

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

General Trial Information

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

Discipline: H herbicide
Trial Status: E established
Initiation Date: Nov-10-2015

Trial Location

City: Butlerville **Country:** USA United States
State/Prov.: Indiana
Postal Code: 47723

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Dustin Johnson **Title:** Research Associate
Organization: Purdue University
Address: 915 W. State Street
City+State/Prov: West Lafayette, IN
Postal Code: 47907 **E-mail:** john1357@purdue.edu
Country: USA United States

Investigator: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
Address: 915 W. State Street
City+State/Prov: West Lafayette, IN
Postal Code: 47907 **E-mail:** wgj@purdue.edu
Country: USA United States

Cooperator/Landowner

Cooperator: Southeast Purdue Ag Center
Organization: Purdue University
Address 1: 4425 E County Rd. 250 N.
City: Butlerville **Phone No.:** (812) 458-6977
State/Prov: IN
Postal Code: 47723
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Enlist 27E15G9 **BBCH Scale:** BSOY
Description: 2,4-D Tolerant
Seed Shape: ROUND
Planting Rate, Unit: 140000 S/A
Depth, Unit: 1 IN
Row Spacing, Unit: 30 IN
Soil Temperature, Unit: 67.3 F
Soil Moisture: SLIWET slightly wet, moist
Planting Date: May-26-2016
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: May-31-2016

Pest Description

Pest 1 Type: W **Code:** ERICA Conyza canadensis
Common Name: Canada horseweed

Pest 2 Type: W **Code:** TARSS Taraxacum sp.
Common Name: Dandelion

Pest 3 Type: W **Code:** SENGL Senecio glabellus
Common Name: Cressleaf groundsel

Pest 4 Type: W **Code:** PANDI Panicum dichotomiflorum
Common Name: Fall panicum

Pest 5 Type: W **Code:** DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Site and Design

Treated Plot Width: 6.67 FT
Treated Plot Length: 30 FT
Treated Plot Area: 200.1 FT² **Treatments:** 20
Replications: 4
Site Type: FIELD field
Experimental Unit: 1 PLOT plot
Tillage Type: NOTILL no-till
Study Design: RACOB Randomized Complete Block (RCB)

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Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit	Tank Mix Code	Tank Mix
1.	May-23-2016	Select Max	0.97	L	16	FL OZ/A	N	no

Comment: 5/23/16 M. Zimmer applied Select Max at 16 fl oz/a, AMS (2.5%) and NIS (.25%) to control grasses that over ran trial. 7/1/16 Sprayed alley ways.

Soil Description

Description Name: SEPAC-Field U4
 % Sand: 20 % OM: 1.8 **Texture:** SIL silt loam
 % Silt: 65 pH: 5.6 **Soil Name:** Avonburg
 % Clay: 15 CEC: 6.7 **Fert. Level:** G good
 Soil Drainage: P poor

Application Description

	A	B	C	D
Application Date:	Nov-10-2015	May-13-2016	May-27-2016	Jun-24-2016
Appl. Start Time:	12:15 PM	10:55 AM	9:30 AM	1:30 PM
Appl. Stop Time:	1:00 PM	11:05 AM	10:30 AM	2:30 PM
Interval to Prev. Appl., Unit:		185 DAYS	14 DAYS	28 DAYS
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	FALL	7PP "B"	PRE "C"	POST "D"
Application Placement:	BROADC	BROADC	BROADC	BROADC
Applied By:	D. JOHNSON	M. ZIMMER	D. JOHNSON	P. DEVKOTA
Air Temperature, Unit:	46 F	59 F	74 F	82 F
% Relative Humidity:	93	62	83	60
Wind Velocity, Unit:	3 MPH	8 MPH	8 MPH	6 MPH
Wind Direction:	WSW	WNW	S	N
Dew Presence (Y/N):	N no		N no	N no
Soil Temperature, Unit:	58 F	63 F	66 F	88 F
Soil Moisture:	WET	WET	SLIWET	SLIWET
% Cloud Cover:	95	40	50	50

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:				BBCH
Stage Majority, Percent:				13
Stage Minimum, Percent:				12
Stage Maximum, Percent:				13
Height, Unit:				7 IN
Height Minimum, Maximum:				6 8

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Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale:	ERICA W	ERICA W	ERICA W	ERICA W
Stage Majority, Percent:		30		
Height, Unit:		2 IN	4.5 IN	5 IN
Height Minimum, Maximum:		1 3	3 6	2 8
Density, Unit:	0 YD2	18 YD2	90 YD2	189 YD2
Pest 2 Code, Type, Scale:	TARSS W	TARSS W	TARSS W	TARSS W
Stage Majority, Percent:	17	65	67	
Stage Minimum, Percent:	14			
Stage Maximum, Percent:	19			
Diameter, Unit:	2 IN			4 IN
Height, Unit:		6 IN	8 IN	
Height Minimum, Maximum:			6 10	
Density, Unit:	42 YD2	18 YD2	18 YD2	27 YD2
Pest 3 Code, Type, Scale:	SENGL W	SENGL W	SENGL W	SENGL W
Stage Majority, Percent:	19			
Stage Minimum, Percent:	17			
Stage Maximum, Percent:	19			
Diameter, Unit:	4 IN			
Density, Unit:	5 YD2			
Pest 4 Code, Type, Scale:	PANDI W	PANDI W	PANDI W	PANDI W
Height, Unit:				3 IN
Height Minimum, Maximum:				0.5 6
Density, Unit:				148 YD2
Pest 5 Code, Type, Scale:	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Height, Unit:				2 IN
Height Minimum, Maximum:				0.5 4
Density, Unit:				148 YD2

Application Equipment

	A	B	C	D
Appl. Equipment:	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:	BACSPR	BACSPR	BACSPR	BACSPR
Operation Pressure, Unit:	18 PSI	42 PSI	42 PSI	24 PSI
Nozzle Type:	FLAT FAN	AIXR	AIXR	FLAT FAN
Nozzle Size:	XR11002	AIXR11001	AIXR11001	XR11002
Nozzle Spacing, Unit:	20 IN	20 IN	20 IN	20 IN
Nozzles/Row:	4	4	4	4
Boom Length, Unit:	6.67 FT	6.7 FT	6.7 FT	6.7 FT
Boom Height, Unit:	17 IN	17 IN	17 IN	17 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH	6 MPH
Carrier:	WATER	WATER	WATER	WATER
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size, Unit:	119 mL	1119 mL	119 mL	1119 mL
Propellant:	COMCO2	COMCO2	COMCO2	COMCO2

Date By Notes

Nov-10-2015 D. JOHNSON Setup Trial
 Nov-25-2015 D. JOHNSON Rated Trial 14DAT: Very low weed densities and patchy. Very few plants in check strips (No untreated checks). No horseweed.
 Dec-10-2015 D. JOHNSON Rated Trial 28 DAT: Warmer temps in between rating dates. There was new horseweed emergence.
 May-13-2016 M. ZIMMER Sprayed: 7DPP Applications
 May-26-2016 T. LEGLIETE Planted: Was delayed due to excessive rain and moisture saturation.
 May-27-2016 D. JOHNSON Sprayed: Pre "C" Application. Horseweed patchy 0-21 square foot. Most 7 DPP plots clean.
 Jun-24-2016 P. DEVKOTA Sprayed: Post "D" Application. Horseweed in treatment 20 2-6". Average height 4".
 Jun-24-2016 T. CAMPBELL Rated Trial: 0-DAT"D". Weed efficacy and counts. Plot 101 higher density of grass.
 Jul-8-2016 T. CAMPBELL Rated Trial: 14-DAT"D". Weed efficacy and counts.

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Jul-27-2016 T. CAMPBELL Rated Trial: 35-DAT"D". Weed efficacy and counts. T. Campbell did weed counts/D. Johnson rated. Rated Trial: 35-DAT"D".

Trial Comments

Reps: 4 Plots: 6.67 by 30 feet
 Spray vol: 15 GAL/AC Mix Size: 1119 mL (calculated mix size 1043.3)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	2,4-D LV4	4 LBAE/GAL	L	L	0.5 lb ae/a	A	9.324 ml/mx	101	408	510	709
	CLARITY	4 LBAE/GAL	L	L	0.25 lb ae/a	A	4.662 ml/mx				
	ACTIVATOR 90 - NIS	90 %	L	L	0.25 % v/v	A	2.797 ml/mx				
	ENLIST DUO	3.34 LBAE/GAL	SL	L	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %	WG	WG	4.5 oz/a	C	2.514 g/mx				
	TRICOR	75 %	DF	DF	6 oz/a	C	3.352 g/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	C	27.97 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	1.5 lb ae/a	D	24.86 ml/mx				
N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	D	27.97 ml/mx					
2	2,4-D LV4	4 LBAE/GAL	L	L	0.5 lb ae/a	A	9.324 ml/mx	102	306	501	806
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	A	27.97 ml/mx				
	ENLIST DUO	3.34 LBAE/GAL	SL	L	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %	WG	WG	4.5 oz/a	C	2.514 g/mx				
	TRICOR	75 %	DF	DF	6 oz/a	C	3.352 g/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	C	27.97 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	1.5 lb ae/a	D	24.86 ml/mx				
N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	D	27.97 ml/mx					
3	2,4-D LV4	4 LBAE/GAL	L	L	0.5 lb ae/a	A	9.324 ml/mx	103	304	504	807
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	A	27.97 ml/mx				
	2,4-D LV4	4 LBAE/GAL	L	L	0.5 lb ae/a	B	9.324 ml/mx				
	GRAMOXONE SL	2 LBAE/GAL	SL	L	3 pt/a	B	27.97 ml/mx				
	SONIC	70 %	WG	WG	4.5 oz/a	B	2.514 g/mx				
	TRICOR	75 %	DF	DF	6 oz/a	B	3.352 g/mx				
	ACTIVATOR 90 - NIS	90 %	L	L	0.25 % v/v	B	2.797 ml/mx				
ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	1.5 lb ae/a	D	24.86 ml/mx					
N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	D	27.97 ml/mx					
4	2,4-D LV4	4 LBAE/GAL	L	L	0.5 lb ae/a	A	9.324 ml/mx	104	302	607	710
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	A	27.97 ml/mx				
	2,4-D LV4	4 LBAE/GAL	L	L	0.5 lb ae/a	B	9.324 ml/mx				
	GRAMOXONE SL	2 LBAE/GAL	SL	L	3 pt/a	B	27.97 ml/mx				
	SONIC	70 %	WG	WG	4.5 oz/a	B	2.514 g/mx				
	ACTIVATOR 90 - NIS	90 %	L	L	0.25 % v/v	B	2.797 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL	SL	SL	32 fl oz/a	D	18.65 ml/mx				
N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	D	27.97 ml/mx					
5	SHARPEN	2.85 LB/GAL	CS	CS	1 fl oz/a	A	0.5828 ml/mx	105	402	609	707
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	16 fl oz/a	A	9.325 ml/mx				
	MSO ULTRA	100 %	L	L	1 % v/v	A	11.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	A	27.97 ml/mx				
	SHARPEN	2.85 LB/GAL	CS	CS	1 fl oz/a	C	0.5828 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL	SL	SL	0.75 lb ae/a	C	12.43 ml/mx				
	MSO ULTRA	100 %	L	L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	C	27.97 ml/mx				
	SONIC	70 %	WG	WG	4.5 oz/a	C	2.514 g/mx				
	ENLIST DUO	3.34 LBAE/GAL	SL	L	4 pt/a	D	37.3 ml/mx				
N-PAK - AMS	3.4 LBA/GAL	SL	SL	2.5 % v/v	D	27.97 ml/mx					

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Reps: 4 Plots: 6.67 by 30 feet
 Spray vol: 15 GAL/AC Mix Size: 1119 mL (calculated mix size 1043.3)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Unit	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
6	2,4-D LV4	4	LBAE/GAL	L	0.5 lb ae/a	A	9.324 ml/mx	106	403	508	809
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	A	27.97 ml/mx				
	SHARPEN	2.85	LB/GAL	CS	1 fl oz/a	C	0.5828 ml/mx				
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	0.75 lb ae/a	C	12.43 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	C	27.97 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	D	37.3 ml/mx				
N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	D	27.97 ml/mx					
7	2,4-D LV4	4	LBAE/GAL	L	0.5 lb ae/a	A	9.324 ml/mx	107	401	608	803
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	A	27.97 ml/mx				
	SHARPEN	2.85	LB/GAL	CS	1 fl oz/a	C	0.5828 ml/mx				
	GRAMOXONE SL	2	LBAE/GAL	SL	3 pt/a	C	27.97 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	C	27.97 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	D	37.3 ml/mx				
N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	D	27.97 ml/mx					
8	SHARPEN	2.85	LB/GAL	CS	1 fl oz/a	A	0.5828 ml/mx	108	305	507	704
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	16 fl oz/a	A	9.325 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	A	11.19 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	A	27.97 ml/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	C	27.97 ml/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	D	37.3 ml/mx				
N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	D	27.97 ml/mx					
9	CLARITY	4	LBAE/GAL	L	0.25 lb ae/a	A	4.662 ml/mx	109	301	509	705
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	A	27.97 ml/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	C	27.97 ml/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	D	37.3 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	D	27.97 ml/mx				
10	SHARPEN	2.85	LB/GAL	CS	1 fl oz/a	A	0.5828 ml/mx	110	410	503	808
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	16 fl oz/a	A	9.325 ml/mx				
	MSO ULTRA	100 %		L	1 % v/v	A	11.19 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	A	27.97 ml/mx				
	2,4-D LV4	4	LBAE/GAL	L	0.5 lb ae/a	B	9.324 ml/mx				
	GRAMOXONE SL	2	LBAE/GAL	SL	3 pt/a	B	27.97 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	B	2.514 g/mx				
	PRIME OIL - COC	99.47 %		L	1 % v/v	B	11.19 ml/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	D	37.3 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	D	27.97 ml/mx				
11	CLARITY	4	LBAE/GAL	L	0.25 lb ae/a	A	4.662 ml/mx	201	409	601	802
	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	16 fl oz/a	A	9.325 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	A	27.97 ml/mx				
	ENLIST DUO	3.34	LBAE/GAL	SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	C	27.97 ml/mx				
	LIBERTY 280 SL	2.34	LB/GAL	SL	32 fl oz/a	D	18.65 ml/mx				
	N-PAK - AMS	3.4	LBA/GAL	SL	2.5 % v/v	D	27.97 ml/mx				

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Reps: 4		Plots: 6.67 by 30 feet									
Spray vol: 15 GAL/AC		Mix Size: 1119 mL (calculated mix size 1043.3)									
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Appl Code	Amt to Measure	Rep 1	Rep 2	Rep 3	Rep 4
12	SHARPEN	2.85 LB/GAL		CS	1 fl oz/a	C	0.5828 ml/mx	202	405	604	702
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	TRICOR	75 %		DF	6 oz/a	C	3.352 g/mx				
	MSO ULTRA	100 %		L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	1.5 lb ae/a	D	24.86 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
13	SHARPEN	2.85 LB/GAL		CS	1 fl oz/a	C	0.5828 ml/mx	203	310	506	804
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	MSO ULTRA	100 %		L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	32 fl oz/a	D	18.65 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
14	SHARPEN	2.85 LB/GAL		CS	1 fl oz/a	C	0.5828 ml/mx	204	309	502	805
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	MSO ULTRA	100 %		L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	D	37.3 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
15	SHARPEN	2.85 LB/GAL		CS	1 fl oz/a	C	0.5828 ml/mx	205	406	603	708
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx				
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	MSO ULTRA	100 %		L	1 % v/v	C	11.19 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	32 fl oz/a	D	18.65 ml/mx				
	WEEDAR 64	3.8 LBAE/GAL		L	0.8 lb ae/a	D	15.7 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
16	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx	206	307	605	810
	SONIC	70 %		WG	4.5 oz/a	C	2.514 g/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	D	37.3 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
17	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx	207	404	602	701
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	D	37.3 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
18	ENLIST DUO	3.34 LBAE/GAL		SL	4 pt/a	C	37.3 ml/mx	208	303	610	703
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	32 fl oz/a	D	18.65 ml/mx				
	WEEDAR 64	3.8 LBAE/GAL		L	0.8 lb ae/a	D	15.7 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
19	LIBERTY 280 SL	2.34 LB/GAL		SL	32 fl oz/a	C	18.65 ml/mx	209	308	505	706
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	LIBERTY 280 SL	2.34 LB/GAL		SL	32 fl oz/a	D	18.65 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				
20	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	1.5 lb ae/a	C	24.86 ml/mx	210	407	606	801
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	C	27.97 ml/mx				
	ROUNDUP POWERMAX	4.5 LBAE/GAL		SL	1.5 lb ae/a	D	24.86 ml/mx				
	N-PAK - AMS	3.4 LBA/GAL		SL	2.5 % v/v	D	27.97 ml/mx				

Sort Order: Replicate 1

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

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

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

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
104.895	ml	2,4-D LV4	4	L	
17.482	ml	CLARITY	4	L	
10.489	ml	ACTIVATOR 90 - NIS	90	L	
979.124	ml	ENLIST DUO	3.34	SL	
50.282	g	SONIC	70	WG	
16.761	g	TRICOR	75	DF	
1,643.353	ml	N-PAK - AMS	3.4	SL	
334.122	ml	ROUNDUP POWERMAX	4.5	SL	
139.875	ml	GRAMOXONE SL	2	SL	
163.187	ml	LIBERTY 280 SL	2.34	SL	
7.285	ml	SHARPEN	2.85	CS	
139.860	ml	MSO ULTRA	100	L	
13.986	ml	PRIME OIL - COC	99.47	L	
39.259	ml	WEEDAR 64	3.8	L	

* 'Per area' calculations based on spray volume= 15 GAL/AC, mix size= 1119 mL (mix size basis).

