

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

General Trial Information

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

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 Soybean
Variety: BECKS 29L84
Description: LL
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
Planting Date: May-19-2016
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: May-27-2016

Pest Description

Pest 1 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:** 14 **Tillage Type:** NOTILL no-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	F
Application Date:	May-19-2016	Jun-9-2016	Jun-13-2016	Jun-27-2016	Jun-19-2016	Jul-12-2016
Appl. Start Time:	12:00 PM	9:00 AM	1:45 PM	7:15 AM	1:00 PM	9:00 AM
Appl. Stop Time:	12:30 PM	9:30 AM	2:15 PM	8:15 AM	1:15 PM	9:05 AM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	E POST	M POST	L POST	M POST	LL POST
Application Placement:	BROADC	BROADC	BROADC	BROADC	BROADC	BROADC
Applied By:	DS	TC	TC	TL	JI	JI
Air Temperature, Unit:	67 F	60 F	84 F	68 F	88 F	73 F
% Relative Humidity:	25	50	25	90	35	85
Wind Velocity, Unit:	2 MPH	5 MPH	1 MPH	1 MPH	5 MPH	5 MPH
Wind Direction:	NE	E	SSE	WSW	SSW	S
Dew Presence (Y/N):	N no	N no	N no	Y yes	N no	Y yes
Soil Temperature, Unit:	60 F	64 F	75 F	70 F	80 F	78 F
Soil Moisture:	NORMAL	NORMAL	DRY	DRY	DRY	DRY
% Cloud Cover:	10	50	0	30	50	30

Crop Stage At Each Application

	A	B	C	D	E	F
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:		13	14	16	15	61
Stage Minimum, Percent:		12	13	14	14	61
Stage Maximum, Percent:		13	14	16	15	65
Height, Unit:		4 IN	5 IN	10 IN	8 IN	21 IN
Height Minimum, Maximum:		3 5	4 6	8 12	6 10	18 24

Pest Stage At Each Application

	A	B	C	D	E	F
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent:		32G	33G	33G	34G	36G
Stage Minimum, Percent:		31G	31G	32G	32G	34G
Stage Maximum, Percent:		34G	36G	61	35G	65
Height, Unit:		1.75 IN	5 IN	3.5 IN	2 IN	24 IN
Height Minimum, Maximum:		0.25 3	1 9	2 5	1 3	6 36
Density, Unit:		100 YD2	100 YD2	50 YD2	15 YD2	30 YD2

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Application Equipment

	A	B	C	D	E	F
Appl. Equipment:	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:	BACSPR	BACSPR	BACSPR	BACSPR	BACSPR	BACSPR
Operation Pressure, Unit:	18 PSI	18 PSI	18 PSI	18 PSI	18 PSI	18 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	XR 11002	XR 11002	XR 11002	XR 11002	XR 11002	XR 11002
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN	15 IN	15 IN	15 IN
Nozzles/Row:	8	8	8	8	8	8
Boom Length, Unit:	10 FT	10 FT	10 FT	10 FT	10 FT	10 FT
Boom Height, Unit:	17 IN	17 IN	17 IN	17 IN	17 IN	17 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH	3 MPH	3 MPH	3 MPH
Carrier:	MEIGS	MEIGS	MEIGS	MEIGS	MEIGS	MEIGS
Spray Volume, Unit:	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac
Mix Size, Unit:	1.8 liters	1.8 liters	1.8 liters	1.8 liters	1.8 liters	1.8 liters
Propellant:	CO2	CO2	CO2	CO2	CO2	CO2

Date	By	Notes
Jul-12-2016		APP "F" IS A SECOND POST ON TREATMENTS 13 AND 14

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	Rate Unit	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check								101	212	313	411
2	AUTHORITY FIRST	70 %		DF	6.5 oz/a		A	5.842 g/mx	102	211	305	412
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
3	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		D	45.0 ml/mx	103	213	301	413
	LIBERTY 280 SL	76 %		WG	3.5 oz/a		A	3.145 g/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		C	45.0 ml/mx				
4	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx	104	203	312	408
	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		B	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		D	45.0 ml/mx				
5	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		B	27.19 ml/mx	105	210	303	414
	PREFIX	5.29 LB/GAL		EC	2 pt/a		B	30.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		B	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		E	27.19 ml/mx				
	WARRANT	3 LB/GAL		EC	3 pt/a		E	45.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	L		2.5 % v/v		E	45.0 ml/mx				

