Purdue University Weed Science

2013/SOYBEAN/AUTHORITY/ANTHEM/LL/RR

Trial ID: 13S-PIP-CTS-02 Location: PPAC Trial Year: 2013
Protocol ID: 13S-PIP-CTS-02 Investigator: Dr. Bill Johnson
Project ID: Study Director: Joe Ikley
Sponsor Contact: FMC - Joe Reed

General Trial Information

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

Discipline: H herbicide
Trial Status: F one-year/final
Initiation Date: 5/7/2013
Completion Date: 10/22/2013

Trial Location

City: Wanatah **Country:** USA United States
State/Prov.: Indiana
Postal Code: 46390

Contacts

Study Director: Joe Ikley **Title:** Research Associate
Organization: Purdue University
Address: 915 West State Street **Phone No.:** 765-494-0891
City+State/Prov: West Lafayette **Mobile No.:** 410-596-9091
Postal Code: 47907 **E-mail:** jikley@purdue.edu

Investigator: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
Address: 915 West State Street **Phone No.:** 765-494-4656
City+State/Prov: West Lafayette **Mobile No.:** 765-404-9801
Postal Code: 47907 **E-mail:** wgj@purdue.edu

Cooperator/Landowner

Cooperator: Jon Leuck **Role:** Farm Manager
Organization: Pinney-Purdue Agricultural Center **Org. Type:** University
Address 1: 11402 County Line Road
City: Wanatah **Phone No.:** 765-479-3759
State/Prov: IN **Fax No.:** 219-733-2379
Postal Code: 46390 **Mobile No.:** 765-479-3759
Country: USA United States **E-mail:** leuckj@purdue.edu

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Asgrow 2933
Description: RR

Planting Date: 5/7/2013
Planting Rate, Unit: 57 LB/A **Planting Method:** DIRDRI direct drilled
Depth, Unit: 1.25 IN
Row Spacing, Unit: 30 IN **Emergence Date:** 5/16/2013
Harvest Date: 10/22/2013
Planting Density, Unit: 140000 S/A **Harvested Width, Unit:** 10 FT
Soil Temperature, Unit: 68 F **Harvested Length, Unit:** 25 FT
Soil Moisture: SLIWET slightly wet, moist **Harvest Equipment:** Gleaner F3
% Standard Moisture: 13.0
Moisture Meter: Harvest Master
Weighing Equipment: Harvest Master

Pest Description

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

Pest 2 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: velvetleaf

Site and Design

Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 300 FT2 **Treatments:** 10 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

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Soil Description

Description Name: Pinney M2
% OM: 2.2 **Texture:** SL sandy loam
pH: 6.3 **Soil Name:** Tracy Sandy Loam
CEC: 6
Soil Drainage: E excellent

Application Description

	A	B	C
Application Date:	5/7/2013	6/4/2013	6/18/2013
Appl. Start Time:	13:00	10:30	17:45
Appl. Stop Time:	2:00 PM	11:45 AM	5:50 PM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PREPRE	POSPOS	POSPOS
Application Placement:	SOIL	BROADC	BROADC
Applied By:	Legleiter	Spaunhorst	Ikley
Air Temperature, Unit:	75 F	73 F	70 F
% Relative Humidity:	40	50	63
Wind Velocity, Unit:	5 MPH	2.5 MPH	5 MPH
Wind Direction:	NNW	SE	N
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	68 F	64 F	84 F
Soil Moisture:	SLIWET	SLIWET	SLIWET
% Cloud Cover:	50	20	30
Next Moisture Occurred On:	5/10/2013		
Time to Next Moisture, Unit:	48 HR		

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:	00	12	14
Stage Minimum, Percent:		12	14
Stage Maximum, Percent:		13	14
Height, Unit:		5 IN	9 IN

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Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W
Stage Majority, Percent:	00	12	33
Stage Minimum, Percent:		11	32
Stage Maximum, Percent:		14	34
Height, Unit:		1.25 IN	12 IN
Height Minimum, Maximum:		0.75 2	6 20
Density, Unit:		10 YD2	15 YD2
Pest 2 Code, Type, Scale:	ABUTH W	ABUTH W	ABUTH W
Stage Majority, Percent:	00	14	
Stage Minimum, Percent:		12	
Stage Maximum, Percent:		16	
Height, Unit:		1.25 IN	
Height Minimum, Maximum:		1 1.5	
Density, Unit:		20 YD2	

Application Equipment

	A	B	C
Appl. Equipment:	CO2 Backpack	CO2 Backpack	CO2 Backpack
Equipment Type:	SPRBAC	SPRBAC	SPRBAC
Operation Pressure, Unit:	17 PSI	17 PSI	17 PSI
Nozzle Type:	Flat Fan	Flat Fan	Flat Fan
Nozzle Size:	XR11002	XR11002	XR11002
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN
Nozzles/Row:	8	8	8
Boom Length, Unit:	10 FT	10 FT	10 FT
Boom Height, Unit:	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	H2O	H2O	H2O
Water Hardness (ppm CaCO3):	150	150	150
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size, Unit:	1.8 Liters	1.8 Liters	1.8 Liters
Propellant:	CO2	CO2	CO2
Tank Mix (Y/N):	N no	N no	N no

Trt No	Treatment Application Comment
8	B SPRAYED ON 6/18 (now APP C)

