

Purdue Weed Science

Comparison of Pre-emergence Programs on Palmer Amaranth

Trial ID: 16S-MED-SOY-12 Location: Medaryville Trial Year: 2015
 Protocol ID: 16S-MED-SOY-12 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

General Trial Information

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

Trial Location

Country: USA United States

Conducted Under GLP: No
Conducted Under GEP: No

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: GLXMA Glycine max
Variety: AG 30X6
Description: XTEND

Planting Date: May-19-2016
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: May-27-2016

Planting Rate, Unit: 1400000 S/A
Depth, Unit: 1.5 IN
Row Spacing, Unit: 30 IN
Soil Temperature, Unit: 55 F
Soil Moisture: NORMAL normal, adequate

Pest Description

Pest 1 Type: W **Code:** AMAPA *Amaranthus palmeri*
Common Name: Palmer amaranth
Description: GLY-RES

Pest 2 Type: W **Code:** AMAPA *Amaranthus palmeri*
Common Name: Carelessweed

Site and Design

Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 300 FT2 **Treatments:** 44 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOB� Randomized Complete Block (RCB)

Field Prep./Maintenance:

Gramoxone Max Applied at 3.5 pt/A on 5/18/16

Soil Description

Description Name: MEDARYVILLE
% Sand: 84.5 **% OM:** 5.6 **Texture:** LS loamy sand
% Silt: 12.8 **pH:** 6.7
% Clay: 2.7 **CEC:** 13.6 **Fert. Level:** G good
Soil Drainage: G good

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Application Description

	A
Application Date:	May-19-2016
Appl. Start Time:	12:00 PM
Appl. Stop Time:	12:30 PM
Application Method:	SPRAY
Application Timing:	PRE
Application Placement:	BROADC
Applied By:	TL
Air Temperature, Unit:	67 F
% Relative Humidity:	25
Wind Velocity, Unit:	2 MPH
Wind Direction:	NE
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	60 F
Soil Moisture:	NORMAL
% Cloud Cover:	10

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMAPA W
Pest 2 Code, Type, Scale:	AMAPA W

Application Equipment

	A
Appl. Equipment:	CO2 Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	17 PSI
Nozzle Type:	Flat Fan
Nozzle Size:	XR11002
Nozzle Spacing, Unit:	15 IN
Nozzles/Row:	8
Boom Length, Unit:	10 FT
Boom Height, Unit:	18 IN
Ground Speed, Unit:	3 MPH
Carrier:	H2O
Water Hardness (ppm CaCO3):	150
Spray Volume, Unit:	15 GAL/AC
Mix Size, Unit:	1.8 Liters
Propellant:	CO2
Tank Mix (Y/N):	N no

Trial Comments

Reps: 4
 Spray vol: 15 GAL/AC

Plots: 10 by 30 feet
 Mix Size: 1.8 liters (1.5642 liters calculated mix size)

