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PRE herbicide efficacy in corn with Roundup or Ignite POST treatments

Trial ID: 09S-THP-CTC-52 Protocol ID: 09S-THP-CTC-52
 Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Mark Loux

General Trial Information

Study Director: Paul Marquardt/Melissa Kruger **Title:** Research Associate
Investigator: Dr. William G. Johnson **Title:** Associate Professor

Discipline: H herbicide
Trial Status: E established

Trial Location

City: Lafayette
State/Prov.: Indiana
Postal Code: 47909-9049
Country: USA
Directions:
 TPAC Field 4B

Objectives:

PRE Herbicide efficacy in corn with Roundup or Ignite POST treatments

Personnel

Study Director: Paul Marquardt/Melissa Kruger **Title:** Research Associate
Affiliation: Purdue University
Address: 915 W. State St.
Location: West Lafayette, IN USA
Postal Code: 47907 **E-mail:** mmkruger@purdue.edu
Phone No.: 765-494-4621
Investigator: Dr. William G. Johnson **Title:** Associate Professor
Affiliation: Purdue University
Address: 915 W. State St.
Location: West Lafayette, IN USA
Postal Code: 47907 **E-mail:** wgj@purdue.edu
Phone No.: 765-494-4656

Cooperator/Landowner

Cooperator: Throckmorton-Purdue Ag Center
Organization: Purdue University
Address 1: 8343 US 231 South
City: Lafayette
State/Prov: Indiana
Postal Code: 47909-9049 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: P33W84 **Description:** Roundup Ready/Liberty Link
BBCH Scale: BCOR **Planting Date:** 5/22/09
Planting Method: DIRDRI direct drilled **Rate, Unit:** 32000 S/A
Depth, Unit: 2 IN
Row Spacing, Unit: 30 IN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 72 F
Soil Moisture: DRY dry
Harvested Width, Unit: 10 FT **Harvested Length, Unit:** 25 FT

Pest Description

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

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

Pest 3 Type: W **Code:** IPOLA Ipomoea lacunosa
Common Name: Pitted morningglory

Pest 4 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: Velvetleaf

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Site and Design

Plot Width, Unit: 10 FT
 Plot Length, Unit: 30 FT
 Plot Area, Unit: 300 FT²
 Replications: 4

Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

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

Analyzed By:

A&L Great Lakes Laboratories, Inc. Report #: F04048-0006

Additional Measured Elements

Element	Quantity	Unit
P	34	ppm
K	124	ppm
Ca	1300	ppm
Mg	430	ppm

Application Description

	A	B	C
Application Date:	5/22/09	6/9/09	6/18/09
Time of Day:	5:00-5:30	10:20-40	
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PREPLA	EAPOWE	LAPOWE
Application Placement:	BROSOI	BROFOL	BROFOL
Applied By:	CB	PM	MH
Air Temperature, Unit:	88 F	74 F	80 F
% Relative Humidity:	23.3	70	72
Wind Velocity, Unit:	1.1 MPH	1 MPH	2.5 MPH
Wind Direction:	W	W	W
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	72 F	70 F	74 F
Soil Moisture:	DRY	MOIST	WET
% Cloud Cover:	80	80	60

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:	00 100	14 70	15
Stage Minimum, Percent:		13 10	14
Stage Maximum, Percent:		15 20	15
Height, Unit:		7.5 IN	21 IN
Height Minimum, Maximum:		6 9	18 24

