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Glyphosate Resistant Waterhemp and Ragweed Control in Soybeans.

Trial ID: 11S-THP-CTS-44 Protocol ID: 11S-THP-CTS-214
 Location: Throckmorton Project ID: 2011-01-24-21 Study Director: White/Marquardt Investigator: Dr. Bill Johnson
 Sponsor Contact: Monsanto - John Willis

General Trial Information

Study Director: White/Marquardt **Title:** Research Associate
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 4-9-2011

Trial Location

City: Lafayette
State/Prov.: IN
Postal Code: 47909
Country: USA

Personnel

Study Director: White/Marquardt **Title:** Research Associate

Affiliation: Purdue University
Address: 915 W State Street
Location: West Lafayette, IN, USA

Postal Code: 47907 **E-mail:** mdwhite@purdue.edu
Phone No.: 765-494-0891

Investigator: Dr. Bill Johnson **Title:** Professor

Affiliation: Purdue University
Address: 915 W State Street
Location: West Lafayette, IN, USA

Postal Code: 47907 **E-mail:** wji@purdue.edu
Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

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
State/Prov.: IN **Fax No.:** 765-538-3423
Postal Code: 47909 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean

Variety: Asgrow AG2931

Description: RR2

BBCH Scale: BSOY
Planting Method: PLANTD planted

Planting Date: 5-10-2011
Rate, Unit: 124000 S/A

Depth, Unit: 1 IN
Row Spacing, Unit: 15 IN

Emergence Date: 5-16-2011

Pest Description

Pest 1 Type: W **Code:** SETFA *Setaria faberi*

Common Name: Giant foxtail

Pest 2 Type: W **Code:** AMBTR *Ambrosia trifida*

Common Name: Giant ragweed

Pest 3 Type: W **Code:** CHEAL *Chenopodium album*

Common Name: Common lambsquarters

Pest 4 Type: W **Code:** ABUTH *Abutilon theophrasti*

Common Name: Velvetleaf

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Site and Design	
Plot Width, Unit: 10 FT Plot Length, Unit: 30 FT Plot Area, Unit: 300 FT ² Replications: 4	Site Type: FIELD field Experimental Unit: 1 PLOT plot Tillage Type: CONTIL conventional-till Study Design: RACOBL Randomized Complete Block (RCB) Untreated Arrangement: INCLUDED single control randomized in each block

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

Application Description			
	A	B	C
Application Date:	5-11-2011	6-6-2011	
Time of Day:		11:30 AM	
Application Method:	SPRAY	SPRAY	
Application Timing:	ATPLAN	EAPOCR	
Application Placement:	FOLIAR	FOLIAR	
Applied By:	MW	JR	
Air Temperature, Unit:	81 F	86 F	
% Relative Humidity:	65	54	
Wind Velocity, Unit:	2.0 MPH	5.5 MPH	
Wind Direction:	E	SW	
Dew Presence (Y/N):	Y yes	N no	
Soil Temperature, Unit:	68 F	83 F	
Soil Moisture:	DRY	SLIWET	
% Cloud Cover:	30	0	

Crop Stage At Each Application			
	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH	
Stage Majority, Percent:		V2	
Height, Unit:		3.5 IN	
Height Minimum, Maximum:		3 4	

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Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	SETFA W	SETFA W	SETFA W
Height, Unit:		3 IN	
Height Minimum, Maximum:		1 5	
Density, Unit:		55 YD2	
Pest 2 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W
Height, Unit:		5 IN	
Height Minimum, Maximum:		3 7	
Density, Unit:		7 YD2	
Pest 3 Code, Type, Scale:	CHEAL W	CHEAL W	CHEAL W
Height, Unit:		2 IN	
Height Minimum, Maximum:		1 3	
Density, Unit:		9 YD2	
Pest 4 Code, Type, Scale:	ABUTH W	ABUTH W	ABUTH W
Height, Unit:		2.5 IN	
Height Minimum, Maximum:		1 4	
Density, Unit:		4 YD2	