* Product amount calculations increased 25 % for overage adjustment.

* 'Per volume' calculations use spray volume= 15 GAL/AC, mix size= 1119 mL.

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canad>	Taraxacum sp.	Senecio glabel>
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	2	3	4	5	6
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 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	2	3	4
1 2,4-D LV4	0.5 lb ae/a A	101	10	.	.
CLARITY	0.25 lb ae/a A	408	40	0	.
ACTIVATOR 90 - NIS	0.25 % v/v A	510	30	30	.
ENLIST DUO	4 pt/a C	709	20	10	.
SONIC	4.5 oz/a C				50
TRICOR	6 oz/a C				
N-PAK - AMS	2.5 % v/v C				
ROUNDUP POWERMAX	1.5 lb ae/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		25	13	.
2 2,4-D LV4	0.5 lb ae/a A	102	30	.	.
ROUNDUP POWERMAX	16 fl oz/a A	306	30	.	.
N-PAK - AMS	2.5 % v/v A	501	20	.	.
ENLIST DUO	4 pt/a C	806	20	.	.
SONIC	4.5 oz/a C				85
TRICOR	6 oz/a C				
N-PAK - AMS	2.5 % v/v C				
ROUNDUP POWERMAX	1.5 lb ae/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		25	.	53

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	2	3	4	5	6
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 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	2	3	4
3 2,4-D LV4	0.5 lb ae/a A	103	25	.	.
ROUNDUP POWERMAX	16 fl oz/a A	304	20	.	.
N-PAK - AMS	2.5 % v/v A	504	30	.	.
2,4-D LV4	0.5 lb ae/a B	807	35	.	.
GRAMOXONE SL	3 pt/a B				
SONIC	4.5 oz/a B				
TRICOR	6 oz/a B				
ACTIVATOR 90 - NIS	0.25 % v/v B				
ROUNDUP POWERMAX	1.5 lb ae/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		28	.	63
4 2,4-D LV4	0.5 lb ae/a A	104	20	.	.
ROUNDUP POWERMAX	16 fl oz/a A	302	25	.	.
N-PAK - AMS	2.5 % v/v A	607	60	.	.
2,4-D LV4	0.5 lb ae/a B	710	0	0	.
GRAMOXONE SL	3 pt/a B				
SONIC	4.5 oz/a B				
ACTIVATOR 90 - NIS	0.25 % v/v B				
LIBERTY 280 SL	32 fl oz/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		26	0	48
5 SHARPEN	1 fl oz/a A	105	.	.	.
ROUNDUP POWERMAX	16 fl oz/a A	402	95	.	100
MSO ULTRA	1 % v/v A	609	.	.	.
N-PAK - AMS	2.5 % v/v A	707	60	80	100
SHARPEN	1 fl oz/a C				
ROUNDUP POWERMAX	0.75 lb ae/a C				
MSO ULTRA	1 % v/v C				
N-PAK - AMS	2.5 % v/v C				
SONIC	4.5 oz/a C				
ENLIST DUO	4 pt/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		78	80	100
6 2,4-D LV4	0.5 lb ae/a A	106	40	.	.
ROUNDUP POWERMAX	16 fl oz/a A	403	30	.	.
N-PAK - AMS	2.5 % v/v A	508	20	.	.
SHARPEN	1 fl oz/a C	809	55	.	.
ROUNDUP POWERMAX	0.75 lb ae/a C				
MSO ULTRA	1 % v/v C				
N-PAK - AMS	2.5 % v/v C				
SONIC	4.5 oz/a C				
ENLIST DUO	4 pt/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		36	.	70

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL		
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>		
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	2	3	4	5	6		
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30		
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A		
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1		
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 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	2	3	4	5	6
7 2,4-D LV4	0.5 lb ae/a	A 107	60	.	.	90	.
ROUNDUP POWERMAX	16 fl oz/a	A 401	10	.	.	35	.
N-PAK - AMS	2.5 % v/v	A 608	40	.	.	65	.
SHARPEN	1 fl oz/a	C 803	.	0	0	.	.
GRAMOXONE SL	3 pt/a	C	.	.	.	.	.
MSO ULTRA	1 % v/v	C	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	C	.	.	.	.	.
SONIC	4.5 oz/a	C	.	.	.	.	.
ENLIST DUO	4 pt/a	D	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	D	.	.	.	.	.
Mean =			37	0	0	63	.
8 SHARPEN	1 fl oz/a	A 108	90	80	.	100	95
ROUNDUP POWERMAX	16 fl oz/a	A 305	.	.	.	.	.
MSO ULTRA	1 % v/v	A 507	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	A 704	100	80	.	100	100
ENLIST DUO	4 pt/a	C	.	.	.	.	.
SONIC	4.5 oz/a	C	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	C	.	.	.	.	.
ENLIST DUO	4 pt/a	D	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	D	.	.	.	.	.
Mean =			95	80	.	100	98
9 CLARITY	0.25 lb ae/a	A 109	60	40	.	85	90
ROUNDUP POWERMAX	16 fl oz/a	A 301	20	.	.	30	.
N-PAK - AMS	2.5 % v/v	A 509	30	45	.	70	100
ENLIST DUO	4 pt/a	C 705	50	60	.	90	100
SONIC	4.5 oz/a	C	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	C	.	.	.	.	.
ENLIST DUO	4 pt/a	D	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	D	.	.	.	.	.
Mean =			40	48	.	69	97
10 SHARPEN	1 fl oz/a	A 110	90	.	.	100	.
ROUNDUP POWERMAX	16 fl oz/a	A 410	.	.	.	.	.
MSO ULTRA	1 % v/v	A 503	.	.	0	.	.
N-PAK - AMS	2.5 % v/v	A 808	100	.	.	100	.
2,4-D LV4	0.5 lb ae/a	B	.	.	.	.	.
GRAMOXONE SL	3 pt/a	B	.	.	.	.	.
SONIC	4.5 oz/a	B	.	.	.	.	.
PRIME OIL - COC	1 % v/v	B	.	.	.	.	.
ENLIST DUO	4 pt/a	D	.	.	.	.	.
N-PAK - AMS	2.5 % v/v	D	.	.	.	.	.
Mean =			95	.	0	100	.

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	2	3	4	5	6
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 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	2	3	4
11 CLARITY	0.25 lb ae/a	A 201	15	.	.
ROUNDUP POWERMAX	16 fl oz/a	A 409	40	50	.
N-PAK - AMS	2.5 % v/v	A 601	25	.	0
ENLIST DUO	4 pt/a	C 802	20	.	.
SONIC	4.5 oz/a	C			75
N-PAK - AMS	2.5 % v/v	C			
LIBERTY 280 SL	32 fl oz/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		25	50	0
12 SHARPEN	1 fl oz/a	C 202	0	.	.
ENLIST DUO	4 pt/a	C 405	0	.	.
SONIC	4.5 oz/a	C 604	15	10	0
TRICOR	6 oz/a	C 702	10	.	0
MSO ULTRA	1 % v/v	C			0
N-PAK - AMS	2.5 % v/v	C			
ROUNDUP POWERMAX	1.5 lb ae/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		6	10	0
13 SHARPEN	1 fl oz/a	C 203	0	.	.
ENLIST DUO	4 pt/a	C 310	0	.	0
SONIC	4.5 oz/a	C 506	0	.	0
MSO ULTRA	1 % v/v	C 804	0	.	0
N-PAK - AMS	2.5 % v/v	C			
LIBERTY 280 SL	32 fl oz/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		0	.	0
14 SHARPEN	1 fl oz/a	C 204	0	.	.
ENLIST DUO	4 pt/a	C 309	0	.	0
SONIC	4.5 oz/a	C 502	0	.	0
MSO ULTRA	1 % v/v	C 805	10	0	0
N-PAK - AMS	2.5 % v/v	C			
ENLIST DUO	4 pt/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		3	0	0
15 SHARPEN	1 fl oz/a	C 205	0	.	.
ENLIST DUO	4 pt/a	C 406	0	.	.
SONIC	4.5 oz/a	C 603	.	.	0
MSO ULTRA	1 % v/v	C 708	10	.	0
N-PAK - AMS	2.5 % v/v	C			25
LIBERTY 280 SL	32 fl oz/a	D			
WEEDAR 64	0.8 lb ae/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		3	.	6

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL			
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>			
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean			
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -			
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1			
SE Group No.	2	3	4	5	6			
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30			
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A			
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1			
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 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	2	3	4	5	6	
16 ENLIST DUO	4 pt/a	C 206	0	.	.	0	0	
SONIC	4.5 oz/a	C 307	0	.	.	0	0	
N-PAK - AMS	2.5 % v/v	C 605	10	.	0	0	0	
ENLIST DUO	4 pt/a	D 810	0	.	0	0	0	
N-PAK - AMS	2.5 % v/v	D						
	Mean =		3	.	0	0	0	
17 ENLIST DUO	4 pt/a	C 207	30	.	.	0	0	
N-PAK - AMS	2.5 % v/v	C 404	15	.	.	0	0	
ENLIST DUO	4 pt/a	D 602	15	.	0	0	.	
N-PAK - AMS	2.5 % v/v	D 701	0	.	0	0	.	
	Mean =		15	.	0	0	0	
18 ENLIST DUO	4 pt/a	C 208	10	10	.	0	0	
N-PAK - AMS	2.5 % v/v	C 303	0	.	.	0	0	
LIBERTY 280 SL	32 fl oz/a	D 610	10	20	.	0	0	
WEEDAR 64	0.8 lb ae/a	D 703	0	0	0	0	0	
N-PAK - AMS	2.5 % v/v	D						
	Mean =		5	10	0	0	0	
19 LIBERTY 280 SL	32 fl oz/a	C 209	10	.	.	0	0	
N-PAK - AMS	2.5 % v/v	C 308	0	0	.	0	0	
LIBERTY 280 SL	32 fl oz/a	D 505	5	.	0	0	.	
N-PAK - AMS	2.5 % v/v	D 706	10	.	0	0	.	
	Mean =		6	0	0	0	0	
20 ROUNDUP POWERMAX	1.5 lb ae/a	C 210	0	.	.	0	.	
N-PAK - AMS	2.5 % v/v	C 407	0	.	.	0	.	
ROUNDUP POWERMAX	1.5 lb ae/a	D 606	10	.	0	0	0	
N-PAK - AMS	2.5 % v/v	D 801	0	.	0	0	.	
	Mean =		3	.	0	0	0	

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	7	8	9	10	11		
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14		
Trt-Eval Interval							
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 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	7	8	9	10	11
1 2,4-D LV4	0.5 lb ae/a A	101	100	100	40	100	95
CLARITY	0.25 lb ae/a A	408	95	95	100	100	95
ACTIVATOR 90 - NIS	0.25 % v/v A	510	90	100	100	95	90
ENLIST DUO	4 pt/a C	709	100	90	100	95	100
SONIC	4.5 oz/a C						
TRICOR	6 oz/a C						
N-PAK - AMS	2.5 % v/v C						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		96	96	85	98	95
2 2,4-D LV4	0.5 lb ae/a A	102	100	95	100	100	95
ROUNDUP POWERMAX	16 fl oz/a A	306	95	90	100	80	95
N-PAK - AMS	2.5 % v/v A	501	95	90	95	95	90
ENLIST DUO	4 pt/a C	806	95	95	100	100	95
SONIC	4.5 oz/a C						
TRICOR	6 oz/a C						
N-PAK - AMS	2.5 % v/v C						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		96	93	99	94	94

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	7	8	9	10	11		
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14		
Trt-Eval Interval							
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 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	7	8	9	10	11
3 2,4-D LV4	0.5 lb ae/a A	103	100	100	80	80	75
ROUNDUP POWERMAX	16 fl oz/a A	304	100	100	60	60	80
N-PAK - AMS	2.5 % v/v A	504	100	95	85	85	70
2,4-D LV4	0.5 lb ae/a B	807	100	95	100	90	85
GRAMOXONE SL	3 pt/a B						
SONIC	4.5 oz/a B						
TRICOR	6 oz/a B						
ACTIVATOR 90 - NIS	0.25 % v/v B						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		100	98	81	79	78
4 2,4-D LV4	0.5 lb ae/a A	104	85	100	95	85	100
ROUNDUP POWERMAX	16 fl oz/a A	302	90	95	95	20	100
N-PAK - AMS	2.5 % v/v A	607	85	100	80	80	95
2,4-D LV4	0.5 lb ae/a B	710	95	100	75	60	95
GRAMOXONE SL	3 pt/a B						
SONIC	4.5 oz/a B						
ACTIVATOR 90 - NIS	0.25 % v/v B						
LIBERTY 280 SL	32 fl oz/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		89	99	86	61	98
5 SHARPEN	1 fl oz/a A	105	100	95	100	95	100
ROUNDUP POWERMAX	16 fl oz/a A	402	95	95	100	95	100
MSO ULTRA	1 % v/v A	609	100	100	100	95	100
N-PAK - AMS	2.5 % v/v A	707	100	95	100	90	100
SHARPEN	1 fl oz/a C						
ROUNDUP POWERMAX	0.75 lb ae/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
SONIC	4.5 oz/a C						
ENLIST DUO	4 pt/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		99	96	100	94	100
6 2,4-D LV4	0.5 lb ae/a A	106	100	100	100	100	100
ROUNDUP POWERMAX	16 fl oz/a A	403	100	95	95	100	100
N-PAK - AMS	2.5 % v/v A	508	100	100	100	95	95
SHARPEN	1 fl oz/a C	809	100	95	100	95	100
ROUNDUP POWERMAX	0.75 lb ae/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
SONIC	4.5 oz/a C						
ENLIST DUO	4 pt/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		100	98	99	98	99

