

Purdue University Weed Science

FIERCE PLUS DICAMBA BURNDOWN

Trial ID: 15S-THP-CTS-19 Trial Year: 2015
 Protocol ID: VUSA2015FIERCCEMD64.06 Investigator: Dr. Bill Johnson
 Project ID: 4600.38352 Sponsor Contact: Valent

General Trial Information

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

Discipline: H herbicide
Trial Status: E established
Initiation Date: Jun-4-2015

Trial Location

City: Lafayette **Country:** USA United States
State/Prov.: Indiana
Postal Code: 47909

Conducted Under GLP: No
Conducted Under GEP: No

Study Rules: Default

No.	Guideline	Description
1.	ADM-C-PUB	Confidentiality - Public Trial - No Secrecy Agreement Required

Objectives:

To demonstrate the advantage of including Valor (2.5 oz/A), Fierce (3 oz/A) &/ or Cobra (12.5 fl oz/A) to an Extend herbicide program for residual and/or post control of glyphosate resistant marestail, Palmer, waterhemp, ragweeds, or Italian ryegrass. Measure of success is total burndown of emerged weeds, acceptable crop tolerance, and excellent preemergence weed control.

Contacts

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Investigator: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
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Country: USA United States

Cooperator/Landowner

Cooperator: Throckmorton Purdue Ag Center **Role:** Purdue Ag Center
Organization: Purdue University
Address 1: 8343 US 231 S
City: Lafayette **Phone No.:** 765-538-3422
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Country: USA United States **E-mail:** jayyoung@purdue.edu

Crop Description

Crop 1: GLXMA Glycine max **Crop Description:** Soybean
Variety: ASGROW 2933 **BBCH Scale:** BSOY
Description: RR2

Planting Rate, Unit: 140000 S/A **Planting Date:** Jun-4-2015
Depth, Unit: 1.25 IN **Planting Method:** SEEDDED seeded
Row Spacing, Unit: 30 IN **Planting Equipment:** PP Plot Planter
Soil Temperature, Unit: 74 F **Emergence Date:** Jun-10-2015
Soil Moisture: SLIWET slightly wet, moist

Pest Description

Pest 1 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed

Pest 2 Type: W **Code:** SETPU Setaria pumila
Common Name: yellow foxtail

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Site and Design	
Treated Plot Width: 10 FT Treated Plot Length: 30 FT Treated Plot Area: 300 FT ² Treatments: 10 Replications: 4	Site Type: FIELD field Experimental Unit: 1 PLOT plot Tillage Type: CONTIL conventional-till Study Design: RACOB Randomized Complete Block (RCB)

Soil Description	
Description Name: TPAC -Field 4A % OM: 3.1 pH: 6 CEC: 11.1	Texture: SIL silt loam Soil Name: Toronto-Millbrook

Application Description		
	A	B
Application Date:	Jun-4-2015	Jul-1-2015
Appl. Start Time:	19:45	14:00
Appl. Stop Time:	20:00	14:30
Application Method:	SPRAY	SPRAY
Application Timing:	BURNDOWN	POST
Application Placement:	BROADC	BROADC
Applied By:	JI	TC
Air Temperature, Unit:	78 F	70 F
% Relative Humidity:	52	68
Wind Velocity, Unit:	4 MPH	3 MPH
Wind Direction:	WSW	NE
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	74 F	74 F
Soil Moisture:	SLIWET	WET
% Cloud Cover:	90	80

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH
Stage Majority, Percent:		13
Stage Minimum, Percent:		12
Stage Maximum, Percent:		13
Height, Unit:		6 IN
Height Minimum, Maximum:		4 8

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Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale:	AMBTR W	AMBTR W
Stage Majority, Percent:	32G	14
Stage Minimum, Percent:	31G	12
Stage Maximum, Percent:	33G	16
Height, Unit:	4 IN	3 IN
Height Minimum, Maximum:	1 7	1 5
Density, Unit:	125 YD2	18 YD2
Pest 2 Code, Type, Scale:	SETPU W	SETPU W
Stage Majority, Percent:	13	15
Stage Minimum, Percent:	11	12
Stage Maximum, Percent:	15	19
Height, Unit:	1.25 IN	5.5 IN
Height Minimum, Maximum:	0.5 2	3 8
Density, Unit:	50 YD2	10 YD2

Application Equipment		
	A	B
Appl. Equipment:	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:	BACSPR	BACSPR
Operation Pressure, Unit:	18 PSI	27 PSI
Nozzle Type:	FLAT FAN	TTI
Nozzle Size:	XR 11002	110015
Nozzle Spacing, Unit:	15 IN	15 IN
Nozzles/Row:	8	8
Boom Length, Unit:	10 FT	10 FT
Boom Height, Unit:	17 IN	17 IN
Ground Speed, Unit:	3 MPH	3 MPH
Carrier:	MEIGS	MEIGS
Spray Volume, Unit:	15 gal/ac	15 gal/ac
Mix Size, Unit:	1.8 liters	1.8 liters
Propellant:	CO2	CO2