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 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 Unit	Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
6	OPTILL PRO @ 12 OZ/A								106	202	307	402
	OPTILL	68 %		WG	2 oz/a		A	1.797 g/mx				
	OUTLOOK	6 LB/GAL		EC	10 oz/a		A	9.375 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		D	45.0 ml/mx					
7	ENVIVE @ 4 OZ/A								107	201	302	410
	CLASSIC	25 %	AW/W	DF	1.44 oz/a		A	1.294 g/mx				
	HARMONY SG	50 %		SG	0.228 oz/a		A	0.2049 g/mx				
	VALOR	51 %		WG	2.24 oz/a		A	2.013 g/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		B	27.19 ml/mx				
	OUTLOOK	6 LB/GAL		EC	14 fl oz/a		B	13.12 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		B	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		D	45.0 ml/mx					
8	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		B	27.19 ml/mx	108	204	306	403
	OUTLOOK	6 LB/GAL		EC	14 fl oz/a		B	13.12 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		B	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		E	27.19 ml/mx				
	WARRANT	3 LB/GAL		EC	3 pt/a		E	45.0 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		E	45.0 ml/mx				
9	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx	109	208	309	405
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		D	45.0 ml/mx				
10	ANTHEM MAXX	4.3 LB/GAL		SE	4 oz/a		A	3.75 ml/mx	110	207	311	401
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		D	45.0 ml/mx					
11	AUTHORITY XL	70 %		DF	5 oz/a		A	4.493 g/mx	111	209	314	406
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	ANTHEM MAXX	4.3 LB/GAL		SE	2 oz/a		C	1.875 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		D	45.0 ml/mx					
12	AUTHORITY XL	70 %		DF	5 oz/a		A	4.493 g/mx	112	214	304	407
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	CADET	0.91 LB/GAL		EC	0.5 oz/a		C	0.4687 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		D	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		D	45.0 ml/mx				
13	TRICOR 4L	4 LB/GAL		L	0.68 pt/a		A	10.2 ml/mx	113	205	308	409
	SATELLITE HYDROCAP	3.8 LB/GAL		L	1.92 pt/a		A	28.8 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		C	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		C	45.0 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	29 fl oz/a		F	27.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		L	2.5 % v/v		F	45.0 ml/mx				

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Pest Type	Pest Code	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 Carelessweed		W Weed AMAPA Carelessweed		W Weed AMAPA Carelessweed			
															GLXMA Soybean PLOT C	PLOT P	GLXMA Soybean PLOT C	PLOT P	GLXMA Soybean PLOT C	PLOT P		
						Jun-9-2016	PHYGEN	%	1	21 21	0 DA-B	13 DE-1	P	0								
						Jun-9-2016	PHYGEN	%	1	21 21	0 DA-B	13 DE-1	P	0								
						Jun-13-2016	PHYGEN	%	1	25 4	0 DA-C	17 DE-1	P	0								
						Jun-13-2016	PHYGEN	%	1	25 4	0 DA-C	17 DE-1	P	0								
						Jun-19-2016	PHYGEN	%	1	31 6	0 DA-E	23 DE-1	P	0								
						Jun-19-2016	PHYGEN	%	1	31 6	0 DA-E	23 DE-1	P	0								
Trt Treatment	Rate	Appl																				
No. Name	Rate	Unit	Code	Plot	1	2	3	4	5	6												
				Mean =	0	0	0	0	0	0												
2 AUTHORITY FIRST	6.5 oz/a	A	102	0	80	0	70	0	95													
LIBERTY 280 SL	29 fl oz/a	C	211	0	80	0	80	5	100													
N-PAK - AMS	2.5 % v/v	C	305	0	95	0	95	0	100													
LIBERTY 280 SL	29 fl oz/a	D	412	0	90	0	75	5	95													
N-PAK - AMS	2.5 % v/v	D																				
			Mean =	0	86	0	80	3	98													
3 FIERCE	3.5 oz/a	A	103	0	80	0	80	5	100													
LIBERTY 280 SL	29 fl oz/a	C	213	0	90	0	90	0	95													
N-PAK - AMS	2.5 % v/v	C	301	0	90	0	90	0	95													
LIBERTY 280 SL	29 fl oz/a	D	413	0	85	0	70	5	100													
N-PAK - AMS	2.5 % v/v	D																				
			Mean =	0	86	0	83	3	98													
4 VALOR XLT	3.5 oz/a	A	104	0	40	5	95	5	100													
LIBERTY 280 SL	29 fl oz/a	B	203	0	50	15	95	15	100													
ZIDUA	2 oz/a	B	312	0	60	25	100	10	100													
N-PAK - AMS	2.5 % v/v	B	408	0	50	5	95	5	100													
LIBERTY 280 SL	29 fl oz/a	D																				
N-PAK - AMS	2.5 % v/v	D																				
			Mean =	0	50	13	96	9	100													
5 LIBERTY 280 SL	29 fl oz/a	B	105	0	0	35	95	10	95													
PREFIX	2 pt/a	B	210	0	0	35	95	20	95													
N-PAK - AMS	2.5 % v/v	B	303	0	0	30	95	10	100													
LIBERTY 280 SL	29 fl oz/a	E	414	0	0	30	95	15	90													
WARRANT	3 pt/a	E																				
N-PAK - AMS	2.5 % v/v	E																				
			Mean =	0	0	33	95	14	95													
6 OPTILL PRO @ 12 OZ/A			106	0	90	0	95	0	99													
OPTILL	2 oz/a	A	202	0	90	0	85	0	95													
OUTLOOK	10 oz/a	A	307	0	95	0	90	5	95													
LIBERTY 280 SL	29 fl oz/a	C	402	0	95	0	85	0	100													
N-PAK - AMS	2.5 % v/v	C																				
LIBERTY 280 SL	29 fl oz/a	D																				
N-PAK - AMS	2.5 % v/v	D																				
			Mean =	0	93	0	89	1	97													
7 ENVIVE @ 4 OZ/A			107	0	80	5	95	5	95													
CLASSIC	1.44 oz/a	A	201	0	70	5	95	5	100													
HARMONY SG	0.228 oz/a	A	302	0	65	5	95	0	100													
VALOR	2.24 oz/a	A	410	0	85	5	95	5	95													
LIBERTY 280 SL	29 fl oz/a	B																				
OUTLOOK	14 fl oz/a	B																				
N-PAK - AMS	2.5 % v/v	B																				
LIBERTY 280 SL	29 fl oz/a	D																				
N-PAK - AMS	2.5 % v/v	D																				
			Mean =	0	75	5	95	4	98													

