

Purdue University

GAT Soybean Systems Comparison - Conventional Tillage

Trial ID: 11S-THP-CTS-31 Protocol ID: 11S-THP-CTS-201
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: USA-11-156 Investigator: Dr. Bill Johnson
 Sponsor Contact: DuPont - Helen Flanigan

General Trial Information

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

Discipline: H herbicide
Trial Status: Established
Initiation Date: 5-26-2011

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

Description: GAT
Planting Date: 6-7-2011
Rate, Unit: 124000 S/A
BBCH Scale: BSOY
Planting Method: PLANTD planted
Depth, Unit: 1 IN
Row Spacing, Unit: 30 IN
Emergence Date: 6-13-2011

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:** AMARE *Amaranthus retroflexus*
Common Name: Redroot pigweed

Pest 4 Type: W **Code:** CHEAL *Chenopodium album*
Common Name: Common lambsquarters

Pest 5 Type: W **Code:** ABUTH *Abutilon theophrasti*
Common Name: Velvetleaf

Purdue University

Site and Design	
Plot Width, Unit: 10 FT	Site Type: FIELD field
Plot Length, Unit: 30 FT	Experimental Unit: 1 PLOT plot
Plot Area, Unit: 300 FT ²	Tillage Type: CONTIL conventional-till
Replications: 4	Study Design: RACOB1 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
Application Date:	6-8-2011	7-6-2011
Time of Day:	8:10-8:20	
Application Method:	SPRAY	SPRAY
Application Timing:	ATPLAN	MIPOWE
Application Placement:	FOLIAR	FOLIAR
Applied By:	BM	BM
Air Temperature, Unit:	79 F	78 F
% Relative Humidity:	66	66
Wind Velocity, Unit:	4.4 MPH	0 MPH
Wind Direction:	SW	
Dew Presence (Y/N):	N no	Y yes
Soil Temperature, Unit:	77 F	76 F
Soil Moisture:	DRY	SLIWET
% Cloud Cover:	10	0

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH
Stage Majority, Percent:		V3

Purdue University

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	SETFA W	SETFA W
Height, Unit:		10 IN
Density, Unit:		40 YD2
Pest 2 Code, Type, Scale:	AMBTR W	AMBTR W
Height, Unit:		14 IN
Density, Unit:		10 YD2
Pest 3 Code, Type, Scale:	AMARE W	AMARE W
Height, Unit:		3 IN
Density, Unit:		10 YD2
Pest 4 Code, Type, Scale:	CHEAL W	CHEAL W
Height, Unit:		2 IN
Density, Unit:		10 YD2
Pest 5 Code, Type, Scale:	ABUTH W	ABUTH W
Height, Unit:		5 IN
Density, Unit:		3 YD2

Application Equipment

	A	B
Appl. Equipment:	CO2 BKPK	CO2 BKPK
Equipment Type:	SPRBAC	SPRBAC
Operation Pressure, Unit:	17 PSI	17 PSI
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	XR 110 02	XR 110 02
Nozzle Spacing, Unit:	15 IN	15 IN
Nozzles/Row:	8	8
Boom Length, Unit:	10 FT	10 FT
Boom Height, Unit:	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH
Carrier:	H2O	H2O
Water Hardness (ppm CaCO3):	150	150
Spray Volume, Unit:	15 gal/ac	15 gal/ac
Mix Size, Unit:	1.8 liters	1.8 liters
Propellant:	C02	C02
Tank Mix (Y/N):	N no	N no

Purdue University

GAT Soybean Systems Comparison - Conventional Tillage

Trial ID: 11S-THP-CTS-31 Protocol ID: 11S-THP-CTS-201
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: USA-11-156 Investigator: Dr. Bill Johnson
 Sponsor Contact: DuPont - Helen Flanigan