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

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
2	ROUNDUP POWERMAX CLARITY	4.5 LBAE/GAL	SL		32 fl oz/a		A		30.0 ml/mx	102	206	303	408
		4 LBAE/GAL	L		1 pt/a	PRE	A	15.0 ml/mx					
3	ROUNDUP POWERMAX CLARITY VALOR SX	4.5 LBAE/GAL	SL		32 fl oz/a		A		30.0 ml/mx	103	201	308	404
		4 LBAE/GAL	L		1 pt/a		A	15.0 ml/mx					
		51 %W/W	WG		2.5 oz wt/a	PRE	A	2.247 g/mx					
4	ROUNDUP POWERMAX CLARITY	4.5 LBAE/GAL	SL		32 fl oz/a		A		30.0 ml/mx	104	207	304	403
		4 LBAE/GAL	L		1 pt/a	PRE	A	15.0 ml/mx					
5	ROUNDUP POWERMAX CLARITY VALOR SX	4.5 LBAE/GAL	SL		32 fl oz/a		A		30.0 ml/mx	105	209	305	401
		4 LBAE/GAL	L		1 pt/a		A	15.0 ml/mx					
		51 %W/W	WG		2.5 oz wt/a	PRE	A	2.247 g/mx					
6	ROUNDUP POWERMAX CLARITY FIERCE	4.5 LBAE/GAL	SL		32 fl oz/a		A		30.0 ml/mx	106	202	307	409
		4 LBAE/GAL	L		1 pt/a		A	15.0 ml/mx					
		76 %W/W	WG		3 oz wt/a	PRE	A	2.696 g/mx					

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

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
7	ROUNDUP POWERMAX CLARITY FIERCE	4.5 4 76 %W/W	LBAE/GAL LBAE/GAL %	SL L WG	32 fl oz/a 1 pt/a 3 oz wt/a		A A A	30.0 ml/mx 15.0 ml/mx 2.696 g/mx	107	210	301	406
8	ROUNDUP POWERMAX V-10404	4.5 3.02	LBAE/GAL LB/GAL	SL SC	32 fl oz/a 30 fl oz/a	PRE	A A	30.0 ml/mx 28.12 ml/mx	108	204	302	410
9	ROUNDUP POWERMAX FIERCE	4.5 76 %W/W	LBAE/GAL %	SL WG	32 fl oz/a 3 oz wt/a	PRE	A A	30.0 ml/mx 2.696 g/mx	109	208	310	407
10	ROUNDUP POWERMAX FIERCE	4.5 76 %W/W	LBAE/GAL %	SL WG	32 fl oz/a 3 oz wt/a	PRE	A A	30.0 ml/mx 2.696 g/mx	110	205	309	405

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

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
2	ROUNDUP POWERMAX CLARITY	4.5 4	LBAE/GAL LBAE/GAL	SL L	32 fl oz/a 1 pt/a	28 DAP	B B	30.0 ml/mx 15.0 ml/mx	102	206	303	408
3	ROUNDUP POWERMAX CLARITY	4.5 4	LBAE/GAL LBAE/GAL	SL L	32 fl oz/a 1 pt/a	28 DAP	B B	30.0 ml/mx 15.0 ml/mx	103	201	308	404
4	ROUNDUP POWERMAX CLARITY COBRA PRIME OIL - COC	4.5 4 2 99.47 %	LBAE/GAL LBAE/GAL LB/GAL %	SL L EC L	32 fl oz/a 1 pt/a 12.5 fl oz/a 1 pt/a	28 DAP	B B B B	30.0 ml/mx 15.0 ml/mx 11.72 ml/mx 15.0 ml/mx	104	207	304	403
5	ROUNDUP POWERMAX CLARITY COBRA PRIME OIL - COC	4.5 4 2 99.47 %	LBAE/GAL LBAE/GAL LB/GAL %	SL L EC L	32 fl oz/a 1 pt/a 12.5 fl oz/a 1 pt/a	28 DAP	B B B B	30.0 ml/mx 15.0 ml/mx 11.72 ml/mx 15.0 ml/mx	105	209	305	401
6	ROUNDUP POWERMAX CLARITY	4.5 4	LBAE/GAL LBAE/GAL	SL L	32 fl oz/a 1 pt/a	28 DAP	B B	30.0 ml/mx 15.0 ml/mx	106	202	307	409
7	ROUNDUP POWERMAX CLARITY COBRA PRIME OIL - COC	4.5 4 2 99.47 %	LBAE/GAL LBAE/GAL LB/GAL %	SL L EC L	32 fl oz/a 1 pt/a 12.5 fl oz/a 1 pt/a	28 DAP	B B B B	30.0 ml/mx 15.0 ml/mx 11.72 ml/mx 15.0 ml/mx	107	210	301	406
8	ROUNDUP POWERMAX CLARITY	4.5 4	LBAE/GAL LBAE/GAL	SL L	32 fl oz/a 1 pt/a	28 DAP	B B	30.0 ml/mx 15.0 ml/mx	108	204	302	410
9	ROUNDUP POWERMAX COBRA PRIME OIL - COC	4.5 2 99.47 %	LBAE/GAL LB/GAL %	SL EC L	32 fl oz/a 12.5 fl oz/a 1 pt/a	28 DAP	B B B	30.0 ml/mx 11.72 ml/mx 15.0 ml/mx	109	208	310	407
10	ROUNDUP POWERMAX N-PAK - AMS	4.5 3.4	LBAE/GAL LBA/GAL	SL SL	32 fl oz/a 2.5 % v/v	28 DAP	B B	30.0 ml/mx 45.0 ml/mx	110	205	309	405