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															AMAPA	Carelessweed	AMAPA	Carelessweed	AMAPA	Carelessweed
		GLXMA	GLXMA	GLXMA			PHYGEN	PHYGEN	PHYGEN			PHYGEN	PHYGEN	PHYGEN			PHYGEN	PHYGEN	PHYGEN	
		Soybean	Soybean	Soybean																
		PLOT C	PLOT C	PLOT C			PLOT P	PLOT P	PLOT P			PLOT P	PLOT P	PLOT P			PLOT C	PLOT C	PLOT P	
		Jun-9-2016	Jun-9-2016	Jun-13-2016			Jun-13-2016	Jun-13-2016	Jun-19-2016			Jun-19-2016	Jun-19-2016	Jun-19-2016			Jun-19-2016	Jun-19-2016	Jun-19-2016	
		%	%	%			%	%	%			%	%	%			%	%	%	
		1	1	1			1	1	1			1	1	1			1	1	1	
		21 21	21 21	25 4			25 4	31 6	31 6			0 DA-B	0 DA-E	0 DA-E			0 DA-E	0 DA-E	0 DA-E	
		13 DE-1	13 DE-1	17 DE-1			17 DE-1	23 DE-1	23 DE-1			P	P	P			P	P	P	
		0	0	0			0	0	0			0	0	0			0	0	0	
Trt Treatment	Rate	Appl																		
No. Name	Rate	Unit	Code	Plot	1	2	3	4	5	6										
8 LIBERTY 280 SL	29 fl oz/a	B	108		0	0	5	95	5	95										
OUTLOOK	14 fl oz/a	B	204		0	0	5	95	5	95										
N-PAK - AMS	2.5 % v/v	B	306		0	0	5	55	5	95										
LIBERTY 280 SL	29 fl oz/a	E	403		0	0	5	90	5	90										
WARRANT	3 pt/a	E																		
N-PAK - AMS	2.5 % v/v	E																		
					Mean =	0	0	5	84	5										
9 LIBERTY 280 SL	29 fl oz/a	C	109		0	0	0	0	0	95										
N-PAK - AMS	2.5 % v/v	C	208		0	0	0	0	0	90										
LIBERTY 280 SL	29 fl oz/a	D	309		0	0	0	0	0	90										
N-PAK - AMS	2.5 % v/v	D	405		0	0	0	0	0	85										
					Mean =	0	0	0	0	90										
10 ANTHEM MAXX	4 oz/a	A	110		0	90	0	80	0	95										
LIBERTY 280 SL	29 fl oz/a	C	207		0	90	0	90	5	95										
N-PAK - AMS	2.5 % v/v	C	311		0	90	0	85	0	100										
LIBERTY 280 SL	29 fl oz/a	D	401		0	90	5	80	0	99										
N-PAK - AMS	2.5 % v/v	D																		
					Mean =	0	90	1	84	1										
11 AUTHORITY XL	5 oz/a	A	111		0	80	0	60	10	95										
LIBERTY 280 SL	29 fl oz/a	C	209		0	80	0	70	5	100										
ANTHEM MAXX	2 oz/a	C	314		0	80	0	60	10	95										
N-PAK - AMS	2.5 % v/v	C	406		0	90	0	85	10	100										
LIBERTY 280 SL	29 fl oz/a	D																		
N-PAK - AMS	2.5 % v/v	D																		
					Mean =	0	83	0	69	9										
12 AUTHORITY XL	5 oz/a	A	112		0	90	0	60	10	100										
LIBERTY 280 SL	29 fl oz/a	C	214		0	85	0	70	10	100										
CADET	0.5 oz/a	C	304		0	85	0	80	5	100										
N-PAK - AMS	2.5 % v/v	C	407		0	95	0	90	5	95										
LIBERTY 280 SL	29 fl oz/a	D																		
N-PAK - AMS	2.5 % v/v	D																		
					Mean =	0	89	0	75	8										
13 TRICOR 4L	0.68 pt/a	A	113		0	95	0	80	0	95										
SATELLITE HYDROCAP	1.92 pt/a	A	205		0	95	0	95	5	100										
LIBERTY 280 SL	29 fl oz/a	C	308		0	95	0	90	0	100										
N-PAK - AMS	2.5 % v/v	C	409		0	90	0	85	0	100										
LIBERTY 280 SL	29 fl oz/a	F																		
N-PAK - AMS	2.5 % v/v	F																		
					Mean =	0	94	0	88	1										
14 TRICOR 4L	0.68 pt/a	A	114		0	90	0	70	0	95										
SATELLITE HYDROCAP	1.92 pt/a	A	206		0	90	0	85	0	99										
INTERLINE	29 fl oz/a	C	310		0	95	0	85	0	95										
N-PAK - AMS	2.5 % v/v	C	404		0	90	0	90	0	99										
INTERLINE	29 fl oz/a	F																		
N-PAK - AMS	2.5 % v/v	F																		
					Mean =	0	91	0	83	0										