Pest Type		W Weed SETFA	W Weed AMBTR	W Weed AMARE	W Weed CHEAL					
Pest Code		Setaria faberi	Ambrosia trifi>	Amaranthus ret>	Chenopodium al>					
Pest Scientific Name		Giant foxtail	Giant ragweed	Redroot pigweed	Common lambsqu>					
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		7-6-2011	7-6-2011	7-6-2011	7-6-2011	7-6-2011	7-15-2011	7-15-2011		
Rating Date		PHYSTU	CONTRO	CONTRO	CONTRO	PHYLMA	PHYLMA	PHYSTU		
Rating Type		%	%	%	%	%	%	%		
Rating Unit		1	1	1	1	1	1	1		
Number of Subsamples		V3	V3	V3	V3	V3	V5	V5		
Crop Stage Majority		10 IN	14 IN	3 IN	2 IN					
Pest Stage Majority		40 YD2	10 YD2	10 YD2	10 YD2					
Pest Density, Unit		MW	MW	MW	MW	MW	MW	MW		
Assessed By		28 28	28 28	28 28	28 28	28 28	37 9	37 9		
Days After First/Last Applic.		29 DP-1	29 DP-1	29 DP-1	29 DP-1	29 DP-1	38 DP-1	38 DP-1		
Plant-Eval Interval		23 DE-1	23 DE-1	23 DE-1	23 DE-1	23 DE-1	32 DE-1	32 DE-1		
Days After Emergence										
Trt Treatment	Rate	Appl								
No. Name	Rate Unit	Code	1	2	3	4	5	6	7	8
1 Untreated Check			0.0 a	0.0 b	0.0 b	0.0 b	0.0 b	0.0 a	0.0 a	0.0 b
2 DILIGENT (37.87 WP) Roundup PowerMax 4.5 SL AMS - Liquid	1.51 oz ai/a A 0.77 lb ae/a B 2 lb ai/a B		0.0 a	92.5 a	68.8 a	99.0 a	99.0 a	3.8 a	1.5 a	0.8 b
3 Roundup PowerMax 4.5 SL AMS - Liquid	0.77 lb ae/a B 2 lb ai/a B		0.0 a	0.0 b	0.0 b	49.5 a	0.0 b	0.0 a	0.0 a	2.8 a
4 Valor SX (51 WG) Roundup PowerMax 4.5 SL AMS - Liquid	1.02 oz ai/a A 0.77 lb ae/a B 2 lb ai/a B		2.0 a	93.8 a	62.5 a	99.0 a	99.0 a	4.3 a	0.0 a	0.0 b
5 DILIGENT (37.87 WP) Roundup PowerMax 4.5 SL Synchrony XP (28.4 WG) AMS - Liquid	1.51 oz ai/a A 0.77 lb ae/a B 0.17 oz ai/a B 2 lb ai/a B		2.0 a	88.0 a	68.8 a	99.0 a	99.0 a	4.8 a	0.0 a	0.0 b
LSD (P=.05)			2.40	7.61	12.12	39.39	0.00	3.41	1.19	1.74
Standard Deviation			1.56	4.94	7.87	25.56	0.00	2.22	0.77	1.13
CV			194.99	9.0	19.67	36.89	0.0	86.88	258.2	161.31
Bartlett's X2			0.0	6.833	3.632	0.0	0.0	0.219	0.0	0.289
P(Bartlett's X2)			.	0.033*	0.163	.	.	0.896	.	0.591
Replicate F			0.932	0.812	0.377	1.000	0.000	1.314	1.000	1.098
Replicate Prob(F)			0.4555	0.5115	0.7712	0.4262	1.0000	0.3153	0.4262	0.3877
Treatment F			1.973	412.313	86.616	12.000	0.000	4.518	3.000	4.451
Treatment Prob(F)			0.1630	0.0001	0.0001	0.0004	1.0000	0.0186	0.0625	0.0195