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

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	Rep 2	Rep 3	Rep 4
1	Untreated Check								101	203	306	402

Sort Order: Application Code, 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
674.999	ml	ROUNDUP POWERMAX	4.5	SL	
243.750	ml	CLARITY	4	L	
5.617	g	VALOR SX	51	WG	
58.594	ml	COBRA	2	EC	
75.000	ml	PRIME OIL - COC	99.47	L	
13.480	g	FIERCE	76	WG	

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

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
35.156	ml	V-10404	3.02	SC	
56.244	ml	N-PAK - AMS	3.4	SL	

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

* Product amount calculations increased 25 % for overage adjustment.

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

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	CHEAL	SETFA	AMBTR	CHEAL
Pest Name	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed	Common lambsqu>
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P
Rating Date	Jun-20-2015	Jun-20-2015	Jun-20-2015	Jul-1-2015	Jul-1-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	16 16	16 16	16 16	27 27	27 27
Trt-Eval Interval	16 DA-A	16 DA-A	16 DA-A	0 DA-B	0 DA-B
Days After Emergence	10 DE-1	10 DE-1	10 DE-1	21 DE-1	21 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	1	2	3
1 Untreated Check		101	0	0	0
		203	0	0	0
		306	0	0	0
		402	0	0	0
		Mean =	0	0	0
2 ROUNDUP POWERMAX	32 fl oz/a	A 102	90	100	90
CLARITY	1 pt/a	A 206	95	100	90
ROUNDUP POWERMAX	32 fl oz/a	B 303	93	100	80
CLARITY	1 pt/a	B 408	80	100	60
		Mean =	90	100	80
3 ROUNDUP POWERMAX	32 fl oz/a	A 103	95	100	99
CLARITY	1 pt/a	A 201	100	100	90
VALOR SX	2.5 oz wt/a	A 308	99	100	90
ROUNDUP POWERMAX	32 fl oz/a	B 404	95	100	100
CLARITY	1 pt/a	B			97
		Mean =	97	100	95
4 ROUNDUP POWERMAX	32 fl oz/a	A 104	85	100	70
CLARITY	1 pt/a	A 207	100	100	30
ROUNDUP POWERMAX	32 fl oz/a	B 304	95	95	70
CLARITY	1 pt/a	B 403	90	100	85
COBRA	12.5 fl oz/a	B			80
PRIME OIL - COC	1 pt/a	B			
		Mean =	93	99	64
5 ROUNDUP POWERMAX	32 fl oz/a	A 105	100	100	95
CLARITY	1 pt/a	A 209	100	100	95
VALOR SX	2.5 oz wt/a	A 305	100	100	99
ROUNDUP POWERMAX	32 fl oz/a	B 401	95	100	90
CLARITY	1 pt/a	B			100
COBRA	12.5 fl oz/a	B			100
PRIME OIL - COC	1 pt/a	B			
		Mean =	99	100	95
6 ROUNDUP POWERMAX	32 fl oz/a	A 106	100	100	99
CLARITY	1 pt/a	A 202	99	100	99
FIERCE	3 oz wt/a	A 307	100	100	90
ROUNDUP POWERMAX	32 fl oz/a	B 409	100	100	95
CLARITY	1 pt/a	B			97
		Mean =	100	100	96

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	AMBTR	CHEAL	SETFA	AMBTR	CHEAL		
Pest Name	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed	Common lambsqu>		
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P		
Rating Date	Jun-20-2015	Jun-20-2015	Jun-20-2015	Jul-1-2015	Jul-1-2015		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	16 16	16 16	16 16	27 27	27 27		
Trt-Eval Interval	16 DA-A	16 DA-A	16 DA-A	0 DA-B	0 DA-B		
Days After Emergence	10 DE-1	10 DE-1	10 DE-1	21 DE-1	21 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code Plot	1	2	3	4	5
7 ROUNDUP POWERMAX	32 fl oz/a	A 107	100	100	100	99	100
CLARITY	1 pt/a	A 210	100	100	100	100	100
FIERCE	3 oz wt/a	A 301	100	100	90	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 406	99	100	95	95	100
CLARITY	1 pt/a	B					
COBRA	12.5 fl oz/a	B					
PRIME OIL - COC	1 pt/a	B					
Mean =			100	100	96	99	100
8 ROUNDUP POWERMAX	32 fl oz/a	A 108	100	100	95	99	100
V-10404	30 fl oz/a	A 204	100	100	95	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 302	99	100	99	100	100
CLARITY	1 pt/a	B 410	100	100	95	99	100
Mean =			100	100	96	100	100
9 ROUNDUP POWERMAX	32 fl oz/a	A 109	85	100	95	90	100
FIERCE	3 oz wt/a	A 208	80	100	95	95	100
ROUNDUP POWERMAX	32 fl oz/a	B 310	80	100	99	95	100
COBRA	12.5 fl oz/a	B 407	70	100	95	90	100
PRIME OIL - COC	1 pt/a	B					
Mean =			79	100	96	93	100
10 ROUNDUP POWERMAX	32 fl oz/a	A 110	85	100	100	90	100
FIERCE	3 oz wt/a	A 205	99	100	99	99	100
ROUNDUP POWERMAX	32 fl oz/a	B 309	85	100	95	90	100
N-PAK - AMS	2.5 % v/v	B 405	85	100	100	90	100
Mean =			89	100	99	92	100