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	7	8	9	10	11		
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14		
Trt-Eval Interval							
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 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	7	8	9	10	11
7 2,4-D LV4	0.5 lb ae/a	A 107	100	100	100	95	100
ROUNDUP POWERMAX	16 fl oz/a	A 401	100	85	100	95	100
N-PAK - AMS	2.5 % v/v	A 608	100	95	100	100	100
SHARPEN	1 fl oz/a	C 803	95	95	100	95	90
GRAMOXONE SL	3 pt/a	C					
MSO ULTRA	1 % v/v	C					
N-PAK - AMS	2.5 % v/v	C					
SONIC	4.5 oz/a	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			99	94	100	96	98
8 SHARPEN	1 fl oz/a	A 108	95	100	100	100	100
ROUNDUP POWERMAX	16 fl oz/a	A 305	95	100	95	70	100
MSO ULTRA	1 % v/v	A 507	90	95	100	90	95
N-PAK - AMS	2.5 % v/v	A 704	85	100	100	100	95
ENLIST DUO	4 pt/a	C					
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			91	99	99	90	98
9 CLARITY	0.25 lb ae/a	A 109	100	100	90	100	100
ROUNDUP POWERMAX	16 fl oz/a	A 301	95	100	90	90	100
N-PAK - AMS	2.5 % v/v	A 509	90	100	95	95	95
ENLIST DUO	4 pt/a	C 705	85	100	100	95	95
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			93	100	94	95	98
10 SHARPEN	1 fl oz/a	A 110	95	100	90	85	95
ROUNDUP POWERMAX	16 fl oz/a	A 410	95	100	85	95	95
MSO ULTRA	1 % v/v	A 503	85	100	90	60	95
N-PAK - AMS	2.5 % v/v	A 808	95	95	85	90	95
2,4-D LV4	0.5 lb ae/a	B					
GRAMOXONE SL	3 pt/a	B					
SONIC	4.5 oz/a	B					
PRIME OIL - COC	1 % v/v	B					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			93	99	88	83	95

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	7	8	9	10	11		
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14		
Trt-Eval Interval							
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 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	7	8	9	10	11
11 CLARITY	0.25 lb ae/a	A 201	95	100	95	100	100
ROUNDUP POWERMAX	16 fl oz/a	A 409	100	100	90	100	100
N-PAK - AMS	2.5 % v/v	A 601	100	90	100	95	100
ENLIST DUO	4 pt/a	C 802	90	100	100	95	60
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
LIBERTY 280 SL	32 fl oz/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		96	98	96	98	90
12 SHARPEN	1 fl oz/a	C 202	100	85	100	100	100
ENLIST DUO	4 pt/a	C 405	100	80	95	95	100
SONIC	4.5 oz/a	C 604	100	80	100	100	100
TRICOR	6 oz/a	C 702	100	75	100	100	100
MSO ULTRA	1 % v/v	C					
N-PAK - AMS	2.5 % v/v	C					
ROUNDUP POWERMAX	1.5 lb ae/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		100	80	99	99	100
13 SHARPEN	1 fl oz/a	C 203	100	90	100	95	100
ENLIST DUO	4 pt/a	C 310	100	90	100	100	100
SONIC	4.5 oz/a	C 506	100	95	95	85	100
MSO ULTRA	1 % v/v	C 804	100	100	100	100	100
N-PAK - AMS	2.5 % v/v	C					
LIBERTY 280 SL	32 fl oz/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		100	94	99	95	100
14 SHARPEN	1 fl oz/a	C 204	100	90	95	100	100
ENLIST DUO	4 pt/a	C 309	100	95	85	100	100
SONIC	4.5 oz/a	C 502	100	85	100	95	100
MSO ULTRA	1 % v/v	C 805	100	100	95	100	100
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		100	93	94	99	100
15 SHARPEN	1 fl oz/a	C 205	100	95	100	90	100
ENLIST DUO	4 pt/a	C 406	100	100	90	85	100
SONIC	4.5 oz/a	C 603	95	95	100	95	100
MSO ULTRA	1 % v/v	C 708	100	95	100	95	100
N-PAK - AMS	2.5 % v/v	C					
LIBERTY 280 SL	32 fl oz/a	D					
WEEDAR 64	0.8 lb ae/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		99	96	98	91	100

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	7	8	9	10	11		
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14		
Trt-Eval Interval							
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 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	7	8	9	10	11
16 ENLIST DUO	4 pt/a	C 206	100	95	100	95	100
SONIC	4.5 oz/a	C 307	100	90	100	95	100
N-PAK - AMS	2.5 % v/v	C 605	95	100	100	100	100
ENLIST DUO	4 pt/a	D 810	95	100	100	90	100
N-PAK - AMS	2.5 % v/v	D					
	Mean =		98	96	100	95	100
17 ENLIST DUO	4 pt/a	C 207	90	95	100	95	100
N-PAK - AMS	2.5 % v/v	C 404	100	90	90	60	100
ENLIST DUO	4 pt/a	D 602	95	90	100	90	100
N-PAK - AMS	2.5 % v/v	D 701	95	70	70	60	90
	Mean =		95	86	90	76	98
18 ENLIST DUO	4 pt/a	C 208	100	90	95	85	100
N-PAK - AMS	2.5 % v/v	C 303	95	95	90	85	100
LIBERTY 280 SL	32 fl oz/a	D 610	100	90	95	95	100
WEEDAR 64	0.8 lb ae/a	D 703	90	100	85	85	100
N-PAK - AMS	2.5 % v/v	D					
	Mean =		96	94	91	88	100
19 LIBERTY 280 SL	32 fl oz/a	C 209	100	75	80	95	95
N-PAK - AMS	2.5 % v/v	C 308	100	75	90	90	90
LIBERTY 280 SL	32 fl oz/a	D 505	100	85	80	70	95
N-PAK - AMS	2.5 % v/v	D 706	90	80	90	95	95
	Mean =		98	79	85	88	94
20 ROUNDUP POWERMAX	1.5 lb ae/a	C 210	75	90	95	100	60
N-PAK - AMS	2.5 % v/v	C 407	70	100	90	90	60
ROUNDUP POWERMAX	1.5 lb ae/a	D 606	70	80	95	90	65
N-PAK - AMS	2.5 % v/v	D 801	85	65	100	85	.
	Mean =		75	84	95	91	62

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01	Location: SEPAC Trial Year: 2015
Protocol ID: 15F-SEP-SOY-01	Investigator: Dr. Bill Johnson
Project ID:	Study Director: Dustin Johnson
	Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS		
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.		
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	12	13	14	15	16		
Days After First/Last Applic.	241 14	241 14	241 14	259 32	259 32		
Trt-Eval Interval							
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	61 DP-1	61 DP-1		
Days After Emergence	38 DE-1	38 DE-1	38 DE-1	56 DE-1	56 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	12	13	14	15	16
1 2,4-D LV4	0.5 lb ae/a A	101		100	100	95	95
CLARITY	0.25 lb ae/a A	408	100	100	100	95	100
ACTIVATOR 90 - NIS	0.25 % v/v A	510	100	100	95	95	100
ENLIST DUO	4 pt/a C	709	95	100	100	90	90
SONIC	4.5 oz/a C						
TRICOR	6 oz/a C						
N-PAK - AMS	2.5 % v/v C						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
Mean =			98	100	99	94	96
2 2,4-D LV4	0.5 lb ae/a A	102	95	100	100	90	95
ROUNDUP POWERMAX	16 fl oz/a A	306	95	100	90	80	95
N-PAK - AMS	2.5 % v/v A	501	90	100	95	85	90
ENLIST DUO	4 pt/a C	806	100	100	100	90	100
SONIC	4.5 oz/a C						
TRICOR	6 oz/a C						
N-PAK - AMS	2.5 % v/v C						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
Mean =			95	100	96	86	95

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	12	13	14	15	16
Days After First/Last Applic.	241 14	241 14	241 14	259 32	259 32
Trt-Eval Interval					
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	61 DP-1	61 DP-1
Days After Emergence	38 DE-1	38 DE-1	38 DE-1	56 DE-1	56 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	12	13	14
3 2,4-D LV4	0.5 lb ae/a A	103	100	100	95
ROUNDUP POWERMAX	16 fl oz/a A	304	100	100	100
N-PAK - AMS	2.5 % v/v A	504	95	100	100
2,4-D LV4	0.5 lb ae/a B	807	100	95	100
GRAMOXONE SL	3 pt/a B				
SONIC	4.5 oz/a B				
TRICOR	6 oz/a B				
ACTIVATOR 90 - NIS	0.25 % v/v B				
ROUNDUP POWERMAX	1.5 lb ae/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		99	99	99
4 2,4-D LV4	0.5 lb ae/a A	104	100	100	95
ROUNDUP POWERMAX	16 fl oz/a A	302	100	100	95
N-PAK - AMS	2.5 % v/v A	607	100	90	90
2,4-D LV4	0.5 lb ae/a B	710	100	95	95
GRAMOXONE SL	3 pt/a B				
SONIC	4.5 oz/a B				
ACTIVATOR 90 - NIS	0.25 % v/v B				
LIBERTY 280 SL	32 fl oz/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		100	96	94
5 SHARPEN	1 fl oz/a A	105	100	100	95
ROUNDUP POWERMAX	16 fl oz/a A	402	95	100	100
MSO ULTRA	1 % v/v A	609	95	100	100
N-PAK - AMS	2.5 % v/v A	707	100	100	100
SHARPEN	1 fl oz/a C				
ROUNDUP POWERMAX	0.75 lb ae/a C				
MSO ULTRA	1 % v/v C				
N-PAK - AMS	2.5 % v/v C				
SONIC	4.5 oz/a C				
ENLIST DUO	4 pt/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		98	100	99
6 2,4-D LV4	0.5 lb ae/a A	106	100	100	100
ROUNDUP POWERMAX	16 fl oz/a A	403	100	95	95
N-PAK - AMS	2.5 % v/v A	508	100	100	100
SHARPEN	1 fl oz/a C	809	95	100	100
ROUNDUP POWERMAX	0.75 lb ae/a C				
MSO ULTRA	1 % v/v C				
N-PAK - AMS	2.5 % v/v C				
SONIC	4.5 oz/a C				
ENLIST DUO	4 pt/a D				
N-PAK - AMS	2.5 % v/v D				
	Mean =		99	99	99

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS		
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.		
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
SE Group No.	12	13	14	15	16		
Days After First/Last Applic.	241 14	241 14	241 14	259 32	259 32		
Trt-Eval Interval							
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	61 DP-1	61 DP-1		
Days After Emergence	38 DE-1	38 DE-1	38 DE-1	56 DE-1	56 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	12	13	14	15	16
7 2,4-D LV4	0.5 lb ae/a	A 107	100	100	100	100	100
ROUNDUP POWERMAX	16 fl oz/a	A 401	90	100	100	100	90
N-PAK - AMS	2.5 % v/v	A 608	95	100	100	100	100
SHARPEN	1 fl oz/a	C 803	100	100	100	90	100
GRAMOXONE SL	3 pt/a	C					
MSO ULTRA	1 % v/v	C					
N-PAK - AMS	2.5 % v/v	C					
SONIC	4.5 oz/a	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			96	100	100	98	98
8 SHARPEN	1 fl oz/a	A 108	100	100	100	100	100
ROUNDUP POWERMAX	16 fl oz/a	A 305	100	95	100	95	95
MSO ULTRA	1 % v/v	A 507	100	100	100	95	95
N-PAK - AMS	2.5 % v/v	A 704	100	100	100	100	100
ENLIST DUO	4 pt/a	C					
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			100	99	100	98	98
9 CLARITY	0.25 lb ae/a	A 109	100	100	100	100	100
ROUNDUP POWERMAX	16 fl oz/a	A 301	100	100	85	95	100
N-PAK - AMS	2.5 % v/v	A 509	100	100	100	100	100
ENLIST DUO	4 pt/a	C 705	100	100	100	90	100
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			100	100	96	96	100
10 SHARPEN	1 fl oz/a	A 110	95	100	100	95	100
ROUNDUP POWERMAX	16 fl oz/a	A 410	100	100	100	100	100
MSO ULTRA	1 % v/v	A 503	100	100	100	95	100
N-PAK - AMS	2.5 % v/v	A 808	95	100	100	95	100
2,4-D LV4	0.5 lb ae/a	B					
GRAMOXONE SL	3 pt/a	B					
SONIC	4.5 oz/a	B					
PRIME OIL - COC	1 % v/v	B					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
Mean =			98	100	100	96	100

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
SE Group No.	12	13	14	15	16
Days After First/Last Applic.	241 14	241 14	241 14	259 32	259 32
Trt-Eval Interval					
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	61 DP-1	61 DP-1
Days After Emergence	38 DE-1	38 DE-1	38 DE-1	56 DE-1	56 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	12	13	14
11 CLARITY	0.25 lb ae/a	A 201	100	100	95
ROUNDUP POWERMAX	16 fl oz/a	A 409	100	100	100
N-PAK - AMS	2.5 % v/v	A 601	100	95	95
ENLIST DUO	4 pt/a	C 802	90	100	95
SONIC	4.5 oz/a	C			
N-PAK - AMS	2.5 % v/v	C			
LIBERTY 280 SL	32 fl oz/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		98	99	98
12 SHARPEN	1 fl oz/a	C 202	80	100	100
ENLIST DUO	4 pt/a	C 405	85	100	90
SONIC	4.5 oz/a	C 604	90	95	95
TRICOR	6 oz/a	C 702	85	95	100
MSO ULTRA	1 % v/v	C			
N-PAK - AMS	2.5 % v/v	C			
ROUNDUP POWERMAX	1.5 lb ae/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		85	98	96
13 SHARPEN	1 fl oz/a	C 203	95	100	95
ENLIST DUO	4 pt/a	C 310	95	100	100
SONIC	4.5 oz/a	C 506	90	90	100
MSO ULTRA	1 % v/v	C 804	95	100	100
N-PAK - AMS	2.5 % v/v	C			
LIBERTY 280 SL	32 fl oz/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		94	98	99
14 SHARPEN	1 fl oz/a	C 204	95	100	100
ENLIST DUO	4 pt/a	C 309	100	100	100
SONIC	4.5 oz/a	C 502	90	90	90
MSO ULTRA	1 % v/v	C 805	95	100	100
N-PAK - AMS	2.5 % v/v	C			
ENLIST DUO	4 pt/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		95	98	98
15 SHARPEN	1 fl oz/a	C 205	95	100	100
ENLIST DUO	4 pt/a	C 406	90	100	100
SONIC	4.5 oz/a	C 603	100	100	100
MSO ULTRA	1 % v/v	C 708	90	100	100
N-PAK - AMS	2.5 % v/v	C			
LIBERTY 280 SL	32 fl oz/a	D			
WEEDAR 64	0.8 lb ae/a	D			
N-PAK - AMS	2.5 % v/v	D			
	Mean =		94	100	100

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS			
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.			
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean			
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -			
Rating Date	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1			
SE Group No.	12	13	14	15	16			
Days After First/Last Applic.	241 14	241 14	241 14	259 32	259 32			
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	61 DP-1	61 DP-1			
Days After Emergence	38 DE-1	38 DE-1	38 DE-1	56 DE-1	56 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	12	13	14	15	16	
16 ENLIST DUO	4 pt/a	C 206	100	100	100	100	95	
SONIC	4.5 oz/a	C 307	100	100	100	100	100	
N-PAK - AMS	2.5 % v/v	C 605	100	100	100	95	95	
ENLIST DUO	4 pt/a	D 810	100	100	95	95	95	
N-PAK - AMS	2.5 % v/v	D						
	Mean =		100	100	99	98	96	
17 ENLIST DUO	4 pt/a	C 207	100	100	100	100	100	
N-PAK - AMS	2.5 % v/v	C 404	90	100	100	80	80	
ENLIST DUO	4 pt/a	D 602	90	95	100	85	95	
N-PAK - AMS	2.5 % v/v	D 701	90	90	90	30	90	
	Mean =		93	96	98	74	91	
18 ENLIST DUO	4 pt/a	C 208	100	100	100	95	100	
N-PAK - AMS	2.5 % v/v	C 303	100	90	100	90	90	
LIBERTY 280 SL	32 fl oz/a	D 610	100	100	100	80	100	
WEEDAR 64	0.8 lb ae/a	D 703	100	95	100	100	100	
N-PAK - AMS	2.5 % v/v	D						
	Mean =		100	96	100	91	98	
19 LIBERTY 280 SL	32 fl oz/a	C 209	100	90	100	95	70	
N-PAK - AMS	2.5 % v/v	C 308	100	100	95	90	90	
LIBERTY 280 SL	32 fl oz/a	D 505	95	95	95	95	75	
N-PAK - AMS	2.5 % v/v	D 706	100	95	100	100	55	
	Mean =		99	95	98	95	73	
20 ROUNDUP POWERMAX	1.5 lb ae/a	C 210	100	100	100	50	100	
N-PAK - AMS	2.5 % v/v	C 407	100	100	100	40	100	
ROUNDUP POWERMAX	1.5 lb ae/a	D 606	100	100	90	45	100	
N-PAK - AMS	2.5 % v/v	D 801	.	.	.	10	10	
	Mean =		100	100	97	36	78	

