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Control of Waterhemp in Liberty Link Soybean.

Trial ID: 12S-THP-CTS-42 Protocol ID: 12S-THP-CTS-42
Location: Throckmorton Study Director: White/Marquardt
Project ID: BLZR 15 US IN 12 04PWR Investigator: Dr. Bill Johnson
Sponsor Contact: United Phosphorus - Phil Robinson

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: 3-23-2012

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:** wgj@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
Phone No.: 765-538-3422
City: Lafayette **Fax No.:** 765-538-3423
State/Prov: IN
Postal Code: 47909 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: BECKS 306 NL **Description:** Liberty Link
BBCH Scale: BSOY **Planting Date:** 4-24-2012
Planting Method: PLANTD planted **Rate, Unit:** 124000 S/A
Depth, Unit: 1 IN
Row Spacing, Unit: 15 IN
Soil Temperature, Unit: 60 F
Soil Moisture: DRY dry **Emergence Date:** 5-7-2012

Pest Description

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

Pest 2 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail

Pest 3 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: Velvetleaf

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

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Site and Design

Plot Width, Unit: 10 FT
Plot Length, Unit: 30 FT
Plot Area, Unit: 300 FT2
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 4B
% OM: 2.9 **Texture:** SIL silt loam
pH: 6.2 **Soil Name:** Toronto-Millbrook
CEC: 13.3

Application Description

	A	B	C
Application Date:	4-24-2012	5-25-2012	6-8-2012
Time of Day:		7:30 AM	8 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	ATPLAN	EAPOCR	MIPOCR
Application Placement:	SOIL	FOLIAR	FOLIAR
Applied By:	MW	MW	MW
Air Temperature, Unit:	66 F	76 F	82 F
% Relative Humidity:	25	68	40
Wind Velocity, Unit:	6 MPH	3 MPH	5 MPH
Wind Direction:	SW	SE	SW
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	60 F	74 F	82 F
Soil Moisture:	DRY	DRY	DRY
% Cloud Cover:	25	80	0

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH	BBCH
Stage Majority, Percent:		V2	V4
Height, Unit:		4 IN	10.5 IN

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Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W
Height Minimum, Maximum:		2 9	7 21
Density, Unit:		27 YD2	45 YD2
Pest 2 Code, Type, Scale:	SETFA W	SETFA W	SETFA W
Height Minimum, Maximum:		2 8	6 14
Density, Unit:		45 YD2	25 YD2
Pest 3 Code, Type, Scale:	ABUTH W	ABUTH W	ABUTH W
Height Minimum, Maximum:		1.5 3	
Density, Unit:		3 YD2	
Pest 4 Code, Type, Scale:	CHEAL W	CHEAL W	CHEAL W
Height, Unit:			9 IN
Height Minimum, Maximum:		2 3	
Density, Unit:		12 YD2	3 YD2

Application Equipment

	A	B	C
Appl. Equipment:	CO2 FORD	CO2 FORD	CO2 FORD
Equipment Type:	SPTRMO	SPTRMO	SPTRMO
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	XR 100 02	XR 100 02	XR 100 02
Nozzle Spacing, Unit:	20 IN	20 IN	20 IN
Nozzles/Row:	6	6	6
Boom Length, Unit:	10 FT	10 FT	10 FT
Boom Height, Unit:	20 IN	20 IN	20 IN
Ground Speed, Unit:	2.1 MPH	2.1 MPH	2.1 MPH
Carrier:	MEIGS	MEIGS	MEIGS
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	2.5 liters	2.5 liters	2.5 liters
Propellant:	CO2	CO2	CO2

