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Anthem and Anthem ATZ vs. Competitors

Trial ID: 12S-PIP-CTC-02 Protocol ID: 12S-PIP-CTC-02
 Location: PPAC Study Director: Paul Marquardt
 Project ID: 12S-PIP-CTC-02 Investigator: Dr. Bill Johnson
 Sponsor Contact: Joe Reed

General Trial Information

Study Director: Paul Marquardt **Title:** Research Associate
Investigator: Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 5-9-2012

Trial Location

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

Personnel

Study Director: Paul Marquardt **Title:** Research Associate

Affiliation: Purdue University
Address: 915 W. State Street, Lilly Hall
Location: West Lafayette, IN

Postal Code: 47907 **E-mail:** pmarquar@purdue.edu

Phone No.: 765-494-0891 **Mobile No.:** 765-409-6369

Investigator: Bill Johnson **Title:** Professor

Affiliation: Purdue University
Address: 915 W. State Street, Lilly Hall
Location: West Lafayette, IN

Postal Code: 47907 **E-mail:** wgj@purdue.edu

Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

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: ZEAMX Zea mays Corn

Variety: P33W84

Description: Roundup Ready/Liberty Link

BBCH Scale: BCOR

Planting Date: 5-18-2012

Planting Method: DIRDRI direct drilled

Rate, Unit: 32000 S/A

Depth, Unit: 2 IN

Row Spacing, Unit: 30 IN

Spacing Within Row, Unit: 6 IN

Seed Bed: FINE fine

Soil Temperature, Unit: 67 F

Soil Moisture: DRY dry

Emergence Date: 5-23-2012

Harvest Date: 10-12-2012

Harvest Equipment: Gleaner F3

Harvested Width, Unit: 5 FT

Harvested Length, Unit: 25 FT

% Standard Moisture: 15.5

Moisture Meter: 3" Carter blade

Weighing Equipment: HarvestMaster 400

Pest Description

Pest 1 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: velvetleaf

Pest 2 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed

Pest 3 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 FT2 Replications: 4	Site Type: FIELD field Experimental Unit: 1 PLOT plot Tillage Type: CONTIL conventional-till Study Design: RACOB� Randomized Complete Block (RCB) Untreated Arrangement: INCLUDED single control randomized in each block

Maintenance						
No.	Date	Maintenance Treatment Name	Description	Rate	Rate Unit	Tank Mix
1.	5-18-2012	Capture LFR	incorporated	5.12	OZ/A	no

Soil Description	
Description Name: PPAC M3 % OM: 2 pH: 6.5 CEC: 6.3	Texture: SL sandy loam Soil Drainage: E excellent
Analyzed By: A&L Great Lakes Laboratory	

Application Description		
	A	B
Application Date:	5-18-2012	6-5-2012
Time of Day:	11 AM	10 AM
Application Method:	SPRAY	SPRAY
Application Timing:	ATPLAN	EARPOS
Application Placement:	SOIL	FOLIAR
Applied By:	JR	PM
Air Temperature, Unit:	74 F	68 F
% Relative Humidity:		66
Wind Velocity, Unit:	5 MPH	3.5 MPH
Wind Direction:	NNW	E
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	67 F	65 F
Soil Moisture:	DRY	DRY
% Cloud Cover:	0	5

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:	BBCH	BBCH
Stage Majority, Percent:	00 100	12 90
Stage Minimum, Percent:		11 10
Stage Maximum, Percent:		12 90
Height, Unit:		6 IN
Height Minimum, Maximum:		4 8

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	ABUTH W	ABUTH W
Stage Majority, Percent:		12 100
Height, Unit:		1.5 IN
Height Minimum, Maximum:		1 2
Density, Unit:		5 M2
Pest 2 Code, Type, Scale:	AMBTR W	AMBTR W
Stage Majority, Percent:		32 90
Stage Minimum, Percent:		30 10
Stage Maximum, Percent:		32 90
Height, Unit:		2.5 IN
Height Minimum, Maximum:		1 4
Density, Unit:		7.5 M2
Pest 3 Code, Type, Scale:	SETFA W	SETFA W
Stage Majority, Percent:		12 100
Height, Unit:		1.5 IN
Height Minimum, Maximum:		1 2
Density, Unit:		5 M2

