Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

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: Apr-14-2016

Trial Location

City: Cortland **Country:** USA United States
State/Prov.: Indiana
Postal Code: 47228

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Dustin Johnson **Title:** Research Associate
Organization: Purdue University
Address: 915 West State Street **Phone No.:** (765) 496-6690
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

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: MR5SA91BE3 / SE 832437 **BBCH Scale:** BSOY
Description: Dicamba Tolerant

Planting Date: May-30-2016
Planting Rate, Unit: 32000 S/A **Planting Method:** DIRDRI direct drilled
Depth, Unit: 2 IN
Row Spacing, Unit: 30 IN **Emergence Date:** Jun-4-2016
Soil Temperature, Unit: 70 F
Soil Moisture: DRY dry

Pest Description

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

Pest 2 Type: W **Code:** CHEAL Chenopodium album
Common Name: common lambsquarters

Pest 3 Type: W **Code:** LAMAM Lamium amplexicaule
Common Name: Henbit

Site and Design

Treated Plot Width: 6.67 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 200.1 FT2 **Treatments:** 6 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Rate	Rate Unit
1.	Mar-30-2016	0-0-60 POTASH	119	LB/A
2.	Mar-30-2016	18-46-0 PHOSPHORUS	60	LB/A

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Soil Description

Description Name: CORTLAND
% Sand: 46.6 **% OM:** 1.6 **Texture:** SL sandy loam
% Silt: 35.6 **pH:** 6.6 **Soil Name:** Fox-Ockley
% Clay: 17.8 **CEC:** 9
Soil Drainage: E excellent

Application Description

	A	B
Application Date:	May-16-2016	Jun-24-2016
Appl. Start Time:	1:15 PM	8:50 AM
Appl. Stop Time:	1:30 PM	9:05 AM
Application Method:	SPRAY	SPRAY
Application Timing:	"A" Burndown	"B" 2-4" Wee
Application Placement:	BROADC	BROADC
Applied By:	D. JOHNSON	T. CAMPBELL
Air Temperature, Unit:	58 F	75 F
% Relative Humidity:	48	80
Wind Velocity, Unit:	9 MPH	3 MPH
Wind Direction:	S	N
Dew Presence (Y/N):	N no	Y yes
Soil Temperature, Unit:	59 F	86 F
Soil Moisture:	DRY	SLIWET
% Cloud Cover:	90	5

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC
Stage Majority, Percent:		V-3
Stage Minimum, Percent:		V-4
Stage Maximum, Percent:		V-3

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	ERICA W	ERICA W
Height, Unit:	8 IN	3 IN
Height Minimum, Maximum:	4 12	2 6
Density, Unit:	54 YD2	68 YD2
Pest 2 Code, Type, Scale:	CHEAL W	CHEAL W
Height, Unit:	8 IN	3 IN
Height Minimum, Maximum:	4 12	1 6
Density, Unit:	54 YD2	36 YD2
Pest 3 Code, Type, Scale:	LAMAM W	LAMAM W
Stage Majority, Percent:	65	
Stage Minimum, Percent:	60	
Stage Maximum, Percent:	67	
Height, Unit:	8.5 IN	
Height Minimum, Maximum:	7 10	
Density, Unit:	10 YD2	

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Application Equipment

	A	B
Appl. Equipment:	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:	BACSPR	BACSPR
Operation Pressure, Unit:	42 PSI	42 PSI
Nozzle Type:	FLAFXR	TTI
Nozzle Size:	XR11002	TTI110015
Nozzle Spacing, Unit:	20 IN	20 IN
Nozzles/Row:	4	4
Boom Length, Unit:	6.67 FT	6.7 FT
Boom Height, Unit:	17 IN	17 IN
Ground Speed, Unit:	6 MPH	3 MPH
Carrier:	WATER	WATER
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC
Mix Size, Unit:	1119 mL	1119 mL
Propellant:	COMCO2	COMCO2

Date By Notes
Apr-14-2016 D. JOHNSON Setup Trial
May-16-2016 D. JOHNSON Sprayed 14-DBP Burndown. ERICA & CHEAL good densities and majority were between 5-8" in height. High corn stalk residue in 202/302.
May-30-2016 B. YOUNG Planted Trial using Valent supplied soybean variety. Rated 14-DAT/0DAP.
Jun-14-2016 T. LEGLEITE Rated 14-DAP.
Jun-24-2016 P. DEVKOTA Rated 28-DAP/0-DA"B".
Jun-24-2016 T. CAMPBELL Sprayed Post Application "B". Targeted 2-4" Weeds in treated areas.
Jul-8-2016 T. CAMPBELL Rated 42-DAP/14-DA"B".
Jul-26-2016 T. CAMPBELL Rated 56-DAP/28-DA"B".

