

# Purdue University

## Control of waterhemp and giant ragweed with Fierce.

Trial ID: 12S-THP-CTS-33      Protocol ID: 12S-THP-CTS-33  
 Location: Throckmorton      Study Director: White/Marquardt  
 Project ID: Fierce MD 64.01      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      USA 49.376656      - 24.53833  
**State/Prov.:** IN      -124.715843      - -66.968887  
**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:** wjg@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  
**Seed Bed:** COMPAC compacted      **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:** 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	
<b>Plot Width, Unit:</b> 10 FT <b>Plot Length, Unit:</b> 30 FT <b>Plot Area, Unit:</b> 300 FT <sup>2</sup> <b>Replications:</b> 4	<b>Site Type:</b> FIELD field <b>Experimental Unit:</b> 1 PLOT plot <b>Tillage Type:</b> CONTIL conventional-till <b>Study Design:</b> RACOBL Randomized Complete Block (RCB) <b>Untreated Arrangement:</b> INCLUDED single control randomized in each block

Soil Description
<b>Description Name:</b> TPAC - Field 4B <b>% OM:</b> 2.9 <b>Texture:</b> SIL silt loam <b>pH:</b> 6.2 <b>Soil Name:</b> Toronto-Millbrook <b>CEC:</b> 13.3

Application Description		
	A	B
<b>Application Date:</b>	4-24-2012	6-18-2012
<b>Time of Day:</b>		8:45 AM
<b>Application Method:</b>	SPRAY	SPRAY
<b>Application Timing:</b>	ATPLAN	POSPOS
<b>Application Placement:</b>	SOIL	FOLIAR
<b>Applied By:</b>	MW	GT
<b>Air Temperature, Unit:</b>	59 F	78 F
<b>% Relative Humidity:</b>	33	69
<b>Wind Velocity, Unit:</b>	6 MPH	7 MPH
<b>Wind Direction:</b>	W	SW
<b>Dew Presence (Y/N):</b>	N no	N no
<b>Soil Temperature, Unit:</b>	60 F	74 F
<b>Soil Moisture:</b>	DRY	DRY
<b>% Cloud Cover:</b>	100	8

Crop Stage At Each Application		
	A	B
<b>Crop 1 Code, BBCH Scale:</b>	GLXMA BSOY	GLXMA BSOY
<b>Stage Scale Used:</b>		BBCH
<b>Stage Majority, Percent:</b>		V6
<b>Height, Unit:</b>		14 IN

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## Pest Stage At Each Application

	A	B
<b>Pest 1 Code, Type, Scale:</b>	AMBTR W	AMBTR W
<b>Height, Unit:</b>		23 IN
<b>Height Minimum, Maximum:</b>		17 30
<b>Density, Unit:</b>		25 YD2
<b>Pest 2 Code, Type, Scale:</b>	SETFA W	SETFA W
<b>Height, Unit:</b>		9 IN
<b>Height Minimum, Maximum:</b>		6 12
<b>Density, Unit:</b>		50 YD2
<b>Pest 3 Code, Type, Scale:</b>	CHEAL W	CHEAL W
<b>Height, Unit:</b>		7 IN
<b>Height Minimum, Maximum:</b>		3 11
<b>Density, Unit:</b>		40 YD2
<b>Pest 4 Code, Type, Scale:</b>	ABUTH W	ABUTH W
<b>Height, Unit:</b>		11 IN
<b>Height Minimum, Maximum:</b>		8 15
<b>Density, Unit:</b>		8 YD2

## Application Equipment

	A	B
<b>Appl. Equipment:</b>	CO2 FORD	CUB
<b>Equipment Type:</b>	SPTRMO	SPTRMO
<b>Operation Pressure, Unit:</b>	20 PSI	20 PSI
<b>Nozzle Type:</b>	FLAT FAN	FLAT FAN
<b>Nozzle Size:</b>	XR 100 02	XR 110 02
<b>Nozzle Spacing, Unit:</b>	20 IN	20 IN
<b>Nozzles/Row:</b>	6	6
<b>Boom Length, Unit:</b>	10 FT	10 FT
<b>Boom Height, Unit:</b>	20 IN	19 IN
<b>Ground Speed, Unit:</b>	2.1 MPH	2.1 MPH
<b>Carrier:</b>	MEIGS	MEIGS
<b>Spray Volume, Unit:</b>	20 gal/ac	20 GAL/AC
<b>Mix Size, Unit:</b>	2.5 liters	2.5 Liters
<b>Propellant:</b>	CO2	CO2

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## Control of waterhemp and giant ragweed with Fierce.

