

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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: 140000 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

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:** 28 **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	B	C	D	E
Application Date:	May-19-2016	Jun-9-2016	Jun-13-2016	Jun-27-2016	Jun-19-2016
Appl. Start Time:	12:00 PM	9:00 AM	1:45 PM	7:15 AM	1:15 PM
Appl. Stop Time:	12:30 PM	9:30 AM	2:15 PM	8:15 AM	1:45 PM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	E POST	M POST	L POST	M POST
Application Placement:	BROADC	BROADC	BROADC	BROADC	BROADC
Applied By:	MZ	TL	TC	PD	JI
Air Temperature, Unit:	67 F	66 F	84 F	68 F	88 F
% Relative Humidity:	25	50	25	90	35
Wind Velocity, Unit:	2 MPH	5 MPH	1 MPH	1 MPH	5 MPH
Wind Direction:	NE	E	SSE	WSW	SSW
Dew Presence (Y/N):	N no	N no	N no	Y yes	N no
Soil Temperature, Unit:	60 F	64 F	75 F	70 F	80 F
Soil Moisture:	NORMAL	NORMAL	DRY	DRY	DRY
% Cloud Cover:	10	50	0	30	50

Crop Stage At Each Application

	A	B	C	D	E
Crop 1 Code, BBCH Scale:	GLXMA BSOY				
Stage Scale Used:		BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:		12	14	16	14
Stage Minimum, Percent:		12	13	16	14
Stage Maximum, Percent:		13	14	17	15
Height, Unit:		3.5 IN	5 IN	11 IN	7 IN
Height Minimum, Maximum:		2 5	4 6	8 14	6 8

Pest Stage At Each Application

	A	B	C	D	E
Pest 1 Code, Type, Scale:	AMAPA W				
Stage Majority, Percent:		33G	33G	34G	32G
Stage Minimum, Percent:		31G	31G	32G	30G
Stage Maximum, Percent:		36G	36G	63	33G
Height, Unit:		4 IN	5 IN	3.5 IN	1 IN
Height Minimum, Maximum:		2 6	1 9	2 5	0 2
Density, Unit:		150 YD2	150 YD2	50 YD2	50 YD2

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Application Equipment

	A	B	C	D	E
Appl. Equipment:	CO2 Backpack				
Equipment Type:	SPRBAC	SPRBAC	SPRBAC	BACSPR	BACSPR
Operation Pressure, Unit:	17 PSI	17 PSI	17 PSI	18 PSI	18 PSI
Nozzle Type:	Flat Fan				
Nozzle Size:	XR11002	XR11002	XR11002	XR 11002	XR 11002
Nozzle Spacing, Unit:	15 IN				
Nozzles/Row:	8	8	8	8	8
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	10 FT	10 FT
Boom Height, Unit:	18 IN	18 IN	18 IN	17 IN	17 IN
Ground Speed, Unit:	3 MPH				
Carrier:	H2O	H2O	H2O	MEIGS	MEIGS
Water Hardness (ppm CaCO3):	150	150	150		
Spray Volume, Unit:	15 GAL/AC				
Mix Size, Unit:	1.8 Liters				
Propellant:	CO2	CO2	CO2	CO2	CO2
Tank Mix (Y/N):	N no	N no	N no		

Trial Comments

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	Unit	Appl Code	Amt to Measure	Product	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check									101	414	608	705
2	ZIDUA	85 %		WG	3 oz/a		A	2.696 g/mx		102	310	514	810
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		B	9.375 ml/mx					
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		B	30.0 ml/mx					
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		B	45.0 ml/mx					
3	OUTLOOK	6 LB/GAL		EC	14 fl oz/a		A	13.12 ml/mx		103	403	603	709
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		B	9.375 ml/mx					
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		B	30.0 ml/mx					
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		B	45.0 ml/mx					
4	VERDICT	5.57 LB/GAL		EC	5 oz/a		A	4.687 ml/mx		104	304	609	702
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		A	9.375 ml/mx					
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		B	9.375 ml/mx					
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		B	30.0 ml/mx					
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		B	45.0 ml/mx					
5	OPTILL PRO @ 12 OZ/A									105	413	505	808
	OPTILL	68 %		WG	2 oz/a		A	1.797 g/mx					
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		A	9.375 ml/mx					
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		B	9.375 ml/mx					
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		B	30.0 ml/mx					
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		B	45.0 ml/mx					
6	ZIDUA PRO @ 4 OZ/A									106	402	605	801
	ZIDUA	85 %		WG	2 oz/a		A	1.797 g/mx					
	OPTILL	68 %		WG	2 oz/a		A	1.797 g/mx					
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		B	9.375 ml/mx					
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		B	30.0 ml/mx					
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		B	45.0 ml/mx					

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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 Rate	Appl Unit	Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
7	PROWL H2O	3.8 LB/GAL		CS	1.5 pt/a	A		22.5 ml/mx	107	302	506	803
	SPARTAN	4 LB/GAL		SC	8 fl oz/a	A		7.5 ml/mx				
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a	B		9.375 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	B		30.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
8	ZIDUA	85 %		WG	2 oz/a	A		1.797 g/mx	108	306	612	807
	AUTHORITY XL	70 %		DF	4 oz/a	A		3.595 g/mx				
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a	B		9.375 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	B		30.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
9	ZIDUA	85 %		WG	2 oz/a	A		1.797 g/mx	109	404	513	809
	AUTHORITY FIRST	70 %		DF	8 oz/a	A		7.19 g/mx				
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a	B		9.375 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a	B		30.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
10	VALOR XLT	40.3 %		WG	3.5 oz/a	A		3.145 g/mx	110	410	613	806
	ZIDUA	85 %		WG	2 oz/a	B		1.797 g/mx				
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a	B		67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	B		18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a	D		11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v	D		18.0 ml/mx				
11	ENVIVE @ 4 OZ/A CLASSIC	25 %		WG	1.44 oz/a	A		1.294 g/mx	111	308	511	802
	HARMONY SG	50 %		SG	0.228 oz/a	A		0.2049 g/mx				
	VALOR SX	51 %		WG	2.24 oz/a	A		2.013 g/mx				
	OUTLOOK	6 LB/GAL		EC	14 oz/a	B		13.12 ml/mx				
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a	B		67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	B		18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a	D		11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v	D		18.0 ml/mx				
12	VALOR SX	51 %		WG	2 oz/a	A		1.797 g/mx	112	314	607	703
	ZIDUA	85 %		WG	2 oz/a	B		1.797 g/mx				
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a	B		67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	B		18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a	D		11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v	D		18.0 ml/mx				
13	OUTLOOK	6 LB/GAL		EC	14 fl oz/a	A		13.12 ml/mx	113	303	501	804
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a	B		9.375 ml/mx				
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a	B		67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	B		18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	B		45.0 ml/mx				
14	AUTHORITY FIRST	70 %		DF	6.5 oz/a	A		5.842 g/mx	114	411	504	712
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a	C		67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	C		18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C		45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a	D		11.72 ml/mx				
PRIME OIL - COC	99.47 %		L	1 % v/v	D		18.0 ml/mx					

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Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Appl Code	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
15	FIERCE	76 %		WG	4 oz/a		A	3.595 g/mx	201	401	509	706
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a		C	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a		D	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		D	18.0 ml/mx				
16	OPTILL PRO @ 12 OZ/A								202	406	502	708
	OPTILL	68 %		WG	2 oz/a		A	1.797 g/mx				
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		A	9.375 ml/mx				
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a		C	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a		D	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		D	18.0 ml/mx				
17	FIERCE XLT	62.41 %		WG	4 oz/a		A	3.595 g/mx	203	407	602	707
	COBRA	2 LB/GAL		EC	12 fl oz/a		C	11.25 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		C	30.0 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
18	FIERCE XLT	62.41 %		WG	4 oz/a		A	3.595 g/mx	204	307	508	805
	ULTRA BLAZER	2 LB/GAL		L	1.5 pt/a		C	22.5 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	32 fl oz/a		C	30.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
19	FIERCE XLT	62.41 %		WG	4 oz/a		A	3.595 g/mx	205	408	510	813
	EXTREME	2.17 LB/GAL		L	3 pt/a		C	45.0 ml/mx				
	ACTIVATOR 90 - NIS	90 %		L	0.125 % v/v		C	2.25 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
20	VALOR XLT	40.3 %		WG	3.5 oz/a		A	3.145 g/mx	206	409	601	710
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a		C	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a		D	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		D	18.0 ml/mx				
21	FIERCE XLT	62.41 %		WG	4 oz/a		A	3.595 g/mx	207	313	604	713
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a		C	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a		D	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		D	18.0 ml/mx				
22	VALOR XLT	40.3 %		WG	3.5 oz/a		A	3.145 g/mx	208	312	507	812
	WARRANT	3 LB/GAL		EC	3 pt/a		C	45.0 ml/mx				
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a		C	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a		D	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		D	18.0 ml/mx				
23	AUTHORITY MTZ	45 %		WG	16 oz/a		A	14.38 g/mx	209	311	614	711
	FLEXSTAR GT 3.5	2.82 LBAE/GAL		L	4.5 pt/a		C	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v		C	18.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v		C	45.0 ml/mx				
	COBRA	2 LB/GAL		EC	12.5 fl oz/a		D	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v		D	18.0 ml/mx				

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Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
24	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	B	30.0 ml/mx	210	305	611	704
	PREFIX	5.29	LB/GAL	EC	2 pt/a	B	30.0 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	B	45.0 ml/mx				
	WARRANT	3	LB/GAL	EC	3 pt/a	C	45.0 ml/mx				
	COBRA	2	LB/GAL	EC	12.5 fl oz/a	C	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v	C	18.0 ml/mx				
25	OUTLOOK	6	LB/GAL	EC	14 fl oz/a	B	13.12 ml/mx	211	405	606	714
	FLEXSTAR GT 3.5	2.82	LBAE/GAL	L	4.5 pt/a	B	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	B	18.0 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	B	45.0 ml/mx				
	WARRANT	3	LB/GAL	EC	3 pt/a	C	45.0 ml/mx				
	COBRA	2	LB/GAL	EC	12.5 fl oz/a	C	11.72 ml/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v	C	18.0 ml/mx				
26	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	32 fl oz/a	B	30.0 ml/mx	212	301	503	701
	PREFIX	5.29	LB/GAL	EC	2 pt/a	B	30.0 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	B	45.0 ml/mx				
	ZIDUA	85 %		WG	2 oz/a	C	1.797 g/mx				
	COBRA	2	LB/GAL	EC	12.5 fl oz/a	C	11.72 ml/mx				
		PRIME OIL - COC	99.47 %		L	1 % v/v	C				
27	WARRANT	3	LB/GAL	EC	3 pt/a	B	45.0 ml/mx	213	412	610	814
	FLEXSTAR GT 3.5	2.82	LBAE/GAL	L	4.5 pt/a	B	67.5 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	B	18.0 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	B	45.0 ml/mx				
	OUTLOOK	6	LB/GAL	EC	14 fl oz/a	C	13.12 ml/mx				
	COBRA	2	LB/GAL	EC	12.5 fl oz/a	C	11.72 ml/mx				
		PRIME OIL - COC	99.47 %		L	1 % v/v	C				
28	Untreated Check							214	309	512	811

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
16.851	g	ZIDUA	85	%	WG	
222.656	ml	OUTLOOK	6	LB/GAL	EC	
450.000	ml	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	
1,462.341	ml	N-PAK - AMS	3.4	LBA/GAL	SL	
5.859	ml	VERDICT	5.57	LB/GAL	EC	
6.740	g	OPTILL	68	%	WG	
28.125	ml	PROWL H2O	3.8	LB/GAL	CS	
9.375	ml	SPARTAN	4	LB/GAL	SC	
4.493	g	AUTHORITY XL	70	%	DF	
16.289	g	AUTHORITY FIRST	70	%	DF	
11.795	g	VALOR XLT	40.3	%	WG	
1,096.874	ml	FLEXSTAR GT 3.5	2.82	LBAE/GAL	L	
292.468	ml	MSO ULTRA	100	%	L	
219.140	ml	COBRA	2	LB/GAL	EC	
337.463	ml	PRIME OIL - COC	99.47	%	L	
1.618	g	CLASSIC	25	%	WG	
0.256	g	HARMONY SG	50	%	SG	
4.763	g	VALOR SX	51	%	WG	

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

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
4.493	g	FIERCE	76	%	WG	
17.974	g	FIERCE XLT	62.41	%	WG	
28.125	ml	ULTRA BLAZER	2	LB/GAL	L	
56.250	ml	EXTREME	2.17	LB/GAL	L	
2.812	ml	ACTIVATOR 90 - NIS	90	%	L	
225.000	ml	WARRANT	3	LB/GAL	EC	
17.974	g	AUTHORITY MTZ	45	%	WG	
75.000	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.