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Study Director: White/Marquardt
Investigator: Dr. Bill Johnson
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Trt No.	Treatment Name	Rate	Unit	Appl Code	1	2	3	4	5	6	7	8
	Pest Type				W Weed	W Weed	W Weed	W Weed		W Weed	W Weed	
	Pest Code				SETFA	AMBTR	CHEAL	ABUTH		AMBTR	SETFA	
	Pest Scientific Name				Setaria faberi	Ambrosia trifi>	Chenopodium al>	Abutilon theop>		Ambrosia trifi>	Setaria faberi	
	Pest Name				Giant foxtail	Giant ragweed	Common lambsqu>	Velvetleaf		Giant ragweed	Giant foxtail	
	Crop Code				GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	BBCH Scale				BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
	Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
	Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
	Rating Date				5-25-2012	5-25-2012	5-25-2012	5-25-2012	6-4-2012	6-4-2012	6-4-2012	6-26-2012
	Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN
	Rating Unit				%	%	%	%	%	%	%	%
	Number of Subsamples				1	1	1	1	1	1	1	1
	Crop Stage Scale				V4	V4	V4	V4	V4	V4	V4	R2
	Pest Stage Majority				2-8 IN	2-9 IN	2-3 IN	1.5-3 IN		1-15 IN	1-14 IN	
	Pest Density, Unit				45 YD2	27 YD2	12 YD2	3 YD2		20 M2	50 M2	
	Assessed By				MW	MW	MW	MW	JS	JS	JS	JS/JR
	Days After First/Last Applic.				31 31	31 31	31 31	31 31	41 10	41 10	41 10	63 18
	Plant-Eval Interval				31 DP-1	31 DP-1	31 DP-1	31 DP-1	41 DP-1	41 DP-1	41 DP-1	63 DP-1
	Days After Emergence				18 DE-1	18 DE-1	18 DE-1	18 DE-1	28 DE-1	28 DE-1	28 DE-1	50 DE-1
1					0.0 a	0.0 a	0.0 b	0.0 b	0.0 c	0.0 d	0.0 c	0.0 b
2	TriCor (75 DF)	3	oz ai/a	A	56.3 a	46.3 a	99.0 a	99.0 a	32.5 a	93.8 a	91.3 a	3.0 a
	Ultra Blazer (2 SL)	0.188	lb ai/a	B								
	Liberty 280 (2.34 SL)	0.55	lb ai/a	B								
	MSO	1	% v/v	B								
	AMS - Liquid	2.5	% v/v	B								
	SelectMax (0.97 EC)	0.076	lb ai/a	C								
	COC	1	% v/v	C								
3	TriCor (75 DF)	3	oz ai/a	A	30.0 a	30.0 a	99.0 a	99.0 a	28.8 a	95.0 a	87.5 a	0.5 b
	Storm	0.188	lb ai/a	B								
	Liberty 280 (2.34 SL)	0.55	lb ai/a	B								
	MSO	1	% v/v	B								
	AMS - Liquid	2.5	% v/v	B								
	SelectMax (0.97 EC)	0.076	lb ai/a	C								
	COC	1	% v/v	C								
4	TriCor (75 DF)	3	oz ai/a	A	52.5 a	45.0 a	99.0 a	99.0 a	30.0 a	82.5 b	58.8 b	1.5 ab
	Ultra Blazer (2 SL)	0.375	lb ai/a	B								
	MSO	1	% v/v	B								
	AMS - Liquid	2.5	% v/v	B								
	SelectMax (0.97 EC)	0.076	lb ai/a	C								
	COC	1	% v/v	C								

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.

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Pest Type	W Weed	W Weed	W Weed	W Weed		W Weed	W Weed	
Pest Code	SETFA	AMBTR	CHEAL	ABUTH		AMBTR	SETFA	
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Chenopodium al>	Abutilon theop>		Ambrosia trifi>	Setaria faberi	
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>	Velvetleaf		Giant ragweed	Giant foxtail	
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Rating Date	5-25-2012	5-25-2012	5-25-2012	5-25-2012	6-4-2012	6-4-2012	6-4-2012	6-26-2012
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	PHYGEN
Rating Unit	%	%	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1	1	1
Crop Stage Scale	V4	V4	V4	V4	V4	V4	V4	R2
Pest Stage Majority	2-8 IN	2-9 IN	2-3 IN	1.5-3 IN		1-15 IN	1-14 IN	
Pest Density, Unit	45 YD2	27 YD2	12 YD2	3 YD2		20 M2	50 M2	
Assessed By	MW	MW	MW	MW	JS	JS	JS	JS/JR
Days After First/Last Applic.	31 31	31 31	31 31	31 31	41 10	41 10	41 10	63 18
Plant-Eval Interval	31 DP-1	31 DP-1	31 DP-1	31 DP-1	41 DP-1	41 DP-1	41 DP-1	63 DP-1
Days After Emergence	18 DE-1	18 DE-1	18 DE-1	18 DE-1	28 DE-1	28 DE-1	28 DE-1	50 DE-1
Trt No. Treatment Name Rate Unit Code	1	2	3	4	5	6	7	8
5 TriCor (75 DF) 3 oz ai/a A	32.5 a	47.5 a	99.0 a	99.0 a	20.0 b	73.8 c	41.3 b	0.5 b
Storm 0.375 lb ai/a B								
MSO 1 % v/v B								
AMS - Liquid 2.5 % v/v B								
SelectMax (0.97 EC) 0.076 lb ai/a C								
COC 1 % v/v C								
LSD (P=.05)	48.51	36.35	0.00	0.00	6.13	5.12	22.41	1.51
Standard Deviation	31.48	23.59	0.00	0.00	3.98	3.32	14.54	0.98
CV	91.92	69.91	0.0	0.0	17.88	4.82	26.08	89.38
Bartlett's X2	1.172	1.851	0.0	0.0	1.688	1.248	9.256	2.77
P(Bartlett's X2)	0.76	0.604	.	.	0.43	0.741	0.026*	0.429
Replicate F	0.479	0.697	0.000	0.000	0.079	3.925	1.724	1.862
Replicate Prob(F)	0.7030	0.5716	1.0000	1.0000	0.9702	0.0365	0.2151	0.1898
Treatment F	2.029	2.919	0.000	0.000	44.684	566.434	26.462	5.897
Treatment Prob(F)	0.1542	0.0671	1.0000	1.0000	0.0001	0.0001	0.0001	0.0073