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Reps: 4 Plots: 10 by 30 feet
 Spray vol: 15 GAL/AC Mix Size: 1.8 liters (1.5642 liters calculated mix size)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check								101	311	607	721
2	WEEDAR 64	3.8	LBAE/GAL	L	1 qt/a	A	30.0 ml/mx		102	310	508	717
3	CLARITY	4	LBAE/GAL	L	1 qt/a	A	30.0 ml/mx		103	321	621	822
4	PROWL H2O	3.8	LB/GAL	CS	1.5 pt/a	A	22.5 ml/mx		104	322	622	812
5	OUTLOOK	6	LB/GAL	EC	14 fl oz/a	A	13.12 ml/mx		105	417	519	804
6	WARRANT	3	LB/GAL	EC	3 pt/a	A	45.0 ml/mx		106	315	521	711
7	DUAL II MAGNUM	7.64	LB/GAL	L	1 pt/a	A	15.0 ml/mx		107	314	614	817
8	ZIDUA	85 %		WG	3 oz/a	A	2.696 g/mx		108	411	505	818
9	SENCOR	75 %		WG	8 oz/a	A	7.19 g/mx		109	307	510	722
10	SPARTAN	4	LB/GAL	SC	8 fl oz/a	A	7.5 ml/mx		110	407	507	710
11	VALOR SX	51 %		WG	2 oz/a	A	1.797 g/mx		111	305	502	814
12	AUTHORITY FIRST	70 %		DF	6.5 oz/a	A	5.842 g/mx		112	406	620	702
13	AUTHORITY XL	70 %		DF	4 oz/a	A	3.595 g/mx		113	415	602	707
14	AUTHORITY ASSIST	4	LB/GAL	SC	6 fl oz/a	A	5.625 ml/mx		114	303	517	803
15	VALOR XLT	40.3 %		WG	3.5 oz/a	A	3.145 g/mx		115	420	616	820
16	ENVIVE @ 5.3 OZ/A CLASSIC	25 %	AW/W	DF	1.92 oz/a	A	1.725 g/mx		116	302	522	816
	HARMONY SG	50 %		SG	0.3 oz/a	A	0.2696 g/mx					
	VALOR	51 %		WG	3.03 oz/a	A	2.723 g/mx					
17	PROWL H2O ZIDUA	3.8 85 %	LB/GAL WG	CS WG	1.5 pt/a 1.5 oz/a	A A	22.5 ml/mx 1.348 g/mx		117	419	520	802
18	PROWL H2O OUTLOOK	3.8 6	LB/GAL LB/GAL	CS EC	1.5 pt/a 14 fl oz/a	A A	22.5 ml/mx 13.12 ml/mx		118	414	506	810
19	PROWL H2O SENCOR	3.8 75 %	LB/GAL WG	CS WG	1.5 pt/a 8 oz/a	A A	22.5 ml/mx 7.19 g/mx		119	408	613	709
20	DUAL II MAGNUM SENCOR	7.64 75 %	LB/GAL WG	L WG	1 pt/a 8 oz/a	A A	15.0 ml/mx 7.19 g/mx		120	309	606	807
21	CANOPY DUAL II MAGNUM	75 % 7.64		DG L	4 oz/a 1 pt/a	A A	3.595 g/mx 15.0 ml/mx		121	422	617	815
22	CANOPY ZIDUA	75 % 85 %		DG WG	4 oz/a 1.5 oz/a	A A	3.595 g/mx 1.348 g/mx		122	412	512	705
23	OPTILL PRO @ 12 OZ/A OPTILL OUTLOOK	68 % 6		WG EC	2 oz/a 10 fl oz/a	A A	1.797 g/mx 9.375 ml/mx		201	306	503	719
24	VERDICT OUTLOOK	5.57 6	LB/GAL LB/GAL	EC EC	5 oz/a 10 fl oz/a	A A	4.687 ml/mx 9.375 ml/mx		202	401	619	819
25	ZIDUA PRO @ 4 OZ/A ZIDUA OPTILL	85 % 68 %		WG WG	2 oz/a 2 oz/a	A A	1.797 g/mx 1.797 g/mx		203	405	604	716
26	ANTHEM	2.15	LB/GAL	SE	6 fl oz/a	A	5.625 ml/mx		204	320	504	813
27	PROWL H2O SPARTAN	3.8 4	LB/GAL LB/GAL	CS SC	1.5 pt/a 8 fl oz/a	A A	22.5 ml/mx 7.5 ml/mx		205	409	511	805
28	AUTHORITY ELITE	7	LB/GAL	EC	25 fl oz/a	A	23.44 ml/mx		206	421	515	806
29	ZIDUA AUTHORITY XL	85 % 70 %		WG DF	2 oz/a 4 oz/a	A A	1.797 g/mx 3.595 g/mx		207	304	516	821
30	ZIDUA AUTHORITY FIRST	85 % 70 %		WG DF	2 oz/a 8 oz/a	A A	1.797 g/mx 7.19 g/mx		208	403	514	708
31	AUTHORITY XL DUAL II MAGNUM	70 % 7.64		DF L	4 oz/a 1 pt/a	A A	3.595 g/mx 15.0 ml/mx		209	402	513	701
32	AUTHORITY MTZ	45 %		WG	16 oz/a	A	14.38 g/mx		210	319	509	720

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Sponsor Contact:

Reps: 4 Plots: 10 by 30 feet
Spray vol: 15 GAL/AC Mix Size: 1.8 liters (1.5642 liters calculated mix size)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
33	PROWL H2O VALOR SX	3.8 51 %	LB/GAL	CS WG	1.5 pt/a 2 oz/a	A A	22.5 ml/mx 1.797 g/mx	211	312	618	706
34	FIERCE	76 %		WG	3 oz/a	A	2.696 g/mx	212	404	615	714
35	FIERCE XLT	62.41 %		WG	4 oz/a	A	3.595 g/mx	213	413	610	809
36	ENVIVE @ 5.3 OZ/A CLASSIC HARMONY SG VALOR ZIDUA	25 % 50 % 51 % 85 %	AW/W	DF SG WG WG	1.92 oz/a 0.3 oz/a 3.03 oz/a 1.5 oz/a	A A A A	1.725 g/mx 0.2696 g/mx 2.723 g/mx 1.348 g/mx	214	416	611	712
37	VALOR SX WARRANT	51 % 3 LB/GAL		WG EC	2 oz/a 3 pt/a	A A	1.797 g/mx 45.0 ml/mx	215	313	518	801
38	TRIVENCE @ 8 OZ/A CLASSIC SENCOR 75DF VALOR	25 % 75 % 51 %	AW/W	DF DF WG	1.25 oz/a 4.75 oz/a 2 oz/a	A A A	1.123 g/mx 4.269 g/mx 1.797 g/mx	216	317	609	808
39	PREFIX SENCOR	5.29 75 %	LB/GAL	EC WG	2 pt/a 8 oz/a	A A	30.0 ml/mx 7.19 g/mx	217	316	501	718
40	PROWL H2O AUTHORITY MTZ	3.8 45 %	LB/GAL	CS WG	1.5 pt/a 16 oz/a	A A	22.5 ml/mx 14.38 g/mx	218	418	601	713
41	AUTHORITY MTZ DUAL II MAGNUM	45 % 7.64 LB/GAL		WG L	16 oz/a 1 pt/a	A A	14.38 g/mx 15.0 ml/mx	219	308	603	715
42	PROWL H2O TRIVENCE @ 8 OZ/A CLASSIC SENCOR 75DF VALOR	3.8 25 % 75 % 51 %	LB/GAL	CS DF DF WG	1.5 pt/a 1.25 oz/a 4.75 oz/a 2 oz/a	A A A A	22.5 ml/mx 1.123 g/mx 4.269 g/mx 1.797 g/mx	220	410	608	704
43	CANOPY FIERCE	75 % 76 %		DG WG	4 oz/a 2 oz/a	A A	3.595 g/mx 1.797 g/mx	221	301	605	811
44	TRIVENCE @ 8 OZ/A CLASSIC SENCOR 75DF VALOR ZIDUA	25 % 75 % 51 % 85 %	AW/W	DF DF WG WG	1.25 oz/a 4.75 oz/a 2 oz/a 1.5 oz/a	A A A A	1.123 g/mx 4.269 g/mx 1.797 g/mx 1.348 g/mx	222	318	612	703

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 Unit	Form Type	Lot Code
37.500	ml	WEEDAR 64	3.8	LB/AE/GAL	L	
37.500	ml	CLARITY	4	LB/AE/GAL	L	
225.000	ml	PROWL H2O	3.8	LB/GAL	CS	
56.250	ml	OUTLOOK	6	LB/GAL	EC	
112.500	ml	WARRANT	3	LB/GAL	EC	
93.750	ml	DUAL II MAGNUM	7.64	LB/GAL	L	
16.851	g	ZIDUA	85	%	WG	
35.948	g	SENCOR	75	%	WG	
18.750	ml	SPARTAN	4	LB/GAL	SC	
6.740	g	VALOR SX	51	%	WG	
16.289	g	AUTHORITY FIRST	70	%	DF	
13.480	g	AUTHORITY XL	70	%	DF	

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

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
7.031	ml	AUTHORITY ASSIST	4	LB/GAL	SC	
3.932	g	VALOR XLT	40.3	%	WG	
8.526	g	CLASSIC	25	%AW/W	DF	
0.674	g	HARMONY SG	50	%	SG	
13.548	g	VALOR	51	%	WG	
13.480	g	CANOPY	75	%	DG	
4.493	g	OPTILL	68	%	WG	
5.859	ml	VERDICT	5.57	LB/GAL	EC	
7.031	ml	ANTHEM	2.15	LB/GAL	SE	
29.297	ml	AUTHORITY ELITE	7	LB/GAL	EC	
53.922	g	AUTHORITY MTZ	45	%	WG	
5.617	g	FIERCE	76	%	WG	
4.493	g	FIERCE XLT	62.41	%	WG	
16.008	g	SENCOR 75DF	75	%AW/W	DF	
37.500	ml	PREFIX	5.29	LB/GAL	EC	

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

* Product amount calculations increased 25 % for coverage adjustment.

Pest Type	W Weed	W Weed	W Weed
Pest Code	AMAPA	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>	Amaranthus pal>
Pest Name	Carelessweed	Carelessweed	Carelessweed
Part Rated	PLOT P	PLOT P	PLOT P
Rating Date	Jun-2-2016	Jun-16-2016	Jun-27-2016
Rating Type	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%
Number of Subsamples	1	1	1
Days After First/Last Applic.	14 14	28 28	39 39
Trt-Eval Interval	14 DA-A	28 DA-A	39 DA-A
Days After Emergence	6 DE-1	20 DE-1	31 DE-1
ARM Action Codes	P	P	P
Number of Decimals	0	0	0
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code Plot	
1 Untreated Check			
		101	0
		311	0
		607	0
		721	0
		Mean =	0
2 WEEDAR 64	1 qt/a	A	
		102	70
		310	80
		508	50
		717	30
		Mean =	58
3 CLARITY	1 qt/a	A	
		103	100
		321	100
		621	95
		822	95
		Mean =	98
4 PROWL H2O	1.5 pt/a	A	
		104	90
		322	100
		622	85
		812	65
		Mean =	85
			28
			25