Application Equipment

	A	B	C
Appl. Equipment:	CO2 FORD	CO2 BKPK	
Equipment Type:	SPTRMO	SPRBAC	
Operation Pressure, Unit:		17 PSI	
Nozzle Type:	FLAT FAN	FLAT FAN	
Nozzle Size:	XR 100 02	XR 110 02	
Nozzle Spacing, Unit:	20 IN	15 IN	
Nozzles/Row:	6	6	
Boom Length, Unit:	10 FT	7.5 FT	
Boom Height, Unit:	20 IN	18 IN	
Ground Speed, Unit:	2.1 MPH	3 MPH	
Carrier:	MEIGS	H20	
Water Hardness (ppm CaCO3):		150	
Spray Volume, Unit:	20 gal/ac	15 gal/ac	
Mix Size, Unit:	2.5 liters	1.8 liters	
Propellant:	CO2	CO2	
Tank Mix (Y/N):		N no	

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Glyphosate Resistant Waterhemp and Ragweed Control in Soybeans.

Trial ID: 11S-THP-CTS-44 Protocol ID: 11S-THP-CTS-214
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: 2011-01-24-21 Investigator: Dr. Bill Johnson
 Sponsor Contact: Monsanto - John Willis

Pest Type	W Weed SETFA	W Weed AMBTR	W Weed ABUTH	W Weed AMARE			W Weed SETFA										
Pest Code	Setaria faberi	Ambrosia trifid	Abutilon theophrasti	Amaranthus retrofractus			Setaria faberi										
Pest Scientific Name	Giant foxtail	Giant ragweed	Velvetleaf	Redroot pigweed			Giant foxtail										
Pest Name	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA										
Crop Code	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY										
BBCH Scale	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max										
Crop Scientific Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean										
Crop Name	6-3-2011	6-3-2011	6-3-2011	6-3-2011	6-3-2011	6-21-2011	6-21-2011										
Rating Date	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	CONTRO										
Rating Type	%	%	%	%	%	%	%										
Rating Unit	1	1	1	1	1	1	1										
Number of Subsamples						V5	V5										
Crop Stage Majority	3 IN	3 IN	0.5 IN	1 IN			18 IN										
Pest Stage Majority	20 FT2	2 FT2	1 FT2	3 FT2													
Pest Density, Unit	MW	MW	MW	MW	MW	MW	MW										
Assessed By	23 23	23 23	23 23	23 23	23 23	41 15	41 15										
Days After First/Last Applic.	24 DP-1	24 DP-1	24 DP-1	24 DP-1	24 DP-1	42 DP-1	42 DP-1										
Plant-Eval Interval	18 DE-1	18 DE-1	18 DE-1	18 DE-1	18 DE-1	36 DE-1	36 DE-1										
Days After Emergence																	
Trt Treatment																	
No. Name	Rate	Unit	Appl Code	1	2	3	4	5	6	7							
1 Untreated Check	0.0	c		0.0	b	0.0	b	0.0	c	0.0	e	0.0	b	0.0	d		
2 Roundup PowerMax 4.5 SL AMS - Liquid	0.773 17 lb ai/100 gal	lb ae/a B	B	12.5	c	0.0	b	0.0	b	49.5	b	0.0	e	0.0	b	89.0	abc
3 Valor SX (51 WG) Classic Roundup PowerMax 4.5 SL AMS - Liquid	0.056 0.0194 0.773 17 lb ai/100 gal	lb ai/a lb ai/a lb ae/a B	A A B	83.8	ab	15.0	b	99.0	a	99.0	a	6.5	cd	0.0	b	82.3	c
4 Valor SX (51 WG) Classic Roundup PowerMax 4.5 SL Flexstar (1.88 L) NIS AMS - Liquid	0.056 0.0194 0.773 0.352 0.25 17 lb ai/100 gal	lb ai/a lb ai/a lb ae/a lb ai/a % v/v B	A A B B B	89.8	ab	15.0	b	99.0	a	99.0	a	5.5	d	2.0	b	93.3	ab
5 Valor SX (51 WG) Classic Roundup PowerMax 4.5 SL FirstRate (84 WG) NIS AMS - Liquid	0.075 0.0258 0.773 0.0158 0.25 17 lb ai/100 gal	lb ai/a lb ai/a lb ae/a lb ai/a % v/v B	A A B B B	93.5	ab	0.0	b	99.0	a	99.0	a	9.3	c	0.0	b	89.5	abc
6 Authority XL (70 WG) Roundup PowerMax 4.5 SL Flexstar (1.88 L) NIS AMS - Liquid	0.284 0.773 0.3528 0.25 17 lb ai/100 gal	lb ai/a lb ae/a lb ai/a % v/v B	A B B B	80.0	ab	15.0	b	99.0	a	99.0	a	0.0	e	1.25	b	97.0	ab
7 Authority XL (70 WG) Roundup PowerMax 4.5 SL FirstRate (84 WG) NIS AMS - Liquid	0.284 0.773 0.0158 0.25 17 lb ai/100 gal	lb ai/a lb ae/a lb ai/a % v/v B	A B B B	85.0	ab	10.0	b	99.0	a	99.0	a	0.0	e	0.25	b	93.5	ab

Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Pest Type	W Weed	W Weed	W Weed	W Weed			W Weed				
Pest Code	SETFA	AMBTR	ABUTH	AMARE			SETFA				
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Abutilon theop>	Amaranthus ret>			Setaria faberi				
Pest Name	Giant foxtail	Giant ragweed	Velvetleaf	Redroot pigweed			Giant foxtail				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean				
Rating Date	6-3-2011	6-3-2011	6-3-2011	6-3-2011	6-3-2011	6-21-2011	6-21-2011				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	CONTRO				
Rating Unit	%	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority						V5	V5				
Pest Stage Majority	3 IN	3 IN	0.5 IN	1 IN			18 IN				
Pest Density, Unit	20 FT2	2 FT2	1 FT2	3 FT2							
Assessed By	MW	MW	MW	MW	MW	MW	MW				
Days After First/Last Applic.	23 23	23 23	23 23	23 23	23 23	41 15	41 15				
Plant-Eval Interval	24 DP-1	24 DP-1	24 DP-1	24 DP-1	24 DP-1	42 DP-1	42 DP-1				
Days After Emergence	18 DE-1	18 DE-1	18 DE-1	18 DE-1	18 DE-1	36 DE-1	36 DE-1				
Trt No.	Treatment Name	Rate	Unit	Appl Code	1	2	3	4	5	6	7
8	Authority First (70 WG)	0.282	lb ai/a	A	68.8 b	5.0 b	99.0 a	99.0 a	0.0 e	0.50 b	97.0 ab
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	Flexstar (1.88 L)	0.352	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							
9	Authority First (70 WG)	0.282	lb ai/a	A	68.8 b	17.5 b	99.0 a	99.0 a	0.8 e	0.00 b	94.5 ab
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	FirstRate (84 WG)	0.0158	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							
10	Fierce (76 WG)	0.214	lb ai/a	A	99.0 a	50.0 ab	99.0 a	99.0 a	15.0 b	3.75 a	99.3 a
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	Flexstar (1.88 L)	0.352	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							
11	Fierce (76 WG)	0.214	lb ai/a	A	99.0 a	69.8 a	99.0 a	99.0 a	18.8 a	1.25 b	96.3 ab
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	FirstRate (84 WG)	0.0158	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							
12	Valor SX (51 WG)	0.056	lb ai/a	A	88.8 ab	27.5 b	99.0 a	99.0 a	6.8 cd	1.13 b	93.8 ab
	Classic	0.0194	lb ai/a	A							
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	Rhythm (1.88 ME)	0.18	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							
13	Valor SX (51 WG)	0.056	lb ai/a	A	83.8 ab	20.0 b	99.0 a	99.0 a	3.3 de	1.25 b	94.3 ab
	Classic	0.0194	lb ai/a	A							
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	Rhythm (1.88 ME)	0.353	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							
14	Valor SX (51 WG)	0.056	lb ai/a	A	91.3 ab	12.5 b	99.0 a	99.0 a	4.5 d	0.50 b	88.3 bc
	Classic	0.0194	lb ai/a	A							
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B							
	FirstRate (84 WG)	0.0158	lb ai/a	B							
	NIS	0.25	% v/v	B							
	AMS - Liquid	17	lb ai/100 gal	B							