Trial ID: 12S-THP-CTS-33      Protocol ID: 12S-THP-CTS-33  
 Location: Throckmorton      Study Director: White/Marquardt  
 Project ID: Fierce MD 64.01      Investigator: Dr. Bill Johnson  
 Sponsor Contact: Valent - Eric Ott

Pest Type	W Weed AMBTR	W Weed SETFA	W Weed SETFA	W Weed AMBTR	W Weed ABUTH				
Pest Code	Ambrosia trifidi>	Setaria faberi	Setaria faberi	Ambrosia trifidi>	Abutilon theop>				
Pest Scientific Name	Giant ragweed	Giant foxtail	Giant foxtail	Giant ragweed	Velvetleaf	GLXMA			
Pest Name	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA			
Crop Code	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY			
BBCH Scale	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Scientific Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean			
Crop Name	6-5-2012	6-5-2012	6-18-2012	6-18-2012	6-18-2012	10-10-2012			
Rating Date	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	YIELD			
Rating Type	%	%	%	%	%	bu/ac			
Rating Unit	1	1	1	1	1	1			
Number of Subsamples	V4	V4							
Crop Stage Scale	2-12 IN	2-12 IN							
Crop Stage Majority	10 M2	50 M2							
Pest Stage Majority	JS/JR	JS/JR	MW	MW	MW				
Pest Density, Unit	42 42	42 42	55 55	55 55	55 55	169 114			
Assessed By	42 DP-1	42 DP-1	55 DP-1	55 DP-1	55 DP-1	169 DP-1			
Days After First/Last Applic.	29 DE-1	29 DE-1	42 DE-1	42 DE-1	42 DE-1	156 DE-1			
Plant-Eval Interval									
Days After Emergence									
Trt Treatment	Rate	Unit	Appl Code	1	2	3	4	5	6
1 Untreated Check	0.0 e			0.0 e	0.0 e	0.0 d	0.0 e	0.0 b	2.98 b
2 Valor SX (51 WG)	0.096 lb ai/a	A		53.8 bcd	30.0 d	32.5 c	37.5 bcd	89.3 a	36.58 a
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
3 Valor SX (51 WG)	0.9 oz ai/a	A		80.0 abc	50.0 a-d	53.8 abc	63.8 abc	96.8 a	40.75 a
Classic	0.309 oz ai/a	A							
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
4 Valor SX (51 WG)	1.2 oz ai/a	A		77.5 abc	35.0 cd	42.5 bc	71.3 ab	96.8 a	45.28 a
Classic	0.412 oz ai/a	A							
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
5 Fierce (76 WG)	2.28 oz ai/a	A		43.8 d	62.5 abc	77.5 ab	31.3 d	74.5 a	47.45 a
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
6 Fierce (76 WG)	2.85 oz ai/a	A		72.5 abc	73.8 ab	81.3 ab	66.3 abc	95.5 a	44.58 a
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
7 Fierce (76 WG)	3.42 oz ai/a	A		78.8 abc	81.3 a	75.0 ab	51.3 a-d	74.8 a	44.15 a
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
8 Valor SX (51 WG)	0.063 lb ai/a	A		80.0 abc	72.5 ab	67.5 ab	72.5 ab	84.5 a	49.03 a
Classic	0.021 lb ai/a	A							
V-10206 (85 WG)	0.057 lb ai/a	A							
Roundup PowerMax 4.5 SL	0.77 lb ae/a	B							
AMS - Liquid	17 lb ai/100 gal B								
9 Valor SX (51 WG)	0.077 lb ai/a	A		92.5 a	80.5 a	77.5 ab	86.3 a	91.8 a	45.53 a
Classic	0.026 lb ai/a	A							
V-10206 (85 WG)	0.071 lb ai/a	A							
Roundup PowerMax 4.5 SL	0.77 lb ae/a	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.