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01	Location: SEPAC	Trial Year: 2015
Protocol ID: 15F-SEP-SOY-01	Investigator: Dr. Bill Johnson	
Project ID:	Study Director: Dustin Johnson	
	Sponsor Contact: Purdue/Ohio State	

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-26-2016	Jul-26-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	COUNT	COUNT	COUNT		
Rating Unit	%	%					
Number of Subsamples	1	1	2	2	2		
SE Group No.	17	18	19	20	21		
Days After First/Last Applic.	259 32	259 32	227 28	227 28	227 28		
Trt-Eval Interval							
Plant-Eval Interval	61 DP-1	61 DP-1	29 DP-1	29 DP-1	29 DP-1		
Days After Emergence	56 DE-1	56 DE-1	24 DE-1	24 DE-1	24 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	17	18	19	20	21
1 2,4-D LV4	0.5 lb ae/a A	101	95	95	1	1	38
CLARITY	0.25 lb ae/a A	408	100	95	0	2	1
ACTIVATOR 90 - NIS	0.25 % v/v A	510	100	95	2	0	1
ENLIST DUO	4 pt/a C	709	95	90	1	3	0
SONIC	4.5 oz/a C						
TRICOR	6 oz/a C						
N-PAK - AMS	2.5 % v/v C						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
Mean =			98	94	1	1	10
2 2,4-D LV4	0.5 lb ae/a A	102	95	95	0	1	3
ROUNDUP POWERMAX	16 fl oz/a A	306	100	80	1	1	2
N-PAK - AMS	2.5 % v/v A	501	95	85	1	4	1
ENLIST DUO	4 pt/a C	806	95	90	0	1	2
SONIC	4.5 oz/a C						
TRICOR	6 oz/a C						
N-PAK - AMS	2.5 % v/v C						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
Mean =			96	88	0	2	2

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-26-2016	Jul-26-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	COUNT	COUNT	COUNT		
Rating Unit	%	%					
Number of Subsamples	1	1	2	2	2		
SE Group No.	17	18	19	20	21		
Days After First/Last Applic.	259 32	259 32	227 28	227 28	227 28		
Trt-Eval Interval							
Plant-Eval Interval	61 DP-1	61 DP-1	29 DP-1	29 DP-1	29 DP-1		
Days After Emergence	56 DE-1	56 DE-1	24 DE-1	24 DE-1	24 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	17	18	19	20	21
3 2,4-D LV4	0.5 lb ae/a A	103	95	90	7	1	5
ROUNDUP POWERMAX	16 fl oz/a A	304	95	85	3	1	8
N-PAK - AMS	2.5 % v/v A	504	100	95	4	0	9
2,4-D LV4	0.5 lb ae/a B	807	90	90	2	0	5
GRAMOXONE SL	3 pt/a B						
SONIC	4.5 oz/a B						
TRICOR	6 oz/a B						
ACTIVATOR 90 - NIS	0.25 % v/v B						
ROUNDUP POWERMAX	1.5 lb ae/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		95	90	4	0	7
4 2,4-D LV4	0.5 lb ae/a A	104	95	90	4	0	10
ROUNDUP POWERMAX	16 fl oz/a A	302	95	80	2	1	9
N-PAK - AMS	2.5 % v/v A	607	90	80	9	1	5
2,4-D LV4	0.5 lb ae/a B	710	95	80	6	0	8
GRAMOXONE SL	3 pt/a B						
SONIC	4.5 oz/a B						
ACTIVATOR 90 - NIS	0.25 % v/v B						
LIBERTY 280 SL	32 fl oz/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		94	83	5	0	8
5 SHARPEN	1 fl oz/a A	105	95	95	0	1	1
ROUNDUP POWERMAX	16 fl oz/a A	402	95	85	0	1	2
MSO ULTRA	1 % v/v A	609	100	95	0	0	1
N-PAK - AMS	2.5 % v/v A	707	90	80	0	0	5
SHARPEN	1 fl oz/a C						
ROUNDUP POWERMAX	0.75 lb ae/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
SONIC	4.5 oz/a C						
ENLIST DUO	4 pt/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		95	89	0	0	2
6 2,4-D LV4	0.5 lb ae/a A	106	95	97	0	0	1
ROUNDUP POWERMAX	16 fl oz/a A	403	90	90	0	2	4
N-PAK - AMS	2.5 % v/v A	508	95	90	0	0	2
SHARPEN	1 fl oz/a C	809	95	95	1	0	2
ROUNDUP POWERMAX	0.75 lb ae/a C						
MSO ULTRA	1 % v/v C						
N-PAK - AMS	2.5 % v/v C						
SONIC	4.5 oz/a C						
ENLIST DUO	4 pt/a D						
N-PAK - AMS	2.5 % v/v D						
	Mean =		94	93	0	0	2

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-26-2016	Jul-26-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	COUNT	COUNT	COUNT		
Rating Unit	%	%					
Number of Subsamples	1	1	2	2	2		
SE Group No.	17	18	19	20	21		
Days After First/Last Applic.	259 32	259 32	227 28	227 28	227 28		
Trt-Eval Interval							
Plant-Eval Interval	61 DP-1	61 DP-1	29 DP-1	29 DP-1	29 DP-1		
Days After Emergence	56 DE-1	56 DE-1	24 DE-1	24 DE-1	24 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	17	18	19	20	21
7 2,4-D LV4	0.5 lb ae/a	A 107	98	95	0	0	1
ROUNDUP POWERMAX	16 fl oz/a	A 401	95	95	0	1	3
N-PAK - AMS	2.5 % v/v	A 608	95	95	0	0	1
SHARPEN	1 fl oz/a	C 803	5	100	2	0	0
GRAMOXONE SL	3 pt/a	C					
MSO ULTRA	1 % v/v	C					
N-PAK - AMS	2.5 % v/v	C					
SONIC	4.5 oz/a	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		73	96	0	0	1
8 SHARPEN	1 fl oz/a	A 108	100	95	1	0	12
ROUNDUP POWERMAX	16 fl oz/a	A 305	95	90	3	0	2
MSO ULTRA	1 % v/v	A 507	95	90	3	1	3
N-PAK - AMS	2.5 % v/v	A 704	90	95	1	1	1
ENLIST DUO	4 pt/a	C					
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		95	93	2	0	4
9 CLARITY	0.25 lb ae/a	A 109	99	95	1	1	16
ROUNDUP POWERMAX	16 fl oz/a	A 301	90	80	2	0	4
N-PAK - AMS	2.5 % v/v	A 509	98	98	1	0	2
ENLIST DUO	4 pt/a	C 705	100	90	2	1	1
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		97	91	1	0	6
10 SHARPEN	1 fl oz/a	A 110	95	95	5	1	13
ROUNDUP POWERMAX	16 fl oz/a	A 410	98	95	8	0	7
MSO ULTRA	1 % v/v	A 503	95	95	7	2	4
N-PAK - AMS	2.5 % v/v	A 808	95	95	3	0	2
2,4-D LV4	0.5 lb ae/a	B					
GRAMOXONE SL	3 pt/a	B					
SONIC	4.5 oz/a	B					
PRIME OIL - COC	1 % v/v	B					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		96	95	5	1	6

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-26-2016	Jul-26-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	COUNT	COUNT	COUNT		
Rating Unit	%	%					
Number of Subsamples	1	1	2	2	2		
SE Group No.	17	18	19	20	21		
Days After First/Last Applic.	259 32	259 32	227 28	227 28	227 28		
Trt-Eval Interval							
Plant-Eval Interval	61 DP-1	61 DP-1	29 DP-1	29 DP-1	29 DP-1		
Days After Emergence	56 DE-1	56 DE-1	24 DE-1	24 DE-1	24 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	17	18	19	20	21
11 CLARITY	0.25 lb ae/a	A 201	85	70	1	0	0
ROUNDUP POWERMAX	16 fl oz/a	A 409	100	95	1	1	7
N-PAK - AMS	2.5 % v/v	A 601	95	90	2	2	2
ENLIST DUO	4 pt/a	C 802	95	90	5	1	1
SONIC	4.5 oz/a	C					
N-PAK - AMS	2.5 % v/v	C					
LIBERTY 280 SL	32 fl oz/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		94	86	2	1	2
12 SHARPEN	1 fl oz/a	C 202	95	90	0	8	5
ENLIST DUO	4 pt/a	C 405	90	80	0	4	5
SONIC	4.5 oz/a	C 604	90	85	0	6	1
TRICOR	6 oz/a	C 702	80	80	0	6	3
MSO ULTRA	1 % v/v	C					
N-PAK - AMS	2.5 % v/v	C					
ROUNDUP POWERMAX	1.5 lb ae/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		89	84	0	6	3
13 SHARPEN	1 fl oz/a	C 203	95	90	0	5	4
ENLIST DUO	4 pt/a	C 310	95	85	0	1	1
SONIC	4.5 oz/a	C 506	90	85	1	0	11
MSO ULTRA	1 % v/v	C 804	95	90	0	1	0
N-PAK - AMS	2.5 % v/v	C					
LIBERTY 280 SL	32 fl oz/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		94	88	0	2	4
14 SHARPEN	1 fl oz/a	C 204	95	95	0	1	1
ENLIST DUO	4 pt/a	C 309	95	90	1	1	7
SONIC	4.5 oz/a	C 502	90	90	0	4	12
MSO ULTRA	1 % v/v	C 805	95	98	1	1	1
N-PAK - AMS	2.5 % v/v	C					
ENLIST DUO	4 pt/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		94	93	0	2	5
15 SHARPEN	1 fl oz/a	C 205	90	90	0	2	1
ENLIST DUO	4 pt/a	C 406	90	90	0	4	6
SONIC	4.5 oz/a	C 603	95	95	1	0	1
MSO ULTRA	1 % v/v	C 708	95	95	0	1	1
N-PAK - AMS	2.5 % v/v	C					
LIBERTY 280 SL	32 fl oz/a	D					
WEEDAR 64	0.8 lb ae/a	D					
N-PAK - AMS	2.5 % v/v	D					
	Mean =		93	93	0	2	2

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-26-2016	Jul-26-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	COUNT	COUNT	COUNT		
Rating Unit	%	%					
Number of Subsamples	1	1	2	2	2		
SE Group No.	17	18	19	20	21		
Days After First/Last Applic.	259 32	259 32	227 28	227 28	227 28		
Trt-Eval Interval							
Plant-Eval Interval	61 DP-1	61 DP-1	29 DP-1	29 DP-1	29 DP-1		
Days After Emergence	56 DE-1	56 DE-1	24 DE-1	24 DE-1	24 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	17	18	19	20	21
16 ENLIST DUO	4 pt/a	C 206	95	95	2	3	0
SONIC	4.5 oz/a	C 307	90	95	2	1	0
N-PAK - AMS	2.5 % v/v	C 605	100	100	1	2	2
ENLIST DUO	4 pt/a	D 810	100	90	2	1	1
N-PAK - AMS	2.5 % v/v	D					
	Mean =		96	95	1	2	1
17 ENLIST DUO	4 pt/a	C 207	100	95	3	16	1
N-PAK - AMS	2.5 % v/v	C 404	85	85	18	9	9
ENLIST DUO	4 pt/a	D 602	95	90	15	8	11
N-PAK - AMS	2.5 % v/v	D 701	10	10	34	8	13
	Mean =		73	70	17	10	8
18 ENLIST DUO	4 pt/a	C 208	95	95	3	9	0
N-PAK - AMS	2.5 % v/v	C 303	85	90	11	10	11
LIBERTY 280 SL	32 fl oz/a	D 610	95	80	3	3	1
WEEDAR 64	0.8 lb ae/a	D 703	95	95	14	9	6
N-PAK - AMS	2.5 % v/v	D					
	Mean =		93	90	8	8	4
19 LIBERTY 280 SL	32 fl oz/a	C 209	95	100	13	9	16
N-PAK - AMS	2.5 % v/v	C 308	90	90	3	7	3
LIBERTY 280 SL	32 fl oz/a	D 505	95	90	12	7	12
N-PAK - AMS	2.5 % v/v	D 706	85	85	5	12	3
	Mean =		91	91	8	9	8
20 ROUNDUP POWERMAX	1.5 lb ae/a	C 210	95	95	15	1	3
N-PAK - AMS	2.5 % v/v	C 407	95	100	6	10	18
ROUNDUP POWERMAX	1.5 lb ae/a	D 606	85	95	19	7	4
N-PAK - AMS	2.5 % v/v	D 801	30	20	29	8	6
	Mean =		76	78	17	6	8

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	SIDSP	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	large crabgrass	Prickly sida	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	22	23	24	25	26	27		
Days After First/Last Applic.	227 28	227 28	241 14	241 14	241 14	241 14		
Trt-Eval Interval								
Plant-Eval Interval	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1	38 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 Plot	22	23	24	25	26	27
1 2,4-D LV4	0.5 lb ae/a A	101	0	0	1	1	0	0
CLARITY	0.25 lb ae/a A	408	1	1	4	0	0	1
ACTIVATOR 90 - NIS	0.25 % v/v A	510	4	0	1	0	1	1
ENLIST DUO	4 pt/a C	709	3	0	1	2	1	0
SONIC	4.5 oz/a C							
TRICOR	6 oz/a C							
N-PAK - AMS	2.5 % v/v C							
ROUNDUP POWERMAX	1.5 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
	Mean =		2	0	1	1	0	0
2 2,4-D LV4	0.5 lb ae/a A	102	0	1	0	1	1	1
ROUNDUP POWERMAX	16 fl oz/a A	306	8	0	0	0	0	4
N-PAK - AMS	2.5 % v/v A	501	6	0	2	1	2	3
ENLIST DUO	4 pt/a C	806	2	0	3	1	0	1
SONIC	4.5 oz/a C							
TRICOR	6 oz/a C							
N-PAK - AMS	2.5 % v/v C							
ROUNDUP POWERMAX	1.5 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
	Mean =		4	0	1	0	1	2

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	SIDSP	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	large crabgrass	Prickly sida	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	22	23	24	25	26	27		
Days After First/Last Applic.	227 28	227 28	241 14	241 14	241 14	241 14		
Trt-Eval Interval								
Plant-Eval Interval	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1	38 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 Plot	22	23	24	25	26	27
3 2,4-D LV4	0.5 lb ae/a	A 103	37	3	8	0	0	1
ROUNDUP POWERMAX	16 fl oz/a	A 304	19	1	7	0	1	0
N-PAK - AMS	2.5 % v/v	A 504	9	0	23	0	0	1
2,4-D LV4	0.5 lb ae/a	B 807	5	2	5	0	2	0
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
TRICOR	6 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
	Mean =		17	1	10	0	1	1
4 2,4-D LV4	0.5 lb ae/a	A 104	14	3	0	0	0	2
ROUNDUP POWERMAX	16 fl oz/a	A 302	50	2	2	0	0	5
N-PAK - AMS	2.5 % v/v	A 607	4	0	3	0	0	0
2,4-D LV4	0.5 lb ae/a	B 710	8	4	1	0	1	1
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						
	Mean =		19	2	1	0	0	2
5 SHARPEN	1 fl oz/a	A 105	1	1	0	0	0	1
ROUNDUP POWERMAX	16 fl oz/a	A 402	24	1	0	0	2	1
MSO ULTRA	1 % v/v	A 609	1	0	0	1	1	0
N-PAK - AMS	2.5 % v/v	A 707	4	1	0	0	0	0
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
	Mean =		7	0	0	0	1	1
6 2,4-D LV4	0.5 lb ae/a	A 106	1	1	0	0	1	1
ROUNDUP POWERMAX	16 fl oz/a	A 403	8	2	0	0	1	1
N-PAK - AMS	2.5 % v/v	A 508	4	0	0	0	0	1
SHARPEN	1 fl oz/a	C 809	3	0	0	0	0	0
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
	Mean =		4	1	0	0	0	1