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 SETFA	W Weed AMBTR	W Weed CHEAL			W Weed SETFA	W Weed AMBTR	
Pest Code	Setaria faberi	Ambrosia trifid	Chenopodium al			Setaria faberi	Ambrosia trifid	
Pest Scientific Name	Giant foxtail	Giant ragweed	Common lambsqu			Giant foxtail	Giant ragweed	
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	7-19-2011	7-19-2011	7-19-2011	7-19-2011	7-19-2011	8-2-2011	8-2-2011	
Rating Date	CONTRO	CONTRO	CONTRO	PHYLMA	PHYSTU	CONTRO	CONTRO	
Rating Type	%	%	%	%	%	%	%	
Rating Unit	1	1	1	1	1	1	1	
Number of Subsamples	V6	V6	V6	V6	V6			
Crop Stage Majority	30 IN	40 IN	18 IN			36 IN	50 IN	
Pest Stage Majority	70 YD2	6 YD2	1 YD2			50 YD2	8 YD2	
Pest Density, Unit	MW	MW	MW	MW	MW	MW	MW	
Assessed By	41 13	41 13	41 13	41 13	41 13	55 27	55 27	
Days After First/Last Applic.	42 DP-1	42 DP-1	42 DP-1	42 DP-1	42 DP-1	56 DP-1	56 DP-1	
Plant-Eval Interval	36 DE-1	36 DE-1	36 DE-1	36 DE-1	36 DE-1	50 DE-1	50 DE-1	
Days After Emergence								
Trt Treatment	Rate	Rate	Rate	Rate	Rate	Rate	Rate	
No. Name	Unit	Unit	Unit	Unit	Unit	Unit	Unit	
	Code	Code	Code	Code	Code	Code	Code	
	9	10	11	12	13	14	15	
1 Untreated Check	0.0 b	0.0 c	0.0 b	0.0 a	0.0 a	0.0 b	0.0 c	
2 DILIGENT (37.87 WP) Roundup PowerMax 4.5 SL AMS - Liquid	1.51 oz ai/a A 0.77 lb ae/a B 2 lb ai/a B	97.0 a	86.3 ab	99.0 a	0.8 a	0.0 a	96.5 a	93.0 ab
3 Roundup PowerMax 4.5 SL AMS - Liquid	0.77 lb ae/a B 2 lb ai/a B	98.0 a	82.5 b	99.0 a	0.8 a	0.0 a	97.0 a	90.0 b
4 Valor SX (51 WG) Roundup PowerMax 4.5 SL AMS - Liquid	1.02 oz ai/a A 0.77 lb ae/a B 2 lb ai/a B	98.5 a	90.0 a	99.0 a	0.8 a	0.0 a	97.0 a	94.3 a
5 DILIGENT (37.87 WP) Roundup PowerMax 4.5 SL Synchrony XP (28.4 WG) AMS - Liquid	1.51 oz ai/a A 0.77 lb ae/a B 0.17 oz ai/a B 2 lb ai/a B	97.0 a	91.3 a	99.0 a	0.0 a	0.0 a	96.5 a	95.5 a
LSD (P=.05)	2.98	5.31	0.00	1.74	0.00	2.05	3.17	
Standard Deviation	1.93	3.45	0.00	1.13	0.00	1.33	2.06	
CV	2.47	4.92	0.0	250.92	0.0	1.72	2.76	
Bartlett's X2	2.012	2.912	0.0	0.0	0.0	1.137	3.764	
P(Bartlett's X2)	0.57	0.405	.	.	.	0.566	0.152	
Replicate F	0.196	1.965	0.000	1.294	0.000	0.151	1.335	
Replicate Prob(F)	0.8968	0.1731	1.0000	0.3213	1.0000	0.9271	0.3092	
Treatment F	2042.732	519.737	0.000	0.529	0.000	4238.887	1644.992	
Treatment Prob(F)	0.0001	0.0001	1.0000	0.7166	1.0000	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