No.	Date	By	Deviations
1.	6/4/2013		Treatment 8 went unsprayed until 6/18

Trial Comments

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Reps: 4 Plots: 10 by 30 feet
Spray vol: 15 gal/ac Mix size: 1.8 liters (min 1.5642)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Amt Product to Measure	Rep 1	2	3	4
1	UNTREATED										101	402	802	902
2	AUTHORITY ELITE	840	G/L	EC	1720	g ai/ha	28	fl oz/a	A	26.27 ml/mx	102	404	601	1002
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ae/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
3	AUTHORITY ASSIST	480	G/L	SC	210	g ai/ha	6	fl oz/a	A	5.613 ml/mx	103	502	801	1001
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
4	AUTHORITY MTZ	45	%W/W	WG	630	g ai/ha	20	oz/a	A	17.96 g/mx	104	304	702	901
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
5	PREFIX	634.799988	G/L	EC	1480	g ai/ha	2	pt/a	A	29.91 ml/mx	201	504	704	1004
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
6	Valor	51	%	WG	63	g ai/ha	1.76	oz/a	A	1.585 g/mx	202	501	703	904
	Classic	25	%AW/W	DF	21.7	g ai/ha	1.24	oz/a	A	1.114 g/mx				
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
7	ANTHEM	258	G/L	SE	113	g ai/ha	6	fl oz/a	B	5.619 ml/mx	203	403	603	804
	CLASSIC	25	%W/W	WG	13.1	g ai/ha	0.75	oz/a	B	0.6722 g/mx				
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
8	AUTHORITY ELITE	840	G/L	EC	1720	g ai/ha	28	fl oz/a	A	26.27 ml/mx	204	303	604	803
	ANTHEM	258	G/L	SE	113	g ai/ha	6	fl oz/a	C	5.619 ml/mx				
	CLASSIC	25	%W/W	WG	13.1	g ai/ha	0.75	oz/a	C	0.6722 g/mx				
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	C	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	C	45.0 ml/mx				
9	AUTHORITY ASSIST	480	G/L	SC	210	g ai/ha	6	fl oz/a	A	5.613 ml/mx	301	503	701	1003
	ANTHEM	258	G/L	SE	113	g ai/ha	6	fl oz/a	B	5.619 ml/mx				
	CLASSIC	25	%W/W	WG	13.1	g ai/ha	0.75	oz/a	B	0.6722 g/mx				
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 ml/mx				
10	AUTHORITY MTZ	45	%W/W	WG	630	g ai/ha	20	oz/a	A	17.96 g/mx	302	401	602	903
	ANTHEM	258	G/L	SE	113	g ai/ha	6	fl oz/a	B	5.619 ml/mx				
	CLASSIC	25	%W/W	WG	13.1	g ai/ha	0.75	oz/a	B	0.6722 g/mx				
	Roundup Powermax	4.5	LBAE/GAL	SL	870	g ai/ha	22	fl oz/a	B	20.67 ml/mx				
	N-Pak AMS	3.4	LBA/GAL	SL	2.5	% v/v	8.5	lb ai/100 gal	B	45.0 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
52.537	ml	AUTHORITY ELITE	840	EC	
186.016	ml	Roundup Powermax	4.5	SL	
405.000	ml	N-Pak AMS	3.4	SL	
11.225	ml	AUTHORITY ASSIST	480	SC	
35.920	g	AUTHORITY MTZ	45	WG	
29.909	ml	PREFIX	634.799988	EC	
1.585	g	Valor	51	WG	
1.114	g	Classic	25	DF	
22.475	ml	ANTHEM	258	SE	
2.689	g	CLASSIC	25	WG	

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

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

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Protocol ID: 13S-PIP-CTS-02 Investigator: Dr. Bill Johnson
Project ID: Study Director: Joe Ikley
Sponsor Contact: FMC - Joe Reed

Pest Type				W Weed	W Weed			W Weed	W Weed
Pest Code				AMBTR	ABUTH			AMBTR	ABUTH
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>			Ambrosia trifi>	Abutilon theop>
Pest Name				Giant ragweed	velvetleaf			Giant ragweed	velvetleaf
Crop Code						GLXMA	GLXMA		
BBCH Scale						BSOY	BSOY		
Crop Scientific Name						Glycine max	Glycine max		
Crop Name						Soybean	Soybean		
Part Rated				PLOT P	PLOT P	PLOT C	PLOT C	PLOT P	PLOT P
Rating Date				5/22/2013	5/22/2012	5/29/2013	6/4/2013	6/4/2013	6/4/2013
Rating Type				CONTRO	CONTRO	PHYGEN	PHYGEN	CONTRO	CONTRO
Rating Unit				%	%	%	%	%	%
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Days After First/Last Applic.				15 15	-350 -350	22 22	28 28	28 28	28 28
Trt-Eval Interval				15 DA-A	15 DA-A	22 DA-A	0 DA-B	0 DA-B	0 DA-B
ARM Action Codes				P	P	P	P	P	P
Number of Decimals				0	0	0	0	0	0
Trt No.	Treatment Name	Rate Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6
1	UNTREATED				101	0	0	0	0	0	0
					402	0	0	0	0	0	0
					802	0	0	0	0	0	0
					902	0	0	0	0	0	0
					Mean =	0	0	0	0	0	0
2	AUTHORITY ELITE	1720	g ai/ha	A	102	65	75	0	0	60	65
	Roundup Powermax	870	g ae/ha	B	404	30	50	0	0	50	70
	N-Pak AMS	2.5	% v/v	B	601	70	75	0	0	75	70
					1002	70	85	0	0	15	90
					Mean =	59	71	0	0	50	74
3	AUTHORITY ASSIST	210	g ai/ha	A	103	75	85	0	0	80	100
	Roundup Powermax	870	g ai/ha	B	502	80	90	0	0	95	100
	N-Pak AMS	2.5	% v/v	B	801	80	95	10	0	80	100
					1001	70	95	5	0	85	95
					Mean =	76	91	4	0	85	99
4	AUTHORITY MTZ	630	g ai/ha	A	104	75	75	0	0	65	85
	Roundup Powermax	870	g ai/ha	B	304	30	95	0	0	50	100
	N-Pak AMS	2.5	% v/v	B	702	95	85	15	5	80	90
					901	70	90	10	5	65	95
					Mean =	68	86	6	3	65	93
5	PREFIX	1480	g ai/ha	A	201	85	20	0	0	70	35
	Roundup Powermax	870	g ai/ha	B	504	100	10	0	5	95	15
	N-Pak AMS	2.5	% v/v	B	704	100	30	0	0	95	20
					1004	80	23*	10	2	85	30
					Mean =	91	21	3	2	86	25
6	Valor	63	g ai/ha	A	202	85	90	5	10	90	100
	Classic	21.7	g ai/ha	A	501	95	80	5	5	100	100
	Roundup Powermax	870	g ai/ha	B	703	90	50	10	0	95	100
	N-Pak AMS	2.5	% v/v	B	904	95	80	0	5	90	100
					Mean =	91	75	5	5	94	100
7	ANTHEM	113	g ai/ha	B	203	0	0	0	0	0	0
	CLASSIC	13.1	g ai/ha	B	403	0	0	0	0	0	0
	Roundup Powermax	870	g ai/ha	B	603	0	0	0	0	0	0
	N-Pak AMS	2.5	% v/v	B	804	0	0	0	0	0	0
					Mean =	0	0	0	0	0	0
8	AUTHORITY ELITE	1720	g ai/ha	A	204	70	65	0	0	70	75
	ANTHEM	113	g ai/ha	C	303	50	80	0	0	60	95
	CLASSIC	13.1	g ai/ha	C	604	75	75	0	0	80	80
	Roundup Powermax	870	g ai/ha	C	803	65	50	0	0	50	85
	N-Pak AMS	2.5	% v/v	C							
					Mean =	65	68	0	0	65	84