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed	W Weed	W Weed
Pest Code		AMAPA	AMAPA	AMAPA
Pest Name		Carelessweed	Carelessweed	Carelessweed
Crop Code	GLXMA			
Crop Name	Soybean			
Part Rated	PLOT C	PLOT P	PLOT P	PLOT P
Rating Date	Jun-27-2016	Jun-27-2016	Jul-12-2016	Jul-25-2016
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	39 8	39 8	54 15	67 13
Trt-Eval Interval	0 DA-D	0 DA-D	15 DA-D	28 DA-D
Days After Emergence	31 DE-1	31 DE-1	46 DE-1	59 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 Untreated Check	101		0	0
	212		0	0
	313		0	0
	411		0	0

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed	W Weed	W Weed
Pest Code		AMAPA	AMAPA	AMAPA
Pest Name		Carelessweed	Carelessweed	Carelessweed
Crop Code	GLXMA			
Crop Name	Soybean			
Part Rated	PLOT C	PLOT P	PLOT P	PLOT P
Rating Date	Jun-27-2016	Jun-27-2016	Jul-12-2016	Jul-25-2016
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	39 8	39 8	54 15	67 13
Trt-Eval Interval	0 DA-D	0 DA-D	15 DA-D	28 DA-D
Days After Emergence	31 DE-1	31 DE-1	46 DE-1	59 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	7	8
			9	10
			0	0
			0	0
2 AUTHORITY FIRST	6.5 oz/a A	102	0	95
LIBERTY 280 SL	29 fl oz/a C	211	0	95
N-PAK - AMS	2.5 % v/v C	305	5	95
LIBERTY 280 SL	29 fl oz/a D	412	5	85
N-PAK - AMS	2.5 % v/v D			90
		Mean =	3	93
3 FIERCE	3.5 oz/a A	103	0	95
LIBERTY 280 SL	29 fl oz/a C	213	0	90
N-PAK - AMS	2.5 % v/v C	301	5	90
LIBERTY 280 SL	29 fl oz/a D	413	5	90
N-PAK - AMS	2.5 % v/v D			95
		Mean =	3	91
4 VALOR XLT	3.5 oz/a A	104	5	90
LIBERTY 280 SL	29 fl oz/a B	203	5	100
ZIDUA	2 oz/a B	312	5	95
N-PAK - AMS	2.5 % v/v B	408	5	90
LIBERTY 280 SL	29 fl oz/a D			85
N-PAK - AMS	2.5 % v/v D			95
		Mean =	5	94
5 LIBERTY 280 SL	29 fl oz/a B	105	5	100
PREFIX	2 pt/a B	210	10	100
N-PAK - AMS	2.5 % v/v B	303	5	100
LIBERTY 280 SL	29 fl oz/a E	414	10	100
WARRANT	3 pt/a E			100
N-PAK - AMS	2.5 % v/v E			100
		Mean =	8	100
6 OPTILL PRO @ 12 OZ/A		106	0	95
OPTILL	2 oz/a A	202	5	95
OUTLOOK	10 oz/a A	307	0	90
LIBERTY 280 SL	29 fl oz/a C	402	0	85
N-PAK - AMS	2.5 % v/v C			95
LIBERTY 280 SL	29 fl oz/a D			80
N-PAK - AMS	2.5 % v/v D			95
		Mean =	1	91
7 ENVIVE @ 4 OZ/A		107	0	90
CLASSIC	1.44 oz/a A	201	0	90
HARMONY SG	0.228 oz/a A	302	5	95
VALOR	2.24 oz/a A	410	5	80
LIBERTY 280 SL	29 fl oz/a B			95
OUTLOOK	14 fl oz/a B			95
N-PAK - AMS	2.5 % v/v B			95
LIBERTY 280 SL	29 fl oz/a D			95
N-PAK - AMS	2.5 % v/v D			95
		Mean =	3	89
			95	96