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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	Carelessweed		Carelessweed		Carelessweed	
Part Rated	PLOT P		PLOT P		PLOT P	
Rating Date	Jun-2-2016		Jun-16-2016		Jun-27-2016	
Rating Type	CONTRO		CONTRO		CONTRO	
Rating Unit	%		%		%	
Number of Subsamples	1		1		1	
Days After First/Last Applic.	14 14		28 28		39 39	
Trt-Eval Interval	14 DA-A		28 DA-A		39 DA-A	
Days After Emergence	6 DE-1		20 DE-1		31 DE-1	
ARM Action Codes	P		P		P	
Number of Decimals	0		0		0	
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	1	2	3	
5 OUTLOOK	14 fl oz/a	A 105	100	80	80	
		417	100	50	20	
		519	95	75	10	
		804	95	50	10	
		Mean =	98	64	30	
6 WARRANT	3 pt/a	A 106	100	90	90	
		315	100	90	90	
		521	100	90	0	
		711	100	80	60	
		Mean =	100	88	60	
7 DUAL II MAGNUM	1 pt/a	A 107	95	50	50	
		314	97	80	50	
		614	70	0	0	
		817	90	10	0	
		Mean =	88	35	25	
8 ZIDUA	3 oz/a	A 108	100	80	80	
		411	100	85	60	
		505	100	60	10	
		818	100	85	40	
		Mean =	100	78	48	
9 SENCOR	8 oz/a	A 109	97	60	70	
		307	100	80	70	
		510	90	70	0	
		722	80	50	20	
		Mean =	92	65	40	
10 SPARTAN	8 fl oz/a	A 110	97	75	80	
		407	85	55	20	
		507	80	60	10	
		710	80	10	0	
		Mean =	86	50	28	
11 VALOR SX	2 oz/a	A 111	85	50	50	
		305	80	0	0	
		502	50	0	0	
		814	50	0	0	
		Mean =	66	13	13	
12 AUTHORITY FIRST	6.5 oz/a	A 112	100	80	80	
		406	90	70	50	
		620	90	40	40	
		702	70	0	0	
		Mean =	88	48	43	
13 AUTHORITY XL	4 oz/a	A 113	97	80	60	
		415	90	50	50	
		602	70	20	0	
		707	65	0	0	
		Mean =	81	38	28	

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Pest Scientific Name	Amaranthus pal>		Amaranthus pal>		Amaranthus pal>	
Pest Name	Carelessweed		Carelessweed		Carelessweed	
Part Rated	PLOT P		PLOT P		PLOT P	
Rating Date	Jun-2-2016		Jun-16-2016		Jun-27-2016	
Rating Type	CONTRO		CONTRO		CONTRO	
Rating Unit	%		%		%	
Number of Subsamples	1		1		1	
Days After First/Last Applic.	14 14		28 28		39 39	
Trt-Eval Interval	14 DA-A		28 DA-A		39 DA-A	
Days After Emergence	6 DE-1		20 DE-1		31 DE-1	
ARM Action Codes	P		P		P	
Number of Decimals	0		0		0	
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	1	2	3	
14 AUTHORITY ASSIST	6 fl oz/a	A 114	97	60	60	
		303	95	10	0	
		517	85	50	20	
		803	80	20	0	
		Mean =	89	35	20	
15 VALOR XLT	3.5 oz/a	A 115	100	80	50	
		420	90	20	10	
		616	50	0	10	
		820	90	50	20	
		Mean =	83	38	23	
16 ENVIVE @ 5.3 OZ/A		A 116	100	90	90	
CLASSIC	1.92 oz/a	A 302	85	0	0	
HARMONY SG	0.3 oz/a	A 522	90	30	20	
VALOR	3.03 oz/a	A 816	90	20	0	
		Mean =	91	35	28	
17 PROWL H2O	1.5 pt/a	A 117	100	90	90	
ZIDUA	1.5 oz/a	A 419	95	75	50	
		520	97	75	60	
		802	95	50	0	
		Mean =	97	73	50	
18 PROWL H2O	1.5 pt/a	A 118	97	90	50	
OUTLOOK	14 fl oz/a	A 414	90	40	20	
		506	60	0	0	
		810	50	0	0	
		Mean =	74	33	18	
19 PROWL H2O	1.5 pt/a	A 119	100	90	90	
SENCOR	8 oz/a	A 408	100	90	80	
		613	60	55	0	
		709	80	50	0	
		Mean =	85	71	43	
20 DUAL II MAGNUM	1 pt/a	A 120	100	90	80	
SENCOR	8 oz/a	A 309	100	90	80	
		606	95	75	0	
		807	85	70	20	
		Mean =	95	81	45	
21 CANOPY	4 oz/a	A 121	100	80	60	
DUAL II MAGNUM	1 pt/a	A 422	97	60	20	
		617	95	80	0	
		815	90	10	0	
		Mean =	96	58	20	
22 CANOPY	4 oz/a	A 122	100	90	85	
ZIDUA	1.5 oz/a	A 412	100	85	70	
		512	100	80	10	
		705	90	70	20	
		Mean =	98	81	46	