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

Pest Type	W Weed						
Pest Code	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA		
Pest Scientific Name	Amaranthus pal>						
Pest Name	Carelessweed	Carelessweed	Carelessweed	Carelessweed	Carelessweed		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT P	PLOT C	PLOT P	PLOT C	PLOT C		
Rating Date	Jun-2-2016	Jun-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016		
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	14 14	14 14	21 21	21 21	25 4		
Trt-Eval Interval	14 DA-A	14 DA-A	0 DA-B	0 DA-B	0 DA-C		
Days After Emergence	6 DE-1	6 DE-1	13 DE-1	13 DE-1	17 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code Plot	1	2	3	4	5
1 Untreated Check		101	0	0	0	0	0
		414	0	0	0	0	0
		608	0	0	0	0	0
		705	0	0	0	0	0
		Mean =	0	0	0	0	0
2 ZIDUA	3 oz/a A	102	0	97	0	95	0
OUTLOOK	10 fl oz/a B	310	0	100	0	97	5
ROUNDUP POWERMAX	32 fl oz/a B	514	0	100	0	100	0
N-PAK - AMS	2.5 % v/v B	810	0	95	0	90	0
		Mean =	0	98	0	96	1
3 OUTLOOK	14 fl oz/a A	103	0	97	0	90	5
OUTLOOK	10 fl oz/a B	403	0	100	0	97	0
ROUNDUP POWERMAX	32 fl oz/a B	603	0	95	0	90	5
N-PAK - AMS	2.5 % v/v B	709	0	85	0	70	0
		Mean =	0	94	0	87	3
4 VERDICT	5 oz/a A	104	0	100	0	95	5
OUTLOOK	10 fl oz/a A	304	0	100	0	97	5
OUTLOOK	10 fl oz/a B	609	0	90	0	90	0
ROUNDUP POWERMAX	32 fl oz/a B	702	0	90	0	80	5
N-PAK - AMS	2.5 % v/v B						
		Mean =	0	95	0	91	4
5 OPTILL PRO @ 12 OZ/A		105	0	95	0	90	0
OPTILL	2 oz/a A	413	0	100	0	90	5
OUTLOOK	10 fl oz/a A	505	0	100	0	85	0
OUTLOOK	10 fl oz/a B	808	0	95	0	85	5
ROUNDUP POWERMAX	32 fl oz/a B						
N-PAK - AMS	2.5 % v/v B						
		Mean =	0	98	0	88	3

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type				W Weed		W Weed	
Pest Code				AMAPA		AMAPA	
Pest Scientific Name				Amaranthus pal>		Amaranthus pal>	
Pest Name				Carelessweed		Carelessweed	
Crop Code	GLXMA				GLXMA		GLXMA
Crop Name	Soybean				Soybean		Soybean
Part Rated	PLOT C			PLOT P	PLOT C		PLOT C
Rating Date	Jun-2-2016			Jun-2-2016	Jun-9-2016		Jun-9-2016
Rating Type	PHYGEN			CONTRO	PHYGEN		CONTRO
Rating Unit	%			%	%		%
Number of Subsamples	1			1	1		1
Days After First/Last Applic.	14 14			14 14	21 21		21 21
Trt-Eval Interval	14 DA-A			14 DA-A	0 DA-B		0 DA-B
Days After Emergence	6 DE-1			6 DE-1	13 DE-1		13 DE-1
ARM Action Codes	P			P	P		P
Number of Decimals	0			0	0		0
Trt Treatment	Rate	Appl					
No. Name	Rate	Unit	Code Plot	1	2	3	4
6 ZIDUA PRO @ 4 OZ/A			106	0	97	0	90
ZIDUA	2 oz/a	A	402	0	100	0	97
OPTILL	2 oz/a	A	605	0	95	0	90
OUTLOOK	10 fl oz/a	B	801	0	100	0	90
ROUNDUP POWERMAX	32 fl oz/a	B					
N-PAK - AMS	2.5 % v/v	B					
	Mean =			0	98	0	92
7 PROWL H2O	1.5 pt/a	A	107	0	100	0	90
SPARTAN	8 fl oz/a	A	302	0	100	0	97
OUTLOOK	10 fl oz/a	B	506	0	95	0	90
ROUNDUP POWERMAX	32 fl oz/a	B	803	0	85	0	70
N-PAK - AMS	2.5 % v/v	B					
	Mean =			0	95	0	87
8 ZIDUA	2 oz/a	A	108	0	100	0	100
AUTHORITY XL	4 oz/a	A	306	0	100	0	97
OUTLOOK	10 fl oz/a	B	612	0	100	0	90
ROUNDUP POWERMAX	32 fl oz/a	B	807	0	95	0	90
N-PAK - AMS	2.5 % v/v	B					
	Mean =			0	99	0	94
9 ZIDUA	2 oz/a	A	109	0	100	0	95
AUTHORITY FIRST	8 oz/a	A	404	0	100	0	97
OUTLOOK	10 fl oz/a	B	513	0	100	0	97
ROUNDUP POWERMAX	32 fl oz/a	B	809	0	97	0	90
N-PAK - AMS	2.5 % v/v	B					
	Mean =			0	99	0	95
10 VALOR XLT	3.5 oz/a	A	110	0	85	0	70
ZIDUA	2 oz/a	B	410	0	80	0	70
FLEXSTAR GT 3.5	4.5 pt/a	B	613	0	80	0	50
MSO ULTRA	1 % v/v	B	806	0	70	0	0
N-PAK - AMS	2.5 % v/v	B					
COBRA	12.5 fl oz/a	D					
PRIME OIL - COC	1 % v/v	D					
	Mean =			0	79	0	48
11 ENVIVE @ 4 OZ/A			111	0	85	0	75
CLASSIC	1.44 oz/a	A	308	0	95	0	80
HARMONY SG	0.228 oz/a	A	511	0	75	0	60
VALOR SX	2.24 oz/a	A	802	0	70	0	50
OUTLOOK	14 oz/a	B					
FLEXSTAR GT 3.5	4.5 pt/a	B					
MSO ULTRA	1 % v/v	B					
N-PAK - AMS	2.5 % v/v	B					
COBRA	12.5 fl oz/a	D					
PRIME OIL - COC	1 % v/v	D					
	Mean =			0	81	0	66

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type			W Weed				W Weed			
Pest Code			AMAPA				AMAPA			
Pest Scientific Name			Amaranthus pal>				Amaranthus pal>			
Pest Name			Carelessweed				Carelessweed			
Crop Code	GLXMA				GLXMA				GLXMA	
Crop Name	Soybean				Soybean				Soybean	
Part Rated	PLOT C		PLOT P		PLOT C		PLOT P		PLOT C	
Rating Date	Jun-2-2016		Jun-2-2016		Jun-9-2016		Jun-9-2016		Jun-13-2016	
Rating Type	PHYGEN		CONTRO		PHYGEN		CONTRO		PHYGEN	
Rating Unit	%		%		%		%		%	
Number of Subsamples	1		1		1		1		1	
Days After First/Last Applic.	14 14		14 14		21 21		21 21		25 4	
Trt-Eval Interval	14 DA-A		14 DA-A		0 DA-B		0 DA-B		0 DA-C	
Days After Emergence	6 DE-1		6 DE-1		13 DE-1		13 DE-1		17 DE-1	
ARM Action Codes	P		P		P		P		P	
Number of Decimals	0		0		0		0		0	
Trt Treatment	Rate	Appl								
No. Name	Rate Unit	Code Plot	1	2	3	4	5			
12 VALOR SX	2 oz/a	A 112	0	80	0	70	10			
ZIDUA	2 oz/a	B 314	0	80	0	50	15			
FLEXSTAR GT 3.5	4.5 pt/a	B 607	0	60	0	0	15			
MSO ULTRA	1 % v/v	B 703	0	50	0	10	5			
N-PAK - AMS	2.5 % v/v	B								
COBRA	12.5 fl oz/a	D								
PRIME OIL - COC	1 % v/v	D								
	Mean =		0	68	0	33	11			
13 OUTLOOK	14 fl oz/a	A 113	0	100	0	97	15			
OUTLOOK	10 fl oz/a	B 303	0	100	0	95	20			
FLEXSTAR GT 3.5	4.5 pt/a	B 501	0	100	0	90	10			
MSO ULTRA	1 % v/v	B 804	0	90	0	85	20			
N-PAK - AMS	2.5 % v/v	B								
	Mean =		0	98	0	92	16			
14 AUTHORITY FIRST	6.5 oz/a	A 114	0	95	0	80	0			
FLEXSTAR GT 3.5	4.5 pt/a	C 411	0	90	0	90	0			
MSO ULTRA	1 % v/v	C 504	0	95	0	80	0			
N-PAK - AMS	2.5 % v/v	C 712	0	60	0	40	0			
COBRA	12.5 fl oz/a	D								
PRIME OIL - COC	1 % v/v	D								
	Mean =		0	85	0	73	0			
15 FIERCE	4 oz/a	A 201	0	100	0	100	0			
FLEXSTAR GT 3.5	4.5 pt/a	C 401	0	100	0	97	0			
MSO ULTRA	1 % v/v	C 509	0	97	0	95	0			
N-PAK - AMS	2.5 % v/v	C 706	0	95	0	90	0			
COBRA	12.5 fl oz/a	D								
PRIME OIL - COC	1 % v/v	D								
	Mean =		0	98	0	96	0			
16 OPTILL PRO @ 12 OZ/A		202	0	97	0	95	0			
OPTILL	2 oz/a	A 406	0	95	0	95	0			
OUTLOOK	10 fl oz/a	A 502	0	95	0	90	0			
FLEXSTAR GT 3.5	4.5 pt/a	C 708	0	95	0	75	0			
MSO ULTRA	1 % v/v	C								
N-PAK - AMS	2.5 % v/v	C								
COBRA	12.5 fl oz/a	D								
PRIME OIL - COC	1 % v/v	D								
	Mean =		0	96	0	89	0			
17 FIERCE XLT	4 oz/a	A 203	0	100	0	97	0			
COBRA	12 fl oz/a	C 407	0	100	0	97	0			
ROUNDUP POWERMAX	32 fl oz/a	C 602	0	100	0	90	0			
PRIME OIL - COC	1 % v/v	C 707	0	90	0	80	0			
N-PAK - AMS	2.5 % v/v	C								
	Mean =		0	98	0	91	0			