Application Equipment

	A	B
Appl. Equipment:	CO2 Backpack	CO2 Backpack
Equipment Type:	SPRBAC	SPRBAC
Operation Pressure, Unit:	17 PSI	17 PSI
Nozzle Type:	Flat Fan	Flat Fan
Nozzle Size:	XR11002	XR11002
Nozzle Spacing, Unit:	15 IN	15 IN
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:	CO2	CO2
Tank Mix (Y/N):	N no	N no

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Pest Type	W Weed	W Weed	W Weed						
Pest Code	AMBTR	ABUTH	AMBTR	ABUTH	AMARE	SETFA	CHEAL		
Pest Scientific Name	Ambrosia trifi>	Abutilon theop>	Ambrosia trifi>	Abutilon theop>	Amaranthus ret>	Setaria faberi	Chenopodium al>		
Pest Name	Giant ragweed	velvetleaf	Giant ragweed	velvetleaf	Redroot pigweed	Giant foxtail	Common lambsqu>		
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays	Zea mays	Zea mays						
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn	Corn		
Crop Variety	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84		
Description	6"	6"							
Part Rated	PLOT P	PLOT P	PLOT P						
Rating Date	5-30-2012	5-30-2012	6-19-2012	6-19-2012	6-19-2012	6-19-2012	6-19-2012		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Crop Stage Majority	32	32	36	36	36	36	36		
Pest Stage Majority	<1-2 IN	<1-2 IN	<1-12 IN	<1-6 IN	<1-4 IN	<1-6 IN	<1 IN		
Pest Density, Unit	5 M2	7.5 M2	2.5 M2	5 M2	1 M2	2.5 M2	1 M2		
Assessed By	PM	PM	PM	PM	PM	PM	PM		
Days After First/Last Applic.	12 12	12 12	32 14	32 14	32 14	32 14	32 14		
Trt-Eval Interval	12 DA-A	12 DA-A							
Plant-Eval Interval	12 DP-1	12 DP-1	32 DP-1	32 DP-1	32 DP-1	32 DP-1	32 DP-1		
Days After Emergence	7 DE-1	7 DE-1	27 DE-1	27 DE-1	27 DE-1	27 DE-1	27 DE-1		
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	1	2	3	4	5	6	7
1 UNTREATED			0.0 b	0.0 b	0.0 c	0.0 c	0.0 c	0.0 b	0.0 b
2 Anthem	151 g ai/ha A		71.3 a	53.8 a	10.0 bc	42.5 bc	100.0 a	82.5 a	100.0 a
Atrazine	1680 g ai/ha A								
3 Anthem ATZ	1260 g ai/ha A		66.3 a	45.0 a	33.8 bc	61.3 ab	100.0 a	85.0 a	100.0 a
4 Dual II Magnum	1430 g ai/ha A		66.3 a	51.3 a	7.5 bc	10.0 c	90.0 a	93.8 a	75.0 a
5 Harness Xtra	3140 g ai/ha A		64.5 a	63.8 a	26.3 bc	25.0 bc	100.0 a	100.0 a	100.0 a
6 Anthem ATZ	1260 g ai/ha B		68.1 a	64.5 a	89.5 a	98.8 a	100.0 a	100.0 a	100.0 a
Roundup PowerMAX	1260 g ae/ha B								
N-Pak AMS	2.5 % v/v B								
7 Halex GT	2210 g ai/ha B		84.8 a	53.8 a	95.5 a	99.5 a	100.0 a	100.0 a	100.0 a
NIS	0.25 % v/v B								
N-Pak AMS	2.5 % v/v B								
8 Roundup PowerMAX	1260 g ae/ha B		51.3 a	47.5 a	53.8 ab	63.8 ab	75.0 b	88.8 a	63.8 a
N-Pak AMS	2.5 % v/v B								
LSD (P=.05)			32.81	16.31	35.15	33.23	14.60	19.93	27.00
Standard Deviation			22.17	11.09	23.90	22.59	9.93	13.55	18.36
CV			37.55	23.37	60.46	45.1	11.94	16.68	22.99
Bartlett's X2			8.086	4.917	18.004	28.753	1.776	7.952	0.083
P(Bartlett's X2)			0.232	0.555	0.006*	0.001*	0.183	0.047*	0.773
Replicate F			5.492	5.482	0.951	1.285	1.290	2.280	0.287
Replicate Prob(F)			0.0069	0.0061	0.4341	0.3055	0.3038	0.1089	0.8345
Treatment F			5.315	13.517	9.504	11.111	48.997	24.535	14.729
Treatment Prob(F)			0.0017	0.0001	0.0001	0.0001	0.0001	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.