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Pest Type				W Weed	W Weed			W Weed	W Weed
Pest Code				AMBTR	ABUTH			AMBTR	ABUTH
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>			Ambrosia trifi>	Abutilon theop>
Pest Name				Giant ragweed	velvetleaf			Giant ragweed	velvetleaf
Crop Code						GLXMA	GLXMA		
BBCH Scale						BSOY	BSOY		
Crop Scientific Name						Glycine max	Glycine max		
Crop Name						Soybean	Soybean		
Part Rated				PLOT P	PLOT P	PLOT C	PLOT C	PLOT P	PLOT P
Rating Date				5/22/2013	5/22/2012	5/29/2013	6/4/2013	6/4/2013	6/4/2013
Rating Type				CONTRO	CONTRO	PHYGEN	PHYGEN	CONTRO	CONTRO
Rating Unit				%	%	%	%	%	%
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Days After First/Last Applic.				15 15	-350 -350	22 22	28 28	28 28	28 28
Trt-Eval Interval				15 DA-A	15 DA-A	22 DA-A	0 DA-B	0 DA-B	0 DA-B
ARM Action Codes				P	P	P	P	P	P
Number of Decimals				0	0	0	0	0	0
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6
9	AUTHORITY ASSIST	210	g ai/ha	A	301	70	100	0	0	70	100
	ANTHEM	113	g ai/ha	B	503	95	90	0	0	95	100
	CLASSIC	13.1	g ai/ha	B	701	94*	80	0	5	70	100
	Roundup Powermax	870	g ai/ha	B	1003	80	95	0	0	70	100
	N-Pak AMS	2.5	% v/v	B							
					Mean =	85	91	0	1	76	100
10	AUTHORITY MTZ	630	g ai/ha	A	302	80	90	5	5	70	95
	ANTHEM	113	g ai/ha	B	401	50	95	0	0	65	100
	CLASSIC	13.1	g ai/ha	B	602	90	95	10	0	85	100
	Roundup Powermax	870	g ai/ha	B	903	50	100	5	0	50	100
	N-Pak AMS	2.5	% v/v	B							
					Mean =	68	95	5	1	68	99

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Pest Type					W Weed	W Weed		W Weed	W Weed		
Pest Code					AMBTR	ABUTH		AMBTR	ABUTH		
Pest Scientific Name					Ambrosia trifi>	Abutilon theop>		Ambrosia trifi>	Abutilon theop>		
Pest Name					Giant ragweed	velvetleaf		Giant ragweed	velvetleaf		
Crop Code							GLXMA			GLXMA	
BBCH Scale							BSOY			BSOY	
Crop Scientific Name							Glycine max			Glycine max	
Crop Name							Soybean			Soybean	
Part Rated					PLOT P	PLOT P	PLOT C	PLOT P	PLOT P	PLOT C	
Rating Date					6/11/2013	6/11/2013	6/18/2013	6/18/2013	6/18/2013	7/2/2013	
Rating Type					CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN	
Rating Unit					%	%	%	%	%	%	
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Days After First/Last Applic.					35 7	35 7	42 14	42 14	42 14	56 14	
Trt-Eval Interval					7 DA-B	7 DA-B	14 DA-B	14 DA-B	14 DA-B	28 DA-B	
ARM Action Codes					P	P	P	P	P	P	
Number of Decimals					0	0	0	0	0	0	
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	7	8	9	10	11	12
1	UNTREATED				101	0	0	0	0	0	0
					402	0	0	0	0	0	0
					802	0	0	0	0	0	0
					902	0	0	0	0	0	0
					Mean =	0	0	0	0	0	0
2	AUTHORITY ELITE	1720	g ai/ha	A	102	75	100	0	70	100	0
	Roundup Powermax	870	g ae/ha	B	404	80	100	0	70	100	0
	N-Pak AMS	2.5	% v/v	B	601	90	100	0	90	100	0
					1002	85	100	0	95	100	0
					Mean =	83	100	0	81	100	0
3	AUTHORITY ASSIST	210	g ai/ha	A	103	85	100	0	90	100	0
	Roundup Powermax	870	g ai/ha	B	502	95	100	0	95	100	0
	N-Pak AMS	2.5	% v/v	B	801	95	100	0	95	100	0
					1001	80	100	0	90	100	0
					Mean =	89	100	0	93	100	0
4	AUTHORITY MTZ	630	g ai/ha	A	104	70	100	0	80	100	0
	Roundup Powermax	870	g ai/ha	B	304	85	100	0	80	100	0
	N-Pak AMS	2.5	% v/v	B	702	100	100	0	95	100	0
					901	100	100	0	95	100	0
					Mean =	89	100	0	88	100	0
5	PREFIX	1480	g ai/ha	A	201	85	95	5	90	100	0
	Roundup Powermax	870	g ai/ha	B	504	100	90	0	95	100	0
	N-Pak AMS	2.5	% v/v	B	704	100	95	0	100	100	0
					1004	90	100	0	100	100	0
					Mean =	94	95	1	96	100	0
6	Valor	63	g ai/ha	A	202	100	100	0	95	100	0
	Classic	21.7	g ai/ha	A	501	100	100	0	95	100	0
	Roundup Powermax	870	g ai/ha	B	703	100	100	5	95	100	0
	N-Pak AMS	2.5	% v/v	B	904	100	100	0	100	100	0
					Mean =	100	100	1	96	100	0
7	ANTHEM	113	g ai/ha	B	203	85	95	5	90	100	0
	CLASSIC	13.1	g ai/ha	B	403	70	100	0	85	100	0
	Roundup Powermax	870	g ai/ha	B	603	95	95	5	95	100	5
	N-Pak AMS	2.5	% v/v	B	804	80	100	5	80	100	0
					Mean =	83	98	4	88	100	1
8	AUTHORITY ELITE	1720	g ai/ha	A	204	.	.	.	.	.	0
	ANTHEM	113	g ai/ha	C	303	.	.	.	.	.	0
	CLASSIC	13.1	g ai/ha	C	604	.	.	.	.	.	5
	Roundup Powermax	870	g ai/ha	C	803	.	.	.	.	.	0
	N-Pak AMS	2.5	% v/v	C							
					Mean =	.	.	.	.	.	1

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Pest Type				W Weed	W Weed		W Weed	W Weed	
Pest Code				AMBTR	ABUTH		AMBTR	ABUTH	
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>		Ambrosia trifi>	Abutilon theop>	
Pest Name				Giant ragweed	velvetleaf		Giant ragweed	velvetleaf	
Crop Code						GLXMA			GLXMA
BBCH Scale						BSOY			BSOY
Crop Scientific Name						Glycine max			Glycine max
Crop Name						Soybean			Soybean
Part Rated				PLOT P	PLOT P	PLOT C	PLOT P	PLOT P	PLOT C
Rating Date				6/11/2013	6/11/2013	6/18/2013	6/18/2013	6/18/2013	7/2/2013
Rating Type				CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN
Rating Unit				%	%	%	%	%	%
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Days After First/Last Applic.				35 7	35 7	42 14	42 14	42 14	56 14
Trt-Eval Interval				7 DA-B	7 DA-B	14 DA-B	14 DA-B	14 DA-B	28 DA-B
ARM Action Codes				P	P	P	P	P	P
Number of Decimals				0	0	0	0	0	0
Trt No.	Treatment Name	Rate Rate	Rate Unit	Appl Code	Plot	7	8	9	10	11	12
9	AUTHORITY ASSIST	210	g ai/ha	A	301	95	100	0	95	100	5
	ANTHEM	113	g ai/ha	B	503	95	100	5	100	100	5
	CLASSIC	13.1	g ai/ha	B	701	90	100	5	100	100	0
	Roundup Powermax	870	g ai/ha	B	1003	90	100	0	100	100	5
	N-Pak AMS	2.5	% v/v	B							
					Mean =	93	100	3	99	100	4
10	AUTHORITY MTZ	630	g ai/ha	A	302	90	100	5	95	100	5
	ANTHEM	113	g ai/ha	B	401	90	100	5	90	100	0
	CLASSIC	13.1	g ai/ha	B	602	95	100	5	100	100	10
	Roundup Powermax	870	g ai/ha	B	903	85	100	5	95	10	0
	N-Pak AMS	2.5	% v/v	B							
					Mean =	90	100	5	95	78	4