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed	W Weed	W Weed
Pest Code		AMAPA	AMAPA	AMAPA
Pest Name		Carelessweed	Carelessweed	Carelessweed
Crop Code	GLXMA			
Crop Name	Soybean			
Part Rated	PLOT C	PLOT P	PLOT P	PLOT P
Rating Date	Jun-27-2016	Jun-27-2016	Jul-12-2016	Jul-25-2016
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	39 8	39 8	54 15	67 13
Trt-Eval Interval	0 DA-D	0 DA-D	15 DA-D	28 DA-D
Days After Emergence	31 DE-1	31 DE-1	46 DE-1	59 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	7	8
8 LIBERTY 280 SL	29 fl oz/a	B 108	5	100
OUTLOOK	14 fl oz/a	B 204	0	100
N-PAK - AMS	2.5 % v/v	B 306	0	100
LIBERTY 280 SL	29 fl oz/a	E 403	0	100
WARRANT	3 pt/a	E		95
N-PAK - AMS	2.5 % v/v	E		95
		Mean =	1	96
9 LIBERTY 280 SL	29 fl oz/a	C 109	0	80
N-PAK - AMS	2.5 % v/v	C 208	0	65
LIBERTY 280 SL	29 fl oz/a	D 309	0	60
N-PAK - AMS	2.5 % v/v	D 405	0	60
		Mean =	0	66
10 ANTHEM MAXX	4 oz/a	A 110	0	75
LIBERTY 280 SL	29 fl oz/a	C 207	0	90
N-PAK - AMS	2.5 % v/v	C 311	5	85
LIBERTY 280 SL	29 fl oz/a	D 401	0	85
N-PAK - AMS	2.5 % v/v	D		90
		Mean =	1	84
11 AUTHORITY XL	5 oz/a	A 111	0	90
LIBERTY 280 SL	29 fl oz/a	C 209	5	90
ANTHEM MAXX	2 oz/a	C 314	5	90
N-PAK - AMS	2.5 % v/v	C 406	5	95
LIBERTY 280 SL	29 fl oz/a	D		95
N-PAK - AMS	2.5 % v/v	D		80
		Mean =	4	91
12 AUTHORITY XL	5 oz/a	A 112	5	95
LIBERTY 280 SL	29 fl oz/a	C 214	5	85
CADET	0.5 oz/a	C 304	5	95
N-PAK - AMS	2.5 % v/v	C 407	0	90
LIBERTY 280 SL	29 fl oz/a	D		90
N-PAK - AMS	2.5 % v/v	D		85
		Mean =	4	91
13 TRICOR 4L	0.68 pt/a	A 113	0	90
SATELLITE HYDROCAP	1.92 pt/a	A 205	5	90
LIBERTY 280 SL	29 fl oz/a	C 308	0	90
N-PAK - AMS	2.5 % v/v	C 409	0	85
LIBERTY 280 SL	29 fl oz/a	F		40
N-PAK - AMS	2.5 % v/v	F		70
		Mean =	1	89
14 TRICOR 4L	0.68 pt/a	A 114	0	85
SATELLITE HYDROCAP	1.92 pt/a	A 206	5	95
INTERLINE	29 fl oz/a	C 310	0	85
N-PAK - AMS	2.5 % v/v	C 404	0	90
INTERLINE	29 fl oz/a	F		75
N-PAK - AMS	2.5 % v/v	F		95
		Mean =	1	89

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

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
Rating Unit
 % = percent
ARM Action Codes
 P = Rating scale of 0 to 100 (e.g. % control or injury)

Pest Type		W Weed AMAPA Carelessweed		W Weed AMAPA Carelessweed		W Weed AMAPA Carelessweed
Pest Code						
Pest Name						
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-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016	Jun-19-2016	Jun-19-2016
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Days After First/Last Applic.	21 21	21 21	25 4	25 4	31 6	31 6
Trt-Eval Interval	0 DA-B	0 DA-B	0 DA-C	0 DA-C	0 DA-E	0 DA-E
Days After Emergence	13 DE-1	13 DE-1	17 DE-1	17 DE-1	23 DE-1	23 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
1 Untreated Check			0 -	0 e	0 c	0 d
2 AUTHORITY FIRST	6.5 oz/a A		0 -	86 ab	0 c	80 abc
LIBERTY 280 SL	29 fl oz/a C					3 cd
N-PAK - AMS	2.5 % v/v C					
LIBERTY 280 SL	29 fl oz/a D					
N-PAK - AMS	2.5 % v/v D					
3 FIERCE	3.5 oz/a A		0 -	86 ab	0 c	83 abc
LIBERTY 280 SL	29 fl oz/a C					3 cd
N-PAK - AMS	2.5 % v/v C					
LIBERTY 280 SL	29 fl oz/a D					
N-PAK - AMS	2.5 % v/v D					
4 VALOR XLT	3.5 oz/a A		0 -	50 d	13 b	96 a
LIBERTY 280 SL	29 fl oz/a B					9 b
ZIDUA	2 oz/a B					
N-PAK - AMS	2.5 % v/v B					
LIBERTY 280 SL	29 fl oz/a D					
N-PAK - AMS	2.5 % v/v D					
5 LIBERTY 280 SL	29 fl oz/a B		0 -	0 e	33 a	95 ab
PREFIX	2 pt/a B					14 a
N-PAK - AMS	2.5 % v/v B					
LIBERTY 280 SL	29 fl oz/a E					
WARRANT	3 pt/a E					
N-PAK - AMS	2.5 % v/v E					
6 OPTILL PRO @ 12 OZ/A			0 -	93 a	0 c	89 abc
OPTILL	2 oz/a A					1 d
OUTLOOK	10 oz/a A					
LIBERTY 280 SL	29 fl oz/a C					
N-PAK - AMS	2.5 % v/v C					
LIBERTY 280 SL	29 fl oz/a D					
N-PAK - AMS	2.5 % v/v D					