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Pest Type	W Weed	W Weed	W Weed	W Weed			W Weed				
Pest Code	SETFA	AMBTR	ABUTH	AMARE			SETFA				
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Abutilon theop>	Amaranthus ret>			Setaria faberi				
Pest Name	Giant foxtail	Giant ragweed	Velvetleaf	Redroot pigweed			Giant foxtail				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean				
Rating Date	6-3-2011	6-3-2011	6-3-2011	6-3-2011	6-3-2011	6-21-2011	6-21-2011				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	CONTRO				
Rating Unit	%	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority						V5	V5				
Pest Stage Majority	3 IN	3 IN	0.5 IN	1 IN			18 IN				
Pest Density, Unit	20 FT2	2 FT2	1 FT2	3 FT2							
Assessed By	MW	MW	MW	MW	MW	MW	MW				
Days After First/Last Applic.	23 23	23 23	23 23	23 23	23 23	41 15	41 15				
Plant-Eval Interval	24 DP-1	24 DP-1	24 DP-1	24 DP-1	24 DP-1	42 DP-1	42 DP-1				
Days After Emergence	18 DE-1	18 DE-1	18 DE-1	18 DE-1	18 DE-1	36 DE-1	36 DE-1				
Trt No.	Treatment	Rate	Appl								
	Name	Rate	Unit	Code	1	2	3	4	5	6	7
15	Valor SX (51 WG)	0.056 lb ai/a	A		89.8 ab	25.0 b	99.0 a	99.0 a	6.8 cd	2.00 b	98.0 ab
	Classic	0.0194 lb ai/a	A								
	Roundup PowerMax 4.5 SL	0.773 lb ae/a	B								
	Flexstar (1.88 L)	0.294 lb ai/a	B								
	NIS	0.25 % v/v	B								
	AMS - Liquid	17 lb ai/100 gal	B								
LSD (P=.05)					15.28	30.28	0.00	21.09	2.56	1.195	6.05
Standard Deviation					10.69	21.19	0.00	14.76	1.79	0.837	4.23
CV					14.15	112.6	0.0	16.56	34.96	90.44	4.86
Bartlett's X2					26.571	5.961	0.0	0.0	11.724	8.304	22.44
P(Bartlett's X2)					0.005*	0.876	.	.	0.164	0.504	0.049*
Replicate F					1.623	0.306	0.000	1.000	0.649	0.736	0.167
Replicate Prob(F)					0.1984	0.8209	1.0000	0.4023	0.5881	0.5363	0.9181
Treatment F					30.666	3.245	0.000	14.143	40.983	6.428	133.748
Treatment Prob(F)					0.0001	0.0016	1.0000	0.0001	0.0001	0.0001	0.0001