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	DIGSA	SIDSP	ERICA	TARSS	PANDI	DIGSA
Pest Scientific Name	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
Pest Name	large crabgrass	Prickly sida	Canada horsewe>	Dandelion	Fall panicum	large crabgrass
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
Rating Unit						
Number of Subsamples	2	2	2	2	2	2
SE Group No.	22	23	24	25	26	27
Days After First/Last Applic.	227 28	227 28	241 14	241 14	241 14	241 14
Trt-Eval Interval						
Plant-Eval Interval	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1
Days After Emergence	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1	38 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 Plot	22	23	24	25
27						
7 2,4-D LV4	0.5 lb ae/a A	107	2	1	0	0
ROUNDUP POWERMAX	16 fl oz/a A	401	11	1	0	0
N-PAK - AMS	2.5 % v/v A	608	2	0	0	0
SHARPEN	1 fl oz/a C	803	3	0	1	0
GRAMOXONE SL	3 pt/a C					
MSO ULTRA	1 % v/v C					
N-PAK - AMS	2.5 % v/v C					
SONIC	4.5 oz/a C					
ENLIST DUO	4 pt/a D					
N-PAK - AMS	2.5 % v/v D					
Mean =			4	0	0	0
8 SHARPEN	1 fl oz/a A	108	1	1	0	0
ROUNDUP POWERMAX	16 fl oz/a A	305	15	0	0	0
MSO ULTRA	1 % v/v A	507	6	0	1	0
N-PAK - AMS	2.5 % v/v A	704	3	1	0	0
ENLIST DUO	4 pt/a C					
SONIC	4.5 oz/a C					
N-PAK - AMS	2.5 % v/v C					
ENLIST DUO	4 pt/a D					
N-PAK - AMS	2.5 % v/v D					
Mean =			6	0	0	0
9 CLARITY	0.25 lb ae/a A	109	0	0	0	0
ROUNDUP POWERMAX	16 fl oz/a A	301	23	0	0	0
N-PAK - AMS	2.5 % v/v A	509	5	0	0	0
ENLIST DUO	4 pt/a C	705	3	0	1	1
SONIC	4.5 oz/a C					0
N-PAK - AMS	2.5 % v/v C					
ENLIST DUO	4 pt/a D					
N-PAK - AMS	2.5 % v/v D					
Mean =			8	0	0	0
10 SHARPEN	1 fl oz/a A	110	2	1	0	0
ROUNDUP POWERMAX	16 fl oz/a A	410	7	0	0	0
MSO ULTRA	1 % v/v A	503	22	0	5	0
N-PAK - AMS	2.5 % v/v A	808	12	0	0	0
2,4-D LV4	0.5 lb ae/a B					
GRAMOXONE SL	3 pt/a B					
SONIC	4.5 oz/a B					
PRIME OIL - COC	1 % v/v B					
ENLIST DUO	4 pt/a D					
N-PAK - AMS	2.5 % v/v D					
Mean =			10	0	1	0

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	DIGSA	SIDSP	ERICA	TARSS	PANDI	DIGSA
Pest Scientific Name	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
Pest Name	large crabgrass	Prickly sida	Canada horsewe>	Dandelion	Fall panicum	large crabgrass
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
Rating Unit						
Number of Subsamples	2	2	2	2	2	2
SE Group No.	22	23	24	25	26	27
Days After First/Last Applic.	227 28	227 28	241 14	241 14	241 14	241 14
Trt-Eval Interval						
Plant-Eval Interval	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1
Days After Emergence	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1	38 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 Plot	22	23	24	25
11 CLARITY	0.25 lb ae/a	A 201	20	0	0	0
ROUNDUP POWERMAX	16 fl oz/a	A 409	0	0	1	0
N-PAK - AMS	2.5 % v/v	A 601	4	1	0	0
ENLIST DUO	4 pt/a	C 802	2	0	0	0
SONIC	4.5 oz/a	C				
N-PAK - AMS	2.5 % v/v	C				
LIBERTY 280 SL	32 fl oz/a	D				
N-PAK - AMS	2.5 % v/v	D				
	Mean =		6	0	0	0
12 SHARPEN	1 fl oz/a	C 202	7	0	0	3
ENLIST DUO	4 pt/a	C 405	10	0	0	3
SONIC	4.5 oz/a	C 604	2	0	0	5
TRICOR	6 oz/a	C 702	4	0	0	5
MSO ULTRA	1 % v/v	C				
N-PAK - AMS	2.5 % v/v	C				
ROUNDUP POWERMAX	1.5 lb ae/a	D				
N-PAK - AMS	2.5 % v/v	D				
	Mean =		5	0	0	4
13 SHARPEN	1 fl oz/a	C 203	4	0	0	3
ENLIST DUO	4 pt/a	C 310	1	0	1	0
SONIC	4.5 oz/a	C 506	4	0	0	2
MSO ULTRA	1 % v/v	C 804	1	1	0	0
N-PAK - AMS	2.5 % v/v	C				
LIBERTY 280 SL	32 fl oz/a	D				
N-PAK - AMS	2.5 % v/v	D				
	Mean =		2	0	0	1
14 SHARPEN	1 fl oz/a	C 204	4	0	0	0
ENLIST DUO	4 pt/a	C 309	4	0	0	1
SONIC	4.5 oz/a	C 502	11	0	0	1
MSO ULTRA	1 % v/v	C 805	1	0	0	0
N-PAK - AMS	2.5 % v/v	C				
ENLIST DUO	4 pt/a	D				
N-PAK - AMS	2.5 % v/v	D				
	Mean =		5	0	0	0
15 SHARPEN	1 fl oz/a	C 205	6	0	0	1
ENLIST DUO	4 pt/a	C 406	18	0	0	1
SONIC	4.5 oz/a	C 603	0	0	0	0
MSO ULTRA	1 % v/v	C 708	2	1	0	2
N-PAK - AMS	2.5 % v/v	C				
LIBERTY 280 SL	32 fl oz/a	D				
WEEDAR 64	0.8 lb ae/a	D				
N-PAK - AMS	2.5 % v/v	D				
	Mean =		6	0	0	1

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	SIDSP	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	large crabgrass	Prickly sida	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	22	23	24	25	26	27		
Days After First/Last Applic.	227 28	227 28	241 14	241 14	241 14	241 14		
Trt-Eval Interval								
Plant-Eval Interval	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1	38 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 Plot	22	23	24	25	26	27
16 ENLIST DUO	4 pt/a	C 206	2	0	0	0	1	0
SONIC	4.5 oz/a	C 307	7	2	1	0	1	0
N-PAK - AMS	2.5 % v/v	C 605	1	1	1	1	0	0
ENLIST DUO	4 pt/a	D 810	3	1	1	0	0	1
N-PAK - AMS	2.5 % v/v	D						
	Mean =		3	1	1	0	0	0
17 ENLIST DUO	4 pt/a	C 207	1	1	1	1	0	0
N-PAK - AMS	2.5 % v/v	C 404	15	0	0	2	2	1
ENLIST DUO	4 pt/a	D 602	2	2	0	2	3	1
N-PAK - AMS	2.5 % v/v	D 701	15	0	4	4	1	1
	Mean =		8	1	1	2	1	0
18 ENLIST DUO	4 pt/a	C 208	0	0	0	0	0	0
N-PAK - AMS	2.5 % v/v	C 303	14	0	0	0	2	0
LIBERTY 280 SL	32 fl oz/a	D 610	2	0	0	0	0	1
WEEDAR 64	0.8 lb ae/a	D 703	6	1	0	0	0	0
N-PAK - AMS	2.5 % v/v	D						
	Mean =		5	0	0	0	0	0
19 LIBERTY 280 SL	32 fl oz/a	C 209	4	2	0	0	0	0
N-PAK - AMS	2.5 % v/v	C 308	5	0	4	1	1	1
LIBERTY 280 SL	32 fl oz/a	D 505	7	0	1	0	1	3
N-PAK - AMS	2.5 % v/v	D 706	2	0	2	1	1	1
	Mean =		4	1	2	0	1	1
20 ROUNDUP POWERMAX	1.5 lb ae/a	C 210	0	0	13	0	1	0
N-PAK - AMS	2.5 % v/v	C 407	4	0	17	0	2	0
ROUNDUP POWERMAX	1.5 lb ae/a	D 606	5	0	15	0	2	1
N-PAK - AMS	2.5 % v/v	D 801	18	0	25	3	1	0
	Mean =		7	0	17	1	1	0

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01	Location: SEPAC Trial Year: 2015
Protocol ID: 15F-SEP-SOY-01	Investigator: Dr. Bill Johnson
Project ID:	Study Director: Dustin Johnson
	Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed		
Pest Code	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT		
Rating Unit						
Number of Subsamples	2	2	2	2		
SE Group No.	28	29	30	31		
Days After First/Last Applic.	259 32	259 32	259 32	259 32		
Trt-Eval Interval						
Plant-Eval Interval	61 DP-1	61 DP-1	61 DP-1	61 DP-1		
Days After Emergence	56 DE-1	56 DE-1	56 DE-1	56 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	28	29	30	31
1 2,4-D LV4	0.5 lb ae/a A	101	4	1	1	4
CLARITY	0.25 lb ae/a A	408	9	0	2	0
ACTIVATOR 90 - NIS	0.25 % v/v A	510	5	0	3	0
ENLIST DUO	4 pt/a C	709	3	0	0	1
SONIC	4.5 oz/a C					
TRICOR	6 oz/a C					
N-PAK - AMS	2.5 % v/v C					
ROUNDUP POWERMAX	1.5 lb ae/a D					
N-PAK - AMS	2.5 % v/v D					
Mean =			5	0	1	1
2 2,4-D LV4	0.5 lb ae/a A	102	9	0	3	5
ROUNDUP POWERMAX	16 fl oz/a A	306	22	0	14	14
N-PAK - AMS	2.5 % v/v A	501	16	0	0	6
ENLIST DUO	4 pt/a C	806	10	0	3	1
SONIC	4.5 oz/a C					
TRICOR	6 oz/a C					
N-PAK - AMS	2.5 % v/v C					
ROUNDUP POWERMAX	1.5 lb ae/a D					
N-PAK - AMS	2.5 % v/v D					
Mean =			14	0	5	6

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	ERICA	TARSS	PANDI	DIGSA
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016
Rating Type	COUNT	COUNT	COUNT	COUNT
Rating Unit				
Number of Subsamples	2	2	2	2
SE Group No.	28	29	30	31
Days After First/Last Applic.	259 32	259 32	259 32	259 32
Trt-Eval Interval				
Plant-Eval Interval	61 DP-1	61 DP-1	61 DP-1	61 DP-1
Days After Emergence	56 DE-1	56 DE-1	56 DE-1	56 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	28	29
3 2,4-D LV4	0.5 lb ae/a A	103	15	0
ROUNDUP POWERMAX	16 fl oz/a A	304	49	0
N-PAK - AMS	2.5 % v/v A	504	16	0
2,4-D LV4	0.5 lb ae/a B	807	15	0
GRAMOXONE SL	3 pt/a B			1
SONIC	4.5 oz/a B			
TRICOR	6 oz/a B			
ACTIVATOR 90 - NIS	0.25 % v/v B			
ROUNDUP POWERMAX	1.5 lb ae/a D			
N-PAK - AMS	2.5 % v/v D			
Mean =			24	0
4 2,4-D LV4	0.5 lb ae/a A	104	12	0
ROUNDUP POWERMAX	16 fl oz/a A	302	25	1
N-PAK - AMS	2.5 % v/v A	607	13	0
2,4-D LV4	0.5 lb ae/a B	710	9	0
GRAMOXONE SL	3 pt/a B			0
SONIC	4.5 oz/a B			
ACTIVATOR 90 - NIS	0.25 % v/v B			
LIBERTY 280 SL	32 fl oz/a D			
N-PAK - AMS	2.5 % v/v D			
Mean =			14	0
5 SHARPEN	1 fl oz/a A	105	1	0
ROUNDUP POWERMAX	16 fl oz/a A	402	15	0
MSO ULTRA	1 % v/v A	609	1	0
N-PAK - AMS	2.5 % v/v A	707	6	0
SHARPEN	1 fl oz/a C			13
ROUNDUP POWERMAX	0.75 lb ae/a C			
MSO ULTRA	1 % v/v C			
N-PAK - AMS	2.5 % v/v C			
SONIC	4.5 oz/a C			
ENLIST DUO	4 pt/a D			
N-PAK - AMS	2.5 % v/v D			
Mean =			6	0
6 2,4-D LV4	0.5 lb ae/a A	106	0	0
ROUNDUP POWERMAX	16 fl oz/a A	403	20	0
N-PAK - AMS	2.5 % v/v A	508	14	0
SHARPEN	1 fl oz/a C	809	4	0
ROUNDUP POWERMAX	0.75 lb ae/a C			4
MSO ULTRA	1 % v/v C			
N-PAK - AMS	2.5 % v/v C			
SONIC	4.5 oz/a C			
ENLIST DUO	4 pt/a D			
N-PAK - AMS	2.5 % v/v D			
Mean =			9	0

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	ERICA	TARSS	PANDI	DIGSA
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016
Rating Type	COUNT	COUNT	COUNT	COUNT
Rating Unit				
Number of Subsamples	2	2	2	2
SE Group No.	28	29	30	31
Days After First/Last Applic.	259 32	259 32	259 32	259 32
Trt-Eval Interval				
Plant-Eval Interval	61 DP-1	61 DP-1	61 DP-1	61 DP-1
Days After Emergence	56 DE-1	56 DE-1	56 DE-1	56 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	28	29
7 2,4-D LV4	0.5 lb ae/a	A 107	0	0
ROUNDUP POWERMAX	16 fl oz/a	A 401	3	0
N-PAK - AMS	2.5 % v/v	A 608	2	0
SHARPEN	1 fl oz/a	C 803	1	0
GRAMOXONE SL	3 pt/a	C		
MSO ULTRA	1 % v/v	C		
N-PAK - AMS	2.5 % v/v	C		
SONIC	4.5 oz/a	C		
ENLIST DUO	4 pt/a	D		
N-PAK - AMS	2.5 % v/v	D		
Mean =			1	0
8 SHARPEN	1 fl oz/a	A 108	9	0
ROUNDUP POWERMAX	16 fl oz/a	A 305	13	0
MSO ULTRA	1 % v/v	A 507	9	0
N-PAK - AMS	2.5 % v/v	A 704	16	0
ENLIST DUO	4 pt/a	C		
SONIC	4.5 oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
ENLIST DUO	4 pt/a	D		
N-PAK - AMS	2.5 % v/v	D		
Mean =			11	0
9 CLARITY	0.25 lb ae/a	A 109	0	0
ROUNDUP POWERMAX	16 fl oz/a	A 301	16	0
N-PAK - AMS	2.5 % v/v	A 509	2	0
ENLIST DUO	4 pt/a	C 705	8	0
SONIC	4.5 oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
ENLIST DUO	4 pt/a	D		
N-PAK - AMS	2.5 % v/v	D		
Mean =			6	0
10 SHARPEN	1 fl oz/a	A 110	29	0
ROUNDUP POWERMAX	16 fl oz/a	A 410	22	0
MSO ULTRA	1 % v/v	A 503	10	0
N-PAK - AMS	2.5 % v/v	A 808	5	0
2,4-D LV4	0.5 lb ae/a	B		
GRAMOXONE SL	3 pt/a	B		
SONIC	4.5 oz/a	B		
PRIME OIL - COC	1 % v/v	B		
ENLIST DUO	4 pt/a	D		
N-PAK - AMS	2.5 % v/v	D		
Mean =			16	0