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Pest Scientific Name	Amaranthus pal>		Amaranthus pal>		Amaranthus pal>	
Pest Name	Carelessweed		Carelessweed		Carelessweed	
Part Rated	PLOT P		PLOT P		PLOT P	
Rating Date	Jun-2-2016		Jun-16-2016		Jun-27-2016	
Rating Type	CONTRO		CONTRO		CONTRO	
Rating Unit	%		%		%	
Number of Subsamples	1		1		1	
Days After First/Last Applic.	14 14		28 28		39 39	
Trt-Eval Interval	14 DA-A		28 DA-A		39 DA-A	
Days After Emergence	6 DE-1		20 DE-1		31 DE-1	
ARM Action Codes	P		P		P	
Number of Decimals	0		0		0	
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	1	2	3	
23 OPTILL PRO @ 12 OZ/A		201	100	75	60	
OPTILL	2 oz/a	A 306	100	75	50	
OUTLOOK	10 fl oz/a	A 503	90	30	0	
		719	90	40	0	
		Mean =	95	55	28	
24 VERDICT	5 oz/a	A 202	100	90	80	
OUTLOOK	10 fl oz/a	A 401	90	90	50	
		619	100	70	10	
		819	95	80	30	
		Mean =	96	83	43	
25 ZIDUA PRO @ 4 OZ/A		203	100	90	60	
ZIDUA	2 oz/a	A 405	100	90	60	
OPTILL	2 oz/a	A 604	95	50	0	
		716	90	30	0	
		Mean =	96	65	30	
26 ANTHEM	6 fl oz/a	A 204	100	80	50	
		320	100	85	50	
		504	90	10	0	
		813	100	50	10	
		Mean =	98	56	28	
27 PROWL H2O	1.5 pt/a	A 205	90	10	20	
SPARTAN	8 fl oz/a	A 409	80	10	0	
		511	70	0	0	
		805	70	0	0	
		Mean =	78	5	5	
28 AUTHORITY ELITE	25 fl oz/a	A 206	100	85	60	
		421	97	87	50	
		515	100	80	20	
		806	85	20	0	
		Mean =	96	68	33	
29 ZIDUA	2 oz/a	A 207	100	90	85	
AUTHORITY XL	4 oz/a	A 304	100	90	80	
		516	100	90	50	
		821	95	70	20	
		Mean =	99	85	59	
30 ZIDUA	2 oz/a	A 208	100	95	90	
AUTHORITY FIRST	8 oz/a	A 403	100	95	75	
		514	60	0	0	
		708	90	80	50	
		Mean =	88	68	54	
31 AUTHORITY XL	4 oz/a	A 209	97	70	60	
DUAL II MAGNUM	1 pt/a	A 402	100	90	70	
		513	97	75	0	
		701	90	20	0	
		Mean =	96	64	33	

