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Control of giant ragweed with Cobra.

Trial ID: 12S-THP-CTS-36 Protocol ID: 12S-THP-CTS-36
 Location: Throckmorton Study Director: White/Marquardt
 Project ID: Cobra MD 64.04 Investigator: Dr. Bill Johnson
 Sponsor Contact: Valent - Eric Ott

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: 3-18-2012

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
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 Date:** 4-24-2012
Planting Method: PLANTD planted **Rate, Unit:** 124000 S/A
Depth, Unit: 1 IN
Row Spacing, Unit: 15 IN
Soil Moisture: DRY dry **Soil Temperature, Unit:** 60 F
Emergence Date: 5-7-2012

Pest Description

Pest 1 Type: W **Code:** CHEAL *Chenopodium album*
Common Name: Common lambsquarters

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

Pest 3 Type: W **Code:** AMBTR *Ambrosia trifida*
Common Name: Giant ragweed

Pest 4 Type: W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail

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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 4B % OM: 2.9 Texture: SIL silt loam pH: 6.2 Soil Name: Toronto-Millbrook CEC: 13.3

Application Description		
	A	B
Application Date:	5-18-2012	5-24-2012
Time of Day:	10 AM	7:30 AM
Application Method:	SPRAY	SPRAY
Application Timing:	EAPOCR	MIPOWE
Application Placement:	FOLIAR	FOLIAR
Applied By:	MW	MW
Air Temperature, Unit:	64 F	68 F
% Relative Humidity:	32	68
Wind Velocity, Unit:	7 MPH	3 MPH
Wind Direction:	S	SE
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	81 F	70 F
Soil Moisture:	DRY	DRY
% Cloud Cover:	0	5

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:	BBCH	BBCH
Stage Majority, Percent:	V1	V2
Height Minimum, Maximum:	2.5 4	2 5

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	CHEAL W	CHEAL W
Height, Unit:	1 IN	2 IN
Height Minimum, Maximum:		0.5 3
Density, Unit:	77 YD2	40 YD2
Pest 2 Code, Type, Scale:	ABUTH W	ABUTH W
Height, Unit:	1 IN	3 IN
Height Minimum, Maximum:	0.5 1	
Density, Unit:	5 YD2	2 YD2
Pest 3 Code, Type, Scale:	AMBTR W	AMBTR W
Height, Unit:	1.5 IN	
Density, Unit:	2 YD2	
Pest 4 Code, Type, Scale:	SETFA W	SETFA W
Height, Unit:	1 IN	5 IN
Height Minimum, Maximum:	0.5 1	1 7.5
Density, Unit:	7 YD2	10 YD2

Application Equipment

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

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 Location: Throckmorton Study Director: White/Marquardt
 Project ID: Cobra MD 64.04 Investigator: Dr. Bill Johnson
 Sponsor Contact: Valent - Eric Ott

Pest Type	W Weed CHEAL	W Weed AMBTR	W Weed ABUTH		W Weed	W Weed AMBTR	W Weed CHEAL				
Pest Code	Chenopodium al>	Ambrosia trifi>	Abutilon theop>			Ambrosia trifi>	Chenopodium al>				
Pest Scientific Name											
Pest Name	Common lambsqu>	Giant ragweed	Velvetleaf			Giant ragweed	Common lambsqu>				
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	5-30-2012	5-30-2012	5-30-2012	5-30-2012	6-11-2012	6-11-2012	6-11-2012				
Rating Type	CONTRO	CONTRO	CONTRO	PHYLMA	PHYGEN	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Scale	V2	V2	V2	V2	V5	V5	V5				
Pest Stage Majority	2.5 IN	6 IN	4 IN			1-15 IN	2-14 IN				
Pest Density, Unit	10 FT2	2 YD2	1 YD2			5 M2	50 M2				
Assessed By	MW	MW	MW	MW	JS/GC	JS/GC	JS/GC				
Days After First/Last Applic.	12 6	12 6	12 6	12 6	24 18	24 18	24 18				
Plant-Eval Interval	36 DP-1	36 DP-1	36 DP-1	36 DP-1	48 DP-1	48 DP-1	48 DP-1				
Days After Emergence	23 DE-1	23 DE-1	23 DE-1	23 DE-1	35 DE-1	35 DE-1	35 DE-1				
Trt No.	Treatment Name	Rate	Unit	Appl Code	1	2	3	4	5	6	7
1	SelectMax (0.97 EC) COC	0.091	lb ai/a 1 qt/a	B B	0.0 c	0.0 c	0.0 c	0.0 b	0.00 b	0.0 c	0.0 d
2	Roundup PowerMax 4.5 SL AMS - Liquid SelectMax (0.97 EC) COC	0.77 8.5 0.091	lb ae/a lb ai/100 gal lb ai/a 1 qt/a	A A B B	73.0 a	83.8 a	99.0 a	0.0 b	0.00 b	96.3 a	86.3 a
3	Cobra COC SelectMax (0.97 EC) COC	0.125 1 0.091	lb ai/a pt/a lb ai/a 1 qt/a	A A B B	17.5 bc	10.0 bc	84.5 a	10.5 a	1.25 ab	27.5 bc	17.5 cd
4	Cobra COC SelectMax (0.97 EC) COC	0.156 1 0.091	lb ai/a pt/a lb ai/a 1 qt/a	A A B B	17.5 bc	37.5 abc	79.5 a	5.0 ab	1.00 ab	57.5 ab	25.0 cd
5	Cobra COC SelectMax (0.97 EC) COC	0.188 1 0.091	lb ai/a pt/a lb ai/a 1 qt/a	A A B B	25.0 bc	44.8 abc	25.0 bc	10.0 a	1.25 ab	71.3 ab	22.5 cd
6	Cobra Resource (0.86 EC) COC SelectMax (0.97 EC) COC	0.156 0.43 1 0.091	lb ai/a oz ai/a pt/a lb ai/a 1 qt/a	A A A B B	50.0 ab	40.0 abc	91.8 a	6.8 ab	1.25 ab	56.3 ab	56.3 b
7	Flexstar (1.88 L) COC AMS - Liquid SelectMax (0.97 EC) COC	0.305 1 8.5 0.091	lb ai/a % v/v lb ai/100 gal lb ai/a 1 qt/a	A A A B B	75.0 a	55.0 ab	94.3 a	9.3 a	2.00 a	92.5 a	61.3 b