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	ERICA	TARSS	PANDI	DIGSA
Pest Scientific Name	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
Pest Name	Canada horsewe>	Dandelion	Fall panicum	large crabgrass
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016
Rating Type	COUNT	COUNT	COUNT	COUNT
Rating Unit				
Number of Subsamples	2	2	2	2
SE Group No.	28	29	30	31
Days After First/Last Applic.	259 32	259 32	259 32	259 32
Trt-Eval Interval				
Plant-Eval Interval	61 DP-1	61 DP-1	61 DP-1	61 DP-1
Days After Emergence	56 DE-1	56 DE-1	56 DE-1	56 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	28	29
11 CLARITY	0.25 lb ae/a	A 201	10	0
ROUNDUP POWERMAX	16 fl oz/a	A 409	11	0
N-PAK - AMS	2.5 % v/v	A 601	3	1
ENLIST DUO	4 pt/a	C 802	7	1
SONIC	4.5 oz/a	C		
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	32 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
	Mean =		8	0
12 SHARPEN	1 fl oz/a	C 202	14	2
ENLIST DUO	4 pt/a	C 405	15	2
SONIC	4.5 oz/a	C 604	7	3
TRICOR	6 oz/a	C 702	6	5
MSO ULTRA	1 % v/v	C		
N-PAK - AMS	2.5 % v/v	C		
ROUNDUP POWERMAX	1.5 lb ae/a	D		
N-PAK - AMS	2.5 % v/v	D		
	Mean =		10	3
13 SHARPEN	1 fl oz/a	C 203	9	3
ENLIST DUO	4 pt/a	C 310	2	1
SONIC	4.5 oz/a	C 506	11	3
MSO ULTRA	1 % v/v	C 804	0	0
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	32 fl oz/a	D		
N-PAK - AMS	2.5 % v/v	D		
	Mean =		5	2
14 SHARPEN	1 fl oz/a	C 204	15	1
ENLIST DUO	4 pt/a	C 309	2	1
SONIC	4.5 oz/a	C 502	4	2
MSO ULTRA	1 % v/v	C 805	6	1
N-PAK - AMS	2.5 % v/v	C		
ENLIST DUO	4 pt/a	D		
N-PAK - AMS	2.5 % v/v	D		
	Mean =		7	1
15 SHARPEN	1 fl oz/a	C 205	9	2
ENLIST DUO	4 pt/a	C 406	4	3
SONIC	4.5 oz/a	C 603	11	0
MSO ULTRA	1 % v/v	C 708	0	1
N-PAK - AMS	2.5 % v/v	C		
LIBERTY 280 SL	32 fl oz/a	D		
WEEDAR 64	0.8 lb ae/a	D		
N-PAK - AMS	2.5 % v/v	D		
	Mean =		6	2

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

				W Weed	W Weed	W Weed	W Weed
				ERICA	TARSS	PANDI	DIGSA
				Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
				Canada horsewe>	Dandelion	Fall panicum	large crabgrass
				GLXMA	GLXMA	GLXMA	GLXMA
				BSOY	BSOY	BSOY	BSOY
				Glycine max	Glycine max	Glycine max	Glycine max
				Soybean	Soybean	Soybean	Soybean
				PLOT -	PLOT -	PLOT -	PLOT -
				Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016
				COUNT	COUNT	COUNT	COUNT
Pest Type							
Pest Code							
Pest Scientific Name							
Pest Name							
Crop Code							
BBCH Scale							
Crop Scientific Name							
Crop Name							
Part Rated							
Rating Date							
Rating Type							
Rating Unit							
Number of Subsamples				2	2	2	2
SE Group No.				28	29	30	31
Days After First/Last Applic.				259 32	259 32	259 32	259 32
Trt-Eval Interval							
Plant-Eval Interval				61 DP-1	61 DP-1	61 DP-1	61 DP-1
Days After Emergence				56 DE-1	56 DE-1	56 DE-1	56 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	28	29	30	31
16	ENLIST DUO	4 pt/a	C 206	5	1	4	0
	SONIC	4.5 oz/a	C 307	4	1	7	4
	N-PAK - AMS	2.5 % v/v	C 605	10	1	2	0
	ENLIST DUO	4 pt/a	D 810	0	0	0	2
	N-PAK - AMS	2.5 % v/v	D				
			Mean =	5	1	3	1
17	ENLIST DUO	4 pt/a	C 207	2	1	1	0
	N-PAK - AMS	2.5 % v/v	C 404	15	0	5	0
	ENLIST DUO	4 pt/a	D 602	18	1	9	1
	N-PAK - AMS	2.5 % v/v	D 701	10	0	15	0
			Mean =	11	0	7	0
18	ENLIST DUO	4 pt/a	C 208	2	0	0	1
	N-PAK - AMS	2.5 % v/v	C 303	33	1	5	6
	LIBERTY 280 SL	32 fl oz/a	D 610	7	0	0	2
	WEEDAR 64	0.8 lb ae/a	D 703	11	0	3	0
	N-PAK - AMS	2.5 % v/v	D				
			Mean =	13	0	2	2
19	LIBERTY 280 SL	32 fl oz/a	C 209	10	1	2	1
	N-PAK - AMS	2.5 % v/v	C 308	4	2	3	2
	LIBERTY 280 SL	32 fl oz/a	D 505	14	2	5	1
	N-PAK - AMS	2.5 % v/v	D 706	13	2	2	3
			Mean =	10	2	3	1
20	ROUNDUP POWERMAX	1.5 lb ae/a	C 210	34	1	1	0
	N-PAK - AMS	2.5 % v/v	C 407	16	0	4	0
	ROUNDUP POWERMAX	1.5 lb ae/a	D 606	12	3	0	0
	N-PAK - AMS	2.5 % v/v	D 801	22	0	0	0
			Mean =	21	1	1	0

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

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

Pest Code
 TARSS, Taraxacum sp., = US
 SENGL, Senecio glabellus, = US
 ERICA, Conyza canadensis, = ERICA, Conyza canadensis,
 ERICA, Erigeron canadensis, = US
 PANDI, Panicum dichotomiflorum, = US
 DIGSA, Digitaria sanguinalis, = US
 SIDSP, Sida spinosa, = US

Crop Code
 GLXMA, BSOY, Glycine max, = US

Part Rated
 PLOT = plot

Rating Type
 CONTRO = control / burndown or knockdown
 COUNT = count

Rating Unit
 % = percent

Plant-Eval Interval
 -183 DP-1 = 1 GLXMA May-26-2016
 -168 DP-1 = 1 GLXMA May-26-2016
 29 DP-1 = 1 GLXMA May-26-2016
 43 DP-1 = 1 GLXMA May-26-2016
 61 DP-1 = 1 GLXMA May-26-2016

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

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL	ERICA		
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canad>	Taraxacum sp.	Senecio glabel>	Erigeron canad>		
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
SE Group No.	2	3	4	5	6	7		
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30	227 28		
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A			
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1	29 DP-1		
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 DE-1	24 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	Appl Code	2	3	4	5	6	7
1 2,4-D LV4	0.5 lb ae/a	A	25 bcd	13 b		36 c	27 b	96 ab
CLARITY	0.25 lb ae/a	A						
ACTIVATOR 90 - NIS	0.25 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
2 2,4-D LV4	0.5 lb ae/a	A	25 bcd			53 bc		96 ab
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL	ERICA		
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canad>	Taraxacum sp.	Senecio glabel>	Erigeron canad>		
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
SE Group No.	2	3	4	5	6	7		
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30	227 28		
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A			
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1	29 DP-1		
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 DE-1	24 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	Appl Code	2	3	4	5	6	7
3 2,4-D LV4	0.5 lb ae/a	A	28 bcd			63 bc		100 a
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
TRICOR	6 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
ROUNDUP POWERMAX	1.5 lb ae/a	D	26 bcd	0 b		48 bc	0 b	89 b
4 2,4-D LV4	0.5 lb ae/a	A						
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D	78 a	80 a		100 a	100 a	99 a
5 SHARPEN	1 fl oz/a	A						
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D	36 bc			70 b		100 a
6 2,4-D LV4	0.5 lb ae/a	A						
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL	ERICA		
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>	Erigeron canad>		
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
SE Group No.	2	3	4	5	6	7		
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30	227 28		
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A			
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1	29 DP-1		
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 DE-1	24 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	Appl	2	3	4	5	6	7
	Rate Unit	Code						
7 2,4-D LV4	0.5 lb ae/a	A	37 bc	0 b	0 -	63 bc		99 a
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
GRAMOXONE SL	3 pt/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
8 SHARPEN	1 fl oz/a	A	95 a	80 a		100 a	98 a	91 ab
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
9 CLARITY	0.25 lb ae/a	A	40 b	48 ab		69 b	97 a	93 ab
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
10 SHARPEN	1 fl oz/a	A	95 a		0 -	100 a		93 ab
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
PRIME OIL - COC	1 % v/v	B						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
11 CLARITY	0.25 lb ae/a	A	25 bcd	50 ab	0 -	50 bc	95 a	96 ab
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL	ERICA		
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>	Erigeron canad>		
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
SE Group No.	2	3	4	5	6	7		
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30	227 28		
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A			
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1	29 DP-1		
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 DE-1	24 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	Appl	2	3	4	5	6	7
	Rate Unit Code							
12 SHARPEN	1 fl oz/a C		6 cd	10 b	0 -	0 d	0 b	100 a
ENLIST DUO	4 pt/a C							
SONIC	4.5 oz/a C							
TRICOR	6 oz/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
ROUNDUP POWERMAX	1.5 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
13 SHARPEN	1 fl oz/a C		0 d		0 -	0 d	0 b	100 a
ENLIST DUO	4 pt/a C							
SONIC	4.5 oz/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
LIBERTY 280 SL	32 fl oz/a D							
N-PAK - AMS	2.5 % v/v D							
14 SHARPEN	1 fl oz/a C		3 d	0 b	0 -	0 d	0 b	100 a
ENLIST DUO	4 pt/a C							
SONIC	4.5 oz/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
ENLIST DUO	4 pt/a D							
N-PAK - AMS	2.5 % v/v D							
15 SHARPEN	1 fl oz/a C		3 d		0 -	6 d	0 b	99 a
ENLIST DUO	4 pt/a C							
SONIC	4.5 oz/a C							
MSO ULTRA	1 % v/v C							
N-PAK - AMS	2.5 % v/v C							
LIBERTY 280 SL	32 fl oz/a D							
WEEDAR 64	0.8 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
16 ENLIST DUO	4 pt/a C		3 d		0 -	0 d	0 b	98 ab
SONIC	4.5 oz/a C							
N-PAK - AMS	2.5 % v/v C							
ENLIST DUO	4 pt/a D							
N-PAK - AMS	2.5 % v/v D							
17 ENLIST DUO	4 pt/a C		15 bcd		0 -	0 d	0 b	95 ab
N-PAK - AMS	2.5 % v/v C							
ENLIST DUO	4 pt/a D							
N-PAK - AMS	2.5 % v/v D							
18 ENLIST DUO	4 pt/a C		5 cd	10 b	0 -	0 d	0 b	96 ab
N-PAK - AMS	2.5 % v/v C							
LIBERTY 280 SL	32 fl oz/a D							
WEEDAR 64	0.8 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
19 LIBERTY 280 SL	32 fl oz/a C		6 cd	0 b	0 -	0 d	0 b	98 ab
N-PAK - AMS	2.5 % v/v C							
LIBERTY 280 SL	32 fl oz/a D							
N-PAK - AMS	2.5 % v/v D							

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	SENGL	ERICA	TARSS	SENGL	ERICA
Pest Scientific Name	Taraxacum sp.	Senecio glabel>	Conyza canaden>	Taraxacum sp.	Senecio glabel>	Erigeron canad>
Pest Name	Dandelion	Cressleaf grou>	Canada horsewe>	Dandelion	Cressleaf grou>	Canada horsewe>
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Nov-25-2015	Nov-25-2015	Dec-10-2015	Dec-10-2015	Dec-10-2015	Jun-24-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
SE Group No.	2	3	4	5	6	7
Days After First/Last Applic.	15 15	15 15	30 30	30 30	30 30	227 28
Trt-Eval Interval	15 DA-A	15 DA-A	30 DA-A	30 DA-A	30 DA-A	
Plant-Eval Interval	-183 DP-1	-183 DP-1	-168 DP-1	-168 DP-1	-168 DP-1	29 DP-1
Days After Emergence	-188 DE-1	-188 DE-1	-173 DE-1	-173 DE-1	-173 DE-1	24 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	2	3	4	5
20 ROUNDUP POWERMAX	1.5 lb ae/a C		3 d		0 -	0 d
N-PAK - AMS	2.5 % v/v C					0 b
ROUNDUP POWERMAX	1.5 lb ae/a D					
N-PAK - AMS	2.5 % v/v D					75 c
LSD P=.05	17.5	21.1	.	19.0	16.2	5.5
Standard Deviation	12.3	10.7	0.0	13.4	10.0	3.9
CV	60.41	91.81	0.0	45.36	78.66	4.03
Bartlett's X2	28.988	0.456	0.0	4.714	5.375	8.982
P(Bartlett's X2)	0.049*	0.796	.	0.788	0.068	0.832
Skewness	1.5237*	0.6855	.	0.6259*	0.9444*	-2.0605*
Kurtosis	1.8705*	-1.0303	.	-1.1079	-1.0698	4.7588*
Replicate F	0.441	1.216	0.000	2.982	1.852	1.651
Replicate Prob(F)	0.7247	0.4120	1.0000	0.0400	0.2160	0.1879
Treatment F	14.286	12.909	0.000	24.885	33.088	9.160
Treatment Prob(F)	0.0001	0.0125	1.0000	0.0001	0.0001	0.0001

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01	Location: SEPAC Trial Year: 2015
Protocol ID: 15F-SEP-SOY-01	Investigator: Dr. Bill Johnson
Project ID:	Study Director: Dustin Johnson
	Sponsor Contact: Purdue/Ohio State