Trial Comments

Use TTI Nozzles for applications
Application B is applied when weed population reaches 2"

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	Rate Unit	Appl Code	Amt Product to Measure	Rep 1	2	3	4
1	Untreated Check								101	205	402	503
2	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	A	18.65 ml/mx	102	204	303	404
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	A	9.325 ml/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	A	2.797 ml/mx				
	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	B	18.65 ml/mx				
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	B	9.325 ml/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	B	2.797 ml/mx				
3	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	A	18.65 ml/mx	103	301	403	405
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	A	9.325 ml/mx				
	VALOR SX	51	%W/W	WG	2.5	oz/a	A	1.397 g/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	A	2.797 ml/mx				
	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	B	18.65 ml/mx				
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	B	9.325 ml/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	B	2.797 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	Rate Unit	Appl Code	Amt Product to Measure	Rep 1	2	3	4
4	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	A	18.65 ml/mx	104	202	305	501
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	A	9.325 ml/mx				
	FIERCE	76	%W/W	WG	3.0	oz/a	A	1.676 g/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	A	2.797 ml/mx				
	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	B	18.65 ml/mx				
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	B	9.325 ml/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	B	2.797 ml/mx				
5	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	A	18.65 ml/mx	105	203	401	504
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	A	9.325 ml/mx				
	FIERCE	76	%W/W	WG	3.0	oz/a	A	1.676 g/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	A	2.797 ml/mx				
	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	B	18.65 ml/mx				
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	B	9.325 ml/mx				
	WARRANT	3	LBA/GAL	EC	3	pt/a	B	27.97 ml/mx				
	COC	100	%	OS	1	pt/a	B	9.325 ml/mx				
6	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	A	18.65 ml/mx	201	302	304	502
	V-10404	2.17	LBA/GAL	SC	48	fl oz/a	A	27.97 ml/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	A	2.797 ml/mx				
	RoundUp Power Max	4.5	LBAE/GAL	SL	32	fl oz/a	B	18.65 ml/mx				
	CLARITY	4.0	LBA/GAL	SL	1	pt/a	B	9.325 ml/mx				
	Activator 90-NIS	100	%	SL	0.25	% v/v	B	2.797 ml/mx				

Sort Order: Replicate 1

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

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
233.125	ml	RoundUp Power Max	4.5	SL	
104.906	ml	CLARITY	4.0	SL	
31.468	ml	Activator 90-NIS	100	SL	
1.746	g	VALOR SX	51	WG	
4.190	g	FIERCE	76	WG	
34.969	ml	WARRANT	3	EC	
11.656	ml	COC	100	OS	
34.969	ml	V-10404	2.17	SC	

* '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.

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Sponsor Contact: Valent-Eric Ott