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Pest Stage At Each Application			
	A	B	C
Pest 1 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W
Stage Minimum, Percent:		33	10
Stage Maximum, Percent:		36	36
Height, Unit:		2.5 IN	12 IN
Height Minimum, Maximum:		0 5	0 24
Density, Unit:		37.5 YD2	4 YD2
Pest 2 Code, Type, Scale:	SETFA W	SETFA W	SETFA W
Stage Minimum, Percent:		13	10
Stage Maximum, Percent:		16	33
Height, Unit:		3 IN	4 IN
Height Minimum, Maximum:		1 5	0 8
Density, Unit:		37.5 YD2	12.5 FT2
Pest 3 Code, Type, Scale:	IPOLA W	IPOLA W	IPOLA W
Stage Majority, Percent:		12	
Stage Minimum, Percent:			10
Stage Maximum, Percent:			14
Height, Unit:		1.5 IN	1 IN
Height Minimum, Maximum:		1 2	0 2
Density, Unit:		8 YD2	1 M2
Pest 4 Code, Type, Scale:	ABUTH W	ABUTH W	ABUTH W
Stage Majority, Percent:			10
Height, Unit:			1 IN
Height Minimum, Maximum:			0 2
Density, Unit:			1.5

Application Equipment			
	A	B	C
Appl. Equipment:	CO2 Backpack	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:		SPRBAC	SPRBAC
Operating Pressure, Unit:	17 PSI	17 psi	17 psi
Nozzle Type:		FLAT FAN	FLAT FAN
Nozzle Size:	XR11002	XR11002	XR11002
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN
Nozzles/Row:	6	6	6
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT
Boom Height, Unit:	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	H2O	H2O	H2O
Water Hardness (ppm CaCO3):	Meigs	150	150
Spray Volume, Unit:	15 GAL/AC	15 gal/ac	15 gal/ac
Mix Size, Unit:	1.8 Liters	1.8 liters	1.8 liters
Propellant:	CO2	CO2	CO2
Tank Mix (Y/N):		N no	N no

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 Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Mark Loux

Pest Type	W Weed AMBTR	W Weed SETFA	W Weed AMBTR	W Weed SETFA	W Weed AMBTR	W Weed SETFA										
Pest Code	Ambrosia trifi>	Setaria faberi	Ambrosia trifi>	Setaria faberi	Ambrosia trifi>	Setaria faberi										
Pest Scientific Name	Giant ragweed	Giant foxtail	Giant ragweed	Giant foxtail	Giant ragweed	Giant foxtail										
Pest Name																
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX										
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR										
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays										
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn										
Crop Variety	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84										
Rating Date	6/19/09	6/19/09	7/9/09	7/9/09	11/13/09	11/13/09										
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO										
Rating Unit	%	%	%	%	%	%										
Number of Subsamples	1	1	1	1	1	1										
Crop Stage Majority	V6	V6	V8	V8												
Pest Stage Majority	1-12"	1-6"	2-66"	5-40"	12-72"	12-36"										
Pest Density, Unit	10 YD2	27.5YD2	12.5YD2	27.5YD2	7.5 YD2	25 YD2										
Assessed By	PM	PM	JM	JM	PM											
Days After First/Last Applic.	28 1	28 1	48 21	48 21	175 148	175 148										
Trt-Eval Interval	58 DA-A	28 DA-A	48 DA-A	48 DA-A												
Plant-Eval Interval	28 DP-1	28 DP-1	48 DP-1	48 DP-1	175 DP-1	175 DP-1										
ARM Action Codes																
Number of Decimals																
Trt No.	Treatment Name	Rate	Appl													
		Rate	Unit	Code	1	2	3	4	5	6						
1	Untreated	0.0	e		0.0	f	0.0	d	0.0	b	0.0	b				
2	Bicep II Magnum Roundup PowerMAX Ammonium Sulfate	1.65 lb ai/a 0.75 lb ae/a 2 % v/v	A C C		28.8	cd	67.5	de	92.5	a	98.5	a	100.0	a	100.0	a
3	Lexar Roundup PowerMAX Ammonium Sulfate	1.85 lb ai/a 0.75 lb ae/a 2 % v/v	A C C		88.8	a	80.0	bcd	97.8	a	99.5	a	100.0	a	100.0	a
4	Bicep II Magnum Ignite 280 Atrazine Ammonium Sulfate	1.65 lb ai/a 0.4 lb ai/a 0.5 lb ai/a 2 % v/v	A C C C		35.0	c	67.5	de	93.5	a	98.5	a	100.0	a	100.0	a
5	Lexar Ignite 280 Atrazine Ammonium Sulfate	1.85 lb ai/a 0.4 lb ai/a 0.5 lb ai/a 2 % v/v	A C C C		80.5	a	77.5	cd	97.8	a	99.0	a	100.0	a	100.0	a
6	Bicep II Magnum Laudis Atrazine Destiny HC (MSO/NIS Blend) Ammonium Sulfate	1.65 lb ai/a 0.082 lb ai/a 0.5 lb ai/a 0.5 % v/v 2 % v/v	A C C C C		20.0	d	61.3	e	98.5	a	96.3	a	100.0	a	100.0	a
7	Lexar Laudis Atrazine Destiny HC (MSO/NIS Blend) Ammonium Sulfate	1.85 lb ai/a 0.082 lb ai/a 0.5 lb ai/a 0.5 % v/v 2 % v/v	A C C C C		90.0	a	87.0	abc	98.5	a	99.0	a	100.0	a	100.0	a
8	Bicep II Magnum Steadfast Status COC Ammonium Sulfate	1.65 lb ai/a 0.035 lb ai/a 0.105 lb ai/a 1 % v/v 2 % v/v	A C C C C		50.0	b	77.5	cd	96.8	a	98.0	a	100.0	a	100.0	a
9	Lexar Steadfast Status COC Ammonium Sulfate	1.85 lb ai/a 0.035 lb ai/a 0.105 lb ai/a 1 % v/v 2 % v/v	A C C C C		91.8	a	89.5	abc	98.3	a	100.0	a	100.0	a	100.0	a
10	Bicep II Magnum Roundup PowerMAX Ammonium Sulfate	1.65 lb ai/a 0.75 lb ae/a 2 % v/v	B B B		93.3	a	95.0	abc	83.8	b	98.3	a	100.0	a	100.0	a
11	Lexar Roundup PowerMAX Ammonium Sulfate	1.85 lb ai/a 0.75 lb ae/a 2 % v/v	B B B		96.3	a	99.5	a	98.3	a	99.0	a	100.0	a	100.0	a