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type				W Weed		W Weed		
Pest Code				AMAPA		AMAPA		
Pest Scientific Name				Amaranthus pal>		Amaranthus pal>		
Pest Name				Carelessweed		Carelessweed		
Crop Code	GLXMA				GLXMA			GLXMA
Crop Name	Soybean				Soybean			Soybean
Part Rated	PLOT C			PLOT P	PLOT C			PLOT C
Rating Date	Jun-2-2016			Jun-2-2016	Jun-9-2016			Jun-13-2016
Rating Type	PHYGEN			CONTRO	PHYGEN			PHYGEN
Rating Unit	%			%	%			%
Number of Subsamples	1			1	1			1
Days After First/Last Applic.	14 14			14 14	21 21			25 4
Trt-Eval Interval	14 DA-A			14 DA-A	0 DA-B			0 DA-C
Days After Emergence	6 DE-1			6 DE-1	13 DE-1			17 DE-1
ARM Action Codes	P			P	P			P
Number of Decimals	0			0	0			0
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code Plot	1	2	3	4	5	
18 FIERCE XLT	4 oz/a	A 204	0	100	0	97	0	
ULTRA BLAZER	1.5 pt/a	C 307	0	100	0	100	5	
ROUNDUP POWERMAX	32 fl oz/a	C 508	0	100	0	95	0	
N-PAK - AMS	2.5 % v/v	C 805	0	90	0	80	0	
		Mean =	0	98	0	93	1	
19 FIERCE XLT	4 oz/a	A 205	0	100	0	97	0	
EXTREME	3 pt/a	C 408	0	100	0	95	0	
ACTIVATOR 90 - NIS	0.125 % v/v	C 510	0	100	0	90	0	
N-PAK - AMS	2.5 % v/v	C 813	0	90	0	85	0	
		Mean =	0	98	0	92	0	
20 VALOR XLT	3.5 oz/a	A 206	0	100	0	90	0	
FLEXSTAR GT 3.5	4.5 pt/a	C 409	0	90	0	60	0	
MSO ULTRA	1 % v/v	C 601	0	60	0	0	0	
N-PAK - AMS	2.5 % v/v	C 710	0	70	0	20	0	
COBRA	12.5 fl oz/a	D						
PRIME OIL - COC	1 % v/v	D						
		Mean =	0	80	0	43	0	
21 FIERCE XLT	4 oz/a	A 207	0	100	0	97	0	
FLEXSTAR GT 3.5	4.5 pt/a	C 313	0	100	0	97	0	
MSO ULTRA	1 % v/v	C 604	0	95	0	90	0	
N-PAK - AMS	2.5 % v/v	C 713	0	80	0	80	0	
COBRA	12.5 fl oz/a	D						
PRIME OIL - COC	1 % v/v	D						
		Mean =	0	94	0	91	0	
22 VALOR XLT	3.5 oz/a	A 208	0	97	0	90	0	
WARRANT	3 pt/a	C 312	0	90	0	70	0	
FLEXSTAR GT 3.5	4.5 pt/a	C 507	0	70	0	50	0	
MSO ULTRA	1 % v/v	C 812	0	50	0	0	0	
N-PAK - AMS	2.5 % v/v	C						
COBRA	12.5 fl oz/a	D						
PRIME OIL - COC	1 % v/v	D						
		Mean =	0	77	0	53	0	
23 AUTHORITY MTZ	16 oz/a	A 209	0	97	0	97	0	
FLEXSTAR GT 3.5	4.5 pt/a	C 311	0	100	0	95	0	
MSO ULTRA	1 % v/v	C 614	0	100	0	80	0	
N-PAK - AMS	2.5 % v/v	C 711	0	85	0	75	0	
COBRA	12.5 fl oz/a	D						
PRIME OIL - COC	1 % v/v	D						
		Mean =	0	96	0	87	0	
24 ROUNDUP POWERMAX	32 fl oz/a	B 210	0	0	0	0	10	
PREFIX	2 pt/a	B 305	0	0	0	0	15	
N-PAK - AMS	2.5 % v/v	B 611	0	0	0	0	15	
WARRANT	3 pt/a	C 704	0	0	0	0	10	
COBRA	12.5 fl oz/a	C						
PRIME OIL - COC	1 % v/v	C						
		Mean =	0	0	0	0	13	

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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
Crop Code		GLXMA		GLXMA	
Crop Name		Soybean		Soybean	
Part Rated	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P
Rating Date	Jun-13-2016	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	25 4	31 6	31 6	39 8	39 8
Trt-Eval Interval	0 DA-C	0 DA-E	0 DA-E	0 DA-D	0 DA-D
Days After Emergence	17 DE-1	23 DE-1	23 DE-1	31 DE-1	31 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	6	7	8
1 Untreated Check		101	0	0	0
		414	0	0	0
		608	0	0	0
		705	0	0	0
		Mean =	0	0	0
2 ZIDUA	3 oz/a A	102	85	0	85
OUTLOOK	10 fl oz/a B	310	95	0	100
ROUNDUP POWERMAX	32 fl oz/a B	514	95	0	92
N-PAK - AMS	2.5 % v/v B	810	95	0	85
		Mean =	93	0	91
3 OUTLOOK	14 fl oz/a A	103	95	0	90
OUTLOOK	10 fl oz/a B	403	90	0	99
ROUNDUP POWERMAX	32 fl oz/a B	603	95	0	100
N-PAK - AMS	2.5 % v/v B	709	90	0	75
		Mean =	93	0	91
4 VERDICT	5 oz/a A	104	95	0	85
OUTLOOK	10 fl oz/a A	304	95	0	100
OUTLOOK	10 fl oz/a B	609	90	0	90
ROUNDUP POWERMAX	32 fl oz/a B	702	95	0	95
N-PAK - AMS	2.5 % v/v B				
		Mean =	94	0	93
5 OPTILL PRO @ 12 OZ/A		105	90	5	80
OPTILL	2 oz/a A	413	90	0	90
OUTLOOK	10 fl oz/a A	505	95	0	95
OUTLOOK	10 fl oz/a B	808	90	0	85
ROUNDUP POWERMAX	32 fl oz/a B				
N-PAK - AMS	2.5 % v/v B				
		Mean =	91	1	88
					0
					75

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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							
Crop Code	GLXMA		GLXMA		GLXMA							
Crop Name	Soybean		Soybean		Soybean							
Part Rated	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C						
Rating Date	Jun-13-2016	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jun-27-2016						
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN						
Rating Unit	%	%	%	%	%	%						
Number of Subsamples	1	1	1	1	1	1						
Days After First/Last Applic.	25 4	31 6	31 6	39 8	39 8	39 8						
Trt-Eval Interval	0 DA-C	0 DA-E	0 DA-E	0 DA-D	0 DA-D	0 DA-D						
Days After Emergence	17 DE-1	23 DE-1	23 DE-1	31 DE-1	31 DE-1	31 DE-1						
ARM Action Codes	P	P	P	P	P	P						
Number of Decimals	0	0	0	0	0	0						
Trt Treatment	Rate	Appl	6		7		8		9		10	
No. Name	Rate	Unit Code Plot										
6 ZIDUA PRO @ 4 OZ/A		106	85	0	85	0	70					
ZIDUA	2 oz/a	A 402	95	0	100	0	95					
OPTILL	2 oz/a	A 605	95	0	97	0	90					
OUTLOOK	10 fl oz/a	B 801	90	5	90	0	80					
ROUNDUP POWERMAX	32 fl oz/a	B										
N-PAK - AMS	2.5 % v/v	B										
	Mean =		91	1	93	0	84					
7 PROWL H2O	1.5 pt/a	A 107	80	0	80	0	80					
SPARTAN	8 fl oz/a	A 302	100	0	100	0	97					
OUTLOOK	10 fl oz/a	B 506	90	0	85	0	70					
ROUNDUP POWERMAX	32 fl oz/a	B 803	80	0	75	0	50					
N-PAK - AMS	2.5 % v/v	B										
	Mean =		88	0	85	0	74					
8 ZIDUA	2 oz/a	A 108	100	0	95	0	90					
AUTHORITY XL	4 oz/a	A 306	100	0	95	0	95					
OUTLOOK	10 fl oz/a	B 612	95	0	85	0	70					
ROUNDUP POWERMAX	32 fl oz/a	B 807	85	0	85	0	60					
N-PAK - AMS	2.5 % v/v	B										
	Mean =		95	0	90	0	79					
9 ZIDUA	2 oz/a	A 109	95	0	95	0	90					
AUTHORITY FIRST	8 oz/a	A 404	100	0	99	0	95					
OUTLOOK	10 fl oz/a	B 513	95	0	99	0	80					
ROUNDUP POWERMAX	32 fl oz/a	B 809	95	0	85	0	80					
N-PAK - AMS	2.5 % v/v	B										
	Mean =		96	0	95	0	86					
10 VALOR XLT	3.5 oz/a	A 110	100	5	100	0	100					
ZIDUA	2 oz/a	B 410	100	0	100	0	100					
FLEXSTAR GT 3.5	4.5 pt/a	B 613	100	5	100	0	100					
MSO ULTRA	1 % v/v	B 806	95	0	95	0	90					
N-PAK - AMS	2.5 % v/v	B										
COBRA	12.5 fl oz/a	D										
PRIME OIL - COC	1 % v/v	D										
	Mean =		99	3	99	0	98					
11 ENVIVE @ 4 OZ/A		111	100	5	100	0	100					
CLASSIC	1.44 oz/a	A 308	100	10	100	0	100					
HARMONY SG	0.228 oz/a	A 511	100	5	99	0	90					
VALOR SX	2.24 oz/a	A 802	95	5	95	0	80					
OUTLOOK	14 oz/a	B										
FLEXSTAR GT 3.5	4.5 pt/a	B										
MSO ULTRA	1 % v/v	B										
N-PAK - AMS	2.5 % v/v	B										
COBRA	12.5 fl oz/a	D										
PRIME OIL - COC	1 % v/v	D										
	Mean =		99	6	99	0	93					