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Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed		W Weed		W Weed		
Pest Code		AMAPA		AMAPA		AMAPA		
Pest Name		Carelessweed		Carelessweed		Carelessweed		
Crop Code	GLXMA							
Crop Name	Soybean							
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P	PLOT P	
Rating Date	Jun-9-2016	Jun-9-2016	Jun-13-2016	Jun-13-2016	Jun-19-2016	Jun-19-2016	Jun-19-2016	
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	
Rating Unit	%	%	%	%	%	%	%	
Number of Subsamples	1	1	1	1	1	1	1	
Days After First/Last Applic.	21 21	21 21	25 4	25 4	31 6	31 6	31 6	
Trt-Eval Interval	0 DA-B	0 DA-B	0 DA-C	0 DA-C	0 DA-E	0 DA-E	0 DA-E	
Days After Emergence	13 DE-1	13 DE-1	17 DE-1	17 DE-1	23 DE-1	23 DE-1	23 DE-1	
ARM Action Codes	P	P	P	P	P	P	P	
Number of Decimals	0	0	0	0	0	0	0	
Trt Treatment No. Name	Rate	Appl Code	1	2	3	4	5	6
7 ENVIVE @ 4 OZ/A CLASSIC HARMONY SG VALOR LIBERTY 280 SL OUTLOOK N-PAK - AMS LIBERTY 280 SL N-PAK - AMS	1.44 oz/a 0.228 oz/a 2.24 oz/a 29 fl oz/a 14 fl oz/a 2.5 % v/v 29 fl oz/a 2.5 % v/v	A A A B B B D D	0 -	75 c	5 c	95 ab	4 bcd	98 a
8 LIBERTY 280 SL OUTLOOK N-PAK - AMS LIBERTY 280 SL WARRANT N-PAK - AMS	29 fl oz/a 14 fl oz/a 2.5 % v/v 29 fl oz/a 3 pt/a 2.5 % v/v	B B B E E E	0 -	0 e	5 c	84 abc	5 bcd	94 ab
9 LIBERTY 280 SL N-PAK - AMS LIBERTY 280 SL N-PAK - AMS	29 fl oz/a 2.5 % v/v 29 fl oz/a 2.5 % v/v	C C D D	0 -	0 e	0 c	0 d	0 d	90 b
10 ANTHEM MAXX LIBERTY 280 SL N-PAK - AMS LIBERTY 280 SL N-PAK - AMS	4 oz/a 29 fl oz/a 2.5 % v/v 29 fl oz/a 2.5 % v/v	A C C D D	0 -	90 ab	1 c	84 abc	1 d	97 a
11 AUTHORITY XL LIBERTY 280 SL ANTHEM MAXX N-PAK - AMS LIBERTY 280 SL N-PAK - AMS	5 oz/a 29 fl oz/a 2 oz/a 2.5 % v/v 29 fl oz/a 2.5 % v/v	A C C C D D	0 -	83 b	0 c	69 c	9 b	98 a
12 AUTHORITY XL LIBERTY 280 SL CADET N-PAK - AMS LIBERTY 280 SL N-PAK - AMS	5 oz/a 29 fl oz/a 0.5 oz/a 2.5 % v/v 29 fl oz/a 2.5 % v/v	A C C C D D	0 -	89 ab	0 c	75 bc	8 bc	99 a
13 TRICOR 4L SATELLITE HYDROCAP LIBERTY 280 SL N-PAK - AMS LIBERTY 280 SL N-PAK - AMS	0.68 pt/a 1.92 pt/a 29 fl oz/a 2.5 % v/v 29 fl oz/a 2.5 % v/v	A A C C F F	0 -	94 a	0 c	88 abc	1 d	99 a