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Pest Type				W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code				SETFA	AMBTR	CHEAL	SETFA	AMBTR
Pest Name				Giant foxtail	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed
Part Rated				PLOT P	PLOT P	PLOT P	PLOT P	PLOT P
Rating Date				Jul-1-2015	Jul-16-2015	Jul-16-2015	Jul-16-2015	Jul-29-2015
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%	%
Number of Subsamples				1	1	1	1	1
Days After First/Last Applic.				27 27	42 15	42 15	42 15	55 28
Tri-Eval Interval				0 DA-B	15 DA-B	15 DA-B	15 DA-B	28 DA-B
Days After Emergence				21 DE-1	36 DE-1	36 DE-1	36 DE-1	49 DE-1
ARM Action Codes				P	P	P	P	P
Number of Decimals				0	0	0	0	0
Trt No.	Treatment Name	Rate	Appl Code	6	7	8	9	10
		Rate Unit	Code Plot					
1	Untreated Check		101	0	0	0	0	0
			203	0	0	0	0	0
			306	0	0	0	0	0
			402	0	0	0	0	0
			Mean =	0	0	0	0	0
2	ROUNDUP POWERMAX	32 fl oz/a	A 102	80	95	100	99	90
	CLARITY	1 pt/a	A 206	70	100	100	100	100
	ROUNDUP POWERMAX	32 fl oz/a	B 303	70	100	100	100	99
	CLARITY	1 pt/a	B 408	30	99	100	100	99
			Mean =	63	99	100	100	97
3	ROUNDUP POWERMAX	32 fl oz/a	A 103	99	95	100	100	85
	CLARITY	1 pt/a	A 201	80	100	100	100	99
	VALOR SX	2.5 oz wt/a	A 308	95	100	100	100	99
	ROUNDUP POWERMAX	32 fl oz/a	B 404	99	100	100	100	90
	CLARITY	1 pt/a	B					
			Mean =	93	99	100	100	93
4	ROUNDUP POWERMAX	32 fl oz/a	A 104	50	95	100	100	90
	CLARITY	1 pt/a	A 207	40	100	100	100	97
	ROUNDUP POWERMAX	32 fl oz/a	B 304	60	100	100	100	100
	CLARITY	1 pt/a	B 403	80	100	100	100	92
	COBRA	12.5 fl oz/a	B					
	PRIME OIL - COC	1 pt/a	B					
			Mean =	58	99	100	100	95
5	ROUNDUP POWERMAX	32 fl oz/a	A 105	95	100	100	100	95
	CLARITY	1 pt/a	A 209	90	100	100	100	100
	VALOR SX	2.5 oz wt/a	A 305	99	100	100	100	99
	ROUNDUP POWERMAX	32 fl oz/a	B 401	75	100	100	100	97
	CLARITY	1 pt/a	B					
	COBRA	12.5 fl oz/a	B					
	PRIME OIL - COC	1 pt/a	B					
			Mean =	90	100	100	100	98
6	ROUNDUP POWERMAX	32 fl oz/a	A 106	95	95	100	100	90
	CLARITY	1 pt/a	A 202	100	100	100	100	99
	FIERCE	3 oz wt/a	A 307	90	100	100	100	100
	ROUNDUP POWERMAX	32 fl oz/a	B 409	99	100	100	100	93
	CLARITY	1 pt/a	B					
			Mean =	96	99	100	100	96

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	AMBTR	CHEAL	SETFA	AMBTR
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P
Rating Date	Jul-1-2015	Jul-16-2015	Jul-16-2015	Jul-16-2015	Jul-29-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	27 27	42 15	42 15	42 15	55 28
Trt-Eval Interval	0 DA-B	15 DA-B	15 DA-B	15 DA-B	28 DA-B
Days After Emergence	21 DE-1	36 DE-1	36 DE-1	36 DE-1	49 DE-1
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot	6	7	8
7 ROUNDUP POWERMAX	32 fl oz/a	A 107	100	97	100
CLARITY	1 pt/a	A 210	100	100	100
FIERCE	3 oz wt/a	A 301	90	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 406	100	100	100
CLARITY	1 pt/a	B			
COBRA	12.5 fl oz/a	B			
PRIME OIL - COC	1 pt/a	B			
	Mean =		98	99	100
8 ROUNDUP POWERMAX	32 fl oz/a	A 108	95	97	100
V-10404	30 fl oz/a	A 204	95	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 302	99	100	100
CLARITY	1 pt/a	B 410	95	99	100
	Mean =		96	99	100
9 ROUNDUP POWERMAX	32 fl oz/a	A 109	95	95	100
FIERCE	3 oz wt/a	A 208	95	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 310	100	99	100
COBRA	12.5 fl oz/a	B 407	99	99	100
PRIME OIL - COC	1 pt/a	B			
	Mean =		97	98	100
10 ROUNDUP POWERMAX	32 fl oz/a	A 110	99	95	100
FIERCE	3 oz wt/a	A 205	99	100	100
ROUNDUP POWERMAX	32 fl oz/a	B 309	100	100	100
N-PAK - AMS	2.5 % v/v	B 405	100	97	100
	Mean =		100	98	100