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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							
Crop Code	GLXMA		GLXMA		GLXMA							
Crop Name	Soybean		Soybean		Soybean							
Part Rated	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C						
Rating Date	Jun-13-2016	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jun-27-2016						
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN						
Rating Unit	%	%	%	%	%	%						
Number of Subsamples	1	1	1	1	1	1						
Days After First/Last Applic.	25 4	31 6	31 6	39 8	39 8	39 8						
Trt-Eval Interval	0 DA-C	0 DA-E	0 DA-E	0 DA-D	0 DA-D	0 DA-D						
Days After Emergence	17 DE-1	23 DE-1	23 DE-1	31 DE-1	31 DE-1	31 DE-1						
ARM Action Codes	P	P	P	P	P	P						
Number of Decimals	0	0	0	0	0	0						
Trt Treatment	Rate	Appl	6		7		8		9		10	
No. Name	Rate	Unit Code Plot										
12 VALOR SX	2 oz/a	A 112	100	5	100	0	100	0	100	0	100	
ZIDUA	2 oz/a	B 314	95	5	100	0	100	0	95	0	95	
FLEXSTAR GT 3.5	4.5 pt/a	B 607	95	5	100	0	100	0	90	0	90	
MSO ULTRA	1 % v/v	B 703	95	0	95	0	95	0	90	0	90	
N-PAK - AMS	2.5 % v/v	B										
COBRA	12.5 fl oz/a	D										
PRIME OIL - COC	1 % v/v	D										
	Mean =		96	4	99	0	99	0	94	0	94	
13 OUTLOOK	14 fl oz/a	A 113	100	5	100	0	100	0	100	0	100	
OUTLOOK	10 fl oz/a	B 303	100	10	100	0	100	0	100	0	100	
FLEXSTAR GT 3.5	4.5 pt/a	B 501	100	5	100	0	100	0	90	0	90	
MSO ULTRA	1 % v/v	B 804	95	5	95	0	95	0	90	0	90	
N-PAK - AMS	2.5 % v/v	B										
	Mean =		99	6	99	0	99	0	95	0	95	
14 AUTHORITY FIRST	6.5 oz/a	A 114	75	0	95	0	95	0	90	0	90	
FLEXSTAR GT 3.5	4.5 pt/a	C 411	85	5	100	0	100	0	100	0	100	
MSO ULTRA	1 % v/v	C 504	70	5	99	0	99	0	90	0	90	
N-PAK - AMS	2.5 % v/v	C 712	15	0	90	0	90	0	60	0	60	
COBRA	12.5 fl oz/a	D										
PRIME OIL - COC	1 % v/v	D										
	Mean =		61	3	96	0	96	0	85	0	85	
15 FIERCE	4 oz/a	A 201	95	10	100	5	100	5	100	1	100	
FLEXSTAR GT 3.5	4.5 pt/a	C 401	95	5	100	0	100	0	100	0	100	
MSO ULTRA	1 % v/v	C 509	80	5	95	0	95	0	95	0	95	
N-PAK - AMS	2.5 % v/v	C 706	85	5	95	0	95	0	90	0	90	
COBRA	12.5 fl oz/a	D										
PRIME OIL - COC	1 % v/v	D										
	Mean =		89	6	98	1	98	1	96	1	96	
16 OPTILL PRO @ 12 OZ/A		202	95	10	100	5	100	5	100	1	100	
OPTILL	2 oz/a	A 406	95	5	100	0	100	0	100	0	100	
OUTLOOK	10 fl oz/a	A 502	90	5	100	0	100	0	100	0	100	
FLEXSTAR GT 3.5	4.5 pt/a	C 708	80	15	100	0	100	0	97	0	97	
MSO ULTRA	1 % v/v	C										
N-PAK - AMS	2.5 % v/v	C										
COBRA	12.5 fl oz/a	D										
PRIME OIL - COC	1 % v/v	D										
	Mean =		90	9	100	1	100	1	99	1	99	
17 FIERCE XLT	4 oz/a	A 203	95	15	100	0	100	0	100	0	100	
COBRA	12 fl oz/a	C 407	95	10	100	0	100	0	100	0	100	
ROUNDUP POWERMAX	32 fl oz/a	C 602	90	15	99	0	99	0	90	0	90	
PRIME OIL - COC	1 % v/v	C 707	80	10	95	0	95	0	80	0	80	
N-PAK - AMS	2.5 % v/v	C										
	Mean =		90	13	99	0	99	0	93	0	93	

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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		
Crop Code	GLXMA		GLXMA		GLXMA		
Crop Name	Soybean		Soybean		Soybean		
Part Rated	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	
Rating Date	Jun-13-2016	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jun-27-2016	
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	
Rating Unit	%	%	%	%	%	%	
Number of Subsamples	1	1	1	1	1	1	
Days After First/Last Applic.	25 4	31 6	31 6	39 8	39 8	39 8	
Trt-Eval Interval	0 DA-C	0 DA-E	0 DA-E	0 DA-D	0 DA-D	0 DA-D	
Days After Emergence	17 DE-1	23 DE-1	23 DE-1	31 DE-1	31 DE-1	31 DE-1	
ARM Action Codes	P	P	P	P	P	P	
Number of Decimals	0	0	0	0	0	0	
Trt Treatment	Rate	Appl	6	7	8	9	10
No. Name	Rate	Unit Code Plot					
18 FIERCE XLT	4 oz/a	A 204	95	10	95	0	100
ULTRA BLAZER	1.5 pt/a	C 307	95	15	100	0	100
ROUNDUP POWERMAX	32 fl oz/a	C 508	90	0	90	0	90
N-PAK - AMS	2.5 % v/v	C 805	80	10	90	0	85
		Mean =	90	9	94	0	94
19 FIERCE XLT	4 oz/a	A 205	95	0	95	0	95
EXTREME	3 pt/a	C 408	95	0	99	0	100
ACTIVATOR 90 - NIS	0.125 % v/v	C 510	85	0	95	0	80
N-PAK - AMS	2.5 % v/v	C 813	80	0	90	0	70
		Mean =	89	0	95	0	86
20 VALOR XLT	3.5 oz/a	A 206	80	5	100	0	100
FLEXSTAR GT 3.5	4.5 pt/a	C 409	60	5	100	0	100
MSO ULTRA	1 % v/v	C 601	15	5	95	0	80
N-PAK - AMS	2.5 % v/v	C 710	0	5	90	0	30
COBRA	12.5 fl oz/a	D					
PRIME OIL - COC	1 % v/v	D					
		Mean =	39	5	96	0	78
21 FIERCE XLT	4 oz/a	A 207	95	5	99	0	100
FLEXSTAR GT 3.5	4.5 pt/a	C 313	95	5	99	0	100
MSO ULTRA	1 % v/v	C 604	90	5	99	0	95
N-PAK - AMS	2.5 % v/v	C 713	55	0	90	0	50
COBRA	12.5 fl oz/a	D					
PRIME OIL - COC	1 % v/v	D					
		Mean =	84	4	97	0	86
22 VALOR XLT	3.5 oz/a	A 208	85	10	100	5	100
WARRANT	3 pt/a	C 312	70	5	100	0	100
FLEXSTAR GT 3.5	4.5 pt/a	C 507	15	5	95	0	80
MSO ULTRA	1 % v/v	C 812	10	0	90	0	50
N-PAK - AMS	2.5 % v/v	C					
COBRA	12.5 fl oz/a	D					
PRIME OIL - COC	1 % v/v	D					
		Mean =	45	5	96	1	83
23 AUTHORITY MTZ	16 oz/a	A 209	100	5	100	0	100
FLEXSTAR GT 3.5	4.5 pt/a	C 311	95	5	100	0	100
MSO ULTRA	1 % v/v	C 614	70	0	95	0	90
N-PAK - AMS	2.5 % v/v	C 711	55	0	95	0	90
COBRA	12.5 fl oz/a	D					
PRIME OIL - COC	1 % v/v	D					
		Mean =	80	3	98	0	95
24 ROUNDUP POWERMAX	32 fl oz/a	B 210	95	5	100	5	100
PREFIX	2 pt/a	B 305	100	5	95	5	100
N-PAK - AMS	2.5 % v/v	B 611	95	10	75	15	90
WARRANT	3 pt/a	C 704	95	5	85	5	95
COBRA	12.5 fl oz/a	C					
PRIME OIL - COC	1 % v/v	C					
		Mean =	96	6	89	8	96

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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		
Crop Code	GLXMA		GLXMA		GLXMA		
Crop Name	Soybean		Soybean		Soybean		
Part Rated	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	
Rating Date	Jun-13-2016	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jun-27-2016	
Rating Type	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	
Rating Unit	%	%	%	%	%	%	
Number of Subsamples	1	1	1	1	1	1	
Days After First/Last Applic.	25 4	31 6	31 6	39 8	39 8	39 8	
Trt-Eval Interval	0 DA-C	0 DA-E	0 DA-E	0 DA-D	0 DA-D	0 DA-D	
Days After Emergence	17 DE-1	23 DE-1	23 DE-1	31 DE-1	31 DE-1	31 DE-1	
ARM Action Codes	P	P	P	P	P	P	
Number of Decimals	0	0	0	0	0	0	
Trt Treatment	Rate	Appl	6	7	8	9	10
No. Name	Rate	Unit Code Plot					
25 OUTLOOK	14 fl oz/a	B 211	95	10	100	10	100
FLEXSTAR GT 3.5	4.5 pt/a	B 405	100	10	100	15	100
MSO ULTRA	1 % v/v	B 606	95	15	100	15	100
N-PAK - AMS	2.5 % v/v	B 714	90	5	80	15	90
WARRANT	3 pt/a	C					
COBRA	12.5 fl oz/a	C					
PRIME OIL - COC	1 % v/v	C					
Mean =			95	10	95	14	98
26 ROUNDUP POWERMAX	32 fl oz/a	B 212	100	10	95	15	100
PREFIX	2 pt/a	B 301	95	5	95	15	100
N-PAK - AMS	2.5 % v/v	B 503	95	5	100	15	100
ZIDUA	2 oz/a	C 701	90	5	90	5	90
COBRA	12.5 fl oz/a	C					
PRIME OIL - COC	1 % v/v	C					
Mean =			95	6	95	13	98
27 WARRANT	3 pt/a	B 213	100	15	95	10	100
FLEXSTAR GT 3.5	4.5 pt/a	B 412	95	5	99	15	100
MSO ULTRA	1 % v/v	B 610	95	5	90	15	95
N-PAK - AMS	2.5 % v/v	B 814	90	5	80	15	80
OUTLOOK	14 fl oz/a	C					
COBRA	12.5 fl oz/a	C					
PRIME OIL - COC	1 % v/v	C					
Mean =			95	8	91	14	94
28 Untreated Check		214	0	0	0	0	0
		309	0	0	0	0	0
		512	0	0	0	0	0
		811	0	0	0	0	0
Mean =			0	0	0	0	0

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed		W Weed	
Pest Code	AMAPA		AMAPA	
Pest Scientific Name	Amaranthus pal>		Amaranthus pal>	
Pest Name	Carelessweed		Carelessweed	
Crop Code				
Crop Name				
Part Rated	PLOT P		PLOT P	
Rating Date	Jul-12-2016		Jul-25-2016	
Rating Type	CONTRO		CONTRO	
Rating Unit	%		%	
Number of Subsamples	1		1	
Days After First/Last Applic.	54 15		67 28	
Trt-Eval Interval	17 DA-D		28 DA-D	
Days After Emergence	46 DE-1		59 DE-1	
ARM Action Codes	P		P	
Number of Decimals	0		0	
Trt Treatment	Rate	Appl		
No. Name	Rate	Unit Code Plot	11	12
1 Untreated Check		101	0	0
		414	0	0
		608	0	0
		705	0	0
		Mean =	0	0
2 ZIDUA	3 oz/a	A 102	70	15
OUTLOOK	10 fl oz/a	B 310	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 514	85	80
N-PAK - AMS	2.5 % v/v	B 810	70	10
		Mean =	81	51
3 OUTLOOK	14 fl oz/a	A 103	75	20
OUTLOOK	10 fl oz/a	B 403	80	65
ROUNDUP POWERMAX	32 fl oz/a	B 603	75	40
N-PAK - AMS	2.5 % v/v	B 709	50	0
		Mean =	70	31
4 VERDICT	5 oz/a	A 104	70	35
OUTLOOK	10 fl oz/a	A 304	85	80
OUTLOOK	10 fl oz/a	B 609	60	15
ROUNDUP POWERMAX	32 fl oz/a	B 702	85	65
N-PAK - AMS	2.5 % v/v	B		
		Mean =	75	49
5 OPTILL PRO @ 12 OZ/A		105	60	30
OPTILL	2 oz/a	A 413	75	65
OUTLOOK	10 fl oz/a	A 505	65	50
OUTLOOK	10 fl oz/a	B 808	40	0
ROUNDUP POWERMAX	32 fl oz/a	B		
N-PAK - AMS	2.5 % v/v	B		
		Mean =	60	36