Pest Type	W Weed	W Weed						
Pest Code	CHEAL	ABUTH						
Pest Scientific Name	Chenopodium al>	Abutilon theop>						
Pest Name	Common lambsqu>	Velvetleaf						
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	8-2-2011	8-2-2011	8-2-2011	8-2-2011	8-2-2011	10-7-2011		
Rating Type	CONTRO	CONTRO	PHYLMA	PHYSTU	PHYCHL	YIELD		
Rating Unit	%	%	%	%	%	bu/ac		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority								
Pest Stage Majority	30 IN							
Pest Density, Unit	2 YD2							
Assessed By	MW	MW	MW	MW	MW			
Days After First/Last Applic.	55 27	55 27	55 27	55 27	55 27	121 93		
Plant-Eval Interval	56 DP-1	56 DP-1	56 DP-1	56 DP-1	56 DP-1	122 DP-1		
Days After Emergence	50 DE-1	50 DE-1	50 DE-1	50 DE-1	50 DE-1	116 DE-1		
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	16	17	18	19	20	21
1 Untreated Check			0.0 c	0.0 b	0.0 a	0.0 b	0.0 a	19.35 b
2 DILIGENT (37.87 WP) Roundup PowerMax 4.5 SL AMS - Liquid	1.51 oz ai/a A 0.77 lb ae/a B 2 lb ai/a B		99.0 a	99.0 a	2.0 a	0.0 b	2.3 a	48.15 a
3 Roundup PowerMax 4.5 SL AMS - Liquid	0.77 lb ae/a B 2 lb ai/a B		97.5 b	98.5 a	3.3 a	3.5 a	1.5 a	42.55 a
4 Valor SX (51 WG) Roundup PowerMax 4.5 SL AMS - Liquid	1.02 oz ai/a A 0.77 lb ae/a B 2 lb ai/a B		99.0 a	99.0 a	0.0 a	0.0 b	3.3 a	45.65 a
5 DILIGENT (37.87 WP) Roundup PowerMax 4.5 SL Synchrony XP (28.4 WG) AMS - Liquid	1.51 oz ai/a A 0.77 lb ae/a B 0.17 oz ai/a B 2 lb ai/a B		99.0 a	99.0 a	0.0 a	0.0 b	0.8 a	49.80 a
LSD (P=.05)	0.69	0.69	2.28	0.69	2.38	5.858		
Standard Deviation	0.45	0.45	1.48	0.45	1.55	3.802		
CV	0.57	0.57	140.72	63.89	99.77	9.25		
Bartlett's X2	0.0	0.0	0.004	0.0	0.831	11.726		
P(Bartlett's X2)	.	.	0.951	.	0.842	0.02*		
Replicate F	1.000	1.000	1.305	1.000	1.470	1.437		
Replicate Prob(F)	0.4262	0.4262	0.3179	0.4262	0.2720	0.2806		
Treatment F	38916.004	39106.004	4.145	49.000	2.686	42.980		
Treatment Prob(F)	0.0001	0.0001	0.0246	0.0001	0.0827	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

GAT Soybean Systems Comparison - Conventional Tillage

Trial ID: 11S-THP-CTS-31

Protocol ID: 11S-THP-CTS-201

Location: Throckmorton
Project ID: USA-11-156Study Director: White/Marquardt
Investigator: Dr. Bill Johnson

Sponsor Contact: DuPont - Helen Flanigan

Pest Type

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

Pest Code

SETFA, Setaria faberi, = US

AMBTR, Ambrosia trifida, = US

AMARE, Amaranthus retroflexus, = US

CHEAL, Chenopodium album, = US

ABUTH, Abutilon theophrasti, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Rating Type

PHYSTU = phytotoxicity - stunting

CONTRO = control / burndown or knockdown

PHYLMA = phytotoxicity - leaf malformation

PHYCHL = phytotoxicity - chlorosis

YIELD = yield

Rating Unit

% = percent

bu/ac = bushels per acre

YD2 = per square yard

Plant-Eval Interval

29 DP-1 = 1 GLXMA 6-7-2011

38 DP-1 = 1 GLXMA 6-7-2011

42 DP-1 = 1 GLXMA 6-7-2011

56 DP-1 = 1 GLXMA 6-7-2011

122 DP-1 = 1 GLXMA 6-7-2011