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				W Weed CHEAL Common lambsqu> PLOT P Jul-29-2015 CONTRO %	W Weed SETFA Giant foxtail PLOT P Jul-29-2015 CONTRO %
Pest Type					
Pest Code					
Pest Name					
Part Rated					
Rating Date					
Rating Type					
Rating Unit					
Number of Subsamples				1	1
Days After First/Last Applic.				55 28	55 28
Tri-Eval Interval				28 DA-B	28 DA-B
Days After Emergence				49 DE-1	49 DE-1
ARM Action Codes				P	P
Number of Decimals				0	0
Tri Treatment	Rate	Appl			
No. Name	Rate Unit	Code Plot		11	12
1 Untreated Check		101		0	0
		203		0	0
		306		0	0
		402		0	0
		Mean =		0	0
2 ROUNDUP POWERMAX	32 fl oz/a	A 102		100	99
CLARITY	1 pt/a	A 206		100	95
ROUNDUP POWERMAX	32 fl oz/a	B 303		100	100
CLARITY	1 pt/a	B 408		100	90
		Mean =		100	96
3 ROUNDUP POWERMAX	32 fl oz/a	A 103		100	99
CLARITY	1 pt/a	A 201		100	95
VALOR SX	2.5 oz wt/a	A 308		100	95
ROUNDUP POWERMAX	32 fl oz/a	B 404		100	95
CLARITY	1 pt/a	B			
		Mean =		100	96
4 ROUNDUP POWERMAX	32 fl oz/a	A 104		100	95
CLARITY	1 pt/a	A 207		100	95
ROUNDUP POWERMAX	32 fl oz/a	B 304		100	97
CLARITY	1 pt/a	B 403		100	95
COBRA	12.5 fl oz/a	B			
PRIME OIL - COC	1 pt/a	B			
		Mean =		100	96
5 ROUNDUP POWERMAX	32 fl oz/a	A 105		100	95
CLARITY	1 pt/a	A 209		100	97
VALOR SX	2.5 oz wt/a	A 305		100	99
ROUNDUP POWERMAX	32 fl oz/a	B 401		100	92
CLARITY	1 pt/a	B			
COBRA	12.5 fl oz/a	B			
PRIME OIL - COC	1 pt/a	B			
		Mean =		100	96
6 ROUNDUP POWERMAX	32 fl oz/a	A 106		100	99
CLARITY	1 pt/a	A 202		100	100
FIERCE	3 oz wt/a	A 307		100	97
ROUNDUP POWERMAX	32 fl oz/a	B 409		100	100
CLARITY	1 pt/a	B			
		Mean =		100	99

Purdue University Weed Science

Pest Type	W Weed	W Weed		
Pest Code	CHEAL	SETFA		
Pest Name	Common lambsqu>	Giant foxtail		
Part Rated	PLOT P	PLOT P		
Rating Date	Jul-29-2015	Jul-29-2015		
Rating Type	CONTRO	CONTRO		
Rating Unit	%	%		
Number of Subsamples	1	1		
Days After First/Last Applic.	55 28	55 28		
Trt-Eval Interval	28 DA-B	28 DA-B		
Days After Emergence	49 DE-1	49 DE-1		
ARM Action Codes	P	P		
Number of Decimals	0	0		
Trt Treatment	Rate	Appl		
No. Name	Rate Unit	Code Plot	11	12
7 ROUNDUP POWERMAX	32 fl oz/a	A 107	100	99
CLARITY	1 pt/a	A 210	100	100
FIERCE	3 oz wt/a	A 301	100	99
ROUNDUP POWERMAX	32 fl oz/a	B 406	100	99
CLARITY	1 pt/a	B		
COBRA	12.5 fl oz/a	B		
PRIME OIL - COC	1 pt/a	B		
Mean =			100	99
8 ROUNDUP POWERMAX	32 fl oz/a	A 108	100	90
V-10404	30 fl oz/a	A 204	100	97
ROUNDUP POWERMAX	32 fl oz/a	B 302	100	100
CLARITY	1 pt/a	B 410	100	95
Mean =			100	96
9 ROUNDUP POWERMAX	32 fl oz/a	A 109	100	95
FIERCE	3 oz wt/a	A 208	100	95
ROUNDUP POWERMAX	32 fl oz/a	B 310	100	99
COBRA	12.5 fl oz/a	B 407	100	100
PRIME OIL - COC	1 pt/a	B		
Mean =			100	97
10 ROUNDUP POWERMAX	32 fl oz/a	A 110	100	99
FIERCE	3 oz wt/a	A 205	100	95
ROUNDUP POWERMAX	32 fl oz/a	B 309	100	99
N-PAK - AMS	2.5 % v/v	B 405	100	97
Mean =			100	98