	W Weed TARSS	W Weed PANDI	W Weed DIGSA	W Weed ERICA	W Weed TARSS	W Weed PANDI		
Pest Type	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>		
Pest Code								
Pest Scientific Name								
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
SE Group No.	8	9	10	11	12	13		
Days After First/Last Applic.	227 28	227 28	227 28	241 14	241 14	241 14		
Trt-Eval Interval								
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1		
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 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 Unit	Appl Code	8	9	10	11	12	13
1 2,4-D LV4	0.5 lb ae/a	A	96 ab	85 -	98 a	95 a	98 a	100 -
CLARITY	0.25 lb ae/a	A						
ACTIVATOR 90 - NIS	0.25 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
2 2,4-D LV4	0.5 lb ae/a	A	93 ab	99 -	94 a	94 a	95 a	100 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS	PANDI			
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>			
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean			
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -			
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1	1			
SE Group No.	8	9	10	11	12	13			
Days After First/Last Applic.	227 28	227 28	227 28	241 14	241 14	241 14			
Trt-Eval Interval									
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1			
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1			
ARM Action Codes	P	P	P	P	P	P			
Number of Decimals	0	0	0	0	0	0			
Trt No.	Treatment Name	Rate	Appl Code	8	9	10	11	12	13
3	2,4-D LV4	0.5 lb ae/a	A	98 ab	81 -	79 a	78 b	99 a	99 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	2,4-D LV4	0.5 lb ae/a	B						
	GRAMOXONE SL	3 pt/a	B						
	SONIC	4.5 oz/a	B						
	TRICOR	6 oz/a	B						
	ACTIVATOR 90 - NIS	0.25 % v/v	B						
	ROUNDUP POWERMAX	1.5 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
4	2,4-D LV4	0.5 lb ae/a	A	99 a	86 -	61 b	98 a	100 a	96 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	2,4-D LV4	0.5 lb ae/a	B						
	GRAMOXONE SL	3 pt/a	B						
	SONIC	4.5 oz/a	B						
	ACTIVATOR 90 - NIS	0.25 % v/v	B						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						
5	SHARPEN	1 fl oz/a	A	96 ab	100 -	94 a	100 a	98 a	100 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	MSO ULTRA	1 % v/v	A						
	N-PAK - AMS	2.5 % v/v	A						
	SHARPEN	1 fl oz/a	C						
	ROUNDUP POWERMAX	0.75 lb ae/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	SONIC	4.5 oz/a	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
6	2,4-D LV4	0.5 lb ae/a	A	98 ab	99 -	98 a	99 a	99 a	99 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	SHARPEN	1 fl oz/a	C						
	ROUNDUP POWERMAX	0.75 lb ae/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	SONIC	4.5 oz/a	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS	PANDI			
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>			
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean			
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -			
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1	1			
SE Group No.	8	9	10	11	12	13			
Days After First/Last Applic.	227 28	227 28	227 28	241 14	241 14	241 14			
Trt-Eval Interval									
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1			
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1			
ARM Action Codes	P	P	P	P	P	P			
Number of Decimals	0	0	0	0	0	0			
Trt No.	Treatment Name	Rate	Appl Code	8	9	10	11	12	13
		Rate Unit							
7	2,4-D LV4	0.5 lb ae/a	A	94 ab	100 -	96 a	98 a	96 a	100 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	SHARPEN	1 fl oz/a	C						
	GRAMOXONE SL	3 pt/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	SONIC	4.5 oz/a	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
8	SHARPEN	1 fl oz/a	A	99 a	99 -	90 a	98 a	100 a	99 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	MSO ULTRA	1 % v/v	A						
	N-PAK - AMS	2.5 % v/v	A						
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
9	CLARITY	0.25 lb ae/a	A	100 a	94 -	95 a	98 a	100 a	100 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
10	SHARPEN	1 fl oz/a	A	99 a	88 -	83 a	95 a	98 a	100 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	MSO ULTRA	1 % v/v	A						
	N-PAK - AMS	2.5 % v/v	A						
	2,4-D LV4	0.5 lb ae/a	B						
	GRAMOXONE SL	3 pt/a	B						
	SONIC	4.5 oz/a	B						
	PRIME OIL - COC	1 % v/v	B						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
11	CLARITY	0.25 lb ae/a	A	98 ab	96 -	98 a	90 a	98 a	99 -
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

			W Weed TARSS Taraxacum sp.	W Weed PANDI Panicum dichot>	W Weed DIGSA Digitaria sang>	W Weed ERICA Erigeron canad>	W Weed TARSS Taraxacum sp.	W Weed PANDI Panicum dichot>	
Pest Type			Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	
Pest Code			GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	
Pest Scientific Name			BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	
Pest Name			Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	
Crop Code			Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	
BBCH Scale			PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	
Crop Scientific Name			Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016	
Crop Name			CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	
Part Rated			%	%	%	%	%	%	
Rating Date			1	1	1	1	1	1	
Rating Type			8	9	10	11	12	13	
Rating Unit			227 28	227 28	227 28	241 14	241 14	241 14	
Number of Subsamples									
SE Group No.									
Days After First/Last Applic.									
Trt-Eval Interval									
Plant-Eval Interval			29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1	
Days After Emergence			24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 DE-1	
ARM Action Codes			P	P	P	P	P	P	
Number of Decimals			0	0	0	0	0	0	
Trt No.	Treatment Name	Rate	Appl Code	8	9	10	11	12	13
12	SHARPEN	1 fl oz/a	C	80 c	99 -	99 a	100 a	85 b	98 -
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	TRICOR	6 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	ROUNDUP POWERMAX	1.5 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
13	SHARPEN	1 fl oz/a	C	94 ab	99 -	95 a	100 a	94 a	98 -
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						
14	SHARPEN	1 fl oz/a	C	93 ab	94 -	99 a	100 a	95 a	98 -
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
15	SHARPEN	1 fl oz/a	C	96 ab	98 -	91 a	100 a	94 a	100 -
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	WEEDAR 64	0.8 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
16	ENLIST DUO	4 pt/a	C	96 ab	100 -	95 a	100 a	100 a	100 -
	SONIC	4.5 oz/a	C						
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
17	ENLIST DUO	4 pt/a	C	86 abc	90 -	76 a	98 a	93 a	96 -
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
18	ENLIST DUO	4 pt/a	C	94 ab	91 -	88 a	100 a	100 a	96 -
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	WEEDAR 64	0.8 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
19	LIBERTY 280 SL	32 fl oz/a	C	79 c	85 -	88 a	94 a	99 a	95 -
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	PANDI	DIGSA	ERICA	TARSS	PANDI
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>
Pest Name	Dandelion	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016	Jul-8-2016
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
SE Group No.	8	9	10	11	12	13
Days After First/Last Applic.	227 28	227 28	227 28	241 14	241 14	241 14
Trt-Eval Interval						
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1	43 DP-1
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1	38 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	8	9	10	11
20 ROUNDUP POWERMAX	1.5 lb ae/a C		84 bc	95 -	91 a	62 c
N-PAK - AMS	2.5 % v/v C					100 a
ROUNDUP POWERMAX	1.5 lb ae/a D					
N-PAK - AMS	2.5 % v/v D					100 -
LSD P=.05	8.1	13.2	14.5	7.5	4.5	4.1
Standard Deviation	5.7	9.3	10.2	5.3	3.2	2.9
CV	6.11	9.92	11.35	5.61	3.35	2.95
Bartlett's X2	32.489	60.424	63.651	36.12	5.853	5.483
P(Bartlett's X2)	0.019*	0.001*	0.001*	0.001*	0.951	0.857
Skewness	-1.5398*	-2.8701*	-2.7774*	-2.6523*	-1.4354*	-1.9454*
Kurtosis	2.1876*	11.1923*	10.3166*	6.5659*	1.7141*	2.6001*
Replicate F	0.650	0.668	2.893	1.471	0.454	1.869
Replicate Prob(F)	0.5864	0.5752	0.0431	0.2322	0.7156	0.1453
Treatment F	4.869	1.676	3.366	10.552	5.249	1.290
Treatment Prob(F)	0.0001	0.0687	0.0002	0.0001	0.0001	0.2273

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01	Location: SEPAC	Trial Year: 2015
Protocol ID: 15F-SEP-SOY-01	Investigator: Dr. Bill Johnson	
Project ID:	Study Director: Dustin Johnson	
	Sponsor Contact: Purdue/Ohio State	

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	COUNT		
Number of Subsamples	1	1	1	1	1	2		
SE Group No.	14	15	16	17	18	19		
Days After First/Last Applic.	241 14	259 32	259 32	259 32	259 32	227 28		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1	29 DP-1		
Days After Emergence	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 DE-1	24 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	Appl						
	Rate Unit	Code	14	15	16	17	18	19
1 2,4-D LV4	0.5 lb ae/a	A	99 -	94 a	96 -	98 -	94 -	1 b
CLARITY	0.25 lb ae/a	A						
ACTIVATOR 90 - NIS	0.25 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
2 2,4-D LV4	0.5 lb ae/a	A	96 -	86 ab	95 -	96 -	88 -	0 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	COUNT		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	2		
SE Group No.	14	15	16	17	18	19		
Days After First/Last Applic.	241 14	259 32	259 32	259 32	259 32	227 28		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1	29 DP-1		
Days After Emergence	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 DE-1	24 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	Appl Code	14	15	16	17	18	19
3 2,4-D LV4	0.5 lb ae/a	A	99 -	60 c	99 -	95 -	90 -	4 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
TRICOR	6 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
4 2,4-D LV4	0.5 lb ae/a	A	94 -	81 ab	99 -	94 -	83 -	5 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						
5 SHARPEN	1 fl oz/a	A	99 -	99 a	93 -	95 -	89 -	0 b
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
6 2,4-D LV4	0.5 lb ae/a	A	99 -	96 a	99 -	94 -	93 -	0 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	COUNT		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	2		
SE Group No.	14	15	16	17	18	19		
Days After First/Last Applic.	241 14	259 32	259 32	259 32	259 32	227 28		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1	29 DP-1		
Days After Emergence	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 DE-1	24 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	Appl	14	15	16	17	18	19
	Rate Unit	Code						
7 2,4-D LV4	0.5 lb ae/a	A	100 -	98 a	98 -	73 -	96 -	0 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
GRAMOXONE SL	3 pt/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
8 SHARPEN	1 fl oz/a	A	100 -	98 a	98 -	95 -	93 -	2 b
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
9 CLARITY	0.25 lb ae/a	A	96 -	96 a	100 -	97 -	91 -	1 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
10 SHARPEN	1 fl oz/a	A	100 -	96 a	100 -	96 -	95 -	5 b
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
PRIME OIL - COC	1 % v/v	B						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
11 CLARITY	0.25 lb ae/a	A	98 -	98 a	98 -	94 -	86 -	2 b
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	COUNT		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	2		
SE Group No.	14	15	16	17	18	19		
Days After First/Last Applic.	241 14	259 32	259 32	259 32	259 32	227 28		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1	29 DP-1		
Days After Emergence	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 DE-1	24 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	Appl	14	15	16	17	18	19
	Rate Unit Code	Code						
12 SHARPEN	1 fl oz/a	C	96 -	91 ab	79 -	89 -	84 -	0 b
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
TRICOR	6 oz/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
13 SHARPEN	1 fl oz/a	C	99 -	98 a	73 -	94 -	88 -	0 b
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						
14 SHARPEN	1 fl oz/a	C	98 -	99 a	85 -	94 -	93 -	0 b
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
15 SHARPEN	1 fl oz/a	C	100 -	99 a	89 -	93 -	93 -	0 b
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
WEEDAR 64	0.8 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
16 ENLIST DUO	4 pt/a	C	99 -	98 a	96 -	96 -	95 -	1 b
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
17 ENLIST DUO	4 pt/a	C	98 -	74 b	91 -	73 -	70 -	17 a
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
18 ENLIST DUO	4 pt/a	C	100 -	91 ab	98 -	93 -	90 -	8 b
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
WEEDAR 64	0.8 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
19 LIBERTY 280 SL	32 fl oz/a	C	98 -	95 a	73 -	91 -	91 -	8 b
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	DIGSA	ERICA	TARSS	PANDI	DIGSA	ERICA		
Pest Scientific Name	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Erigeron canad>		
Pest Name	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass	Canada horsewe>		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jun-24-2016		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	COUNT		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	2		
SE Group No.	14	15	16	17	18	19		
Days After First/Last Applic.	241 14	259 32	259 32	259 32	259 32	227 28		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1	29 DP-1		
Days After Emergence	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 DE-1	24 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	14	15	16	17	18	19
20 ROUNDUP POWERMAX	1.5 lb ae/a C		97 -	36 d	78 -	76 -	78 -	17 a
N-PAK - AMS	2.5 % v/v C							
ROUNDUP POWERMAX	1.5 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
LSD P=.05	4.9		12.5	16.5	21.2	18.5	5.7	
Standard Deviation	3.4		8.8	11.6	15.0	13.1	4.1	
CV	3.55		9.93	12.69	16.41	14.7	111.46	
Bartlett's X2	12.518		73.978	79.17	124.928	90.751	120.24	
P(Bartlett's X2)	0.565		0.001*	0.001*	0.001*	0.001*	0.001*	
Skewness	-1.7988*		-2.514*	-3.2472*	-4.5743*	-4.4903*	2.8013*	
Kurtosis	2.6574*		6.6154*	15.1373*	21.453*	23.6116*	8.8798*	
Replicate F	1.173		2.805	1.827	3.756	2.174	1.566	
Replicate Prob(F)	0.3284		0.0478	0.1525	0.0157	0.1010	0.2077	
Treatment F	0.939		12.904	2.545	1.056	0.976	6.726	
Treatment Prob(F)	0.5415		0.0001	0.0034	0.4172	0.5008	0.0001	

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01	Location: SEPAC	Trial Year: 2015
Protocol ID: 15F-SEP-SOY-01	Investigator: Dr. Bill Johnson	
Project ID:	Study Director: Dustin Johnson	
	Sponsor Contact: Purdue/Ohio State	

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	PANDI	DIGSA	SIDSP	ERICA	TARSS
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.
Pest Name	Dandelion	Fall panicum	large crabgrass	Prickly sida	Canada horsewe>	Dandelion
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
Rating Unit						
Number of Subsamples	2	2	2	2	2	2
SE Group No.	20	21	22	23	24	25
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14	241 14
Trt-Eval Interval						
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 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	Appl				
	Rate Unit	Code	20	21	22	23
1 2,4-D LV4	0.5 lb ae/a	A	1 c	10 -	2 -	0 b
CLARITY	0.25 lb ae/a	A				1 c
ACTIVATOR 90 - NIS	0.25 % v/v	A				1 c
ENLIST DUO	4 pt/a	C				
SONIC	4.5 oz/a	C				
TRICOR	6 oz/a	C				
N-PAK - AMS	2.5 % v/v	C				
ROUNDUP POWERMAX	1.5 lb ae/a	D				
N-PAK - AMS	2.5 % v/v	D				
2 2,4-D LV4	0.5 lb ae/a	A	2 c	2 -	4 -	0 b
ROUNDUP POWERMAX	16 fl oz/a	A				1 c
N-PAK - AMS	2.5 % v/v	A				0 c
ENLIST DUO	4 pt/a	C				
SONIC	4.5 oz/a	C				
TRICOR	6 oz/a	C				
N-PAK - AMS	2.5 % v/v	C				
ROUNDUP POWERMAX	1.5 lb ae/a	D				
N-PAK - AMS	2.5 % v/v	D				