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed	W Weed
Pest Code	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>
Pest Name	Carelessweed	Carelessweed
Crop Code		
Crop Name		
Part Rated	PLOT P	PLOT P
Rating Date	Jul-12-2016	Jul-25-2016
Rating Type	CONTRO	CONTRO
Rating Unit	%	%
Number of Subsamples	1	1
Days After First/Last Applic.	54 15	67 28
Trt-Eval Interval	17 DA-D	28 DA-D
Days After Emergence	46 DE-1	59 DE-1
ARM Action Codes	P	P
Number of Decimals	0	0
Trt Treatment		
No. Name	Rate Unit Code Plot	11
6 ZIDUA PRO @ 4 OZ/A		12
ZIDUA	2 oz/a A 402	70
OPTILL	2 oz/a A 605	90
OUTLOOK	10 fl oz/a B 801	85
ROUNDUP POWERMAX	32 fl oz/a B	75
N-PAK - AMS	2.5 % v/v B	
	Mean =	80
7 PROWL H2O	1.5 pt/a A 107	70
SPARTAN	8 fl oz/a A 302	95
OUTLOOK	10 fl oz/a B 506	75
ROUNDUP POWERMAX	32 fl oz/a B 803	40
N-PAK - AMS	2.5 % v/v B	
	Mean =	70
8 ZIDUA	2 oz/a A 108	85
AUTHORITY XL	4 oz/a A 306	90
OUTLOOK	10 fl oz/a B 612	50
ROUNDUP POWERMAX	32 fl oz/a B 807	60
N-PAK - AMS	2.5 % v/v B	
	Mean =	71
9 ZIDUA	2 oz/a A 109	80
AUTHORITY FIRST	8 oz/a A 404	100
OUTLOOK	10 fl oz/a B 513	80
ROUNDUP POWERMAX	32 fl oz/a B 809	75
N-PAK - AMS	2.5 % v/v B	
	Mean =	84
10 VALOR XLT	3.5 oz/a A 110	100
ZIDUA	2 oz/a B 410	100
FLEXSTAR GT 3.5	4.5 pt/a B 613	100
MSO ULTRA	1 % v/v B 806	100
N-PAK - AMS	2.5 % v/v B	
COBRA	12.5 fl oz/a D	
PRIME OIL - COC	1 % v/v D	
	Mean =	100
11 ENVIVE @ 4 OZ/A		
CLASSIC	1.44 oz/a A 308	100
HARMONY SG	0.228 oz/a A 511	100
VALOR SX	2.24 oz/a A 802	100
OUTLOOK	14 oz/a B	
FLEXSTAR GT 3.5	4.5 pt/a B	
MSO ULTRA	1 % v/v B	
N-PAK - AMS	2.5 % v/v B	
COBRA	12.5 fl oz/a D	
PRIME OIL - COC	1 % v/v D	
	Mean =	100

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

				W Weed AMAPA	W Weed AMAPA
				Amaranthus pal> Carelessweed	Amaranthus pal> Carelessweed
Pest Type				PLOT P	PLOT P
Pest Code				Jul-12-2016	Jul-25-2016
Pest Scientific Name				CONTRO	CONTRO
Pest Name				%	%
Crop Code				1	1
Crop Name				54 15	67 28
Part Rated				17 DA-D	28 DA-D
Rating Date				46 DE-1	59 DE-1
Rating Type				P	P
Rating Unit				0	0
Number of Subsamples					
Days After First/Last Applic.					
Trt-Eval Interval					
Days After Emergence					
ARM Action Codes					
Number of Decimals					
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot		11	12
12 VALOR SX	2 oz/a	A 112		100	99
ZIDUA	2 oz/a	B 314		100	100
FLEXSTAR GT 3.5	4.5 pt/a	B 607		100	100
MSO ULTRA	1 % v/v	B 703		95	95
N-PAK - AMS	2.5 % v/v	B			
COBRA	12.5 fl oz/a	D			
PRIME OIL - COC	1 % v/v	D			
		Mean =		99	99
13 OUTLOOK	14 fl oz/a	A 113		80	70
OUTLOOK	10 fl oz/a	B 303		85	80
FLEXSTAR GT 3.5	4.5 pt/a	B 501		70	65
MSO ULTRA	1 % v/v	B 804		75	20
N-PAK - AMS	2.5 % v/v	B			
		Mean =		78	59
14 AUTHORITY FIRST	6.5 oz/a	A 114		100	99
FLEXSTAR GT 3.5	4.5 pt/a	C 411		100	100
MSO ULTRA	1 % v/v	C 504		100	95
N-PAK - AMS	2.5 % v/v	C 712		90	75
COBRA	12.5 fl oz/a	D			
PRIME OIL - COC	1 % v/v	D			
		Mean =		98	92
15 FIERCE	4 oz/a	A 201		100	100
FLEXSTAR GT 3.5	4.5 pt/a	C 401		100	100
MSO ULTRA	1 % v/v	C 509		95	95
N-PAK - AMS	2.5 % v/v	C 706		95	95
COBRA	12.5 fl oz/a	D			
PRIME OIL - COC	1 % v/v	D			
		Mean =		98	98
16 OPTILL PRO @ 12 OZ/A		202		100	98
OPTILL	2 oz/a	A 406		100	100
OUTLOOK	10 fl oz/a	A 502		100	98
FLEXSTAR GT 3.5	4.5 pt/a	C 708		100	95
MSO ULTRA	1 % v/v	C			
N-PAK - AMS	2.5 % v/v	C			
COBRA	12.5 fl oz/a	D			
PRIME OIL - COC	1 % v/v	D			
		Mean =		100	98
17 FIERCE XLT	4 oz/a	A 203		90	70
COBRA	12 fl oz/a	C 407		90	85
ROUNDUP POWERMAX	32 fl oz/a	C 602		85	80
PRIME OIL - COC	1 % v/v	C 707		70	55
N-PAK - AMS	2.5 % v/v	C			
		Mean =		84	73

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed		W Weed	
Pest Code	AMAPA		AMAPA	
Pest Scientific Name	Amaranthus pal>		Amaranthus pal>	
Pest Name	Carelessweed		Carelessweed	
Crop Code				
Crop Name				
Part Rated	PLOT P		PLOT P	
Rating Date	Jul-12-2016		Jul-25-2016	
Rating Type	CONTRO		CONTRO	
Rating Unit	%		%	
Number of Subsamples	1		1	
Days After First/Last Applic.	54 15		67 28	
Trt-Eval Interval	17 DA-D		28 DA-D	
Days After Emergence	46 DE-1		59 DE-1	
ARM Action Codes	P		P	
Number of Decimals	0		0	
Trt Treatment	Rate	Appl		
No. Name	Rate Unit	Code Plot	11	12
18 FIERCE XLT	4 oz/a	A 204	85	60
ULTRA BLAZER	1.5 pt/a	C 307	90	95
ROUNDUP POWERMAX	32 fl oz/a	C 508	75	70
N-PAK - AMS	2.5 % v/v	C 805	65	30
		Mean =	79	64
19 FIERCE XLT	4 oz/a	A 205	75	60
EXTREME	3 pt/a	C 408	80	60
ACTIVATOR 90 - NIS	0.125 % v/v	C 510	70	40
N-PAK - AMS	2.5 % v/v	C 813	70	50
		Mean =	74	53
20 VALOR XLT	3.5 oz/a	A 206	100	100
FLEXSTAR GT 3.5	4.5 pt/a	C 409	100	99
MSO ULTRA	1 % v/v	C 601	95	95
N-PAK - AMS	2.5 % v/v	C 710	90	75
COBRA	12.5 fl oz/a	D		
PRIME OIL - COC	1 % v/v	D		
		Mean =	96	92
21 FIERCE XLT	4 oz/a	A 207	100	100
FLEXSTAR GT 3.5	4.5 pt/a	C 313	100	99
MSO ULTRA	1 % v/v	C 604	95	100
N-PAK - AMS	2.5 % v/v	C 713	90	70
COBRA	12.5 fl oz/a	D		
PRIME OIL - COC	1 % v/v	D		
		Mean =	96	92
22 VALOR XLT	3.5 oz/a	A 208	100	100
WARRANT	3 pt/a	C 312	100	100
FLEXSTAR GT 3.5	4.5 pt/a	C 507	95	95
MSO ULTRA	1 % v/v	C 812	90	80
N-PAK - AMS	2.5 % v/v	C		
COBRA	12.5 fl oz/a	D		
PRIME OIL - COC	1 % v/v	D		
		Mean =	96	94
23 AUTHORITY MTZ	16 oz/a	A 209	100	100
FLEXSTAR GT 3.5	4.5 pt/a	C 311	100	100
MSO ULTRA	1 % v/v	C 614	100	97
N-PAK - AMS	2.5 % v/v	C 711	100	95
COBRA	12.5 fl oz/a	D		
PRIME OIL - COC	1 % v/v	D		
		Mean =	100	98
24 ROUNDUP POWERMAX	32 fl oz/a	B 210	100	100
PREFIX	2 pt/a	B 305	100	99
N-PAK - AMS	2.5 % v/v	B 611	85	70
WARRANT	3 pt/a	C 704	85	80
COBRA	12.5 fl oz/a	C		
PRIME OIL - COC	1 % v/v	C		
		Mean =	93	87

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed	W Weed
Pest Code	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>
Pest Name	Carelessweed	Carelessweed
Crop Code		
Crop Name		
Part Rated	PLOT P	PLOT P
Rating Date	Jul-12-2016	Jul-25-2016
Rating Type	CONTRO	CONTRO
Rating Unit	%	%
Number of Subsamples	1	1
Days After First/Last Applic.	54 15	67 28
Trt-Eval Interval	17 DA-D	28 DA-D
Days After Emergence	46 DE-1	59 DE-1
ARM Action Codes	P	P
Number of Decimals	0	0
Trt Treatment	Rate	Appl
No. Name	Rate Unit Code Plot	
	11	12
25 OUTLOOK	14 fl oz/a B 211	100 100
FLEXSTAR GT 3.5	4.5 pt/a B 405	100 100
MSO ULTRA	1 % v/v B 606	100 100
N-PAK - AMS	2.5 % v/v B 714	75 60
WARRANT	3 pt/a C	
COBRA	12.5 fl oz/a C	
PRIME OIL - COC	1 % v/v C	
	Mean =	94 90
26 ROUNDUP POWERMAX	32 fl oz/a B 212	100 99
PREFIX	2 pt/a B 301	98 95
N-PAK - AMS	2.5 % v/v B 503	100 98
ZIDUA	2 oz/a C 701	85 75
COBRA	12.5 fl oz/a C	
PRIME OIL - COC	1 % v/v C	
	Mean =	96 92
27 WARRANT	3 pt/a B 213	100 100
FLEXSTAR GT 3.5	4.5 pt/a B 412	100 90
MSO ULTRA	1 % v/v B 610	85 85
N-PAK - AMS	2.5 % v/v B 814	75 25
OUTLOOK	14 fl oz/a C	
COBRA	12.5 fl oz/a C	
PRIME OIL - COC	1 % v/v C	
	Mean =	90 75
28 Untreated Check	214	0 0
	309	0 0
	512	0 0
	811	0 0
	Mean =	0 0

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type
 W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
 AMAPA, Amaranthus palmeri, = US
Crop Code
 GLXMA, BSOY, Glycine max, = 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)