Purdue Weed Science

Comparison of Pre-emergence Programs on Palmer Amaranth

Trial ID: 16S-MED-SOY-12 Location: Medaryville Trial Year: 2015
 Protocol ID: 16S-MED-SOY-12 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed		W Weed		W Weed	
Pest Code	AMAPA		AMAPA		AMAPA	
Pest Scientific Name	Amaranthus pal>		Amaranthus pal>		Amaranthus pal>	
Pest Name	Carelessweed		Carelessweed		Carelessweed	
Part Rated	PLOT P		PLOT P		PLOT P	
Rating Date	Jun-2-2016		Jun-16-2016		Jun-27-2016	
Rating Type	CONTRO		CONTRO		CONTRO	
Rating Unit	%		%		%	
Number of Subsamples	1		1		1	
Days After First/Last Applic.	14 14		28 28		39 39	
Trt-Eval Interval	14 DA-A		28 DA-A		39 DA-A	
Days After Emergence	6 DE-1		20 DE-1		31 DE-1	
ARM Action Codes	P		P		P	
Number of Decimals	0		0		0	
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	1	2	3	
32 AUTHORITY MTZ	16 oz/a	A	210	100	80	60
			319	100	95	70
			509	80	55	0
			720	75	20	0
			Mean =	89	63	33
33 PROWL H2O	1.5 pt/a	A	211	95	85	50
VALOR SX	2 oz/a	A	312	90	60	50
			618	75	10	50
			706	50	0	0
			Mean =	78	39	38
34 FIERCE	3 oz/a	A	212	100	90	90
			404	100	85	70
			615	80	50	0
			714	80	20	10
			Mean =	90	61	43
35 FIERCE XLT	4 oz/a	A	213	100	90	90
			413	100	90	80
			610	85	50	0
			809	90	80	30
			Mean =	94	78	50
36 ENVIVE @ 5.3 OZ/A			214	100	80	60
CLASSIC	1.92 oz/a	A	416	100	90	70
HARMONY SG	0.3 oz/a	A	611	90	50	0
VALOR	3.03 oz/a	A	712	90	70	50
ZIDUA	1.5 oz/a	A				
			Mean =	95	73	45
37 VALOR SX	2 oz/a	A	215	100	90	90
WARRANT	3 pt/a	A	313	100	95	90
			518	100	95	90
			801	97	80	50
			Mean =	99	90	80
38 TRIVENCE @ 8 OZ/A			216	100	85	60
CLASSIC	1.25 oz/a	A	317	100	85	50
SENCOR 75DF	4.75 oz/a	A	609	70	40	0
VALOR	2 oz/a	A	808	90	60	10
			Mean =	90	68	30
39 PREFIX	2 pt/a	A	217	100	90	0
SENCOR	8 oz/a	A	316	100	87	70
			501	100	80	50
			718	95	60	0
			Mean =	99	79	30
40 PROWL H2O	1.5 pt/a	A	218	97	90	70
AUTHORITY MTZ	16 oz/a	A	418	97	80	50
			601	90	80	40
			713	90	75	0
			Mean =	94	81	40

Purdue Weed Science

Comparison of Pre-emergence Programs on Palmer Amaranth

Trial ID: 16S-MED-SOY-12 Location: Medaryville Trial Year: 2015
 Protocol ID: 16S-MED-SOY-12 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed		W Weed		W Weed	
Pest Code	AMAPA		AMAPA		AMAPA	
Pest Scientific Name	Amaranthus pal>		Amaranthus pal>		Amaranthus pal>	
Pest Name	Carelessweed		Carelessweed		Carelessweed	
Part Rated	PLOT P		PLOT P		PLOT P	
Rating Date	Jun-2-2016		Jun-16-2016		Jun-27-2016	
Rating Type	CONTRO		CONTRO		CONTRO	
Rating Unit	%		%		%	
Number of Subsamples	1		1		1	
Days After First/Last Applic.	14 14		28 28		39 39	
Trt-Eval Interval	14 DA-A		28 DA-A		39 DA-A	
Days After Emergence	6 DE-1		20 DE-1		31 DE-1	
ARM Action Codes	P		P		P	
Number of Decimals	0		0		0	
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code Plot	1	2	3	
41 AUTHORITY MTZ	16 oz/a	A 219	100	95	90	
DUAL II MAGNUM	1 pt/a	A 308	100	85	80	
		603	95	60	0	
		715	90	20	0	
		Mean =	96	65	43	
42 PROWL H2O	1.5 pt/a	A 220	100	85	60	
TRIVENCE @ 8 OZ/A		410	97	80	50	
CLASSIC	1.25 oz/a	A 608	70	40	0	
SENCOR 75DF	4.75 oz/a	A 704	80	10	0	
VALOR	2 oz/a	A				
		Mean =	87	54	28	
43 CANOPY	4 oz/a	A 221	100	90	90	
FIERCE	2 oz/a	A 301	90	85	60	
		605	90	50	0	
		811	80	50	10	
		Mean =	90	69	40	
44 TRIVENCE @ 8 OZ/A		222	100	95	85	
CLASSIC	1.25 oz/a	A 318	100	90	60	
SENCOR 75DF	4.75 oz/a	A 612	85	50	0	
VALOR	2 oz/a	A 703	95	70	10	
ZIDUA	1.5 oz/a	A				
		Mean =	95	76	39	

Pest Type
 W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
 AMAPA, Amaranthus palmeri, = US
Part Rated
 PLOT = plot
 P = Pest is Part Rated
Rating Type
 CONTRO = control / burndown or knockdown
Rating Unit
 % = percent
ARM Action Codes
 P = Rating scale of 0 to 100 (e.g. % control or injury)

Purdue Weed Science

Comparison of Pre-emergence Programs on Palmer Amaranth

Trial ID: 16S-MED-SOY-12
 Protocol ID: 16S-MED-SOY-12
 Project ID:

