Rate	Unit	Appl Code	
7					
20	LEXAR EZ	3.5 qt/a	A		90 a
21	LEXAR EZ	2.5 qt/a	A		100 a
	HALEX GT	3.6 pt/a	B		
	AATREX	1 pt/a	B		
	ACTIVATOR 90 - NIS	0.25 % v/v	B		
	N-PAK - AMS	2.5 % v/v	B		
22	LEXAR EZ	2.5 qt/a	A		99 a
	HALEX GT	3.6 pt/a	B		
	STATUS	2.5 oz/a	B		
	ACTIVATOR 90 - NIS	0.25 % v/v	B		
	N-PAK - AMS	2.5 % v/v	B		
23	LEXAR EZ	2.5 qt/a	A		100 a
	HALEX GT	3.6 pt/a	B		
	AATREX	1 pt/a	B		
	ACTIVATOR 90 - NIS	0.25 % v/v	B		
	N-PAK - AMS	2.5 % v/v	B		
	STATUS	5 oz/a	C		
	ACTIVATOR 90 - NIS	0.25 % v/v	C		
	N-PAK - AMS	2.5 % v/v	C		
24	LEXAR EZ	3.5 qt/a	A		97 a
	STATUS	5 oz/a	B		
	ACTIVATOR 90 - NIS	0.25 % v/v	B		
	N-PAK - AMS	2.5 % v/v	B		
25	Untreated Check				0 b
LSD (P=.05)	7.1				
Standard Deviation	4.5				
CV	5.52				
Bartlett's X2	6.389				
P(Bartlett's X2)	0.041*				
Skewness	-1.4149*				
Kurtosis	0.06				

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Randomized Complete Block (RCB) AOV For ZEAMX BCOR Zea mays Corn PLOT C 6/6/2014 PHYGEN % 30 30 0 DA-B P 0 (Data Column 1)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	22	0.000000000000			
Replicate	3	0.000000000000	0.000000000000	0.000	1.0000
Treatment	5	0.000000000000	0.000000000000	0.000	1.0000
Error	14	0.000000000000	0.000000000000		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 6/6/2014 CONTRO % 30 30 0 DA-B P 0 (Data Column 2)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	22	32283.092593			
Replicate	3	59.944444	19.981481	0.911	0.4609
Treatment	5	31915.925926	6383.185185	290.879	0.0001
Error	14	307.222222	21.944444		

Randomized Complete Block (RCB) AOV For ZEAMX BCOR Zea mays Corn PLOT C 6/19/2014 PHYGEN % 43 3 13 DA-B P 0 (Data Column 3)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	18	0.000000000000			
Replicate	3	0.000000000000	0.000000000000	0.000	1.0000
Treatment	5	0.000000000000	0.000000000000	0.000	1.0000
Error	10	0.000000000000	0.000000000000		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 6/19/2014 CONTRO % 43 3 13 DA-B P 0 (Data Column 4)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	22	32317.833333			
Replicate	3	32.833333	10.944444	3.469	0.0452
Treatment	5	32240.833333	6448.166667	2043.947	0.0001
Error	14	44.166667	3.154762		

Randomized Complete Block (RCB) AOV For ZEAMX BCOR Zea mays Corn PLOT C 7/3/2014 PHYGEN % 57 17 17 DA-C P 0 (Data Column 5)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	13	0.000000000000			
Replicate	3	0.000000000000	0.000000000000	0.000	1.0000
Treatment	5	0.000000000000	0.000000000000	0.000	1.0000
Error	5	0.000000000000	0.000000000000		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 7/3/2014 CONTRO % 57 17 17 DA-C P 0 (Data Column 6)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	17	32988.814815			
Replicate	3	3.027778	1.009259	0.896	0.4800
Treatment	5	32975.648148	6595.129630	5854.307	0.0001
Error	9	10.138889	1.126543		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 7/16/2014 CONTRO % 70 30 30 DA-C P 0 (Data Column 7)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	17	31933.217593			
Replicate	3	55.902778	18.634259	0.934	0.4634
Treatment	5	31697.800926	6339.560185	317.836	0.0001
Error	9	179.513889	19.945988		

Pest Type
 W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
 AMAPA, Amaranthus palmeri, = US
Crop Code
 ZEAMX, BCOR, Zea mays, = US
Part Rated
 PLOT = plot
 C = Crop is Part Rated
 P = Pest is Part Rated
Rating Type
 PHYGEN = phytotoxicity - general / injury
 CONTRO = control / burndown or knockdown
Rating Unit
 % = percent
ARM Action Codes

Purdue University Weed Science

P = Rating scale of 0 to 100 (e.g. % control or injury)