Pest Type Pest Code Pest Scientific Name Pest Name Crop Code Crop Name Part Rated Rating Date Rating Type Rating Unit Number of Subsamples Days After First/Last Applic. Trt-Eval Interval Days After Emergence ARM Action Codes Number of Decimals	W Weed AMAPA Amaranthus pal>		W Weed AMAPA Amaranthus pal>		W Weed AMAPA Amaranthus pal>			
	GLXMA Soybean PLOT C Jun-2-2016	Carelessweed PLOT P Jun-2-2016	GLXMA Soybean PLOT C Jun-9-2016	Carelessweed PLOT P Jun-9-2016	GLXMA Soybean PLOT C Jun-13-2016	Carelessweed PLOT P Jun-13-2016		
	PHYGEN %	CONTRO %	PHYGEN %	CONTRO %	PHYGEN %	CONTRO %		
	1	1	1	1	1	1		
	14 14	14 14	21 21	21 21	25 4	25 4		
	14 DA-A	14 DA-A	0 DA-B	0 DA-B	0 DA-C	0 DA-C		
	6 DE-1	6 DE-1	13 DE-1	13 DE-1	17 DE-1	17 DE-1		
	P	P	P	P	P	P		
	0	0	0	0	0	0		
Trt Treatment No. Name	Rate	Appl Unit Code	1	2	3	4	5	6
1 Untreated Check			0 -	0 e	0 -	0 g	0 e	0 e
2 ZIDUA OUTLOOK ROUNDUP POWERMAX N-PAK - AMS	3 oz/a A 10 fl oz/a B 32 fl oz/a B 2.5 % v/v B		0 -	98 a	0 -	96 a	1 de	93 ab
3 OUTLOOK OUTLOOK ROUNDUP POWERMAX N-PAK - AMS	14 fl oz/a A 10 fl oz/a B 32 fl oz/a B 2.5 % v/v B		0 -	94 a	0 -	87 ab	3 de	93 ab
4 VERDICT OUTLOOK OUTLOOK ROUNDUP POWERMAX N-PAK - AMS	5 oz/a A 10 fl oz/a A 10 fl oz/a B 32 fl oz/a B 2.5 % v/v B		0 -	95 a	0 -	91 ab	4 d	94 ab
5 OPTILL PRO @ 12 OZ/A OPTILL OUTLOOK OUTLOOK ROUNDUP POWERMAX N-PAK - AMS	2 oz/a A 10 fl oz/a A 10 fl oz/a B 32 fl oz/a B 2.5 % v/v B		0 -	98 a	0 -	88 ab	3 de	91 ab
6 ZIDUA PRO @ 4 OZ/A ZIDUA OPTILL OUTLOOK ROUNDUP POWERMAX N-PAK - AMS	2 oz/a A 2 oz/a A 10 fl oz/a B 32 fl oz/a B 2.5 % v/v B		0 -	98 a	0 -	92 a	1 de	91 ab

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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		
Crop Code	GLXMA		GLXMA		GLXMA			
Crop Name	Soybean		Soybean		Soybean			
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P		
Rating Date	Jun-2-2016	Jun-2-2016	Jun-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016		
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Days After First/Last Applic.	14 14	14 14	21 21	21 21	25 4	25 4		
Trt-Eval Interval	14 DA-A	14 DA-A	0 DA-B	0 DA-B	0 DA-C	0 DA-C		
Days After Emergence	6 DE-1	6 DE-1	13 DE-1	13 DE-1	17 DE-1	17 DE-1		
ARM Action Codes	P	P	P	P	P	P		
Number of Decimals	0	0	0	0	0	0		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit Code		1	2	3	4	5	6
7 PROWL H2O	1.5 pt/a A		0 -	95 a	0 -	87 ab	3 de	88 ab
SPARTAN	8 fl oz/a A							
OUTLOOK	10 fl oz/a B							
ROUNDUP POWERMAX	32 fl oz/a B							
N-PAK - AMS	2.5 % v/v B							
8 ZIDUA	2 oz/a A		0 -	99 a	0 -	94 a	4 d	95 ab
AUTHORITY XL	4 oz/a A							
OUTLOOK	10 fl oz/a B							
ROUNDUP POWERMAX	32 fl oz/a B							
N-PAK - AMS	2.5 % v/v B							
9 ZIDUA	2 oz/a A		0 -	99 a	0 -	95 a	1 de	96 ab
AUTHORITY FIRST	8 oz/a A							
OUTLOOK	10 fl oz/a B							
ROUNDUP POWERMAX	32 fl oz/a B							
N-PAK - AMS	2.5 % v/v B							
10 VALOR XLT	3.5 oz/a A		0 -	79 c	0 -	48 ef	13 c	99 a
ZIDUA	2 oz/a B							
FLEXSTAR GT 3.5	4.5 pt/a B							
MSO ULTRA	1 % v/v B							
N-PAK - AMS	2.5 % v/v B							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
11 ENVIVE @ 4 OZ/A			0 -	81 c	0 -	66 cd	14 bc	99 a
CLASSIC	1.44 oz/a A							
HARMONY SG	0.228 oz/a A							
VALOR SX	2.24 oz/a A							
OUTLOOK	14 oz/a B							
FLEXSTAR GT 3.5	4.5 pt/a B							
MSO ULTRA	1 % v/v B							
N-PAK - AMS	2.5 % v/v B							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
12 VALOR SX	2 oz/a A		0 -	68 d	0 -	33 f	11 c	96 ab
ZIDUA	2 oz/a B							
FLEXSTAR GT 3.5	4.5 pt/a B							
MSO ULTRA	1 % v/v B							
N-PAK - AMS	2.5 % v/v B							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
13 OUTLOOK	14 fl oz/a A		0 -	98 a	0 -	92 a	16 b	99 a
OUTLOOK	10 fl oz/a B							
FLEXSTAR GT 3.5	4.5 pt/a B							
MSO ULTRA	1 % v/v B							
N-PAK - AMS	2.5 % v/v B							

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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		
Crop Code	GLXMA		GLXMA		GLXMA			
Crop Name	Soybean		Soybean		Soybean			
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P		
Rating Date	Jun-2-2016	Jun-2-2016	Jun-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016		
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Days After First/Last Applic.	14 14	14 14	21 21	21 21	25 4	25 4		
Trt-Eval Interval	14 DA-A	14 DA-A	0 DA-B	0 DA-B	0 DA-C	0 DA-C		
Days After Emergence	6 DE-1	6 DE-1	13 DE-1	13 DE-1	17 DE-1	17 DE-1		
ARM Action Codes	P	P	P	P	P	P		
Number of Decimals	0	0	0	0	0	0		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit Code		1	2	3	4	5	6
14 AUTHORITY FIRST	6.5 oz/a A		0 -	85 bc	0 -	73 bc	0 e	61 c
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
15 FIERCE	4 oz/a A		0 -	98 a	0 -	96 a	0 e	89 ab
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
16 OPTILL PRO @ 12 OZ/A			0 -	96 a	0 -	89 ab	0 e	90 ab
OPTILL	2 oz/a A							
OUTLOOK	10 fl oz/a A							
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
17 FIERCE XLT	4 oz/a A		0 -	98 a	0 -	91 a	0 e	90 ab
COBRA	12 fl oz/a C							
ROUNDUP POWERMAX	32 fl oz/a C							
PRIME OIL - COC	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
18 FIERCE XLT	4 oz/a A		0 -	98 a	0 -	93 a	1 de	90 ab
ULTRA BLAZER	1.5 pt/a C							
ROUNDUP POWERMAX	32 fl oz/a C							
N-PAK - AMS	2.5 % v/v C							
19 FIERCE XLT	4 oz/a A		0 -	98 a	0 -	92 a	0 e	89 ab
EXTREME	3 pt/a C							
ACTIVATOR 90 - NIS	0.125 % v/v C							
N-PAK - AMS	2.5 % v/v C							
20 VALOR XLT	3.5 oz/a A		0 -	80 c	0 -	43 ef	0 e	39 d
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
21 FIERCE XLT	4 oz/a A		0 -	94 ab	0 -	91 a	0 e	84 ab
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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		
Crop Code	GLXMA		GLXMA		GLXMA			
Crop Name	Soybean		Soybean		Soybean			
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P		
Rating Date	Jun-2-2016	Jun-2-2016	Jun-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016		
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Days After First/Last Applic.	14 14	14 14	21 21	21 21	25 4	25 4		
Trt-Eval Interval	14 DA-A	14 DA-A	0 DA-B	0 DA-B	0 DA-C	0 DA-C		
Days After Emergence	6 DE-1	6 DE-1	13 DE-1	13 DE-1	17 DE-1	17 DE-1		
ARM Action Codes	P	P	P	P	P	P		
Number of Decimals	0	0	0	0	0	0		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit Code		1	2	3	4	5	6
22 VALOR XLT	3.5 oz/a A		0 -	77 c	0 -	53 de	0 e	45 cd
WARRANT	3 pt/a C							
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
23 AUTHORITY MTZ	16 oz/a A		0 -	96 a	0 -	87 ab	0 e	80 b
FLEXSTAR GT 3.5	4.5 pt/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
COBRA	12.5 fl oz/a D							
PRIME OIL - COC	1 % v/v D							
24 ROUNDUP POWERMAX	32 fl oz/a B		0 -	0 e	0 -	0 g	13 c	96 ab
PREFIX	2 pt/a B							
N-PAK - AMS	2.5 % v/v B							
WARRANT	3 pt/a C							
COBRA	12.5 fl oz/a C							
PRIME OIL - COC	1 % v/v C							
25 OUTLOOK	14 fl oz/a B		0 -	0 e	0 -	0 g	20 a	95 ab
FLEXSTAR GT 3.5	4.5 pt/a B							
MSO ULTRA	1 % v/v B							
N-PAK - AMS	2.5 % v/v B							
WARRANT	3 pt/a C							
COBRA	12.5 fl oz/a C							
PRIME OIL - COC	1 % v/v C							
26 ROUNDUP POWERMAX	32 fl oz/a B		0 -	0 e	0 -	0 g	16 b	95 ab
PREFIX	2 pt/a B							
N-PAK - AMS	2.5 % v/v B							
ZIDUA	2 oz/a C							
COBRA	12.5 fl oz/a C							
PRIME OIL - COC	1 % v/v C							
27 WARRANT	3 pt/a B		0 -	0 e	0 -	0 g	13 c	95 ab
FLEXSTAR GT 3.5	4.5 pt/a B							
MSO ULTRA	1 % v/v B							
N-PAK - AMS	2.5 % v/v B							
OUTLOOK	14 fl oz/a C							
COBRA	12.5 fl oz/a C							
PRIME OIL - COC	1 % v/v C							

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type Pest Code Pest Scientific Name	W Weed AMAPA Amaranthus pal>		W Weed AMAPA Amaranthus pal>		W Weed AMAPA Amaranthus pal>								
	Carelessweed		Carelessweed		Carelessweed								
Pest Name	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA							
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA							
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean							
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P							
Rating Date	Jun-2-2016	Jun-2-2016	Jun-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016							
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO							
Rating Unit	%	%	%	%	%	%							
Number of Subsamples	1	1	1	1	1	1							
Days After First/Last Applic.	14 14	14 14	21 21	21 21	25 4	25 4							
Trt-Eval Interval	14 DA-A	14 DA-A	0 DA-B	0 DA-B	0 DA-C	0 DA-C							
Days After Emergence	6 DE-1	6 DE-1	13 DE-1	13 DE-1	17 DE-1	17 DE-1							
ARM Action Codes	P	P	P	P	P	P							
Number of Decimals	0	0	0	0	0	0							
Trt Treatment No. Name	Rate Rate	Appl Unit	Code	1	2	3	4	5	6				
28 Untreated Check	0	-		0	e	0	-	0	g	0	e	0	e
LSD P=.05	.			9.2		.		18.0		3.4		16.6	
Standard Deviation	0.0			6.6		0.0		12.8		2.4		11.8	
CV	0.0			9.12		0.0		20.24		50.41		14.58	
Bartlett's X2	0.0			64.822		0.0		76.344		6.404		121.434	
P(Bartlett's X2)	.			0.001*		.		0.001*		0.983		0.001*	
Skewness	.			-1.1904*		.		-0.8329*		1.1596*		-2.0973*	
Kurtosis	.			-0.3686		.		-1.1003*		0.0913		2.9824*	
Replicate F	0.000			15.989		0.000		14.956		3.325		10.424	
Replicate Prob(F)	1.0000			0.0001		1.0000		0.0001		0.0237		0.0001	
Treatment F	0.000			142.058		0.000		34.678		27.951		21.281	
Treatment Prob(F)	1.0000			0.0001		1.0000		0.0001		0.0001		0.0001	