Purdue University Weed Science

Pest Type					W Weed	W Weed	W Weed				
Pest Code					AMBTR	ABUTH	AMBTR				
Pest Scientific Name					Ambrosia trifi>	Abutilon theop>	Ambrosia trifi>				
Pest Name					Giant ragweed	velvetleaf	Giant ragweed				
Crop Code								GLXMA	GLXMA	GLXMA	
BBCH Scale								BSOY	BSOY	BSOY	
Crop Scientific Name								Glycine max	Glycine max	Glycine max	
Crop Name								Soybean	Soybean	Soybean	
Part Rated					PLOT P	PLOT P	PLOT P	YIELD C	YIELD C	YIELD C	
Rating Date					7/2/2013	7/2/2013	7/17/2013	10/22/2013	10/22/2013	10/22/2013	
Rating Type					CONTRO	CONTRO	CONTRO	YIELD	YIELD	YIELD	
Rating Unit					%	%	%	lb/plot	BU	KG	
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Days After First/Last Applic.					56 14	56 14	71 29	168 126	168 126	168 126	
Trt-Eval Interval					28 DA-B	28 DA-B	29 DA-C				
ARM Action Codes					P	P	P		TY1	TY2	
Number of Decimals					0	0	0	1	1	1	
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	13	14	15	16	17	18
1	UNTREATED				101	0	0	0	7.8	22.5	1515.6
					402	0	0	0	7.8*	22.5*	1515.6*
					802	0	0	0	7.8*	22.5*	1515.6*
					902	0	0	0	7.8*	22.5*	1515.6*
					Mean =	0	0	0	7.8	22.5	1515.6
2	AUTHORITY ELITE	1720	g ai/ha	A	102	85	100		15.1	44.0	2956.1
	Roundup Powermax	870	g ae/ha	B	404	65	100		9.6	27.9	1873.1
	N-Pak AMS	2.5	% v/v	B	601	90	100		14.9	43.3	2911.3
					1002	85	100		13.2*	38.4*	2580.2*
					Mean =	81	100	.	13.2	38.4	2580.2
3	AUTHORITY ASSIST	210	g ai/ha	A	103	90	100		18.6	54.0	3629.1
	Roundup Powermax	870	g ai/ha	B	502	90	100		11.3	32.7	2199.1
	N-Pak AMS	2.5	% v/v	B	801	75	100		11.8	34.2	2302.6
					1001	80	100		13.9*	40.3*	2710.3*
					Mean =	84	100	.	13.9	40.3	2710.3
4	AUTHORITY MTZ	630	g ai/ha	A	104	90	100		14.1	40.8	2745.8
	Roundup Powermax	870	g ai/ha	B	304	75	100		12.3	35.7	2398.8
	N-Pak AMS	2.5	% v/v	B	702	90	100		12.2	35.4	2377.8
					901	70	100		11.2	32.5	2187.2
					Mean =	81	100	.	12.4	36.1	2427.4
5	PREFIX	1480	g ai/ha	A	201	90	100		18.4	53.4	3593.4
	Roundup Powermax	870	g ai/ha	B	504	99	100		15.9	46.1	3103.3
	N-Pak AMS	2.5	% v/v	B	704	100	95		15.7	45.5	3061.3
					1004	100	95		12.6	36.5	2451.4
					Mean =	97	98	.	15.6	45.4	3052.4
6	Valor	63	g ai/ha	A	202	95	100		21.5	62.4	4196.9
	Classic	21.7	g ai/ha	A	501	95	100		14.6	42.5	2858.8
	Roundup Powermax	870	g ai/ha	B	703	100	100		13.6	39.4	2651.2
	N-Pak AMS	2.5	% v/v	B	904	95	100		17.2	49.9	3355.7
					Mean =	96	100	.	16.7	48.6	3265.7
7	ANTHEM	113	g ai/ha	B	203	90	100		18.5	53.8	3618.6
	CLASSIC	13.1	g ai/ha	B	403	80	100		12.7	36.9	2483.0
	Roundup Powermax	870	g ai/ha	B	603	100	100		17.2	49.9	3355.7
	N-Pak AMS	2.5	% v/v	B	804	95	100		15.4	44.7	3008.7
					Mean =	91	100	.	16.0	46.3	3116.5
8	AUTHORITY ELITE	1720	g ai/ha	A	204	80	100	90	17.0	49.3	3313.6
	ANTHEM	113	g ai/ha	C	303	90	100	85	16.5	48.0	3229.5
	CLASSIC	13.1	g ai/ha	C	604	90	100	90	19.7	57.1	3839.4
	Roundup Powermax	870	g ai/ha	C	803	80	100	85	13.1	38.2	2567.1
	N-Pak AMS	2.5	% v/v	C							
					Mean =	85	100	88	16.6	48.1	3237.4