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Pest Type			
Pest Code			
Pest Scientific Name			
Pest Name			
Crop Code	ZEAMX	ZEAMX	
BBCH Scale	BCOR	BCOR	
Crop Scientific Name	Zea mays	Zea mays	
Crop Name	Corn	Corn	
Crop Variety	P33W84	P33W84	
Description			
Part Rated	PLOT P	PLOT P	
Rating Date	10-12-2012	10-12-2012	
Rating Type	YIELD	YIELD	
Rating Unit	BU	KG	
Number of Subsamples	1	1	
Crop Stage Majority			
Pest Stage Majority			
Pest Density, Unit			
Assessed By	PM	PM	
Days After First/Last Applic.	147 129	147 129	
Trt-Eval Interval			
Plant-Eval Interval	147 DP-1	147 DP-1	
Days After Emergence	142 DE-1	142 DE-1	
ARM Action Codes	TY3	TY4	
Number of Decimals	1	1	
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	
			15 16
1 UNTREATED			166.6 bc 10455.7 bc
2 Anthem	151 g ai/ha A		172.3 bc 10817.1 bc
Atrazine	1680 g ai/ha A		
3 Anthem ATZ	1260 g ai/ha A		184.8 bc 11600.5 bc
4 Dual II Magnum	1430 g ai/ha A		116.4 c 7304.0 c
5 Harness Xtra	3140 g ai/ha A		192.7 bc 12098.4 bc
6 Anthem ATZ	1260 g ai/ha B		288.7 a 18120.8 a
Roundup PowerMAX	1260 g ae/ha B		
N-Pak AMS	2.5 % v/v B		
7 Halex GT	2210 g ai/ha B		235.9 ab 14810.1 ab
NIS	0.25 % v/v B		
N-Pak AMS	2.5 % v/v B		
8 Roundup PowerMAX	1260 g ae/ha B		221.4 abc 13898.4 abc
N-Pak AMS	2.5 % v/v B		
LSD (P=.05)			71.01 4457.27
Standard Deviation			48.28 3030.54
CV			24.46 24.46
Bartlett's X2			14.007 14.007
P(Bartlett's X2)			0.051 0.051
Replicate F			8.688 8.688
Replicate Prob(F)			0.0006 0.0006
Treatment F			4.590 4.590
Treatment Prob(F)			0.0030 0.0030

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Pest Type

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

Pest Code

AMBTR, Ambrosia trifida, = US
 ABUTH, Abutilon theophrasti, = US
 AMARE, Amaranthus retroflexus, = US
 SETFA, Setaria faberi, = US
 CHEAL, Chenopodium album, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Part Rated

PLOT = plot
 P = Pest is Part Rated

Rating Type

CONTRO = control / burndown or knockdown
 YIELD = yield

Rating Unit

% = percent
 LB = pound
 BU = bushel
 KG = kilogram

Crop Stage Majority

32 = 2 nodes detectable
 36 = 6 nodes detectable
 38 = 8 nodes detectable

M2 = per square meter

Plant-Eval Interval

12 DP-1 = 1 ZEAMX 5-18-2012
 32 DP-1 = 1 ZEAMX 5-18-2012
 42 DP-1 = 1 ZEAMX 5-18-2012
 147 DP-1 = 1 ZEAMX 5-18-2012

ARM Action Codes

TY3 = $6.222857 * [13] * (100 - [14]) / 84.5$
 TY4 = $390.5967 * [13] * (100 - [14]) / 84.5$