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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
Crop Code	GLXMA		GLXMA		
Crop Name	Soybean		Soybean		
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT P
Rating Date	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jul-12-2016
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	31 6	31 6	39 8	39 8	54 15
Trt-Eval Interval	0 DA-E	0 DA-E	0 DA-D	0 DA-D	17 DA-D
Days After Emergence	23 DE-1	23 DE-1	31 DE-1	31 DE-1	46 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	7	8	9
1 Untreated Check			0 h	0 i	0 c
2 ZIDUA	3 oz/a A		0 h	91 d-h	0 c
OUTLOOK	10 fl oz/a B				84 b-e
ROUNDUP POWERMAX	32 fl oz/a B				81 cde
N-PAK - AMS	2.5 % v/v B				
3 OUTLOOK	14 fl oz/a A		0 h	91 c-h	0 c
OUTLOOK	10 fl oz/a B				64 f
ROUNDUP POWERMAX	32 fl oz/a B				70 fg
N-PAK - AMS	2.5 % v/v B				
4 VERDICT	5 oz/a A		0 h	93 b-g	0 c
OUTLOOK	10 fl oz/a A				88 a-e
OUTLOOK	10 fl oz/a B				75 def
ROUNDUP POWERMAX	32 fl oz/a B				
N-PAK - AMS	2.5 % v/v B				
5 OPTILL PRO @ 12 OZ/A			1 gh	88 gh	0 c
OPTILL	2 oz/a A				75 ef
OUTLOOK	10 fl oz/a A				60 g
OUTLOOK	10 fl oz/a B				
ROUNDUP POWERMAX	32 fl oz/a B				
N-PAK - AMS	2.5 % v/v B				
6 ZIDUA PRO @ 4 OZ/A			1 gh	93 b-g	0 c
ZIDUA	2 oz/a A				84 b-e
OPTILL	2 oz/a A				80 c-f
OUTLOOK	10 fl oz/a B				
ROUNDUP POWERMAX	32 fl oz/a B				
N-PAK - AMS	2.5 % v/v B				

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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
Crop Code	GLXMA		GLXMA		
Crop Name	Soybean		Soybean		
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT P
Rating Date	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jul-12-2016
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	31 6	31 6	39 8	39 8	54 15
Trt-Eval Interval	0 DA-E	0 DA-E	0 DA-D	0 DA-D	17 DA-D
Days After Emergence	23 DE-1	23 DE-1	31 DE-1	31 DE-1	46 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	7	8	9
7 PROWL H2O	1.5 pt/a A	A	0 h	85 h	0 c
SPARTAN	8 fl oz/a A	A			
OUTLOOK	10 fl oz/a B	B			
ROUNDUP POWERMAX	32 fl oz/a B	B			
N-PAK - AMS	2.5 % v/v B	B			
74 ef					
8 ZIDUA	2 oz/a A	A	0 h	90 e-h	0 c
AUTHORITY XL	4 oz/a A	A			
OUTLOOK	10 fl oz/a B	B			
ROUNDUP POWERMAX	32 fl oz/a B	B			
N-PAK - AMS	2.5 % v/v B	B			
79 c-f					
9 ZIDUA	2 oz/a A	A	0 h	95 a-f	0 c
AUTHORITY FIRST	8 oz/a A	A			
OUTLOOK	10 fl oz/a B	B			
ROUNDUP POWERMAX	32 fl oz/a B	B			
N-PAK - AMS	2.5 % v/v B	B			
86 a-e					
10 VALOR XLT	3.5 oz/a A	A	3 fgh	99 ab	0 c
ZIDUA	2 oz/a B	B			
FLEXSTAR GT 3.5	4.5 pt/a B	B			
MSO ULTRA	1 % v/v B	B			
N-PAK - AMS	2.5 % v/v B	B			
COBRA	12.5 fl oz/a D	D			
PRIME OIL - COC	1 % v/v D	D			
98 ab					
11 ENVIVE @ 4 OZ/A			6 cde	99 ab	0 c
CLASSIC	1.44 oz/a A	A			
HARMONY SG	0.228 oz/a A	A			
VALOR SX	2.24 oz/a A	A			
OUTLOOK	14 oz/a B	B			
FLEXSTAR GT 3.5	4.5 pt/a B	B			
MSO ULTRA	1 % v/v B	B			
N-PAK - AMS	2.5 % v/v B	B			
COBRA	12.5 fl oz/a D	D			
PRIME OIL - COC	1 % v/v D	D			
93 a-d					
12 VALOR SX	2 oz/a A	A	4 efg	99 ab	0 c
ZIDUA	2 oz/a B	B			
FLEXSTAR GT 3.5	4.5 pt/a B	B			
MSO ULTRA	1 % v/v B	B			
N-PAK - AMS	2.5 % v/v B	B			
COBRA	12.5 fl oz/a D	D			
PRIME OIL - COC	1 % v/v D	D			
94 abc					
13 OUTLOOK	14 fl oz/a A	A	6 cde	99 ab	0 c
OUTLOOK	10 fl oz/a B	B			
FLEXSTAR GT 3.5	4.5 pt/a B	B			
MSO ULTRA	1 % v/v B	B			
N-PAK - AMS	2.5 % v/v B	B			
95 ab					
78 def					

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type		W Weed		W Weed			
Pest Code		AMAPA		AMAPA			
Pest Scientific Name		Amaranthus pal>		Amaranthus pal>	Amaranthus pal>		
Pest Name		Carelessweed		Carelessweed	Carelessweed		
Crop Code	GLXMA		GLXMA				
Crop Name	Soybean		Soybean				
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT P		
Rating Date	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jul-12-2016		
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	31 6	31 6	39 8	39 8	54 15		
Trt-Eval Interval	0 DA-E	0 DA-E	0 DA-D	0 DA-D	17 DA-D		
Days After Emergence	23 DE-1	23 DE-1	31 DE-1	31 DE-1	46 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment	Rate	Appl					
No. Name	Rate Unit Code		7	8	9		
14 AUTHORITY FIRST	6.5 oz/a A		3 fgh	96 a-e	0 c	85 a-e	98 a
FLEXSTAR GT 3.5	4.5 pt/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
COBRA	12.5 fl oz/a D						
PRIME OIL - COC	1 % v/v D						
15 FIERCE	4 oz/a A		6 cde	98 abc	1 c	96 ab	98 a
FLEXSTAR GT 3.5	4.5 pt/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
COBRA	12.5 fl oz/a D						
PRIME OIL - COC	1 % v/v D						
16 OPTILL PRO @ 12 OZ/A			9 bc	100 a	1 c	99 a	100 a
OPTILL	2 oz/a A						
OUTLOOK	10 fl oz/a A						
FLEXSTAR GT 3.5	4.5 pt/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
COBRA	12.5 fl oz/a D						
PRIME OIL - COC	1 % v/v D						
17 FIERCE XLT	4 oz/a A		13 a	99 ab	0 c	93 a-d	84 bcd
COBRA	12 fl oz/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
PRIME OIL - COC	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
18 FIERCE XLT	4 oz/a A		9 bc	94 a-g	0 c	94 abc	79 def
ULTRA BLAZER	1.5 pt/a C						
ROUNDUP POWERMAX	32 fl oz/a C						
N-PAK - AMS	2.5 % v/v C						
19 FIERCE XLT	4 oz/a A		0 h	95 a-f	0 c	86 a-e	74 def
EXTREME	3 pt/a C						
ACTIVATOR 90 - NIS	0.125 % v/v C						
N-PAK - AMS	2.5 % v/v C						
20 VALOR XLT	3.5 oz/a A		5 def	96 a-e	0 c	78 def	96 a
FLEXSTAR GT 3.5	4.5 pt/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
COBRA	12.5 fl oz/a D						
PRIME OIL - COC	1 % v/v D						
21 FIERCE XLT	4 oz/a A		4 efg	97 a-d	0 c	86 a-e	96 a
FLEXSTAR GT 3.5	4.5 pt/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
COBRA	12.5 fl oz/a D						
PRIME OIL - COC	1 % v/v D						

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type		W Weed		W Weed	
Pest Code		AMAPA		AMAPA	
Pest Scientific Name		Amaranthus pal>		Amaranthus pal>	Amaranthus pal>
Pest Name		Carelessweed		Carelessweed	Carelessweed
Crop Code	GLXMA		GLXMA		
Crop Name	Soybean		Soybean		
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT P
Rating Date	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jul-12-2016
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	31 6	31 6	39 8	39 8	54 15
Trt-Eval Interval	0 DA-E	0 DA-E	0 DA-D	0 DA-D	17 DA-D
Days After Emergence	23 DE-1	23 DE-1	31 DE-1	31 DE-1	46 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	7	8	9
22 VALOR XLT	3.5 oz/a	A			
WARRANT	3 pt/a	C	5 def	96 a-e	1 c
FLEXSTAR GT 3.5	4.5 pt/a	C			
MSO ULTRA	1 % v/v	C			
N-PAK - AMS	2.5 % v/v	C			
COBRA	12.5 fl oz/a	D			
PRIME OIL - COC	1 % v/v	D			
23 AUTHORITY MTZ	16 oz/a	A	3 fgh	98 abc	0 c
FLEXSTAR GT 3.5	4.5 pt/a	C			
MSO ULTRA	1 % v/v	C			
N-PAK - AMS	2.5 % v/v	C			
COBRA	12.5 fl oz/a	D			
PRIME OIL - COC	1 % v/v	D			
24 ROUNDUP POWERMAX	32 fl oz/a	B	6 cde	89 fgh	8 b
PREFIX	2 pt/a	B			
N-PAK - AMS	2.5 % v/v	B			
WARRANT	3 pt/a	C			
COBRA	12.5 fl oz/a	C			
PRIME OIL - COC	1 % v/v	C			
25 OUTLOOK	14 fl oz/a	B	10 ab	95 a-f	14 a
FLEXSTAR GT 3.5	4.5 pt/a	B			
MSO ULTRA	1 % v/v	B			
N-PAK - AMS	2.5 % v/v	B			
WARRANT	3 pt/a	C			
COBRA	12.5 fl oz/a	C			
PRIME OIL - COC	1 % v/v	C			
26 ROUNDUP POWERMAX	32 fl oz/a	B	6 cde	95 a-f	13 a
PREFIX	2 pt/a	B			
N-PAK - AMS	2.5 % v/v	B			
ZIDUA	2 oz/a	C			
COBRA	12.5 fl oz/a	C			
PRIME OIL - COC	1 % v/v	C			
27 WARRANT	3 pt/a	B	8 bcd	91 c-h	14 a
FLEXSTAR GT 3.5	4.5 pt/a	B			
MSO ULTRA	1 % v/v	B			
N-PAK - AMS	2.5 % v/v	B			
OUTLOOK	14 fl oz/a	C			
COBRA	12.5 fl oz/a	C			
PRIME OIL - COC	1 % v/v	C			