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	W Weed		
Pest Code	CHEAL	AMBTR	ABUTH			AMBTR	CHEAL		
Pest Scientific Name	Chenopodium al>	Ambrosia trifi>	Abutilon theop>			Ambrosia trifi>	Chenopodium al>		
Pest Name	Common lambsqu>	Giant ragweed	Velvetleaf			Giant ragweed	Common lambsqu>		
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	5-30-2012	5-30-2012	5-30-2012	5-30-2012	6-11-2012	6-11-2012	6-11-2012		
Rating Type	CONTRO	CONTRO	CONTRO	PHYLMA	PHYGEN	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Scale	V2	V2	V2	V2	V5	V5	V5		
Pest Stage Majority	2.5 IN	6 IN	4 IN			1-15 IN	2-14 IN		
Pest Density, Unit	10 FT2	2 YD2	1 YD2			5 M2	50 M2		
Assessed By	MW	MW	MW	MW	JS/GC	JS/GC	JS/GC		
Days After First/Last Applic.	12 6	12 6	12 6	12 6	24 18	24 18	24 18		
Plant-Eval Interval	36 DP-1	36 DP-1	36 DP-1	36 DP-1	48 DP-1	48 DP-1	48 DP-1		
Days After Emergence	23 DE-1	23 DE-1	23 DE-1	23 DE-1	35 DE-1	35 DE-1	35 DE-1		
Trt No.	1	2	3	4	5	6	7		
Treatment Name									
Rate									
Unit									
Appl Code									
8 Roundup PowerMax 4.5 SL	0.77 lb ae/a	A	37.5 b	12.5 bc	39.8 b	6.3 ab	1.50 a	71.3 ab	37.5 bc
Cobra	0.156 lb ai/a	A							
COC	1 % v/v	A							
AMS - Liquid	8.5 lb ai/100 gal	A							
SelectMax (0.97 EC)	0.091 lb ai/a	B							
COC	1 qt/a	B							
LSD (P=.05)	22.99	32.55	30.92	5.63	0.934	31.03	20.20		
Standard Deviation	15.63	22.13	21.02	3.83	0.635	21.10	13.73		
CV	42.32	62.44	32.74	64.13	61.58	35.72	35.87		
Bartlett's X2	2.481	7.07	9.54	3.332	1.609	9.67	4.781		
P(Bartlett's X2)	0.871	0.314	0.089	0.504	0.90	0.139	0.572		
Replicate F	2.403	1.312	1.479	0.582	1.059	0.077	5.605		
Replicate Prob(F)	0.0962	0.2969	0.2489	0.6332	0.3875	0.9716	0.0055		
Treatment F	12.120	6.136	12.637	4.697	4.860	9.363	16.590		
Treatment Prob(F)	0.0001	0.0005	0.0001	0.0027	0.0022	0.0001	0.0001		