Purdue University Weed Science

FIERCE PLUS DICAMBA BURNDOWN

Trial ID: 15S-THP-CTS-19
 Protocol ID: VUSA2015FIERCEMD64.06
 Project ID: 4600.38352

Trial Year: 2015
 Investigator: Dr. Bill Johnson

Sponsor Contact: Valent

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

Pest Code
 AMBTR, Ambrosia trifida, = US
 CHEAL, Chenopodium album, = US
 SETFA, Setaria faberi, = US

Part Rated
 PLOT = plot
 P = Pest is Part Rated

Rating Type
 CONTRO = control / burndown or knockdown

Rating Unit
 % = percent

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

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	AMBTR	CHEAL	SETFA	AMBTR	CHEAL				
Pest Name	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed	Common lambsqu>				
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P				
Rating Date	Jun-20-2015	Jun-20-2015	Jun-20-2015	Jul-1-2015	Jul-1-2015				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1				
Days After First/Last Applic.	16 16	16 16	16 16	27 27	27 27				
Trt-Eval Interval	16 DA-A	16 DA-A	16 DA-A	0 DA-B	0 DA-B				
Days After Emergence	10 DE-1	10 DE-1	10 DE-1	21 DE-1	21 DE-1				
ARM Action Codes	P	P	P	P	P				
Number of Decimals	0	0	0	0	0				
Trt No.	Treatment Name	Rate	Unit	Appl Code	1	2	3	4	5
1	Untreated Check				0 e	0 c	0 d	0 d	0 a
2	ROUNDUP POWERMAX	32 fl oz/a	A		90 c	100 a	80 b	91 c	100 a
	CLARITY	1 pt/a	A						
	ROUNDUP POWERMAX	32 fl oz/a	B						
	CLARITY	1 pt/a	B						
3	ROUNDUP POWERMAX	32 fl oz/a	A		97 ab	100 a	95 a	98 a	100 a
	CLARITY	1 pt/a	A						
	VALOR SX	2.5 oz wt/a	A						
	ROUNDUP POWERMAX	32 fl oz/a	B						
	CLARITY	1 pt/a	B						
4	ROUNDUP POWERMAX	32 fl oz/a	A		93 bc	99 b	64 c	91 c	100 a
	CLARITY	1 pt/a	A						
	ROUNDUP POWERMAX	32 fl oz/a	B						
	CLARITY	1 pt/a	B						
	COBRA	12.5 fl oz/a	B						
	PRIME OIL - COC	1 pt/a	B						
5	ROUNDUP POWERMAX	32 fl oz/a	A		99 a	100 a	95 a	100 a	100 a
	CLARITY	1 pt/a	A						
	VALOR SX	2.5 oz wt/a	A						
	ROUNDUP POWERMAX	32 fl oz/a	B						
	CLARITY	1 pt/a	B						
	COBRA	12.5 fl oz/a	B						
	PRIME OIL - COC	1 pt/a	B						
6	ROUNDUP POWERMAX	32 fl oz/a	A		100 a	100 a	96 a	97 ab	100 a
	CLARITY	1 pt/a	A						
	FIERCE	3 oz wt/a	A						
	ROUNDUP POWERMAX	32 fl oz/a	B						
	CLARITY	1 pt/a	B						

Purdue University Weed Science

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	AMBTR	CHEAL	SETFA	AMBTR	CHEAL		
Pest Name	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed	Common lambsqu>		
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P		
Rating Date	Jun-20-2015	Jun-20-2015	Jun-20-2015	Jul-1-2015	Jul-1-2015		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	16 16	16 16	16 16	27 27	27 27		
Trt-Eval Interval	16 DA-A	16 DA-A	16 DA-A	0 DA-B	0 DA-B		
Days After Emergence	10 DE-1	10 DE-1	10 DE-1	21 DE-1	21 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment	Rate	Appl	1	2	3	4	5
No. Name	Rate Unit	Code					
7 ROUNDUP POWERMAX	32 fl oz/a	A	100 a	100 a	96 a	99 a	100 a
CLARITY	1 pt/a	A					
FIERCE	3 oz wt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					
COBRA	12.5 fl oz/a	B					
PRIME OIL - COC	1 pt/a	B					
8 ROUNDUP POWERMAX	32 fl oz/a	A	100 a	100 a	96 a	100 a	100 a
V-10404	30 fl oz/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					
9 ROUNDUP POWERMAX	32 fl oz/a	A	79 d	100 a	96 a	93 bc	100 a
FIERCE	3 oz wt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
COBRA	12.5 fl oz/a	B					
PRIME OIL - COC	1 pt/a	B					
10 ROUNDUP POWERMAX	32 fl oz/a	A	89 c	100 a	99 a	92 c	100 a
FIERCE	3 oz wt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
N-PAK - AMS	2.5 % v/v	B					
LSD P=.05			5.5	1.1	13.8	4.2	0.0
Standard Deviation			3.8	0.8	9.5	2.9	0.0
CV			4.47	0.88	11.65	3.37	0.0
Bartlett's X2			34.614	0.0	34.956	25.469	0.0
P(Bartlett's X2)			0.001*	.	0.001*	0.001*	.
Skewness			-2.4584*	-2.7683*	-2.1101*	-2.6636*	-2.7717*
Kurtosis			4.8386*	5.967*	3.1685*	5.5944*	5.9791*
Replicate F			4.219	1.000	0.471	3.351	0.000
Replicate Prob(F)			0.0143	0.4079	0.7052	0.0336	1.0000
Treatment F			259.998	6383.223	41.558	441.619	0.000
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	1.0000