Purdue University Weed Science

Pest Type					W Weed	W Weed	W Weed				
Pest Code					AMBTR	ABUTH	AMBTR				
Pest Scientific Name					Ambrosia trifi>	Abutilon theop>	Ambrosia trifi>				
Pest Name					Giant ragweed	velvetleaf	Giant ragweed				
Crop Code								GLXMA	GLXMA	GLXMA
BBCH Scale								BSOY	BSOY	BSOY
Crop Scientific Name								Glycine max	Glycine max	Glycine max
Crop Name								Soybean	Soybean	Soybean
Part Rated					PLOT P	PLOT P	PLOT P	YIELD C	YIELD C	YIELD C
Rating Date					7/2/2013	7/2/2013	7/17/2013	10/22/2013	10/22/2013	10/22/2013
Rating Type					CONTRO	CONTRO	CONTRO	YIELD	YIELD	YIELD
Rating Unit					%	%	%	lb/plot	BU	KG
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Days After First/Last Applic.					56 14	56 14	71 29	168 126	168 126	168 126
Trt-Eval Interval					28 DA-B	28 DA-B	29 DA-C			
ARM Action Codes					P	P	P		TY1	TY2
Number of Decimals					0	0	0	1	1	1
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	13	14	15	16	17	18
9	AUTHORITY ASSIST	210	g ai/ha	A	301	85	100		14.3	41.4	2785.4
	ANTHEM	113	g ai/ha	B	503	100	100		12.2	35.4	2377.8
	CLASSIC	13.1	g ai/ha	B	701	100	100		13.6	39.5	2659.4
	Roundup Powermax	870	g ai/ha	B	1003	99	100		9.9	28.8	1936.2
	N-Pak AMS	2.5	% v/v	B							
					Mean =	96	100	.	12.5	36.3	2439.7
10	AUTHORITY MTZ	630	g ai/ha	A	302	85	100		15.5	44.9	3019.2
	ANTHEM	113	g ai/ha	B	401	90	100		10.3	29.9	2008.8
	CLASSIC	13.1	g ai/ha	B	602	100	100		13.4	38.8	2609.1
	Roundup Powermax	870	g ai/ha	B	903	97	100		14.0	40.7	2735.3
	N-Pak AMS	2.5	% v/v	B							
					Mean =	93	100	.	13.3	38.6	2593.1

Purdue University Weed Science

2013/SOYBEAN/AUTHORITY/ANTHEM/LL/RR

Trial ID: 13S-PIP-CTS-02 Location: PPAC Trial Year: 2013
Protocol ID: 13S-PIP-CTS-02 Investigator: Dr. Bill Johnson
Project ID: Study Director: Joe Ikley
Sponsor Contact: FMC - Joe Reed

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
AMBTR, Ambrosia trifida, = US
ABUTH, Abutilon theophrasti, = US
Crop Code
GLXMA, BSOY, Glycine max, = US
Part Rated
PLOT = plot
YIELD = yield
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
YIELD = yield
Rating Unit
% = percent
lb/plot = pounds per plot
BU = bushel
KG = kilogram

PLOT = total plot
ARM Action Codes
P = Rating scale of 0 to 100 (e.g. % control or injury)
TY1 = 2.904*[16]
TY2 = 195.2984*[16]

Purdue University Weed Science

2013/SOYBEAN/AUTHORITY/ANTHEM/LL/RR

Trial ID: 13S-PIP-CTS-02 Location: PPAC Trial Year: 2013
Protocol ID: 13S-PIP-CTS-02 Investigator: Dr. Bill Johnson
Project ID: Study Director: Joe Ikley
Sponsor Contact: FMC - Joe Reed

Pest Type				W Weed		W Weed				W Weed		W Weed	
Pest Code				AMBTR		ABUTH				AMBTR		ABUTH	
Pest Scientific Name				Ambrosia trifi>		Abutilon theop>				Ambrosia trifi>		Abutilon theop>	
Pest Name				Giant ragweed		velvetleaf				Giant ragweed		velvetleaf	
Crop Code								GLXMA		GLXMA			
BBCH Scale								BSOY		BSOY			
Crop Scientific Name								Glycine max		Glycine max			
Crop Name								Soybean		Soybean			
Part Rated				PLOT	P	PLOT	P	PLOT	C	PLOT	C	PLOT	P	PLOT	P
Rating Date				5/22/2013		5/22/2012		5/29/2013		6/4/2013		6/4/2013		6/4/2013	
Rating Type				CONTRO		CONTRO		PHYGEN		PHYGEN		CONTRO		CONTRO	
Rating Unit				%		%		%		%		%		%	
Sample Size, Unit				1	PLOT	1	PLOT	1	PLOT	1	PLOT	1	PLOT	1	PLOT
Days After First/Last Applic.				15	15	-350	-350	22	22	28	28	28	28	28	28
Trt-Eval Interval				15 DA-A		15 DA-A		22 DA-A		0 DA-B		0 DA-B		0 DA-B	
ARM Action Codes				P		P		P		P		P		P	
Number of Decimals				0		0		0		0		0		0	
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6			
1	UNTREATED				0 c	0 e	0 a	0 a	0 d	0 e			
2	AUTHORITY ELITE	1720	g ai/ha	A	59 b	71 bc	0 a	0 a	50 c	74 c			
	Roundup Powermax	870	g ae/ha	B									
	N-Pak AMS	2.5	% v/v	B									
3	AUTHORITY ASSIST	210	g ai/ha	A	76 ab	91 ab	4 a	0 a	85 ab	99 a			
	Roundup Powermax	870	g ai/ha	B									
	N-Pak AMS	2.5	% v/v	B									
4	AUTHORITY MTZ	630	g ai/ha	A	68 ab	86 abc	6 a	3 a	65 bc	93 a			
	Roundup Powermax	870	g ai/ha	B									
	N-Pak AMS	2.5	% v/v	B									
5	PREFIX	1480	g ai/ha	A	91 a	21 d	3 a	2 a	86 ab	25 d			
	Roundup Powermax	870	g ai/ha	B									
	N-Pak AMS	2.5	% v/v	B									
6	Valor	63	g ai/ha	A	91 a	75 abc	5 a	5 a	94 a	100 a			
	Classic	21.7	g ai/ha	A									
	Roundup Powermax	870	g ai/ha	B									
	N-Pak AMS	2.5	% v/v	B									
7	ANTHEM	113	g ai/ha	B	0 c	0 e	0 a	0 a	0 d	0 e			
	CLASSIC	13.1	g ai/ha	B									
	Roundup Powermax	870	g ai/ha	B									
	N-Pak AMS	2.5	% v/v	B									
8	AUTHORITY ELITE	1720	g ai/ha	A	65 ab	68 c	0 a	0 a	65 bc	84 b			
	ANTHEM	113	g ai/ha	C									
	CLASSIC	13.1	g ai/ha	C									
	Roundup Powermax	870	g ai/ha	C									
	N-Pak AMS	2.5	% v/v	C									
9	AUTHORITY ASSIST	210	g ai/ha	A	85 ab	91 ab	0 a	1 a	76 ab	100 a			
	ANTHEM	113	g ai/ha	B									
	CLASSIC	13.1	g ai/ha	B									
	Roundup Powermax	870	g ai/ha	B									
	N-Pak AMS	2.5	% v/v	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.
Missing data estimates are included in columns:Yates=1,2; Average=16,17,18