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Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	CHEAL	AMBTR	SETFA	ABUTH				
Pest Scientific Name	Chenopodium al>	Ambrosia trifi>	Setaria faberi	Abutilon theop>				
Pest Name	Common lambsqu>	Giant ragweed	Giant foxtail	Velvetleaf				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean				
Rating Date	7-13-2012	7-13-2012	7-13-2012	7-13-2012				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%				
Number of Subsamples	1	1	1	1				
Crop Stage Scale	R2	R2	R2	R2				
Pest Stage Majority								
Pest Density, Unit								
Assessed By	BM	BM	BM	BM				
Days After First/Last Applic.	56 50	56 50	56 50	56 50				
Plant-Eval Interval	80 DP-1	80 DP-1	80 DP-1	80 DP-1				
Days After Emergence	67 DE-1	67 DE-1	67 DE-1	67 DE-1				
Trt No.	Treatment Name	Rate	Unit	Appl Code	8	9	10	11
1	SelectMax (0.97 EC) COC	0.091 lb ai/a 1 qt/a	ai/a qt/a	B B	0.0 b	0.0 b	99.0 a	73.8 a
2	Roundup PowerMax 4.5 SL AMS - Liquid SelectMax (0.97 EC) COC	0.77 lb ae/a 8.5 lb ai/100 gal 0.091 lb ai/a 1 qt/a	ae/a gal ai/a qt/a	A A B B	89.0 a	97.0 a	99.0 a	99.0 a
3	Cobra COC SelectMax (0.97 EC) COC	0.125 lb ai/a 1 pt/a 0.091 lb ai/a 1 qt/a	ai/a pt/a ai/a qt/a	A A B B	17.5 b	75.5 a	74.3 a	98.5 a
4	Cobra COC SelectMax (0.97 EC) COC	0.156 lb ai/a 1 pt/a 0.091 lb ai/a 1 qt/a	ai/a pt/a ai/a qt/a	A A B B	12.5 b	71.3 a	94.3 a	98.0 a
5	Cobra COC SelectMax (0.97 EC) COC	0.188 lb ai/a 1 pt/a 0.091 lb ai/a 1 qt/a	ai/a pt/a ai/a qt/a	A A B B	0.0 b	76.0 a	98.5 a	99.0 a
6	Cobra Resource (0.86 EC) COC SelectMax (0.97 EC) COC	0.156 lb ai/a 0.43 oz ai/a 1 pt/a 0.091 lb ai/a 1 qt/a	ai/a ai/a pt/a ai/a qt/a	A A A B B	32.5 b	71.8 a	74.3 a	98.5 a
7	Flexstar (1.88 L) COC AMS - Liquid SelectMax (0.97 EC) COC	0.305 lb ai/a 1 % v/v 8.5 lb ai/100 gal 0.091 lb ai/a 1 qt/a	ai/a v/v gal ai/a qt/a	A A A B B	30.0 b	89.8 a	86.8 a	99.0 a

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Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	CHEAL	AMBTR	SETFA	ABUTH
Pest Scientific Name	Chenopodium al>	Ambrosia trifi>	Setaria faberi	Abutilon theop>
Pest Name	Common lambsqu>	Giant ragweed	Giant foxtail	Velvetleaf
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean
Rating Date	7-13-2012	7-13-2012	7-13-2012	7-13-2012
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Crop Stage Scale	R2	R2	R2	R2
Pest Stage Majority				
Pest Density, Unit				
Assessed By	BM	BM	BM	BM
Days After First/Last Applic.	56 50	56 50	56 50	56 50
Plant-Eval Interval	80 DP-1	80 DP-1	80 DP-1	80 DP-1
Days After Emergence	67 DE-1	67 DE-1	67 DE-1	67 DE-1
Trt No.	8	9	10	11
Treatment Name				
Rate				
Unit				
Appl Code				
8 Roundup PowerMax 4.5 SL	0.77 lb ae/a			
Cobra	0.156 lb ai/a			
COC	1 % v/v			
AMS - Liquid	8.5 lb ai/100 gal			
SelectMax (0.97 EC)	0.091 lb ai/a			
COC	1 qt/a			
LSD (P=.05)	38.10	21.55	40.28	25.71
Standard Deviation	25.90	14.65	27.39	17.48
CV	105.45	20.45	30.22	18.3
Bartlett's X2	3.587	15.948	24.161	64.23
P(Bartlett's X2)	0.61	0.014*	0.001*	0.001*
Replicate F	1.969	1.411	0.454	0.927
Replicate Prob(F)	0.1496	0.2674	0.7172	0.4449
Treatment F	4.888	17.417	0.637	1.015
Treatment Prob(F)	0.0021	0.0001	0.7202	0.4489

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 Location: Throckmorton Study Director: White/Marquardt
 Project ID: Cobra MD 64.04 Investigator: Dr. Bill Johnson
 Sponsor Contact: Valent - Eric Ott

Pest Type

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

Pest Code

CHEAL, Chenopodium album, = US

AMBTR, Ambrosia trifida, = US

ABUTH, Abutilon theophrasti, = US

SETFA, Setaria faberi, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Rating Type

CONTRO = control / burndown or knockdown

PHYLMA = phytotoxicity - leaf malformation

PHYGEN = phytotoxicity - general / injury

Rating Unit

% = percent

FT2 = per square foot

YD2 = per square yard

M2 = per square meter

Plant-Eval Interval

36 DP-1 = 1 GLXMA 4-24-2012

48 DP-1 = 1 GLXMA 4-24-2012

80 DP-1 = 1 GLXMA 4-24-2012