Purdue University Weed Science

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code	SETFA	AMBTR	CHEAL	SETFA	AMBTR		
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed		
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P		
Rating Date	Jul-1-2015	Jul-16-2015	Jul-16-2015	Jul-16-2015	Jul-29-2015		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	27 27	42 15	42 15	42 15	55 28		
Trt-Eval Interval	0 DA-B	15 DA-B	15 DA-B	15 DA-B	28 DA-B		
Days After Emergence	21 DE-1	36 DE-1	36 DE-1	36 DE-1	49 DE-1		
ARM Action Codes	P	P	P	P	P		
Number of Decimals	0	0	0	0	0		
Trt Treatment No. Name	Rate	Appl					
	Rate Unit	Code	6	7	8	9	10
1 Untreated Check			0 c	0 c	0 a	0 c	0 e
2 ROUNDUP POWERMAX	32 fl oz/a	A	63 b	99 ab	100 a	100 b	97 ab
CLARITY	1 pt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					
3 ROUNDUP POWERMAX	32 fl oz/a	A	93 a	99 ab	100 a	100 a	93 cd
CLARITY	1 pt/a	A					
VALOR SX	2.5 oz wt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					
4 ROUNDUP POWERMAX	32 fl oz/a	A	58 b	99 ab	100 a	100 a	95 a-d
CLARITY	1 pt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					
COBRA	12.5 fl oz/a	B					
PRIME OIL - COC	1 pt/a	B					
5 ROUNDUP POWERMAX	32 fl oz/a	A	90 a	100 a	100 a	100 a	98 a
CLARITY	1 pt/a	A					
VALOR SX	2.5 oz wt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					
COBRA	12.5 fl oz/a	B					
PRIME OIL - COC	1 pt/a	B					
6 ROUNDUP POWERMAX	32 fl oz/a	A	96 a	99 ab	100 a	100 a	96 a-d
CLARITY	1 pt/a	A					
FIERCE	3 oz wt/a	A					
ROUNDUP POWERMAX	32 fl oz/a	B					
CLARITY	1 pt/a	B					

Purdue University Weed Science

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	AMBTR	CHEAL	SETFA	AMBTR
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed
Part Rated	PLOT P	PLOT P	PLOT P	PLOT P	PLOT P
Rating Date	Jul-1-2015	Jul-16-2015	Jul-16-2015	Jul-16-2015	Jul-29-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	27 27	42 15	42 15	42 15	55 28
Trt-Eval Interval	0 DA-B	15 DA-B	15 DA-B	15 DA-B	28 DA-B
Days After Emergence	21 DE-1	36 DE-1	36 DE-1	36 DE-1	49 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	6	7	8
7 ROUNDUP POWERMAX	32 fl oz/a	A	98 a	99 ab	100 a
CLARITY	1 pt/a	A			100 a
FIERCE	3 oz wt/a	A			
ROUNDUP POWERMAX	32 fl oz/a	B			
CLARITY	1 pt/a	B			
COBRA	12.5 fl oz/a	B			
PRIME OIL - COC	1 pt/a	B			
8 ROUNDUP POWERMAX	32 fl oz/a	A	96 a	99 ab	100 a
V-10404	30 fl oz/a	A			100 a
ROUNDUP POWERMAX	32 fl oz/a	B			
CLARITY	1 pt/a	B			
9 ROUNDUP POWERMAX	32 fl oz/a	A	97 a	98 b	100 a
FIERCE	3 oz wt/a	A			100 a
ROUNDUP POWERMAX	32 fl oz/a	B			
COBRA	12.5 fl oz/a	B			
PRIME OIL - COC	1 pt/a	B			
10 ROUNDUP POWERMAX	32 fl oz/a	A	100 a	98 b	100 a
FIERCE	3 oz wt/a	A			100 a
ROUNDUP POWERMAX	32 fl oz/a	B			
N-PAK - AMS	2.5 % v/v	B			
LSD P=.05	15.3	1.6	0.0	0.2	3.6
Standard Deviation	10.5	1.1	0.0	0.2	2.4
CV	13.32	1.22	0.0	0.18	2.85
Bartlett's X2	36.128	1.851	0.0	0.0	4.97
P(Bartlett's X2)	0.001*	0.968	.	.	0.761
Skewness	-1.7157*	-2.7529*	-2.7717*	-2.7716*	-2.656*
Kurtosis	1.7679*	5.9138*	5.9791*	5.9787*	5.5729*
Replicate F	0.332	24.741	0.000	1.000	27.170
Replicate Prob(F)	0.8024	0.0001	1.0000	0.4079	0.0001
Treatment F	36.037	3329.695	0.000	159912.127	608.299
Treatment Prob(F)	0.0001	0.0001	1.0000	0.0001	0.0001