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	AMBTR	SETFA	SETFA	AMBTR	ABUTH				
Pest Scientific Name	Ambrosia trifida>	Setaria faberi	Setaria faberi	Ambrosia trifida>	Abutilon theophrasti>				
Pest Name	Giant ragweed	Giant foxtail	Giant foxtail	Giant ragweed	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	6-5-2012	6-5-2012	6-18-2012	6-18-2012	6-18-2012	10-10-2012			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	YIELD			
Rating Unit	%	%	%	%	%	bu/ac			
Number of Subsamples	1	1	1	1	1	1			
Crop Stage Scale	V4	V4							
Pest Stage Majority	2-12 IN	2-12 IN							
Pest Density, Unit	10 M2	50 M2							
Assessed By	JS/JR	JS/JR	MW	MW	MW				
Days After First/Last Applic.	42 42	42 42	55 55	55 55	55 55	169 114			
Plant-Eval Interval	42 DP-1	42 DP-1	55 DP-1	55 DP-1	55 DP-1	169 DP-1			
Days After Emergence	29 DE-1	29 DE-1	42 DE-1	42 DE-1	42 DE-1	156 DE-1			
Trt No.	Treatment Name	Rate	Appl Code	1	2	3	4	5	6
10	Valor SX (51 WG)	0.093 lb ai/a	A	82.5 ab	73.8 ab	81.3 ab	77.5 a	99.0 a	45.68 a
	Classic	0.031 lb ai/a	A						
	V-10206 (85 WG)	0.085 lb ai/a	A						
	Roundup PowerMax 4.5 SL	0.77 lb ae/a	B						
	AMS - Liquid	17 lb ai/100 gal	B						
11	Authority XL (70 WG)	0.175 lb ai/a	A	77.5 abc	42.5 bcd	43.8 bc	72.5 ab	99.0 a	46.25 a
	Roundup PowerMax 4.5 SL	0.77 lb ae/a	B						
	AMS - Liquid	17 lb ai/100 gal	B						
12	FirstRate (84 WG)	0.0315 lb ai/a	A	92.0 a	62.5 abc	56.3 abc	83.8 a	99.0 a	41.35 a
	Valor SX (51 WG)	0.096 lb ai/a	A						
	Roundup PowerMax 4.5 SL	0.77 lb ae/a	B						
	AMS - Liquid	17 lb ai/100 gal	B						
13	Authority First (70 WG)	0.282 lb ai/a	A	73.8 abc	65.0 abc	57.5 abc	72.5 ab	99.0 a	44.73 a
	Roundup PowerMax 4.5 SL	0.77 lb ae/a	B						
	AMS - Liquid	17 lb ai/100 gal	B						
14	Optil (68 WG)	0.085 lb ai/a	A	86.0 ab	83.0 a	87.5 a	81.3 a	99.0 a	43.75 a
	Roundup PowerMax 4.5 SL	0.77 lb ae/a	B						
	AMS - Liquid	17 lb ai/100 gal	B						
15	Anthem (2.2 SC)	0.138 lb ai/a	A	47.5 cd	68.8 ab	80.0 ab	35.0 cd	62.0 a	40.40 a
	Roundup PowerMax 4.5 SL	0.77 lb ae/a	B						
	AMS - Liquid	17 lb ai/100 gal	B						
LSD (P=.05)				21.03	20.93	22.76	22.62	24.08	11.973
Standard Deviation				14.72	14.64	15.93	15.83	16.85	8.378
CV				21.26	24.93	26.15	26.31	20.05	20.32
Bartlett's X2				13.1	32.656	21.473	10.937	22.484	25.584
P(Bartlett's X2)				0.44	0.002*	0.064	0.616	0.004*	0.029*
Replicate F				2.769	3.449	7.312	4.121	1.334	2.246
Replicate Prob(F)				0.0534	0.0249	0.0005	0.0119	0.2762	0.0969
Treatment F				10.769	10.067	8.928	9.454	9.447	6.934
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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

Pest Code  
AMBTR, Ambrosia trifida, = US  
SETFA, Setaria faberi, = US  
ABUTH, Abutilon theophrasti, = US

Crop Code  
GLXMA, BSOY, Glycine max, = US

Rating Type  
CONTRO = control / burndown or knockdown  
YIELD = yield

Rating Unit  
% = percent  
bu/ac = bushels per acre

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M2 = per square meter

Plant-Eval Interval

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

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

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