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed		W Weed		W Weed			
Pest Code		AMAPA		AMAPA		AMAPA			
Pest Name		Carelessweed		Carelessweed		Carelessweed			
Crop Code	GLXMA								
Crop Name	Soybean								
Part Rated	PLOT C	PLOT P		PLOT C	PLOT P	PLOT C	PLOT P		
Rating Date	Jun-9-2016	Jun-9-2016		Jun-13-2016	Jun-13-2016	Jun-19-2016	Jun-19-2016		
Rating Type	PHYGEN	PHYGEN		PHYGEN	PHYGEN	PHYGEN	PHYGEN		
Rating Unit	%	%		%	%	%	%		
Number of Subsamples	1	1		1	1	1	1		
Days After First/Last Applic.	21 21	21 21		25 4	25 4	31 6	31 6		
Trt-Eval Interval	0 DA-B	0 DA-B		0 DA-C	0 DA-C	0 DA-E	0 DA-E		
Days After Emergence	13 DE-1	13 DE-1		17 DE-1	17 DE-1	23 DE-1	23 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 TRICOR 4L	0.68	pt/a	A	0 -	91 ab	0 c	83 abc	0 d	97 a
SATELLITE HYDROCAP	1.92	pt/a	A						
INTERLINE	29	fl oz/a	C						
N-PAK - AMS	2.5	% v/v	C						
INTERLINE	29	fl oz/a	F						
N-PAK - AMS	2.5	% v/v	F						
LSD P=.05	.			6.4	4.0	12.5	3.8	4.0	
Standard Deviation	0.0			4.5	2.8	8.7	2.6	2.8	
CV	0.0			7.53	69.8	11.98	65.39	3.08	
Bartlett's X2	0.0			10.021	6.553	14.469	4.018	2.284	
P(Bartlett's X2)	.			0.264	0.038*	0.107	0.91	0.997	
Skewness	.			-0.7589*	2.6395*	-1.6676*	1.2214*	-3.3171*	
Kurtosis	.			-1.2901*	5.9516*	1.3902*	1.4119*	9.5989*	
Replicate F	0.000			1.729	0.511	0.899	1.789	0.623	
Replicate Prob(F)	1.0000			0.1769	0.6771	0.4505	0.1651	0.6047	
Treatment F	0.000			327.166	40.616	53.067	10.194	351.529	
Treatment Prob(F)	1.0000			0.0001	0.0001	0.0001	0.0001	0.0001	

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06	Location: Medaryville Trial Year: 2016
Protocol ID: 16S-MED-SOY-06	Investigator: Dr. Bill Johnson
Project ID: HP16USAWGK	Study Director: Joe Ikley
	Sponsor Contact: Bayer - Alan Kurtz

Pest Type				W Weed	W Weed	W Weed
Pest Code				AMAPA	AMAPA	AMAPA
Pest Name				Carelessweed	Carelessweed	Carelessweed
Crop Code	GLXMA					
Crop Name	Soybean					
Part Rated	PLOT C			PLOT P	PLOT P	PLOT P
Rating Date	Jun-27-2016			Jun-27-2016	Jul-12-2016	Jul-25-2016
Rating Type	PHYGEN			PHYGEN	PHYGEN	PHYGEN
Rating Unit	%			%	%	%
Number of Subsamples	1			1	1	1
Days After First/Last Applic.	39 8			39 8	54 15	67 13
Trt-Eval Interval	0 DA-D			0 DA-D	15 DA-D	28 DA-D
Days After Emergence	31 DE-1			31 DE-1	46 DE-1	59 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	7	8	9
1 Untreated Check				0 b	0 d	0 e
2 AUTHORITY FIRST	6.5 oz/a	A		3 ab	93 ab	94 a
LIBERTY 280 SL	29 fl oz/a	C				96 a
N-PAK - AMS	2.5 % v/v	C				
LIBERTY 280 SL	29 fl oz/a	D				
N-PAK - AMS	2.5 % v/v	D				
3 FIERCE	3.5 oz/a	A		3 ab	91 ab	93 a
LIBERTY 280 SL	29 fl oz/a	C				88 a
N-PAK - AMS	2.5 % v/v	C				
LIBERTY 280 SL	29 fl oz/a	D				
N-PAK - AMS	2.5 % v/v	D				
4 VALOR XLT	3.5 oz/a	A		5 ab	94 ab	91 a
LIBERTY 280 SL	29 fl oz/a	B				89 a
ZIDUA	2 oz/a	B				
N-PAK - AMS	2.5 % v/v	B				
LIBERTY 280 SL	29 fl oz/a	D				
N-PAK - AMS	2.5 % v/v	D				
5 LIBERTY 280 SL	29 fl oz/a	B		8 a	100 a	100 a
PREFIX	2 pt/a	B				98 a
N-PAK - AMS	2.5 % v/v	B				
LIBERTY 280 SL	29 fl oz/a	E				
WARRANT	3 pt/a	E				
N-PAK - AMS	2.5 % v/v	E				
6 OPTILL PRO @ 12 OZ/A				1 b	91 ab	91 a
OPTILL	2 oz/a	A				89 a
OUTLOOK	10 oz/a	A				
LIBERTY 280 SL	29 fl oz/a	C				
N-PAK - AMS	2.5 % v/v	C				
LIBERTY 280 SL	29 fl oz/a	D				
N-PAK - AMS	2.5 % v/v	D				