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed					
Pest Code	AMBTR	CHEAL	SETFA	AMBTR						
Pest Scientific Name	Ambrosia trifi>	Chenopodium al>	Setaria faberi	Ambrosia trifi>						
Pest Name	Giant ragweed	Common lambsqu>	Giant foxtail	Giant ragweed						
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					
Rating Date	6-21-2011	6-21-2011	7-7-2011	7-7-2011	10-6-2011					
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO					
Rating Unit	%	%	%	%	%					
Number of Subsamples	1	1	1	1	1					
Crop Stage Majority	V5	V5	V9/R2	V9/R2	V9/R2					
Pest Stage Majority	18 IN	5 IN								
Pest Density, Unit										
Assessed By	MW	MW	JR	JR	JR					
Days After First/Last Applic.	41 15	41 15	57 31	57 31	57 31					
Plant-Eval Interval	42 DP-1	42 DP-1	58 DP-1	58 DP-1	58 DP-1					
Days After Emergence	36 DE-1	36 DE-1	52 DE-1	52 DE-1	52 DE-1					
Yield					148 122					
Plant-Eval Interval	149 DP-1	149 DP-1	149 DP-1	149 DP-1	149 DP-1					
Days After Emergence	143 DE-1	143 DE-1	143 DE-1	143 DE-1	143 DE-1					
Trt No.	Treatment Name	Rate	Unit	Appl Code	8	9	10	11	12	13
1	Untreated Check				0.0 c	0.0 c	0.0 a	0.0 b	0.0 c	19.93 b
2	Roundup PowerMax 4.5 SL AMS - Liquid	0.773 lb ae/a 17 lb ai/100 gal	B		80.0 ab	93.8 b	0.0 a	93.5 a	83.0 ab	67.13 a
3	Valor SX (51 WG) Classic Roundup PowerMax 4.5 SL AMS - Liquid	0.056 lb ai/a 0.0194 lb ai/a 0.773 lb ae/a 17 lb ai/100 gal	A A B		78.3 ab	98.8 a	0.0 a	91.3 a	67.5 b	64.43 a
4	Valor SX (51 WG) Classic Roundup PowerMax 4.5 SL Flexstar (1.88 L) NIS AMS - Liquid	0.056 lb ai/a 0.0194 lb ai/a 0.773 lb ae/a 0.352 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A B B B		86.3 ab	100.0 a	0.0 a	95.0 a	81.3 ab	68.58 a
5	Valor SX (51 WG) Classic Roundup PowerMax 4.5 SL FirstRate (84 WG) NIS AMS - Liquid	0.075 lb ai/a 0.0258 lb ai/a 0.773 lb ae/a 0.0158 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A B B B		77.8 ab	100.0 a	0.0 a	91.5 a	69.5 b	62.78 a
6	Authority XL (70 WG) Roundup PowerMax 4.5 SL Flexstar (1.88 L) NIS AMS - Liquid	0.284 lb ai/a 0.773 lb ae/a 0.3528 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A B B B		92.0 ab	100.0 a	0.0 a	95.8 a	90.8 ab	70.08 a
7	Authority XL (70 WG) Roundup PowerMax 4.5 SL FirstRate (84 WG) NIS AMS - Liquid	0.284 lb ai/a 0.773 lb ae/a 0.0158 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A B B B		82.3 ab	100.0 a	0.0 a	93.8 a	80.3 ab	72.43 a

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	AMBTR	CHEAL		SETFA	AMBTR					
Pest Scientific Name	Ambrosia trifi>	Chenopodium al>		Setaria faberi	Ambrosia trifi>					
Pest Name	Giant ragweed	Common lambsqu>		Giant foxtail	Giant ragweed					
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				
Rating Date	6-21-2011	6-21-2011	7-7-2011	7-7-2011	7-7-2011	10-6-2011				
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	YIELD				
Rating Unit	%	%	%	%	%	bu/ac				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority	V5	V5	V9/R2	V9/R2	V9/R2					
Pest Stage Majority	18 IN	5 IN								
Pest Density, Unit										
Assessed By	MW	MW	JR	JR	JR					
Days After First/Last Applic.	41 15	41 15	57 31	57 31	57 31	148 122				
Plant-Eval Interval	42 DP-1	42 DP-1	58 DP-1	58 DP-1	58 DP-1	149 DP-1				
Days After Emergence	36 DE-1	36 DE-1	52 DE-1	52 DE-1	52 DE-1	143 DE-1				
Trt No.	Treatment Name	Rate	Unit	Appl Code	8	9	10	11	12	13
8	Authority First (70 WG)	0.282	lb ai/a	A	93.8 a	99.5 a	0.0 a	95.8 a	95.8 a	75.00 a
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	Flexstar (1.88 L)	0.352	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						
9	Authority First (70 WG)	0.282	lb ai/a	A	83.8 ab	99.5 a	0.0 a	93.8 a	80.0 ab	71.65 a
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	FirstRate (84 WG)	0.0158	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						
10	Fierce (76 WG)	0.214	lb ai/a	A	92.3 ab	100.0 a	0.8 a	95.8 a	86.3 ab	69.08 a
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	Flexstar (1.88 L)	0.352	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						
11	Fierce (76 WG)	0.214	lb ai/a	A	89.5 ab	100.0 a	0.3 a	95.8 a	86.8 ab	72.83 a
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	FirstRate (84 WG)	0.0158	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						
12	Valor SX (51 WG)	0.056	lb ai/a	A	85.5 ab	100.0 a	0.0 a	95.3 a	81.5 ab	73.58 a
	Classic	0.0194	lb ai/a	A						
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	Rhythm (1.88 ME)	0.18	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						
13	Valor SX (51 WG)	0.056	lb ai/a	A	85.5 ab	98.0 a	0.0 a	96.5 a	88.5 ab	69.30 a
	Classic	0.0194	lb ai/a	A						
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	Rhythm (1.88 ME)	0.353	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						
14	Valor SX (51 WG)	0.056	lb ai/a	A	74.5 b	100.0 a	0.0 a	94.3 a	78.8 ab	68.35 a
	Classic	0.0194	lb ai/a	A						
	Roundup PowerMax 4.5 SL	0.773	lb ae/a	B						
	FirstRate (84 WG)	0.0158	lb ai/a	B						
	NIS	0.25	% v/v	B						
	AMS - Liquid	17	lb ai/100 gal	B						