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5
	Pest Type					W Weed	W Weed	W Weed	W Weed	W Weed
	Pest Code					ERICA	CHEAL	LAMAM	ERICA	CHEAL
	Pest Name					Canada horsewe>	common lambsqu>	Henbit	Canada horsewe>	common lambsqu>
	Crop Code									
	Crop Name									
	Rating Date					May-30-2016	May-30-2016	May-30-2016	Jun-14-2016	Jun-14-2016
	Rating Type					CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
	Rating Unit					%	%	%	%	%
	Number of Subsamples					1	1	1	1	1
	Assessed By					D. JOHNSON	D. JOHNSON	D. JOHNSON	T. LEGLEITE	T. LEGLEITE
	Days After First/Last Applic.					14 14	14 14	14 14	29 29	29 29
	Days After Emergence					-5 DE-1	-5 DE-1	-5 DE-1	10 DE-1	10 DE-1
	ARM Action Codes					P	P	P	P	P
	Number of Decimals					0	0	0	0	0
1	Untreated Check				101	0	0	0	0	0
					205	0	0	0	0	0
					402	0	0	0	0	0
					503	0	0	0	0	0
					Mean =	0	0	0	0	0
2	RoundUp Power Max	32	fl oz/a	A	102	80	100	100	60	90
	CLARITY	1	pt/a	A	204	60	90	100	80	100
	Activator 90-NIS	0.25	% v/v	A	303	70	60	100	70	100
	RoundUp Power Max	32	fl oz/a	B	404	70	90	100	80	100
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	70	85	100	73	98
3	RoundUp Power Max	32	fl oz/a	A	103	60	75	100	50	100
	CLARITY	1	pt/a	A	301	70	95	100	50	100
	VALOR SX	2.5	oz/a	A	403	60	85	100	70	100
	Activator 90-NIS	0.25	% v/v	A	405	70	100	100	70	100
	RoundUp Power Max	32	fl oz/a	B						
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	65	89	100	60	100
4	RoundUp Power Max	32	fl oz/a	A	104	60	80	100	50	100
	CLARITY	1	pt/a	A	202	80	90	100	90	100
	FIERCE	3.0	oz/a	A	305	60	100	100	70	100
	Activator 90-NIS	0.25	% v/v	A	501	80	100	100	60	100
	RoundUp Power Max	32	fl oz/a	B						
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	70	93	100	68	100
5	RoundUp Power Max	32	fl oz/a	A	105	60	85	100	50	100
	CLARITY	1	pt/a	A	203	40	90	100	50	100
	FIERCE	3.0	oz/a	A	401	70	95	100	50	100
	Activator 90-NIS	0.25	% v/v	A	504	70	100	100	50	100
	RoundUp Power Max	32	fl oz/a	B						
	CLARITY	1	pt/a	B						
	WARRANT	3	pt/a	B						
	COC	1	pt/a	B						
					Mean =	60	93	100	50	100
6	RoundUp Power Max	32	fl oz/a	A	201	60	90	100	90	100
	V-10404	48	fl oz/a	A	302	80	100	100	80	100
	Activator 90-NIS	0.25	% v/v	A	304	80	95	100	95	100
	RoundUp Power Max	32	fl oz/a	B	502	70	100	100	60	100
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	73	96	100	81	100

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Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	6	7	8	9	10
	Pest Type						W Weed	W Weed		W Weed
	Pest Code						ERICA	CHEAL		ERICA
	Pest Name						Canada horsewe>	common lambsqu>		Canada horsewe>
	Crop Code					GLXMA			GLXMA	
	Crop Name					Soybean			Soybean	
	Rating Date					Jun-14-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016
	Rating Type					PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO
	Rating Unit					%	%	%	%	%
	Number of Subsamples					1	1	1	1	1
	Assessed By					T. LEGLEITE	P. DEVKOTA	P. DEVKOTA	D. JOHNSON	T. CAMPBELL
	Days After First/Last Applic.					29 29	39 39	39 39	39 39	53 14
	Days After Emergence					10 DE-1	20 DE-1	20 DE-1	20 DE-1	34 DE-1
	ARM Action Codes					P	P	P	P	P
	Number of Decimals					0	0	0	0	0
1	Untreated Check				101	0	0	0	0	0
					205	0	0	0	0	0
					402	0	0	0	0	0
					503	0	0	0	0	0
					Mean =	0	0	0	0	0
2	RoundUp Power Max	32	fl oz/a	A	102	0	80	100	0	80
	CLARITY	1	pt/a	A	204	0	80	100	0	90
	Activator 90-NIS	0.25	% v/v	A	303	0	80	100	0	90
	RoundUp Power Max	32	fl oz/a	B	404	0	85	100	0	90
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	0	81	100	0	88
3	RoundUp Power Max	32	fl oz/a	A	103	0	70	80	0	90
	CLARITY	1	pt/a	A	301	0	75	100	0	85
	VALOR SX	2.5	oz/a	A	403	0	80	100	0	90
	Activator 90-NIS	0.25	% v/v	A	405	0	80	100	0	90
	RoundUp Power Max	32	fl oz/a	B						
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	0	76	95	0	89
4	RoundUp Power Max	32	fl oz/a	A	104	0	75	100	0	90
	CLARITY	1	pt/a	A	202	0	95	100	0	95
	FIERCE	3.0	oz/a	A	305	0	75	100	0	90
	Activator 90-NIS	0.25	% v/v	A	501	0	80	100	0	90
	RoundUp Power Max	32	fl oz/a	B						
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	0	81	100	0	91
5	RoundUp Power Max	32	fl oz/a	A	105	0	70	100	0	90
	CLARITY	1	pt/a	A	203	0	70	100	0	90
	FIERCE	3.0	oz/a	A	401	0	80	100	0	85
	Activator 90-NIS	0.25	% v/v	A	504	0	80	100	0	90
	RoundUp Power Max	32	fl oz/a	B						
	CLARITY	1	pt/a	B						
	WARRANT	3	pt/a	B						
	COC	1	pt/a	B						
					Mean =	0	75	100	0	89
6	RoundUp Power Max	32	fl oz/a	A	201	0	90	100	0	90
	V-10404	48	fl oz/a	A	302	0	90	100	0	90
	Activator 90-NIS	0.25	% v/v	A	304	0	90	100	0	95
	RoundUp Power Max	32	fl oz/a	B	502	0	85	100	0	95
	CLARITY	1	pt/a	B						
	Activator 90-NIS	0.25	% v/v	B						
					Mean =	0	89	100	0	93