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Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	9	10	11
	Pest Type				W Weed	W Weed	W Weed
	Pest Code				SETFA	AMBTR	CHEAL
	Pest Scientific Name				Setaria faberi	Ambrosia trifi>	Chenopodium al>
	Pest Name				Giant foxtail	Giant ragweed	Common lambsqu>
	Crop Code				GLXMA	GLXMA	GLXMA
	BBCH Scale				BSOY	BSOY	BSOY
	Crop Scientific Name				Glycine max	Glycine max	Glycine max
	Crop Name				Soybean	Soybean	Soybean
	Rating Date				6-26-2012	6-26-2012	6-26-2012
	Rating Type				CONTRO	CONTRO	CONTRO
	Rating Unit				%	%	%
	Number of Subsamples				1	1	1
	Crop Stage Scale				R2	R2	R2
	Pest Stage Majority				6-30 IN	6-40 IN	6-18 IN
	Pest Density, Unit				70 M2	30 M2	12 M2
	Assessed By				JS/JR	JS/JR	JS/JR
	Days After First/Last Applic.				63 18	63 18	63 18
	Plant-Eval Interval				63 DP-1	63 DP-1	63 DP-1
	Days After Emergence				50 DE-1	50 DE-1	50 DE-1
1					0.0 c	0.0 b	0.0 b
2	TriCor (75 DF)	3	oz ai/a	A	98.3 a	97.0 a	100.0 a
	Ultra Blazer (2 SL)	0.188	lb ai/a	B			
	Liberty 280 (2.34 SL)	0.55	lb ai/a	B			
	MSO	1	% v/v	B			
	AMS - Liquid	2.5	% v/v	B			
	SelectMax (0.97 EC)	0.076	lb ai/a	C			
	COC	1	% v/v	C			
3	TriCor (75 DF)	3	oz ai/a	A	97.0 a	98.3 a	100.0 a
	Storm	0.188	lb ai/a	B			
	Liberty 280 (2.34 SL)	0.55	lb ai/a	B			
	MSO	1	% v/v	B			
	AMS - Liquid	2.5	% v/v	B			
	SelectMax (0.97 EC)	0.076	lb ai/a	C			
	COC	1	% v/v	C			
4	TriCor (75 DF)	3	oz ai/a	A	81.3 a	20.0 b	95.0 a
	Ultra Blazer (2 SL)	0.375	lb ai/a	B			
	MSO	1	% v/v	B			
	AMS - Liquid	2.5	% v/v	B			
	SelectMax (0.97 EC)	0.076	lb ai/a	C			
	COC	1	% v/v	C			

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	W Weed	W Weed	W Weed
Pest Type	W Weed	W Weed	W Weed
Pest Code	SETFA	AMBTR	CHEAL
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Chenopodium al>
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>
Crop Code	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Rating Date	6-26-2012	6-26-2012	6-26-2012
Rating Type	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%
Number of Subsamples	1	1	1
Crop Stage Scale	R2	R2	R2
Pest Stage Majority	6-30 IN	6-40 IN	6-18 IN
Pest Density, Unit	70 M2	30 M2	12 M2
Assessed By	JS/JR	JS/JR	JS/JR
Days After First/Last Applic.	63 18	63 18	63 18
Plant-Eval Interval	63 DP-1	63 DP-1	63 DP-1
Days After Emergence	50 DE-1	50 DE-1	50 DE-1

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	9	10	11
5	TriCor (75 DF)	3	oz ai/a	A	56.3 b	17.5 b	98.8 a
	Storm	0.375	lb ai/a	B			
	MSO	1	% v/v	B			
	AMS - Liquid	2.5	% v/v	B			
	SelectMax (0.97 EC)	0.076	lb ai/a	C			
	COC	1	% v/v	C			

	9	10	11
LSD (P=.05)	21.46	17.68	7.24
Standard Deviation	13.93	11.47	4.70
CV	20.93	24.64	5.97
Bartlett's X2	14.882	17.289	4.377
P(Bartlett's X2)	0.002*	0.001*	0.036*
Replicate F	2.481	0.837	0.811
Replicate Prob(F)	0.1109	0.4991	0.5118
Treatment F	34.448	67.886	351.792
Treatment Prob(F)	0.0001	0.0001	0.0001

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Location: Throckmorton
Project ID: BLZR 15 US IN 12 04PWR
Protocol ID: 12S-THP-CTS-42
Study Director: White/Marquardt
Investigator: Dr. Bill Johnson
Sponsor Contact: United Phosphorus - Phil Robinson

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
SETFA, Setaria faberi, = US
AMBTR, Ambrosia trifida, = US
CHEAL, Chenopodium album, = US
ABUTH, Abutilon theophrasti, = US
Crop Code
GLXMA, BSOY, Glycine max, = US
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
Rating Unit
% = percent

YD2 = per square yard
M2 = per square meter
Plant-Eval Interval
31 DP-1 = 1 GLXMA 4-24-2012
41 DP-1 = 1 GLXMA 4-24-2012
63 DP-1 = 1 GLXMA 4-24-2012