Purdue University Weed Science

Trt	Treatment	Rate	Appl		
No.	Name	Rate Unit	Code	11	12
	1 Untreated Check			0 a	0 c
2	ROUNDUP POWERMAX CLARITY ROUNDUP POWERMAX CLARITY	32 fl oz/a 1 pt/a 32 fl oz/a 1 pt/a	A A B B	100 a	96 ab
3	ROUNDUP POWERMAX CLARITY VALOR SX ROUNDUP POWERMAX CLARITY	32 fl oz/a 1 pt/a 2.5 oz wt/a 32 fl oz/a 1 pt/a	A A A B B	100 a	96 ab
4	ROUNDUP POWERMAX CLARITY ROUNDUP POWERMAX CLARITY COBRA PRIME OIL - COC	32 fl oz/a 1 pt/a 32 fl oz/a 1 pt/a 12.5 fl oz/a 1 pt/a	A A B B B B	100 a	96 b
5	ROUNDUP POWERMAX CLARITY VALOR SX ROUNDUP POWERMAX CLARITY COBRA PRIME OIL - COC	32 fl oz/a 1 pt/a 2.5 oz wt/a 32 fl oz/a 1 pt/a 12.5 fl oz/a 1 pt/a	A A A B B B B	100 a	96 ab
6	ROUNDUP POWERMAX CLARITY FIERCE ROUNDUP POWERMAX CLARITY	32 fl oz/a 1 pt/a 3 oz wt/a 32 fl oz/a 1 pt/a	A A A B B	100 a	99 ab

Purdue University Weed Science

Pest Type		W Weed	W Weed
Pest Code		CHEAL	SETFA
Pest Name		Common lambsqu	Giant foxtail
Part Rated		PLOT P	PLOT P
Rating Date		Jul-29-2015	Jul-29-2015
Rating Type		CONTRO	CONTRO
Rating Unit		%	%
Number of Subsamples		1	1
Days After First/Last Applic.		55 28	55 28
Trt-Eval Interval		28 DA-B	28 DA-B
Days After Emergence		49 DE-1	49 DE-1
ARM Action Codes		P	P
Number of Decimals		0	0
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	
			11
			12
7 ROUNDUP POWERMAX	32 fl oz/a	A	100 a
CLARITY	1 pt/a	A	99 a
FIERCE	3 oz wt/a	A	
ROUNDUP POWERMAX	32 fl oz/a	B	
CLARITY	1 pt/a	B	
COBRA	12.5 fl oz/a	B	
PRIME OIL - COC	1 pt/a	B	
8 ROUNDUP POWERMAX	32 fl oz/a	A	100 a
V-10404	30 fl oz/a	A	96 b
ROUNDUP POWERMAX	32 fl oz/a	B	
CLARITY	1 pt/a	B	
9 ROUNDUP POWERMAX	32 fl oz/a	A	100 a
FIERCE	3 oz wt/a	A	97 ab
ROUNDUP POWERMAX	32 fl oz/a	B	
COBRA	12.5 fl oz/a	B	
PRIME OIL - COC	1 pt/a	B	
10 ROUNDUP POWERMAX	32 fl oz/a	A	100 a
FIERCE	3 oz wt/a	A	98 ab
ROUNDUP POWERMAX	32 fl oz/a	B	
N-PAK - AMS	2.5 % v/v	B	
LSD P=.05		0.0	3.6
Standard Deviation		0.0	2.5
CV		0.0	2.87
Bartlett's X2		0.0	15.813
P(Bartlett's X2)		.	0.045*
Skewness		-2.7717*	-2.732*
Kurtosis		5.9791*	5.8417*
Replicate F		0.000	1.399
Replicate Prob(F)		1.0000	0.2644
Treatment F		0.000	600.879
Treatment Prob(F)		1.0000	0.0001

Purdue University Weed Science

FIERCE PLUS DICAMBA BURNDOWN

Trial ID: 15S-THP-CTS-19
Protocol ID: VUSA2015FIERCCEMD64.06
Project ID: 4600.38352

Trial Year: 2015
Investigator: Dr. Bill Johnson
Sponsor Contact: Valent

Pest Type

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

Pest Code

AMBTR, Ambrosia trifida, = US
CHEAL, Chenopodium album, = US
SETFA, Setaria faberi, = US

Part Rated

PLOT = plot
P = Pest is Part Rated

Rating Type

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

ARM Action Codes

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