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Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	11	12	13	14
	Pest Type					W Weed		W Weed	W Weed
	Pest Code					CHEAL		ERICA	CHEAL
	Pest Name					common lambsqu>		Canada horsewe>	common lambsqu>
	Crop Code						GLXMA		
	Crop Name						Soybean		
	Rating Date					Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016
	Rating Type					CONTRO	PHYGEN	PERCEN	PERCEN
	Rating Unit					%	%	%	%
	Number of Subsamples					1	1	1	1
	Assessed By					T. CAMPBELL	T. CAMPBELL	T. CAMPBELL	T. CAMPBELL
	Days After First/Last Applic.					53 14	53 14	71 32	71 32
	Days After Emergence					34 DE-1	34 DE-1	52 DE-1	52 DE-1
	ARM Action Codes					P	P	P	P
	Number of Decimals					0	0	0	0
1	Untreated Check				101	0	0	0	0
					205	0	0	0	0
					402	0	0	0	0
					503	0	0	0	0
					Mean =	0	0	0	0
2	RoundUp Power Max	32	fl oz/a	A	102	100	0	100	100
	CLARITY	1	pt/a	A	204	100	0	100	100
	Activator 90-NIS	0.25	% v/v	A	303	100	0	100	100
	RoundUp Power Max	32	fl oz/a	B	404	100	0	100	100
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
					Mean =	100	0	100	100
3	RoundUp Power Max	32	fl oz/a	A	103	100	0	100	100
	CLARITY	1	pt/a	A	301	100	0	100	100
	VALOR SX	2.5	oz/a	A	403	100	0	100	100
	Activator 90-NIS	0.25	% v/v	A	405	100	0	100	100
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
					Mean =	100	0	100	100
4	RoundUp Power Max	32	fl oz/a	A	104	100	0	100	100
	CLARITY	1	pt/a	A	202	100	0	100	100
	FIERCE	3.0	oz/a	A	305	100	0	100	100
	Activator 90-NIS	0.25	% v/v	A	501	100	0	100	100
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
					Mean =	100	0	100	100
5	RoundUp Power Max	32	fl oz/a	A	105	100	5	100	100
	CLARITY	1	pt/a	A	203	100	0	100	100
	FIERCE	3.0	oz/a	A	401	100	0	100	100
	Activator 90-NIS	0.25	% v/v	A	504	100	0	100	100
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	WARRANT	3	pt/a	B					
	COC	1	pt/a	B					
					Mean =	100	1	100	100
6	RoundUp Power Max	32	fl oz/a	A	201	100	0	100	100
	V-10404	48	fl oz/a	A	302	100	0	100	100
	Activator 90-NIS	0.25	% v/v	A	304	100	0	100	100
	RoundUp Power Max	32	fl oz/a	B	502	100	0	100	100
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
					Mean =	100	0	100	100

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Sponsor Contact: Valent-Eric Ott

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
ERICA, Erigeron canadensis, = US
CHEAL, Chenopodium album, = US
LAMAM, Lamium amplexicaule, = US
Crop Code
GLXMA, BSOY, Glycine max, = US
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
PERCEN = percent
Rating Unit
% = percent
ARM Action Codes
P = Rating scale of 0 to 100 (e.g. % control or injury)