Location: Medaryville Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed		
Pest Code	AMAPA	AMAPA	AMAPA		
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>	Amaranthus pal>		
Pest Name	Carelessweed	Carelessweed	Carelessweed		
Part Rated	PLOT P	PLOT P	PLOT P		
Rating Date	Jun-2-2016	Jun-16-2016	Jun-27-2016		
Rating Type	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%		
Number of Subsamples	1	1	1		
Days After First/Last Applic.	14 14	28 28	39 39		
Trt-Eval Interval	14 DA-A	28 DA-A	39 DA-A		
Days After Emergence	6 DE-1	20 DE-1	31 DE-1		
ARM Action Codes	P	P	P		
Number of Decimals	0	0	0		
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code			
			1		
			2		
			3		
1 Untreated Check			0 m	0 o	0 i
2 WEEDAR 64	1 qt/a	A	58 l	3 no	0 i
3 CLARITY	1 qt/a	A	98 a-d	75 a-f	45 b-f
4 PROWL H2O	1.5 pt/a	A	85 f-j	28 lmn	25 d-i
5 OUTLOOK	14 fl oz/a	A	98 a-d	64 a-i	30 c-h
6 WARRANT	3 pt/a	A	100 a	88 ab	60 ab
7 DUAL II MAGNUM	1 pt/a	A	88 b-i	35 j-m	25 d-i
8 ZIDUA	3 oz/a	A	100 a	78 a-e	48 b-e
9 SENCOR	8 oz/a	A	92 a-h	65 a-h	40 b-g
10 SPARTAN	8 fl oz/a	A	86 e-j	50 f-l	28 c-i
11 VALOR SX	2 oz/a	A	66 kl	13 mno	13 ghi
12 AUTHORITY FIRST	6.5 oz/a	A	88 c-i	48 g-l	43 b-f
13 AUTHORITY XL	4 oz/a	A	81 hij	38 i-m	28 c-i
14 AUTHORITY ASSIST	6 fl oz/a	A	89 a-h	35 j-m	20 e-i
15 VALOR XLT	3.5 oz/a	A	83 g-j	38 i-m	23 d-i
16 ENVIVE @ 5.3 OZ/A			91 a-h	35 j-m	28 c-i
CLASSIC	1.92 oz/a	A			
HARMONY SG	0.3 oz/a	A			
VALOR	3.03 oz/a	A			
17 PROWL H2O	1.5 pt/a	A	97 a-e	73 a-g	50 bcd
ZIDUA	1.5 oz/a	A			
18 PROWL H2O	1.5 pt/a	A	74 jk	33 klm	18 f-i
OUTLOOK	14 fl oz/a	A			
19 PROWL H2O	1.5 pt/a	A	85 f-j	71 a-g	43 b-f
SENCOR	8 oz/a	A			
20 DUAL II MAGNUM	1 pt/a	A	95 a-f	81 a-d	45 b-f
SENCOR	8 oz/a	A			
21 CANOPY	4 oz/a	A	96 a-f	58 c-k	20 e-i
DUAL II MAGNUM	1 pt/a	A			
22 CANOPY	4 oz/a	A	98 a-d	81 a-d	46 b-e
ZIDUA	1.5 oz/a	A			
23 OPTILL PRO @ 12 OZ/A			95 a-f	55 d-k	28 c-i
OPTILL	2 oz/a	A			
OUTLOOK	10 fl oz/a	A			
24 VERDICT	5 oz/a	A	96 a-f	83 abc	43 b-f
OUTLOOK	10 fl oz/a	A			
25 ZIDUA PRO @ 4 OZ/A			96 a-f	65 a-h	30 c-h
ZIDUA	2 oz/a	A			
OPTILL	2 oz/a	A			
26 ANTHEM	6 fl oz/a	A	98 a-d	56 c-k	28 c-i
27 PROWL H2O	1.5 pt/a	A	78 ijk	5 no	5 hi
SPARTAN	8 fl oz/a	A			