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Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 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
Crop Code	GLXMA		GLXMA		
Crop Name	Soybean		Soybean		
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT P
Rating Date	Jun-19-2016	Jun-19-2016	Jun-27-2016	Jun-27-2016	Jul-12-2016
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	31 6	31 6	39 8	39 8	54 15
Trt-Eval Interval	0 DA-E	0 DA-E	0 DA-D	0 DA-D	17 DA-D
Days After Emergence	23 DE-1	23 DE-1	31 DE-1	31 DE-1	46 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code	7	8	9
28 Untreated Check	0 h	0 i	0 c	0 g	0 h
LSD P=.05	3.7	6.6	2.4	15.4	10.9
Standard Deviation	2.7	4.7	1.7	10.9	7.7
CV	70.23	5.33	93.24	13.34	9.57
Bartlett's X2	10.157	32.738	4.558	64.079	33.606
P(Bartlett's X2)	0.897	0.11	0.602	0.001*	0.04*
Skewness	1.0055*	-3.0252*	2.3709*	-2.1224*	-2.0083*
Kurtosis	0.3535	8.016*	4.1273*	3.6873*	3.6427*
Replicate F	2.630	18.110	0.894	22.349	17.803
Replicate Prob(F)	0.0557	0.0001	0.4480	0.0001	0.0001
Treatment F	7.463	115.054	25.507	20.414	43.771
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001

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Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11	Location: Medaryville Trial Year: 2016
Protocol ID: 16S-MED-SOY-11	Investigator: Dr. Bill Johnson
Project ID:	Study Director: Joe Ikley
	Sponsor Contact:

Pest Type		W Weed	
Pest Code		AMAPA	
Pest Scientific Name		Amaranthus pal>	
Pest Name		Carelessweed	
Crop Code			
Crop Name			
Part Rated		PLOT P	
Rating Date		Jul-25-2016	
Rating Type		CONTRO	
Rating Unit		%	
Number of Subsamples		1	
Days After First/Last Applic.		67 28	
Trt-Eval Interval		28 DA-D	
Days After Emergence		59 DE-1	
ARM Action Codes		P	
Number of Decimals		0	
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	12
1 Untreated Check			0 j
2 ZIDUA	3 oz/a A		51 f-i
OUTLOOK	10 fl oz/a B		
ROUNDUP POWERMAX	32 fl oz/a B		
N-PAK - AMS	2.5 % v/v B		
3 OUTLOOK	14 fl oz/a A		31 i
OUTLOOK	10 fl oz/a B		
ROUNDUP POWERMAX	32 fl oz/a B		
N-PAK - AMS	2.5 % v/v B		
4 VERDICT	5 oz/a A		49 ghi
OUTLOOK	10 fl oz/a A		
OUTLOOK	10 fl oz/a B		
ROUNDUP POWERMAX	32 fl oz/a B		
N-PAK - AMS	2.5 % v/v B		
5 OPTILL PRO @ 12 OZ/A			36 hi
OPTILL	2 oz/a A		
OUTLOOK	10 fl oz/a A		
OUTLOOK	10 fl oz/a B		
ROUNDUP POWERMAX	32 fl oz/a B		
N-PAK - AMS	2.5 % v/v B		
6 ZIDUA PRO @ 4 OZ/A			63 efg
ZIDUA	2 oz/a A		
OPTILL	2 oz/a A		
OUTLOOK	10 fl oz/a B		
ROUNDUP POWERMAX	32 fl oz/a B		
N-PAK - AMS	2.5 % v/v B		

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Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed	
Pest Code	AMAPA	
Pest Scientific Name	Amaranthus pal>	
Pest Name	Carelessweed	
Crop Code		
Crop Name		
Part Rated	PLOT P	
Rating Date	Jul-25-2016	
Rating Type	CONTRO	
Rating Unit	%	
Number of Subsamples	1	
Days After First/Last Applic.	67 28	
Trt-Eval Interval	28 DA-D	
Days After Emergence	59 DE-1	
ARM Action Codes	P	
Number of Decimals	0	
Trt Treatment No. Name	Rate Unit Appl Code	12
7 PROWL H2O	1.5 pt/a A	53 e-i
SPARTAN	8 fl oz/a A	
OUTLOOK	10 fl oz/a B	
ROUNDUP POWERMAX	32 fl oz/a B	
N-PAK - AMS	2.5 % v/v B	
8 ZIDUA	2 oz/a A	50 f-i
AUTHORITY XL	4 oz/a A	
OUTLOOK	10 fl oz/a B	
ROUNDUP POWERMAX	32 fl oz/a B	
N-PAK - AMS	2.5 % v/v B	
9 ZIDUA	2 oz/a A	70 d-g
AUTHORITY FIRST	8 oz/a A	
OUTLOOK	10 fl oz/a B	
ROUNDUP POWERMAX	32 fl oz/a B	
N-PAK - AMS	2.5 % v/v B	
10 VALOR XLT	3.5 oz/a A	99 a
ZIDUA	2 oz/a B	
FLEXSTAR GT 3.5	4.5 pt/a B	
MSO ULTRA	1 % v/v B	
N-PAK - AMS	2.5 % v/v B	
COBRA	12.5 fl oz/a D	
PRIME OIL - COC	1 % v/v D	
11 ENVIVE @ 4 OZ/A		99 a
CLASSIC	1.44 oz/a A	
HARMONY SG	0.228 oz/a A	
VALOR SX	2.24 oz/a A	
OUTLOOK	14 oz/a B	
FLEXSTAR GT 3.5	4.5 pt/a B	
MSO ULTRA	1 % v/v B	
N-PAK - AMS	2.5 % v/v B	
COBRA	12.5 fl oz/a D	
PRIME OIL - COC	1 % v/v D	
12 VALOR SX	2 oz/a A	99 a
ZIDUA	2 oz/a B	
FLEXSTAR GT 3.5	4.5 pt/a B	
MSO ULTRA	1 % v/v B	
N-PAK - AMS	2.5 % v/v B	
COBRA	12.5 fl oz/a D	
PRIME OIL - COC	1 % v/v D	
13 OUTLOOK	14 fl oz/a A	59 e-h
OUTLOOK	10 fl oz/a B	
FLEXSTAR GT 3.5	4.5 pt/a B	
MSO ULTRA	1 % v/v B	
N-PAK - AMS	2.5 % v/v B	

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Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed
Pest Code	AMAPA
Pest Scientific Name	Amaranthus pal>
Pest Name	Carelessweed
Crop Code	
Crop Name	
Part Rated	PLOT P
Rating Date	Jul-25-2016
Rating Type	CONTRO
Rating Unit	%
Number of Subsamples	1
Days After First/Last Applic.	67 28
Trt-Eval Interval	28 DA-D
Days After Emergence	59 DE-1
ARM Action Codes	P
Number of Decimals	0
Trt Treatment	Rate Appl
No. Name	Rate Unit Code
	12
14 AUTHORITY FIRST	6.5 oz/a A
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
92 a-d	
15 FIERCE	4 oz/a A
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
98 ab	
16 OPTILL PRO @ 12 OZ/A	
OPTILL	2 oz/a A
OUTLOOK	10 fl oz/a A
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
98 ab	
17 FIERCE XLT	4 oz/a A
COBRA	12 fl oz/a C
ROUNDUP POWERMAX	32 fl oz/a C
PRIME OIL - COC	1 % v/v C
N-PAK - AMS	2.5 % v/v C
73 c-f	
18 FIERCE XLT	4 oz/a A
ULTRA BLAZER	1.5 pt/a C
ROUNDUP POWERMAX	32 fl oz/a C
N-PAK - AMS	2.5 % v/v C
64 efg	
19 FIERCE XLT	4 oz/a A
EXTREME	3 pt/a C
ACTIVATOR 90 - NIS	0.125 % v/v C
N-PAK - AMS	2.5 % v/v C
53 e-i	
20 VALOR XLT	3.5 oz/a A
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
92 a-d	
21 FIERCE XLT	4 oz/a A
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
92 a-d	

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type	W Weed
Pest Code	AMAPA
Pest Scientific Name	Amaranthus pal>
Pest Name	Carelessweed
Crop Code	
Crop Name	
Part Rated	PLOT P
Rating Date	Jul-25-2016
Rating Type	CONTRO
Rating Unit	%
Number of Subsamples	1
Days After First/Last Applic.	67 28
Trt-Eval Interval	28 DA-D
Days After Emergence	59 DE-1
ARM Action Codes	P
Number of Decimals	0
Trt Treatment	Rate Appl
No. Name	Rate Unit Code
	12
22 VALOR XLT	3.5 oz/a A
WARRANT	3 pt/a C
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
	94 abc
23 AUTHORITY MTZ	16 oz/a A
FLEXSTAR GT 3.5	4.5 pt/a C
MSO ULTRA	1 % v/v C
N-PAK - AMS	2.5 % v/v C
COBRA	12.5 fl oz/a D
PRIME OIL - COC	1 % v/v D
	98 ab
24 ROUNDUP POWERMAX	32 fl oz/a B
PREFIX	2 pt/a B
N-PAK - AMS	2.5 % v/v B
WARRANT	3 pt/a C
COBRA	12.5 fl oz/a C
PRIME OIL - COC	1 % v/v C
	87 a-d
25 OUTLOOK	14 fl oz/a B
FLEXSTAR GT 3.5	4.5 pt/a B
MSO ULTRA	1 % v/v B
N-PAK - AMS	2.5 % v/v B
WARRANT	3 pt/a C
COBRA	12.5 fl oz/a C
PRIME OIL - COC	1 % v/v C
	90 a-d
26 ROUNDUP POWERMAX	32 fl oz/a B
PREFIX	2 pt/a B
N-PAK - AMS	2.5 % v/v B
ZIDUA	2 oz/a C
COBRA	12.5 fl oz/a C
PRIME OIL - COC	1 % v/v C
	92 a-d
27 WARRANT	3 pt/a B
FLEXSTAR GT 3.5	4.5 pt/a B
MSO ULTRA	1 % v/v B
N-PAK - AMS	2.5 % v/v B
OUTLOOK	14 fl oz/a C
COBRA	12.5 fl oz/a C
PRIME OIL - COC	1 % v/v C
	75 b-e

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11	Location: Medaryville Trial Year: 2016
Protocol ID: 16S-MED-SOY-11	Investigator: Dr. Bill Johnson
Project ID:	Study Director: Joe Ikley
	Sponsor Contact:

Pest Type	W Weed	
Pest Code	AMAPA	
Pest Scientific Name	Amaranthus pal>	
Pest Name	Carelessweed	
Crop Code		
Crop Name		
Part Rated	PLOT P	
Rating Date	Jul-25-2016	
Rating Type	CONTRO	
Rating Unit	%	
Number of Subsamples	1	
Days After First/Last Applic.	67 28	
Trt-Eval Interval	28 DA-D	
Days After Emergence	59 DE-1	
ARM Action Codes	P	
Number of Decimals	0	
Trt Treatment	Rate	Appl
No. Name	Rate Unit	Code
28 Untreated Check		12
		0 j
LSD P=.05		23.2
Standard Deviation		16.5
CV		23.58
Bartlett's X2		94.395
P(Bartlett's X2)		0.001*
Skewness		-0.9442*
Kurtosis		-0.4526
Replicate F		18.911
Replicate Prob(F)		0.0001
Treatment F		12.327
Treatment Prob(F)		0.0001

Purdue Weed Science

Glyphosate-Resistant Palmer Amaranth Programs in Roundup-Ready Beans

Trial ID: 16S-MED-SOY-11 Location: Medaryville Trial Year: 2016
Protocol ID: 16S-MED-SOY-11 Investigator: Dr. Bill Johnson
Project ID: Study Director: Joe Ikley
 Sponsor Contact:

Pest Type

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

Pest Code

AMAPA, Amaranthus palmeri, = US

Crop Code

GLXMA, BSOY, Glycine max, = 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)