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	W Weed AMBTR	W Weed SETFA	W Weed AMBTR	W Weed SETFA	W Weed AMBTR	W Weed SETFA
Pest Type	Ambrosia trifi>	Setaria faberi	Ambrosia trifi>	Setaria faberi	Ambrosia trifi>	Setaria faberi
Pest Code	Giant ragweed	Giant foxtail	Giant ragweed	Giant foxtail	Giant ragweed	Giant foxtail
Pest Scientific Name						
Pest Name						
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR
Crop Scientific Name	Zea mays					
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn
Crop Variety	P33W84	P33W84	P33W84	P33W84	P33W84	P33W84
Rating Date	6/19/09	6/19/09	7/9/09	7/9/09	11/13/09	11/13/09
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Crop Stage Majority	V6	V6	V8	V8		
Pest Stage Majority	1-12"	1-6"	2-66"	5-40"	12-72"	12-36"
Pest Density, Unit	10 YD2	27.5YD2	12.5YD2	27.5YD2	7.5 YD2	25 YD2
Assessed By	PM	PM	JM	JM	PM	
Days After First/Last Applic.	28 1	28 1	48 21	48 21	175 148	175 148
Trt-Eval Interval	58 DA-A	28 DA-A	48 DA-A	48 DA-A		
Plant-Eval Interval	28 DP-1	28 DP-1	48 DP-1	48 DP-1	175 DP-1	175 DP-1
ARM Action Codes						
Number of Decimals						
Trt Treatment	Rate	Appl				
No. Name	Rate Unit	Code	1	2	3	4
12 Bicep II Magnum	1.65 lb ai/a B		89.3 a	91.8 abc	77.5 c	98.0 a
Ignite 280	0.4 lb ai/a B					100.0 a
Ammonium Sulfate	2 % v/v B					100.0 a
13 Lexar	1.85 lb ai/a B		94.8 a	96.5 ab	97.3 a	97.5 a
Ignite 280	0.4 lb ai/a B					100.0 a
Ammonium Sulfate	2 % v/v B					100.0 a
14 Bicep II Magnum	1.65 lb ai/a B		94.3 a	94.5 abc	95.8 a	95.8 a
Laudis	0.082 lb ai/a B					100.0 a
COC	1 % v/v B					100.0 a
Ammonium Sulfate	2 % v/v B					100.0 a
15 Lexar	1.85 lb ai/a B		96.5 a	91.5 abc	97.5 a	98.8 a
Laudis	0.082 lb ai/a B					100.0 a
COC	1 % v/v B					100.0 a
Ammonium Sulfate	2 % v/v B					100.0 a
16 Bicep II Magnum	1.65 lb ai/a B		88.0 a	94.0 abc	86.3 b	97.0 a
Steadfast	0.035 lb ai/a B					100.0 a
COC	1 % v/v B					100.0 a
Ammonium Sulfate	2 % v/v B					100.0 a
17 Lexar	1.85 lb ai/a B		97.3 a	99.0 a	96.3 a	98.8 a
Steadfast	0.035 lb ai/a B					100.0 a
COC	1 % v/v B					100.0 a
Ammonium Sulfate	2 % v/v B					100.0 a
LSD (P=.05)	10.51	11.10	4.37	2.97	0.00	0.00
Standard Deviation	7.35	7.77	3.06	2.08	0.00	0.00
CV	10.13	9.64	3.45	2.25	0.0	0.0
Bartlett's X2	44.589	25.852	52.367	32.876	0.0	0.0
P(Bartlett's X2)	0.001*	0.027*	0.001*	0.003*	.	.
Replicate F	0.227	0.892	0.992	0.302	0.000	0.000
Replicate Prob(F)	0.8770	0.4519	0.4045	0.8236	1.0000	1.0000
Treatment F	76.348	37.801	238.102	525.549	0.000	0.000
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	1.0000	1.0000