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5
	Pest Type				W Weed	W Weed	W Weed	W Weed	W Weed
	Pest Code				ERICA	CHEAL	LAMAM	ERICA	CHEAL
	Pest Name				Canada horsewe>	common lambsqu>	Henbit	Canada horsewe>	common lambsqu>
	Crop Code								
	Crop Name								
	Rating Date				May-30-2016	May-30-2016	May-30-2016	Jun-14-2016	Jun-14-2016
	Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
	Rating Unit				%	%	%	%	%
	Number of Subsamples				1	1	1	1	1
	Assessed By				D. JOHNSON	D. JOHNSON	D. JOHNSON	T. LEGLEITE	T. LEGLEITE
	Days After First/Last Applic.				14 14	14 14	14 14	29 29	29 29
	Days After Emergence				-5 DE-1	-5 DE-1	-5 DE-1	10 DE-1	10 DE-1
	ARM Action Codes				P	P	P	P	P
	Number of Decimals				0	0	0	0	0
1	Untreated Check				0 b	0 b	0 -	0 c	0 b
2	RoundUp Power Max	32	fl oz/a	A	70 a	85 a	100 -	73 ab	98 a
	CLARITY	1	pt/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
3	RoundUp Power Max	32	fl oz/a	A	65 a	89 a	100 -	60 ab	100 a
	CLARITY	1	pt/a	A					
	VALOR SX	2.5	oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
4	RoundUp Power Max	32	fl oz/a	A	70 a	93 a	100 -	68 ab	100 a
	CLARITY	1	pt/a	A					
	FIERCE	3.0	oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
5	RoundUp Power Max	32	fl oz/a	A	60 a	93 a	100 -	50 b	100 a
	CLARITY	1	pt/a	A					
	FIERCE	3.0	oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	WARRANT	3	pt/a	B					
	COC	1	pt/a	B					

Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code		ERICA	CHEAL	LAMAM	ERICA	CHEAL
Pest Name		Canada horsewe>	common lambsqu>	Henbit	Canada horsewe>	common lambsqu>
Crop Code						
Crop Name						
Rating Date		May-30-2016	May-30-2016	May-30-2016	Jun-14-2016	Jun-14-2016
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		%	%	%	%	%
Number of Subsamples		1	1	1	1	1
Assessed By		D. JOHNSON	D. JOHNSON	D. JOHNSON	T. LEGLEITE	T. LEGLEITE
Days After First/Last Applic.		14 14	14 14	14 14	29 29	29 29
Days After Emergence		-5 DE-1	-5 DE-1	-5 DE-1	10 DE-1	10 DE-1
ARM Action Codes		P	P	P	P	P
Number of Decimals		0	0	0	0	0
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5
6	RoundUp Power Max	32	fl oz/a	A	73 a	96 a	100 -	81 a	100 a
	V-10404	48	fl oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
LSD P=.05					14.7	14.3	.	17.1	3.1
Standard Deviation					9.8	9.5	0.0	11.3	2.0
CV					17.35	12.49	0.0	20.56	2.46
Bartlett's X2					2.353	5.14	0.0	1.13	0.0
P(Bartlett's X2)					0.671	0.273	.	0.77	.
Skewness					-1.4675*	-1.6539*	-1.9104*	-0.9219	-1.8988*
Kurtosis					0.8198	1.169	1.7922	0.1341	1.7652
Replicate F					0.510	1.455	0.000	0.871	1.000
Replicate Prob(F)					0.6813	0.2666	1.0000	0.4780	0.4199
Treatment F					32.720	62.183	0.000	26.246	1585.000
Treatment Prob(F)					0.0001	0.0001	1.0000	0.0001	0.0001

Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	6	7	8	9	10
	Pest Type					W Weed	W Weed		W Weed
	Pest Code					ERICA	CHEAL		ERICA
	Pest Name					Canada horsewe>	common lambsqu>		Canada horsewe>
	Crop Code				GLXMA			GLXMA	
	Crop Name				Soybean			Soybean	
	Rating Date				Jun-14-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016
	Rating Type				PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO
	Rating Unit				%	%	%	%	%
	Number of Subsamples				1	1	1	1	1
	Assessed By				T. LEGLEITE	P. DEVKOTA	P. DEVKOTA	D. JOHNSON	T. CAMPBELL
	Days After First/Last Applic.				29 29	39 39	39 39	39 39	53 14
	Days After Emergence				10 DE-1	20 DE-1	20 DE-1	20 DE-1	34 DE-1
	ARM Action Codes				P	P	P	P	P
	Number of Decimals				0	0	0	0	0
1	Untreated Check				0 -	0 c	0 b	0 -	0 b
2	RoundUp Power Max	32	fl oz/a	A	0 -	81 ab	100 a	0 -	88 a
	CLARITY	1	pt/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
3	RoundUp Power Max	32	fl oz/a	A	0 -	76 b	95 a	0 -	89 a
	CLARITY	1	pt/a	A					
	VALOR SX	2.5	oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
4	RoundUp Power Max	32	fl oz/a	A	0 -	81 ab	100 a	0 -	91 a
	CLARITY	1	pt/a	A					
	FIERCE	3.0	oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
5	RoundUp Power Max	32	fl oz/a	A	0 -	75 b	100 a	0 -	89 a
	CLARITY	1	pt/a	A					
	FIERCE	3.0	oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	WARRANT	3	pt/a	B					
	COC	1	pt/a	B					

Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	6	7	8	9	10
	Pest Type					W Weed	W Weed		W Weed
	Pest Code					ERICA	CHEAL		ERICA
	Pest Name					Canada horsewe>	common lambsqu>		Canada horsewe>
	Crop Code				GLXMA			GLXMA	
	Crop Name				Soybean			Soybean	
	Rating Date				Jun-14-2016	Jun-24-2016	Jun-24-2016	Jun-24-2016	Jul-8-2016
	Rating Type				PHYGEN	CONTRO	CONTRO	PHYGEN	CONTRO
	Rating Unit				%	%	%	%	%
	Number of Subsamples				1	1	1	1	1
	Assessed By				T. LEGLEITE	P. DEVKOTA	P. DEVKOTA	D. JOHNSON	T. CAMPBELL
	Days After First/Last Applic.				29 29	39 39	39 39	39 39	53 14
	Days After Emergence				10 DE-1	20 DE-1	20 DE-1	20 DE-1	34 DE-1
	ARM Action Codes				P	P	P	P	P
	Number of Decimals				0	0	0	0	0
6	RoundUp Power Max	32	fl oz/a	A	0 -	89 a	100 a	0 -	93 a
	V-10404	48	fl oz/a	A					
	Activator 90-NIS	0.25	% v/v	A					
	RoundUp Power Max	32	fl oz/a	B					
	CLARITY	1	pt/a	B					
	Activator 90-NIS	0.25	% v/v	B					
	LSD P=.05				.	7.8	6.2	.	4.5
	Standard Deviation				0.0	5.2	4.1	0.0	3.0
	CV				0.0	7.74	4.95	0.0	4.03
	Bartlett's X2				0.0	6.826	0.0	0.0	2.425
	P(Bartlett's X2)				.	0.145	.	.	0.658
	Skewness				.	-1.7299*	-1.8671*	.	-1.8758*
	Kurtosis				.	1.4353	1.6809	.	1.7172
	Replicate F				0.000	0.876	1.000	0.000	0.725
	Replicate Prob(F)				1.0000	0.4753	0.4199	1.0000	0.5526
	Treatment F				0.000	163.825	393.000	0.000	591.779
	Treatment Prob(F)				1.0000	0.0001	0.0001	1.0000	0.0001

Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	11	12	13	14
	Pest Type				W Weed		W Weed	W Weed
	Pest Code				CHEAL		ERICA	CHEAL
	Pest Name				common lambsqu>		Canada horsewe>	common lambsqu>
	Crop Code					GLXMA		
	Crop Name					Soybean		
	Rating Date				Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016
	Rating Type				CONTRO	PHYGEN	PERCEN	PERCEN
	Rating Unit				%	%	%	%
	Number of Subsamples				1	1	1	1
	Assessed By				T. CAMPBELL	T. CAMPBELL	T. CAMPBELL	T. CAMPBELL
	Days After First/Last Applic.				53 14	53 14	71 32	71 32
	Days After Emergence				34 DE-1	34 DE-1	52 DE-1	52 DE-1
	ARM Action Codes				P	P	P	P
	Number of Decimals				0	0	0	0
1	Untreated Check				0 -	0 -	0 -	0 -
2	RoundUp Power Max	32	fl oz/a	A	100 -	0 -	100 -	100 -
	CLARITY	1	pt/a	A				
	Activator 90-NIS	0.25	% v/v	A				
	RoundUp Power Max	32	fl oz/a	B				
	CLARITY	1	pt/a	B				
	Activator 90-NIS	0.25	% v/v	B				
3	RoundUp Power Max	32	fl oz/a	A	100 -	0 -	100 -	100 -
	CLARITY	1	pt/a	A				
	VALOR SX	2.5	oz/a	A				
	Activator 90-NIS	0.25	% v/v	A				
	RoundUp Power Max	32	fl oz/a	B				
	CLARITY	1	pt/a	B				
	Activator 90-NIS	0.25	% v/v	B				
4	RoundUp Power Max	32	fl oz/a	A	100 -	0 -	100 -	100 -
	CLARITY	1	pt/a	A				
	FIERCE	3.0	oz/a	A				
	Activator 90-NIS	0.25	% v/v	A				
	RoundUp Power Max	32	fl oz/a	B				
	CLARITY	1	pt/a	B				
	Activator 90-NIS	0.25	% v/v	B				
5	RoundUp Power Max	32	fl oz/a	A	100 -	1 -	100 -	100 -
	CLARITY	1	pt/a	A				
	FIERCE	3.0	oz/a	A				
	Activator 90-NIS	0.25	% v/v	A				
	RoundUp Power Max	32	fl oz/a	B				
	CLARITY	1	pt/a	B				
	WARRANT	3	pt/a	B				
	COC	1	pt/a	B				

Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Pest Type		W Weed		W Weed	W Weed
Pest Code		CHEAL		ERICA	CHEAL
Pest Name		common lambsqu>		Canada horsewe>	common lambsqu>
Crop Code			GLXMA		
Crop Name			Soybean		
Rating Date		Jul-8-2016	Jul-8-2016	Jul-26-2016	Jul-26-2016
Rating Type		CONTRO	PHYGEN	PERCEN	PERCEN
Rating Unit		%	%	%	%
Number of Subsamples		1	1	1	1
Assessed By		T. CAMPBELL	T. CAMPBELL	T. CAMPBELL	T. CAMPBELL
Days After First/Last Applic.		53 14	53 14	71 32	71 32
Days After Emergence		34 DE-1	34 DE-1	52 DE-1	52 DE-1
ARM Action Codes		P	P	P	P
Number of Decimals		0	0	0	0
Trt No.	Treatment Name	Rate Unit	Appl Code	11	12	13	14
6	RoundUp Power Max	32 fl oz/a	A	100 -	0 -	100 -	100 -
	V-10404	48 fl oz/a	A				
	Activator 90-NIS	0.25 % v/v	A				
	RoundUp Power Max	32 fl oz/a	B				
	CLARITY	1 pt/a	B				
	Activator 90-NIS	0.25 % v/v	B				
LSD P=.05				.	1.5	.	.
Standard Deviation				0.0	1.0	0.0	0.0
CV				0.0	489.9	0.0	0.0
Bartlett's X2				0.0	0.0	0.0	0.0
P(Bartlett's X2)				.	.	.	.
Skewness				-1.9104*	4.899*	-1.9104*	-1.9104*
Kurtosis				1.7922	24.0*	1.7922	1.7922
Replicate F				0.000	1.000	0.000	0.000
Replicate Prob(F)				1.0000	0.4199	1.0000	1.0000
Treatment F				0.000	1.000	0.000	0.000
Treatment Prob(F)				1.0000	0.4509	1.0000	1.0000

Purdue Weed Science

Programs for control of glyphosate resistant horseweed in dicamba tolerant/Extend soybean.

Trial ID: 16S-CORT-SOY-05 Location: CORTLAND Trial Year: 2016
Protocol ID: 16S-CORT-SOY-05 Investigator: Dr. Bill Johnson
Project ID: FIERCE 64.06 Study Director: Dustin Johnson
Sponsor Contact: Valent-Eric Ott

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
ERICA, Erigeron canadensis, = US
CHEAL, Chenopodium album, = US
LAMAM, Lamium amplexicaule, = US
Crop Code
GLXMA, BSOY, Glycine max, = US
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
PERCEN = percent
Rating Unit
% = percent
ARM Action Codes
P = Rating scale of 0 to 100 (e.g. % control or injury)