Purdue University Weed Science

Pest Type				W Weed	W Weed					W Weed	W Weed	
Pest Code				AMBTR	ABUTH					AMBTR	ABUTH	
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>					Ambrosia trifi>	Abutilon theop>	
Pest Name				Giant ragweed	velvetleaf					Giant ragweed	velvetleaf	
Crop Code						GLXMA	GLXMA					
BBCH Scale						BSOY	BSOY					
Crop Scientific Name						Glycine max	Glycine max					
Crop Name						Soybean	Soybean					
Part Rated				PLOT P	PLOT P	PLOT C	PLOT C			PLOT P	PLOT P	
Rating Date				5/22/2013	5/22/2012	5/29/2013	6/4/2013			6/4/2013	6/4/2013	
Rating Type				CONTRO	CONTRO	PHYGEN	PHYGEN			CONTRO	CONTRO	
Rating Unit				%	%	%	%			%	%	
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT			1 PLOT	1 PLOT	
Days After First/Last Applic.				15 15	-350 -350	22 22	28 28			28 28	28 28	
Trt-Eval Interval				15 DA-A	15 DA-A	22 DA-A	0 DA-B			0 DA-B	0 DA-B	
ARM Action Codes				P	P	P	P			P	P	
Number of Decimals				0	0	0	0			0	0	
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4		5	6	
10	AUTHORITY MTZ	630	g ai/ha	A	68 ab	95 a	5 a	1 a		68 bc	99 a	
	ANTHEM	113	g ai/ha	B								
	CLASSIC	13.1	g ai/ha	B								
	Roundup Powermax	870	g ai/ha	B								
	N-Pak AMS	2.5	% v/v	B								
LSD (P=.05)					19.0	15.1	4.9	3.2		16.4	8.4	
Standard Deviation					13.1	10.4	3.4	2.2		11.3	5.8	
CV					21.7	17.33	150.6	185.0		19.17	8.57	
Bartlett's X2					12.825	8.456	1.605	1.281		8.616	8.976	
P(Bartlett's X2)					0.076	0.294	0.808	0.865		0.281	0.11	
Skewness					-0.8452*	-0.7649*	1.6652*	2.0213*		-0.8586*	-0.8466*	
Kurtosis					-0.7315	-1.1116	1.6908*	3.68*		-0.6601	-1.0742	

Purdue University Weed Science

Pest Type				W Weed	W Weed		W Weed	W Weed	
Pest Code				AMBTR	ABUTH		AMBTR	ABUTH	
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>		Ambrosia trifi>	Abutilon theop>	
Pest Name				Giant ragweed	velvetleaf		Giant ragweed	velvetleaf	
Crop Code						GLXMA			GLXMA
BBCH Scale						BSOY			BSOY
Crop Scientific Name						Glycine max			Glycine max
Crop Name						Soybean			Soybean
Part Rated				PLOT P	PLOT P	PLOT C	PLOT P	PLOT P	PLOT C
Rating Date				6/11/2013	6/11/2013	6/18/2013	6/18/2013	6/18/2013	7/2/2013
Rating Type				CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN
Rating Unit				%	%	%	%	%	%
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Days After First/Last Applic.				35 7	35 7	42 14	42 14	42 14	56 14
Trt-Eval Interval				7 DA-B	7 DA-B	14 DA-B	14 DA-B	14 DA-B	28 DA-B
ARM Action Codes				P	P	P	P	P	P
Number of Decimals				0	0	0	0	0	0
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	7	8	9	10	11	12
1	UNTREATED				0 c	0 c	0 b	0 c	0 b	0 a
2	AUTHORITY ELITE	1720	g ai/ha	A	83 b	100 a	0 b	81 b	100 a	0 a
	Roundup Powermax	870	g ae/ha	B						
	N-Pak AMS	2.5	% v/v	B						
3	AUTHORITY ASSIST	210	g ai/ha	A	89 ab	100 a	0 b	93 a	100 a	0 a
	Roundup Powermax	870	g ai/ha	B						
	N-Pak AMS	2.5	% v/v	B						
4	AUTHORITY MTZ	630	g ai/ha	A	89 ab	100 a	0 b	88 ab	100 a	0 a
	Roundup Powermax	870	g ai/ha	B						
	N-Pak AMS	2.5	% v/v	B						
5	PREFIX	1480	g ai/ha	A	94 ab	95 b	1 b	96 a	100 a	0 a
	Roundup Powermax	870	g ai/ha	B						
	N-Pak AMS	2.5	% v/v	B						
6	Valor	63	g ai/ha	A	100 a	100 a	1 b	96 a	100 a	0 a
	Classic	21.7	g ai/ha	A						
	Roundup Powermax	870	g ai/ha	B						
	N-Pak AMS	2.5	% v/v	B						
7	ANTHEM	113	g ai/ha	B	83 b	98 a	4 ab	88 ab	100 a	1 a
	CLASSIC	13.1	g ai/ha	B						
	Roundup Powermax	870	g ai/ha	B						
	N-Pak AMS	2.5	% v/v	B						
8	AUTHORITY ELITE	1720	g ai/ha	A						1 a
	ANTHEM	113	g ai/ha	C						
	CLASSIC	13.1	g ai/ha	C						
	Roundup Powermax	870	g ai/ha	C						
	N-Pak AMS	2.5	% v/v	C						
9	AUTHORITY ASSIST	210	g ai/ha	A	93 ab	100 a	3 ab	99 a	100 a	4 a
	ANTHEM	113	g ai/ha	B						
	CLASSIC	13.1	g ai/ha	B						
	Roundup Powermax	870	g ai/ha	B						
	N-Pak AMS	2.5	% v/v	B						

Purdue University Weed Science

Pest Type				W Weed		W Weed			W Weed		W Weed	
Pest Code				AMBTR		ABUTH			AMBTR		ABUTH	
Pest Scientific Name				Ambrosia trifi>		Abutilon theop>			Ambrosia trifi>		Abutilon theop>	
Pest Name				Giant ragweed		velvetleaf			Giant ragweed		velvetleaf	
Crop Code								GLXMA				GLXMA
BBCH Scale								BSOY				BSOY
Crop Scientific Name								Glycine max				Glycine max
Crop Name								Soybean				Soybean
Part Rated				PLOT P		PLOT P		PLOT C	PLOT P		PLOT P	PLOT C
Rating Date				6/11/2013		6/11/2013		6/18/2013	6/18/2013		6/18/2013	7/2/2013
Rating Type				CONTRO		CONTRO		PHYGEN	CONTRO		CONTRO	PHYGEN
Rating Unit				%		%		%	%		%	%
Sample Size, Unit				1 PLOT		1 PLOT		1 PLOT	1 PLOT		1 PLOT	1 PLOT
Days After First/Last Applic.				35 7		35 7		42 14	42 14		42 14	56 14
Trt-Eval Interval				7 DA-B		7 DA-B		14 DA-B	14 DA-B		14 DA-B	28 DA-B
ARM Action Codes				P		P		P	P		P	P
Number of Decimals				0		0		0	0		0	0
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	7	8		9	10		11	12
10	AUTHORITY MTZ	630	g ai/ha	A	90 ab	100 a		5 a	95 a		78 a	4 a
	ANTHEM	113	g ai/ha	B								
	CLASSIC	13.1	g ai/ha	B								
	Roundup Powermax	870	g ai/ha	B								
	N-Pak AMS	2.5	% v/v	B								
LSD (P=.05)					9.9	2.4		2.6	7.9		21.9	2.9
Standard Deviation					6.8	1.7		1.8	5.4		15.0	2.0
CV					8.5	1.89		114.63	6.61		17.36	201.84
Bartlett's X2					8.518	0.348		0.094	14.613		0.0	2.143
P(Bartlett's X2)					0.203	0.555		0.993	0.041*		.	0.543
Skewness					-2.2202*	-2.5604*		0.8814*	-2.2975*		-2.1887*	2.3329*
Kurtosis					3.7771*	4.8708*		-1.2986	3.9731*		2.9676*	5.141*