Means followed by same letter do not significantly differ (P= .05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Purdue University

Pest Type	W Weed	W Weed		W Weed	W Weed			
Pest Code	AMBTR	CHEAL		SETFA	AMBTR			
Pest Scientific Name	Ambrosia trifi>	Chenopodium al>		Setaria faberi	Ambrosia trifi>			
Pest Name	Giant ragweed	Common lambsqu>		Giant foxtail	Giant ragweed			
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		
Rating Date	6-21-2011	6-21-2011	7-7-2011	7-7-2011	7-7-2011	10-6-2011		
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	YIELD		
Rating Unit	%	%	%	%	%	bu/ac		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority	V5	V5	V9/R2	V9/R2	V9/R2			
Pest Stage Majority	18 IN	5 IN						
Pest Density, Unit								
Assessed By	MW	MW	JR	JR	JR			
Days After First/Last Applic.	41 15	41 15	57 31	57 31	57 31	148 122		
Plant-Eval Interval	42 DP-1	42 DP-1	58 DP-1	58 DP-1	58 DP-1	149 DP-1		
Days After Emergence	36 DE-1	36 DE-1	52 DE-1	52 DE-1	52 DE-1	143 DE-1		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	8	9	10	11	12	13
15 Valor SX (51 WG)	0.056 lb ai/a	A	93.5 a	100.0 a	0.3 a	95.8 a	84.5 ab	68.95 a
Classic	0.0194 lb ai/a	A						
Roundup PowerMax 4.5 SL	0.773 lb ae/a	B						
Flexstar (1.88 L)	0.294 lb ai/a	B						
NIS	0.25 % v/v	B						
AMS - Liquid	17 lb ai/100 gal	B						
LSD (P=.05)			10.88	3.31	0.44	3.24	14.13	9.450
Standard Deviation			7.62	2.32	0.31	2.27	9.89	6.613
CV			9.56	2.5	373.4	2.57	12.85	9.98
Bartlett's X2			28.645	15.236	1.791	11.187	13.34	18.364
P(Bartlett's X2)			0.007*	0.004*	0.408	0.513	0.422	0.191
Replicate F			3.448	1.007	0.631	0.013	4.751	9.061
Replicate Prob(F)			0.0249	0.3993	0.5990	0.9980	0.0061	0.0001
Treatment F			36.011	491.670	1.721	464.663	20.688	16.021
Treatment Prob(F)			0.0001	0.0001	0.0875	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Purdue University

Glyphosate Resistant Waterhemp and Ragweed Control in Soybeans.

Trial ID: 11S-THP-CTS-44

Protocol ID: 11S-THP-CTS-214

Location: Throckmorton
Project ID: 2011-01-24-21Study Director: White/Marquardt
Investigator: Dr. Bill Johnson

Sponsor Contact: Monsanto - John Willis

Pest Type

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

Pest Code

SETFA, Setaria faberi, = US

AMBTR, Ambrosia trifida, = US

ABUTH, Abutilon theophrasti, = US

AMARE, Amaranthus retroflexus, = US

CHEAL, Chenopodium album, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

YIELD = yield

Rating Unit

% = percent

bu/ac = bushels per acre

FT2 = per square foot

Plant-Eval Interval

24 DP-1 = 1 GLXMA 5-10-2011

42 DP-1 = 1 GLXMA 5-10-2011

58 DP-1 = 1 GLXMA 5-10-2011

149 DP-1 = 1 GLXMA 5-10-2011