Purdue Weed Science

Comparison of Pre-emergence Programs on Palmer Amaranth

Trial ID: 16S-MED-SOY-12 Location: Medaryville Trial Year: 2015
 Protocol ID: 16S-MED-SOY-12 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed
Pest Code	AMAPA	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>	Amaranthus pal>
Pest Name	Carelessweed	Carelessweed	Carelessweed
Part Rated	PLOT P	PLOT P	PLOT P
Rating Date	Jun-2-2016	Jun-16-2016	Jun-27-2016
Rating Type	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%
Number of Subsamples	1	1	1
Days After First/Last Applic.	14 14	28 28	39 39
Trt-Eval Interval	14 DA-A	28 DA-A	39 DA-A
Days After Emergence	6 DE-1	20 DE-1	31 DE-1
ARM Action Codes	P	P	P
Number of Decimals	0	0	0
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	
			1 2 3
28 AUTHORITY ELITE	25 fl oz/a	A	96 a-f 68 a-g 33 b-h
29 ZIDUA	2 oz/a	A	99 abc 85 ab 59 ab
AUTHORITY XL	4 oz/a	A	
30 ZIDUA	2 oz/a	A	88 c-i 68 a-g 54 abc
AUTHORITY FIRST	8 oz/a	A	
31 AUTHORITY XL	4 oz/a	A	96 a-f 64 a-i 33 b-h
DUAL II MAGNUM	1 pt/a	A	
32 AUTHORITY MTZ	16 oz/a	A	89 a-i 63 b-i 33 b-h
33 PROWL H2O	1.5 pt/a	A	78 ijk 39 h-m 38 b-g
VALOR SX	2 oz/a	A	
34 FIERCE	3 oz/a	A	90 a-h 61 b-j 43 b-f
35 FIERCE XLT	4 oz/a	A	94 a-g 78 a-e 50 bcd
36 ENVIVE @ 5.3 OZ/A			95 a-f 73 a-g 45 b-f
CLASSIC	1.92 oz/a	A	
HARMONY SG	0.3 oz/a	A	
VALOR	3.03 oz/a	A	
ZIDUA	1.5 oz/a	A	
37 VALOR SX	2 oz/a	A	99 ab 90 a 80 a
WARRANT	3 pt/a	A	
38 TRIVENCE @ 8 OZ/A			90 a-h 68 a-g 30 c-h
CLASSIC	1.25 oz/a	A	
SENCOR 75DF	4.75 oz/a	A	
VALOR	2 oz/a	A	
39 PREFIX	2 pt/a	A	99 abc 79 a-e 30 c-h
SENCOR	8 oz/a	A	
40 PROWL H2O	1.5 pt/a	A	94 a-g 81 a-d 40 b-g
AUTHORITY MTZ	16 oz/a	A	
41 AUTHORITY MTZ	16 oz/a	A	96 a-f 65 a-h 43 b-f
DUAL II MAGNUM	1 pt/a	A	
42 PROWL H2O	1.5 pt/a	A	87 d-i 54 e-l 28 c-i
TRIVENCE @ 8 OZ/A			
CLASSIC	1.25 oz/a	A	
SENCOR 75DF	4.75 oz/a	A	
VALOR	2 oz/a	A	
43 CANOPY	4 oz/a	A	90 a-h 69 a-g 40 b-g
FIERCE	2 oz/a	A	

Purdue Weed Science

Comparison of Pre-emergence Programs on Palmer Amaranth

Trial ID: 16S-MED-SOY-12 Location: Medaryville Trial Year: 2015
 Protocol ID: 16S-MED-SOY-12 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed
Pest Code	AMAPA	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>	Amaranthus pal>
Pest Name	Carelessweed	Carelessweed	Carelessweed
Part Rated	PLOT P	PLOT P	PLOT P
Rating Date	Jun-2-2016	Jun-16-2016	Jun-27-2016
Rating Type	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%
Number of Subsamples	1	1	1
Days After First/Last Applic.	14 14	28 28	39 39
Trt-Eval Interval	14 DA-A	28 DA-A	39 DA-A
Days After Emergence	6 DE-1	20 DE-1	31 DE-1
ARM Action Codes	P	P	P
Number of Decimals	0	0	0
Trt Treatment	Rate	Rate	Rate
No. Name	Unit Code	Unit Code	Unit Code
	1	2	3
44 TRIVENICE @ 8 OZ/A	95 a-f	76 a-f	39 b-g
CLASSIC	1.25 oz/a A		
SENCOR 75DF	4.75 oz/a A		
VALOR	2 oz/a A		
ZIDUA	1.5 oz/a A		
LSD P=.05	11.5	26.6	27.8
Standard Deviation	8.3	19.0	19.9
CV	9.36	33.05	57.54
Bartlett's X2	89.992	64.246	15.47
P(Bartlett's X2)	0.001*	0.015*	1.00
Skewness	-2.873*	-0.6602*	0.3008
Kurtosis	9.7839*	-1.0138*	-1.4277*
Replicate F	35.605	37.622	77.973
Replicate Prob(F)	0.0001	0.0001	0.0001
Treatment F	15.611	6.147	2.446
Treatment Prob(F)	0.0001	0.0001	0.0001

Pest Type
 W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
 AMAPA, Amaranthus palmeri, = US
Part Rated
 PLOT = plot
 P = Pest is Part Rated
Rating Type
 CONTRO = control / burndown or knockdown
Rating Unit
 % = percent
ARM Action Codes
 P = Rating scale of 0 to 100 (e.g. % control or injury)