Purdue University Weed Science

Pest Type				W Weed	W Weed	W Weed					
Pest Code				AMBTR	ABUTH	AMBTR					
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>	Ambrosia trifi>					
Pest Name				Giant ragweed	velvetleaf	Giant ragweed					
Crop Code							GLXMA	GLXMA	GLXMA		
BBCH Scale							BSOY	BSOY	BSOY		
Crop Scientific Name							Glycine max	Glycine max	Glycine max		
Crop Name							Soybean	Soybean	Soybean		
Part Rated				PLOT P	PLOT P	PLOT P	YIELD C	YIELD C	YIELD C		
Rating Date				7/2/2013	7/2/2013	7/17/2013	10/22/2013	10/22/2013	10/22/2013		
Rating Type				CONTRO	CONTRO	CONTRO	YIELD	YIELD	YIELD		
Rating Unit				%	%	%	lb/plot	BU	KG		
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT		
Days After First/Last Applic.				56 14	56 14	71 29	168 126	168 126	168 126		
Trt-Eval Interval				28 DA-B	28 DA-B	29 DA-C					
ARM Action Codes				P	P	P		TY1	TY2		
Number of Decimals				0	0	0	1	1	1		
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	13	14	15	16	17	18	
1	UNTREATED				0 b	0 c	0 b	7.8 b	22.5 b	1515.6 b	
2	AUTHORITY ELITE	1720	g ai/ha	A	81 a	100 a		13.2 a	38.4 a	2580.2 a	
	Roundup Powermax	870	g ae/ha	B							
	N-Pak AMS	2.5	% v/v	B							
3	AUTHORITY ASSIST	210	g ai/ha	A	84 a	100 a		13.9 a	40.3 a	2710.3 a	
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							
4	AUTHORITY MTZ	630	g ai/ha	A	81 a	100 a		12.4 a	36.1 a	2427.4 a	
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							
5	PREFIX	1480	g ai/ha	A	97 a	98 b		15.6 a	45.4 a	3052.4 a	
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							
6	Valor	63	g ai/ha	A	96 a	100 a		16.7 a	48.6 a	3265.7 a	
	Classic	21.7	g ai/ha	A							
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							
7	ANTHEM	113	g ai/ha	B	91 a	100 a		16.0 a	46.3 a	3116.5 a	
	CLASSIC	13.1	g ai/ha	B							
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							
8	AUTHORITY ELITE	1720	g ai/ha	A	85 a	100 a	88 a	16.6 a	48.1 a	3237.4 a	
	ANTHEM	113	g ai/ha	C							
	CLASSIC	13.1	g ai/ha	C							
	Roundup Powermax	870	g ai/ha	C							
	N-Pak AMS	2.5	% v/v	C							
9	AUTHORITY ASSIST	210	g ai/ha	A	96 a	100 a		12.5 a	36.3 a	2439.7 a	
	ANTHEM	113	g ai/ha	B							
	CLASSIC	13.1	g ai/ha	B							
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							

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Pest Type				W Weed	W Weed	W Weed					
Pest Code				AMBTR	ABUTH	AMBTR					
Pest Scientific Name				Ambrosia trifi>	Abutilon theop>	Ambrosia trifi>					
Pest Name				Giant ragweed	velvetleaf	Giant ragweed					
Crop Code							GLXMA	GLXMA	GLXMA		
BBCH Scale							BSOY	BSOY	BSOY		
Crop Scientific Name							Glycine max	Glycine max	Glycine max		
Crop Name							Soybean	Soybean	Soybean		
Part Rated				PLOT P	PLOT P	PLOT P	YIELD C	YIELD C	YIELD C		
Rating Date				7/2/2013	7/2/2013	7/17/2013	10/22/2013	10/22/2013	10/22/2013		
Rating Type				CONTRO	CONTRO	CONTRO	YIELD	YIELD	YIELD		
Rating Unit				%	%	%	lb/plot	BU	KG		
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT		
Days After First/Last Applic.				56 14	56 14	71 29	168 126	168 126	168 126		
Trt-Eval Interval				28 DA-B	28 DA-B	29 DA-C					
ARM Action Codes				P	P	P		TY1	TY2		
Number of Decimals				0	0	0	1	1	1		
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	13	14	15	16	17	18	
10	AUTHORITY MTZ	630	g ai/ha	A	93 a	100 a		13.3 a	38.6 a	2593.1 a	
	ANTHEM	113	g ai/ha	B							
	CLASSIC	13.1	g ai/ha	B							
	Roundup Powermax	870	g ai/ha	B							
	N-Pak AMS	2.5	% v/v	B							
LSD (P=.05)					10.2	1.3	4.6	3.04	8.82	592.94	
Standard Deviation					7.0	0.9	2.0	2.07	6.01	404.31	
CV					8.74	1.02	4.67	15.01	15.01	15.01	
Bartlett's X2					6.612	0.0	0.0	4.427	4.427	4.427	
P(Bartlett's X2)					0.579	.	.	0.817	0.817	0.817	
Skewness					-2.323*	-2.7651*	0.0061	0.1821	0.1821	0.1821	
Kurtosis					4.3968*	5.9556*	-2.7863	-0.1149	-0.1149	-0.1149	

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2013/SOYBEAN/AUTHORITY/ANTHEM/LL/RR

Trial ID: 13S-PIP-CTS-02 Location: PPAC Trial Year: 2013
Protocol ID: 13S-PIP-CTS-02 Investigator: Dr. Bill Johnson
Project ID: Study Director: Joe Ikley
Sponsor Contact: FMC - Joe Reed

Randomized Complete Block (RCB) AOV For W Weed AMBTR Ambrosia trifida Giant ragweed PLOT P 5/22/2013 CONTRO % 1 PLOT 15 15 15 DA-A P 0 (Data Column 1)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	46521.481481			
Replicate	3	1412.037037	470.679012	2.755	0.0627
Treatment	9	40667.777778	4518.641975	26.451	0.0001
Error	26	4441.666667	170.833333		