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	TARSS	PANDI	DIGSA	SIDSP	ERICA	TARSS			
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.			
Pest Name	Dandelion	Fall panicum	large crabgrass	Prickly sida	Canada horsewe>	Dandelion			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean			
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -			
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016			
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT			
Rating Unit									
Number of Subsamples	2	2	2	2	2	2			
SE Group No.	20	21	22	23	24	25			
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14	241 14			
Trt-Eval Interval									
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1			
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1			
ARM Action Codes	P	P	P	P	P	P			
Number of Decimals	0	0	0	0	0	0			
Trt No.	Treatment Name	Rate	Appl Code	20	21	22	23	24	25
		Rate Unit							
3	2,4-D LV4	0.5 lb ae/a	A	0 c	7 -	17 -	1 ab	10 b	0 c
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	2,4-D LV4	0.5 lb ae/a	B						
	GRAMOXONE SL	3 pt/a	B						
	SONIC	4.5 oz/a	B						
	TRICOR	6 oz/a	B						
	ACTIVATOR 90 - NIS	0.25 % v/v	B						
	ROUNDUP POWERMAX	1.5 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
4	2,4-D LV4	0.5 lb ae/a	A	0 c	8 -	19 -	2 a	1 c	0 c
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	2,4-D LV4	0.5 lb ae/a	B						
	GRAMOXONE SL	3 pt/a	B						
	SONIC	4.5 oz/a	B						
	ACTIVATOR 90 - NIS	0.25 % v/v	B						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						
5	SHARPEN	1 fl oz/a	A	0 c	2 -	7 -	0 b	0 c	0 c
	ROUNDUP POWERMAX	16 fl oz/a	A						
	MSO ULTRA	1 % v/v	A						
	N-PAK - AMS	2.5 % v/v	A						
	SHARPEN	1 fl oz/a	C						
	ROUNDUP POWERMAX	0.75 lb ae/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	SONIC	4.5 oz/a	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
6	2,4-D LV4	0.5 lb ae/a	A	0 c	2 -	4 -	1 b	0 c	0 c
	ROUNDUP POWERMAX	16 fl oz/a	A						
	N-PAK - AMS	2.5 % v/v	A						
	SHARPEN	1 fl oz/a	C						
	ROUNDUP POWERMAX	0.75 lb ae/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	SONIC	4.5 oz/a	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	TARSS	PANDI	DIGSA	SIDSP	ERICA	TARSS			
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.			
Pest Name	Dandelion	Fall panicum	large crabgrass	Prickly sida	Canada horsewe>	Dandelion			
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean			
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -			
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016			
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT			
Rating Unit									
Number of Subsamples	2	2	2	2	2	2			
SE Group No.	20	21	22	23	24	25			
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14	241 14			
Trt-Eval Interval									
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1			
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 DE-1			
ARM Action Codes	P	P	P	P	P	P			
Number of Decimals	0	0	0	0	0	0			
Trt No.	Treatment Name	Rate	Appl Code	20	21	22	23	24	25
		Rate Unit							
12	SHARPEN	1 fl oz/a	C	6 b	3 -	5 -	0 b	0 c	4 a
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	TRICOR	6 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	ROUNDUP POWERMAX	1.5 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
13	SHARPEN	1 fl oz/a	C	2 c	4 -	2 -	0 b	0 c	1 bc
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						
14	SHARPEN	1 fl oz/a	C	2 c	5 -	5 -	0 b	0 c	0 c
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
15	SHARPEN	1 fl oz/a	C	2 c	2 -	6 -	0 b	0 c	1 c
	ENLIST DUO	4 pt/a	C						
	SONIC	4.5 oz/a	C						
	MSO ULTRA	1 % v/v	C						
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	WEEDAR 64	0.8 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
16	ENLIST DUO	4 pt/a	C	2 c	1 -	3 -	1 b	1 c	0 c
	SONIC	4.5 oz/a	C						
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
17	ENLIST DUO	4 pt/a	C	10 a	8 -	8 -	1 b	1 c	2 b
	N-PAK - AMS	2.5 % v/v	C						
	ENLIST DUO	4 pt/a	D						
	N-PAK - AMS	2.5 % v/v	D						
18	ENLIST DUO	4 pt/a	C	8 ab	4 -	5 -	0 b	0 c	0 c
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	WEEDAR 64	0.8 lb ae/a	D						
	N-PAK - AMS	2.5 % v/v	D						
19	LIBERTY 280 SL	32 fl oz/a	C	9 ab	8 -	4 -	1 b	2 c	0 c
	N-PAK - AMS	2.5 % v/v	C						
	LIBERTY 280 SL	32 fl oz/a	D						
	N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	TARSS	PANDI	DIGSA	SIDSP	ERICA	TARSS
Pest Scientific Name	Taraxacum sp.	Panicum dichot>	Digitaria sang>	Sida spinosa	Erigeron canad>	Taraxacum sp.
Pest Name	Dandelion	Fall panicum	large crabgrass	Prickly sida	Canada horsewe>	Dandelion
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016	Jul-8-2016
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
Rating Unit						
Number of Subsamples	2	2	2	2	2	2
SE Group No.	20	21	22	23	24	25
Days After First/Last Applic.	227 28	227 28	227 28	227 28	241 14	241 14
Trt-Eval Interval						
Plant-Eval Interval	29 DP-1	29 DP-1	29 DP-1	29 DP-1	43 DP-1	43 DP-1
Days After Emergence	24 DE-1	24 DE-1	24 DE-1	24 DE-1	38 DE-1	38 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	20	21	22	23
20 ROUNDUP POWERMAX	1.5 lb ae/a C		6 b	8 -	7 -	0 b
N-PAK - AMS	2.5 % v/v C					17 a
ROUNDUP POWERMAX	1.5 lb ae/a D					1 c
N-PAK - AMS	2.5 % v/v D					
LSD P=.05	2.6	8.1	10.9	0.9	3.3	0.9
Standard Deviation	1.8	5.7	7.7	0.6	2.4	0.7
CV	72.17	124.3	116.97	157.42	128.7	124.05
Bartlett's X2	62.931	64.716	46.39	36.959	82.271	27.272
P(Bartlett's X2)	0.001*	0.001*	0.001*	0.001*	0.001*	0.004*
Skewness	1.6022*	2.8762*	2.6431*	2.5831*	3.5298*	2.6274*
Kurtosis	1.9688*	12.801*	9.1098*	7.4586*	12.7487*	6.9535*
Replicate F	0.528	1.428	4.202	2.333	1.271	1.827
Replicate Prob(F)	0.6648	0.2441	0.0094	0.0836	0.2929	0.1525
Treatment F	11.966	0.931	1.333	2.698	13.366	8.246
Treatment Prob(F)	0.0001	0.5494	0.1999	0.0020	0.0001	0.0001

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI	DIGSA
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -
Rating Date	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
Rating Unit						
Number of Subsamples	2	2	2	2	2	2
SE Group No.	26	27	28	29	30	31
Days After First/Last Applic.	241 14	241 14	259 32	259 32	259 32	259 32
Trt-Eval Interval						
Plant-Eval Interval	43 DP-1	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1
Days After Emergence	38 DE-1	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 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	Appl	Rate	Appl	Rate	Appl
	Rate Unit	Code		Rate Unit	Code	Code
1 2,4-D LV4	0.5 lb ae/a	A	0 -	0 -	5 abc	0 b
CLARITY	0.25 lb ae/a	A				1 -
ACTIVATOR 90 - NIS	0.25 % v/v	A				
ENLIST DUO	4 pt/a	C				
SONIC	4.5 oz/a	C				
TRICOR	6 oz/a	C				
N-PAK - AMS	2.5 % v/v	C				
ROUNDUP POWERMAX	1.5 lb ae/a	D				
N-PAK - AMS	2.5 % v/v	D				
2 2,4-D LV4	0.5 lb ae/a	A	1 -	2 -	14 abc	0 b
ROUNDUP POWERMAX	16 fl oz/a	A				5 -
N-PAK - AMS	2.5 % v/v	A				
ENLIST DUO	4 pt/a	C				
SONIC	4.5 oz/a	C				
TRICOR	6 oz/a	C				
N-PAK - AMS	2.5 % v/v	C				
ROUNDUP POWERMAX	1.5 lb ae/a	D				
N-PAK - AMS	2.5 % v/v	D				6 -

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	26	27	28	29	30	31		
Days After First/Last Applic.	241 14	241 14	259 32	259 32	259 32	259 32		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1		
Days After Emergence	38 DE-1	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 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	Appl						
	Rate Unit	Code	26	27	28	29	30	31
3 2,4-D LV4	0.5 lb ae/a	A	1 -	1 -	24 a	0 b	4 -	5 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
TRICOR	6 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
ROUNDUP POWERMAX	1.5 lb ae/a	D						
N-PAK - AMS	2.5 % v/v	D						
4 2,4-D LV4	0.5 lb ae/a	A	0 -	2 -	14 abc	0 b	9 -	5 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
ACTIVATOR 90 - NIS	0.25 % v/v	B						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						
5 SHARPEN	1 fl oz/a	A	1 -	1 -	6 abc	0 b	8 -	6 -
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
6 2,4-D LV4	0.5 lb ae/a	A	0 -	1 -	9 abc	0 b	7 -	2 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
ROUNDUP POWERMAX	0.75 lb ae/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	26	27	28	29	30	31		
Days After First/Last Applic.	241 14	241 14	259 32	259 32	259 32	259 32		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1		
Days After Emergence	38 DE-1	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 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	26	27	28	29	30	31
7 2,4-D LV4	0.5 lb ae/a	A	1 -	1 -	1 c	0 b	2 -	0 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
SHARPEN	1 fl oz/a	C						
GRAMOXONE SL	3 pt/a	C						
MSO ULTRA	1 % v/v	C						
N-PAK - AMS	2.5 % v/v	C						
SONIC	4.5 oz/a	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
8 SHARPEN	1 fl oz/a	A	1 -	0 -	11 abc	0 b	5 -	3 -
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
9 CLARITY	0.25 lb ae/a	A	1 -	2 -	6 abc	0 b	5 -	3 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
10 SHARPEN	1 fl oz/a	A	0 -	0 -	16 abc	0 b	5 -	0 -
ROUNDUP POWERMAX	16 fl oz/a	A						
MSO ULTRA	1 % v/v	A						
N-PAK - AMS	2.5 % v/v	A						
2,4-D LV4	0.5 lb ae/a	B						
GRAMOXONE SL	3 pt/a	B						
SONIC	4.5 oz/a	B						
PRIME OIL - COC	1 % v/v	B						
ENLIST DUO	4 pt/a	D						
N-PAK - AMS	2.5 % v/v	D						
11 CLARITY	0.25 lb ae/a	A	2 -	3 -	8 abc	0 b	7 -	4 -
ROUNDUP POWERMAX	16 fl oz/a	A						
N-PAK - AMS	2.5 % v/v	A						
ENLIST DUO	4 pt/a	C						
SONIC	4.5 oz/a	C						
N-PAK - AMS	2.5 % v/v	C						
LIBERTY 280 SL	32 fl oz/a	D						
N-PAK - AMS	2.5 % v/v	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01
 Protocol ID: 15F-SEP-SOY-01
 Project ID:

Location: SEPAC Trial Year: 2015
 Investigator: Dr. Bill Johnson
 Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	26	27	28	29	30	31		
Days After First/Last Applic.	241 14	241 14	259 32	259 32	259 32	259 32		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1		
Days After Emergence	38 DE-1	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 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	Appl	26	27	28	29	30	31
	Rate Unit Code	Code						
12 SHARPEN	1 fl oz/a C	C	2 -	1 -	10 abc	3 a	11 -	1 -
ENLIST DUO	4 pt/a C	C						
SONIC	4.5 oz/a C	C						
TRICOR	6 oz/a C	C						
MSO ULTRA	1 % v/v C	C						
N-PAK - AMS	2.5 % v/v C	C						
ROUNDUP POWERMAX	1.5 lb ae/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
13 SHARPEN	1 fl oz/a C	C	2 -	1 -	5 abc	2 ab	5 -	1 -
ENLIST DUO	4 pt/a C	C						
SONIC	4.5 oz/a C	C						
MSO ULTRA	1 % v/v C	C						
N-PAK - AMS	2.5 % v/v C	C						
LIBERTY 280 SL	32 fl oz/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
14 SHARPEN	1 fl oz/a C	C	0 -	0 -	7 abc	1 b	4 -	1 -
ENLIST DUO	4 pt/a C	C						
SONIC	4.5 oz/a C	C						
MSO ULTRA	1 % v/v C	C						
N-PAK - AMS	2.5 % v/v C	C						
ENLIST DUO	4 pt/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
15 SHARPEN	1 fl oz/a C	C	1 -	1 -	6 abc	2 ab	11 -	2 -
ENLIST DUO	4 pt/a C	C						
SONIC	4.5 oz/a C	C						
MSO ULTRA	1 % v/v C	C						
N-PAK - AMS	2.5 % v/v C	C						
LIBERTY 280 SL	32 fl oz/a D	D						
WEEDAR 64	0.8 lb ae/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
16 ENLIST DUO	4 pt/a C	C	0 -	0 -	5 bc	1 b	3 -	1 -
SONIC	4.5 oz/a C	C						
N-PAK - AMS	2.5 % v/v C	C						
ENLIST DUO	4 pt/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
17 ENLIST DUO	4 pt/a C	C	1 -	0 -	11 abc	0 b	7 -	0 -
N-PAK - AMS	2.5 % v/v C	C						
ENLIST DUO	4 pt/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
18 ENLIST DUO	4 pt/a C	C	0 -	0 -	13 abc	0 b	2 -	2 -
N-PAK - AMS	2.5 % v/v C	C						
LIBERTY 280 SL	32 fl oz/a D	D						
WEEDAR 64	0.8 lb ae/a D	D						
N-PAK - AMS	2.5 % v/v D	D						
19 LIBERTY 280 SL	32 fl oz/a C	C	1 -	1 -	10 abc	2 ab	3 -	1 -
N-PAK - AMS	2.5 % v/v C	C						
LIBERTY 280 SL	32 fl oz/a D	D						
N-PAK - AMS	2.5 % v/v D	D						

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
 Project ID: Study Director: Dustin Johnson
 Sponsor Contact: Purdue/Ohio State

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	PANDI	DIGSA	ERICA	TARSS	PANDI	DIGSA		
Pest Scientific Name	Panicum dichot>	Digitaria sang>	Erigeron canad>	Taraxacum sp.	Panicum dichot>	Digitaria sang>		
Pest Name	Fall panicum	large crabgrass	Canada horsewe>	Dandelion	Fall panicum	large crabgrass		
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean		
Part Rated	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -	PLOT -		
Rating Date	Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016	Jul-26-2016		
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT		
Rating Unit								
Number of Subsamples	2	2	2	2	2	2		
SE Group No.	26	27	28	29	30	31		
Days After First/Last Applic.	241 14	241 14	259 32	259 32	259 32	259 32		
Trt-Eval Interval								
Plant-Eval Interval	43 DP-1	43 DP-1	61 DP-1	61 DP-1	61 DP-1	61 DP-1		
Days After Emergence	38 DE-1	38 DE-1	56 DE-1	56 DE-1	56 DE-1	56 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	26	27	28	29	30	31
20 ROUNDUP POWERMAX	1.5 lb ae/a C		1 -	0 -	21 ab	1 b	1 -	0 -
N-PAK - AMS	2.5 % v/v C							
ROUNDUP POWERMAX	1.5 lb ae/a D							
N-PAK - AMS	2.5 % v/v D							
LSD P=.05	1.5		1.5	2.0	10.2	1.0	7.3	4.6
Standard Deviation	1.1		1.1	1.4	7.2	0.7	5.2	3.2
CV	143.04		143.04	165.61	71.32	125.92	99.46	147.73
Bartlett's X2	49.678		49.678	80.326	30.942	25.673	41.125	68.606
P(Bartlett's X2)	0.001*		0.001*	0.001*	0.041*	0.007*	0.002*	0.001*
Skewness	2.7171*		2.7171*	3.2667*	1.6673*	2.0766*	1.7176*	2.3669*
Kurtosis	9.5616*		9.5616*	12.1544*	4.4727*	4.2805*	2.9467*	5.6175*
Replicate F	3.266		3.266	1.796	3.847	0.373	5.403	5.250
Replicate Prob(F)	0.0278		0.0278	0.1583	0.0141	0.7728	0.0024	0.0029
Treatment F	0.989		0.989	1.184	2.439	4.855	1.332	1.478
Treatment Prob(F)	0.4867		0.4867	0.3029	0.0050	0.0001	0.2008	0.1291

Purdue Weed Science

2,4-D-Based Fall/Spring Programs for Control of Glyphosate-Resistant Marestalk

Trial ID: 15F-SEP-SOY-01 Location: SEPAC Trial Year: 2015
 Protocol ID: 15F-SEP-SOY-01 Investigator: Dr. Bill Johnson
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 Sponsor Contact: Purdue/Ohio State

Pest Type

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

Pest Code

TARSS, Taraxacum sp., = US
 SENGL, Senecio glabellus, = US
 ERICA, Conyza canadensis, = ERICA, Conyza canadensis,
 ERICA, Erigeron canadensis, = US
 PANDI, Panicum dichotomiflorum, = US
 DIGSA, Digitaria sanguinalis, = US
 SIDSP, Sida spinosa, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Part Rated

PLOT = plot

Rating Type

CONTRO = control / burndown or knockdown

COUNT = count

Rating Unit

% = percent

Plant-Eval Interval

-183 DP-1 = 1 GLXMA May-26-2016

-168 DP-1 = 1 GLXMA May-26-2016

29 DP-1 = 1 GLXMA May-26-2016

43 DP-1 = 1 GLXMA May-26-2016

61 DP-1 = 1 GLXMA May-26-2016

ARM Action Codes

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