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			
Rating Date		11/13/09	11/13/09			
Rating Type		YIELD	YIELD			
Rating Unit		LB	BU			
Number of Subsamples		1	1			
Crop Stage Majority		99	99			
Pest Stage Majority						
Pest Density, Unit						
Assessed By		PM	PM			
Days After First/Last Applic.		175 148	175 148			
Trt-Eval Interval						
Plant-Eval Interval		175 DP-1	175 DP-1			
ARM Action Codes			TY1			
Number of Decimals			1			
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code		
1	Untreated				7	8
					22.33 b	67.4 b
2	Bicep II Magnum	1.65 lb ai/a	A		69.18 a	208.9 a
	Roundup PowerMAX	0.75 lb ae/a	C			
	Ammonium Sulfate	2 % v/v	C			
3	Lexar	1.85 lb ai/a	A		76.48 a	230.9 a
	Roundup PowerMAX	0.75 lb ae/a	C			
	Ammonium Sulfate	2 % v/v	C			
4	Bicep II Magnum	1.65 lb ai/a	A		66.55 a	200.9 a
	Ignite 280	0.4 lb ai/a	C			
	Atrazine	0.5 lb ai/a	C			
	Ammonium Sulfate	2 % v/v	C			
5	Lexar	1.85 lb ai/a	A		72.20 a	218.0 a
	Ignite 280	0.4 lb ai/a	C			
	Atrazine	0.5 lb ai/a	C			
	Ammonium Sulfate	2 % v/v	C			
6	Bicep II Magnum	1.65 lb ai/a	A		72.75 a	219.7 a
	Laudis	0.082 lb ai/a	C			
	Atrazine	0.5 lb ai/a	C			
	Destiny HC (MSO/NIS Blend)	0.5 % v/v	C			
	Ammonium Sulfate	2 % v/v	C			
7	Lexar	1.85 lb ai/a	A		72.78 a	219.7 a
	Laudis	0.082 lb ai/a	C			
	Atrazine	0.5 lb ai/a	C			
	Destiny HC (MSO/NIS Blend)	0.5 % v/v	C			
	Ammonium Sulfate	2 % v/v	C			
8	Bicep II Magnum	1.65 lb ai/a	A		72.38 a	218.5 a
	Steadfast	0.035 lb ai/a	C			
	Status	0.105 lb ai/a	C			
	COC	1 % v/v	C			
	Ammonium Sulfate	2 % v/v	C			
9	Lexar	1.85 lb ai/a	A		69.83 a	210.8 a
	Steadfast	0.035 lb ai/a	C			
	Status	0.105 lb ai/a	C			
	COC	1 % v/v	C			
	Ammonium Sulfate	2 % v/v	C			
10	Bicep II Magnum	1.65 lb ai/a	B		72.58 a	219.1 a
	Roundup PowerMAX	0.75 lb ae/a	B			
	Ammonium Sulfate	2 % v/v	B			
11	Lexar	1.85 lb ai/a	B		69.48 a	209.8 a
	Roundup PowerMAX	0.75 lb ae/a	B			
	Ammonium Sulfate	2 % v/v	B			