Randomized Complete Block (RCB) AOV For W Weed ABUTH Abutilon theophrasti velvetleaf PLOT P 5/22/2012 CONTRO % 1 PLOT -350 -350 15 DA-A P 0 (Data Column 2)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	54947.942387			
Replicate	3	62.078189	20.692730	0.193	0.9005
Treatment	9	52092.901235	5788.100137	53.882	0.0001
Error	26	2792.962963	107.421652		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 5/29/2013 PHYGEN % 1 PLOT 22 22 22 DA-A P 0 (Data Column 3)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	647.500000			
Replicate	3	102.500000	34.166667	2.976	0.0492
Treatment	9	235.000000	26.111111	2.274	0.0478
Error	27	310.000000	11.481481		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 6/4/2013 PHYGEN % 1 PLOT 28 28 0 DA-B P 0 (Data Column 4)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	223.775000			
Replicate	3	1.675000	0.558333	0.118	0.9487
Treatment	9	94.525000	10.502778	2.223	0.0526
Error	27	127.575000	4.725000		

Randomized Complete Block (RCB) AOV For W Weed AMBTR Ambrosia trifida Giant ragweed PLOT P 6/4/2013 CONTRO % 1 PLOT 28 28 0 DA-B P 0 (Data Column 5)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	45074.375000			
Replicate	3	1191.875000	397.291667	3.119	0.0425
Treatment	9	40443.125000	4493.680556	35.277	0.0001
Error	27	3439.375000	127.384259		

Randomized Complete Block (RCB) AOV For W Weed ABUTH Abutilon theophrasti velvetleaf PLOT P 6/4/2013 CONTRO % 1 PLOT 28 28 0 DA-B P 0 (Data Column 6)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	64647.500000			
Replicate	3	102.500000	34.166667	1.028	0.3959
Treatment	9	63647.500000	7071.944444	212.749	0.0001
Error	27	897.500000	33.240741		

Randomized Complete Block (RCB) AOV For W Weed AMBTR Ambrosia trifida Giant ragweed PLOT P 6/11/2013 CONTRO % 1 PLOT 35 7 7 DA-B P 0 (Data Column 7)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	35	31124.305556			
Replicate	3	374.305556	124.768519	2.705	0.0679
Treatment	8	29643.055556	3705.381944	80.338	0.0001
Error	24	1106.944444	46.122685		

Randomized Complete Block (RCB) AOV For W Weed ABUTH Abutilon theophrasti velvetleaf PLOT P 6/11/2013 CONTRO % 1 PLOT 35 7 7 DA-B P 0 (Data Column 8)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	35	35063.888889			
Replicate	3	8.333333	2.777778	1.000	0.4098
Treatment	8	34988.888889	4373.611111	1574.500	0.0001
Error	24	66.666667	2.777778		

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Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 6/18/2013 PHYGEN % 1 PLOT 42 14 14 DA-B P 0 (Data Column 9)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	35	190.972222			
Replicate	3	7.638889	2.546296	0.830	0.4903
Treatment	8	109.722222	13.715278	4.472	0.0020
Error	24	73.611111	3.067130		

Randomized Complete Block (RCB) AOV For W Weed AMBTR Ambrosia trifida Giant ragweed PLOT P 6/18/2013 CONTRO % 1 PLOT 42 14 14 DA-B P 0 (Data Column 10)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	35	32050.000000			
Replicate	3	350.000000	116.666667	4.000	0.0192
Treatment	8	31000.000000	3875.000000	132.857	0.0001
Error	24	700.000000	29.166667		

Randomized Complete Block (RCB) AOV For W Weed ABUTH Abutilon theophrasti velvetleaf PLOT P 6/18/2013 CONTRO % 1 PLOT 42 14 14 DA-B P 0 (Data Column 11)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	35	41430.555556			
Replicate	3	675.000000	225.000000	1.000	0.4098
Treatment	8	35355.555556	4419.444444	19.642	0.0001
Error	24	5400.000000	225.000000		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 7/2/2013 PHYGEN % 1 PLOT 56 14 28 DA-B P 0 (Data Column 12)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	210.000000			
Replicate	3	15.000000	5.000000	1.227	0.3190
Treatment	9	85.000000	9.444444	2.318	0.0441
Error	27	110.000000	4.074074		

Randomized Complete Block (RCB) AOV For W Weed AMBTR Ambrosia trifida Giant ragweed PLOT P 7/2/2013 CONTRO % 1 PLOT 56 14 28 DA-B P 0 (Data Column 13)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	31776.000000			
Replicate	3	228.200000	76.066667	1.537	0.2276
Treatment	9	30211.500000	3356.833333	67.825	0.0001
Error	27	1336.300000	49.492593		

Randomized Complete Block (RCB) AOV For W Weed ABUTH Abutilon theophrasti velvetleaf PLOT P 7/2/2013 CONTRO % 1 PLOT 56 14 28 DA-B P 0 (Data Column 14)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	39	35847.500000			
Replicate	3	2.500000	0.833333	1.000	0.4079
Treatment	9	35822.500000	3980.277778	4776.334	0.0001
Error	27	22.500000	0.833333		

Randomized Complete Block (RCB) AOV For W Weed AMBTR Ambrosia trifida Giant ragweed PLOT P 7/17/2013 CONTRO % 1 PLOT 71 29 29 DA-C P 0 (Data Column 15)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	7	15337.500000			
Replicate	3	12.500000	4.166667	1.000	0.5000
Treatment	1	15312.500000	15312.500000	3675.000	0.0001
Error	3	12.500000	4.166667		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean YIELD C 10/22/2013 YIELD lb/plot 1 PLOT 168 126 1 (Data Column 16)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	34	437.212967			
Replicate	3	83.168890	27.722963	6.469	0.0026
Treatment	9	259.755618	28.861735	6.734	0.0001
Error	22	94.288459	4.285839		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean YIELD C 10/22/2013 YIELD BU 1 PLOT 168 126 TY1 1 (Data Column 17)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	34	3687.111389			
Replicate	3	701.381211	233.793737	6.469	0.0026
Treatment	9	2190.575233	243.397248	6.734	0.0001
Error	22	795.154945	36.143407		

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Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean YIELD C 10/22/2013 YIELD KG 1 PLOT 168 126 TY2 1 (Data Column 18)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	34	16675943.098498			
Replicate	3	3172183.296925	1057394.432308	6.469	0.0026
Treatment	9	9907459.820325	1100828.868925	6.734	0.0001
Error	22	3596299.981248	163468.180966		

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
AMBTR, Ambrosia trifida, = US
ABUTH, Abutilon theophrasti, = US
Crop Code
GLXMA, BSOY, Glycine max, = US
Part Rated
PLOT = plot
YIELD = yield
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
YIELD = yield
Rating Unit
% = percent
lb/plot = pounds per plot
BU = bushel
KG = kilogram

PLOT = total plot
ARM Action Codes
P = Rating scale of 0 to 100 (e.g. % control or injury)
TY1 = 2.904*[16]
TY2 = 195.2984*[16]