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed	W Weed	W Weed
Pest Code		AMAPA	AMAPA	AMAPA
Pest Name		Carelessweed	Carelessweed	Carelessweed
Crop Code	GLXMA			
Crop Name	Soybean			
Part Rated	PLOT C	PLOT P	PLOT P	PLOT P
Rating Date	Jun-27-2016	Jun-27-2016	Jul-12-2016	Jul-25-2016
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	39 8	39 8	54 15	67 13
Trt-Eval Interval	0 DA-D	0 DA-D	15 DA-D	28 DA-D
Days After Emergence	31 DE-1	31 DE-1	46 DE-1	59 DE-1
ARM Action Codes	P	P	P	P
Number of Decimals	0	0	0	0
Trt Treatment No. Name	Rate	Unit	Appl Code	
7 ENVIVE @ 4 OZ/A				7
CLASSIC	1.44 oz/a	A		
HARMONY SG	0.228 oz/a	A		
VALOR	2.24 oz/a	A		
LIBERTY 280 SL	29 fl oz/a	B		
OUTLOOK	14 fl oz/a	B		
N-PAK - AMS	2.5 % v/v	B		
LIBERTY 280 SL	29 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
8 LIBERTY 280 SL	29 fl oz/a	B		8
OUTLOOK	14 fl oz/a	B		
N-PAK - AMS	2.5 % v/v	B		
LIBERTY 280 SL	29 fl oz/a	E		
WARRANT	3 pt/a	E		
N-PAK - AMS	2.5 % v/v	E		
9 LIBERTY 280 SL	29 fl oz/a	C		9
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	29 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
10 ANTHEM MAXX	4 oz/a	A		10
LIBERTY 280 SL	29 fl oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	29 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
11 AUTHORITY XL	5 oz/a	A		11
LIBERTY 280 SL	29 fl oz/a	C		
ANTHEM MAXX	2 oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	29 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
12 AUTHORITY XL	5 oz/a	A		12
LIBERTY 280 SL	29 fl oz/a	C		
CADET	0.5 oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	29 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
13 TRICOR 4L	0.68 pt/a	A		13
SATELLITE HYDROCAP	1.92 pt/a	A		
LIBERTY 280 SL	29 fl oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	29 fl oz/a	F		
N-PAK - AMS	2.5 % v/v	F		
				3 ab
				89 b
				95 a
				96 a
				1 b
				100 a
				96 a
				96 a
				0 b
				66 c
				74 b
				64 b
				1 b
				84 b
				88 a
				88 a
				4 ab
				91 ab
				91 a
				86 a
				4 ab
				91 ab
				89 a
				89 a
				1 b
				89 b
				55 d
				80 a

Purdue Weed Science

Liberty-Link Soybean Programs for control of Glyphosate-Resistant Palmer amaranth

Trial ID: 16S-MED-SOY-06 Location: Medaryville Trial Year: 2016
 Protocol ID: 16S-MED-SOY-06 Investigator: Dr. Bill Johnson
 Project ID: HP16USAWGK Study Director: Joe Ikley
 Sponsor Contact: Bayer - Alan Kurtz

Pest Type		W Weed	W Weed	W Weed
Pest Code		AMAPA	AMAPA	AMAPA
Pest Name		Carelessweed	Carelessweed	Carelessweed
Crop Code	GLXMA			
Crop Name	Soybean			
Part Rated	PLOT C	PLOT P	PLOT P	PLOT P
Rating Date	Jun-27-2016	Jun-27-2016	Jul-12-2016	Jul-25-2016
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	39 8	39 8	54 15	67 13
Trt-Eval Interval	0 DA-D	0 DA-D	15 DA-D	28 DA-D
Days After Emergence	31 DE-1	31 DE-1	46 DE-1	59 DE-1
ARM Action Codes	P	P	P	P
Number of Decimals	0	0	0	0
Trt Treatment				
No. Name	Rate Unit Appl Code	7	8	9
14 TRICOR 4L	0.68 pt/a A	1 b	89 b	64 c
SATELLITE HYDROCAP	1.92 pt/a A			90 a
INTERLINE	29 fl oz/a C			
N-PAK - AMS	2.5 % v/v C			
INTERLINE	29 fl oz/a F			
N-PAK - AMS	2.5 % v/v F			
LSD P=.05	3.3	6.5	8.3	10.8
Standard Deviation	2.3	4.5	5.8	7.5
CV	96.73	5.44	7.23	9.2
Bartlett's X2	0.298	9.444	12.542	20.044
P(Bartlett's X2)	1.00	0.491	0.324	0.066
Skewness	0.6771*	-2.7808*	-2.137*	-2.5004*
Kurtosis	-0.5254	7.0583*	4.1458*	5.672*
Replicate F	1.177	1.762	0.962	5.171
Replicate Prob(F)	0.3310	0.1703	0.4205	0.0042
Treatment F	3.088	124.293	83.540	44.346
Treatment Prob(F)	0.0032	0.0001	0.0001	0.0001

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Sponsor Contact: Bayer - Alan Kurtz

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

Rating Unit

% = percent

ARM Action Codes

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