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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			
Rating Date		11/13/09	11/13/09			
Rating Type		YIELD	YIELD			
Rating Unit		LB	BU			
Number of Subsamples		1	1			
Crop Stage Majority		99	99			
Pest Stage Majority						
Pest Density, Unit						
Assessed By		PM	PM			
Days After First/Last Applic.		175 148	175 148			
Trt-Eval Interval						
Plant-Eval Interval		175 DP-1	175 DP-1			
ARM Action Codes			TY1			
Number of Decimals			1			
Trt No.	Treatment Name	Rate	Unit	Appl Code		
					7	8
12	Bicep II Magnum	1.65 lb ai/a	B		68.35 a	206.4 a
	Ignite 280	0.4 lb ai/a	B			
	Ammonium Sulfate	2 % v/v	B			
13	Lexar	1.85 lb ai/a	B		69.40 a	209.5 a
	Ignite 280	0.4 lb ai/a	B			
	Ammonium Sulfate	2 % v/v	B			
14	Bicep II Magnum	1.65 lb ai/a	B		68.53 a	206.9 a
	Laudis	0.082 lb ai/a	B			
	COC	1 % v/v	B			
	Ammonium Sulfate	2 % v/v	B			
15	Lexar	1.85 lb ai/a	B		69.18 a	208.9 a
	Laudis	0.082 lb ai/a	B			
	COC	1 % v/v	B			
	Ammonium Sulfate	2 % v/v	B			
16	Bicep II Magnum	1.65 lb ai/a	B		67.20 a	202.9 a
	Steadfast	0.035 lb ai/a	B			
	COC	1 % v/v	B			
	Ammonium Sulfate	2 % v/v	B			
17	Lexar	1.85 lb ai/a	B		64.23 a	193.9 a
	Steadfast	0.035 lb ai/a	B			
	COC	1 % v/v	B			
	Ammonium Sulfate	2 % v/v	B			
	LSD (P=.05)				12.840	38.77
	Standard Deviation				8.985	27.13
	CV				13.36	13.36
	Bartlett's X2				30.452	30.453
	P(Bartlett's X2)				0.016*	0.016*
	Replicate F				0.337	0.337
	Replicate Prob(F)				0.7990	0.7988
	Treatment F				7.058	7.058
	Treatment Prob(F)				0.0001	0.0001

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PRE herbicide efficacy in corn with Roundup or Ignite POST treatments

Trial ID: 09S-THP-CTC-52 Protocol ID: 09S-THP-CTC-52
 Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Mark Loux

Pest Type

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

Pest Code

AMBTR, Ambrosia trifida, = US

SETFA, Setaria faberi, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Rating Type

CONTRO = control / burndown or knockdown

YIELD = yield

Rating Unit

% = percent

LB = pound

BU = bushel

Crop Stage Majority

99 = Harvested product

YD2 = per square yard

Plant-Eval Interval

28 DP-1 = 1 5/22/09

48 DP-1 = 1 5/22/09

175 DP-1 = 1 5/22/09

ARM Action Codes

TY1 = 3.019374*[C8]