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Preemergence Weed Control in Corn with Full Season Rates

Trial ID: 09S-THP-CTC-67 Protocol ID: 09PREC1
 Location: Throckmorton PAC Study Director: Paul Marquardt/Melissa Kruger
 Project ID: 09PREC1 Investigator: Dr. Mark M. Loux
 Sponsor Contact: Dane Bowers, Syngenta

General Trial Information

Study Director: Anthony F. Dobbels **Title:** Research Associate
Investigator: Dr. Mark M. Loux **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 5/22/09

Trial Location

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

Objectives:

Preemergence weed control in Corn with full season rates

Personnel

Study Director: Anthony F. Dobbels **Title:** Research Associate
Affiliation: Ohio State University
Address: 223 Kottman Hall 2021 Coffey
Location: Columbus, Ohio 43210
Postal Code: 43210 **E-mail:** dobbels.1@osu.edu
Phone No.: 614-292-1393

Investigator: Dr. Mark M. Loux **Title:** Professor
Affiliation: Ohio State University
Address: 222 Kottman Hall 2021 Coffey Road
Location: Columbus, Ohio
Postal Code: 43210 **E-mail:** loux.1@osu.edu
Phone No.: 614-292-9081

Cooperator/Landowner

Cooperator: Throckmorton Purdue Ag Center
Organization: Purdue University
Address 1: 8343 US 231 South

Phone No.: 765-538-3422
Fax No.: 765-538-3423

City: Lafayette
State/Prov: Indiana
Postal Code: 47909 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays	Corn	Description: Roundup Ready
Variety: DKC60-18		Planting Date: 5/22/09
BCH Scale: BCOR		Rate, Unit: 32000 S/A
Planting Method: DIRDRI direct drilled		
Depth, Unit: 2 IN		
Row Spacing, Unit: 30 IN	Spacing Within Row, Unit: 6 IN	
Seed Bed: MEDIUM medium	Soil Temperature, Unit: 72 F	
Soil Moisture: DRY dry	Emergence Date: 5/27/09	
Harvest Date: 11/14/09	Harvest Equipment: Gleaner F3	
Harvested Width, Unit: 10 FT	Harvested Length, Unit: 25 FT	
% Standard Moisture: 16.0	Moisture Meter: Cart 3" blade	
Weighing Equipment: Carter Double Bucket		

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Pest Description

Pest 1 Type: W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail

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

Pest 3 Type: W **Code:** IPOHE *Ipomoea hederacea*
Common Name: Ivyleaf morningglory

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

Pest 5 Type: W **Code:** ABUTH *Abutilon theophrasti*
Common Name: Velvetleaf

Site and Design

Plot Width, Unit: 10 FT **Site Type:** FIELD field
Plot Length, Unit: 30 FT **Experimental Unit:** 1 PLOT plot
Plot Area, Unit: 300 FT² **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOB1 Randomized Complete Block (RCB)

Field Prep./Maintenance:

Field cultivation and disc 1 day prior to planting

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	430	ppm
Mg	1400	ppm

Application Description

	A	B
Application Date:	5/22/09	6/30/09
Time of Day:	4:15-50 P	6:40 A
Application Method:	SPRAY	SPRAY
Application Timing:	PREPLA	PREPLA
Application Placement:	BROS01	BROFOL
Applied By:	AR	PM
Air Temperature, Unit:	85 F	61 F
% Relative Humidity:	27	88
Wind Velocity, Unit:	1.1 MPH	1.5 MPH
Wind Direction:	W	E
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	78 F	67 F
Soil Moisture:	DRY	DRY
% Cloud Cover:	60	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	V7
Stage Minimum, Percent:		V6

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Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale:	SETFA W	SETFA W
Stage Minimum, Percent:		22
Stage Maximum, Percent:		25
Height, Unit:		17.5 IN
Height Minimum, Maximum:		5 30
Density, Unit:		14 FT2
Pest 2 Code, Type, Scale:	AMBTR W	AMBTR W
Stage Minimum, Percent:		34
Stage Maximum, Percent:		36
Height, Unit:		21 IN
Height Minimum, Maximum:		6 36
Density, Unit:		2 M2
Pest 3 Code, Type, Scale:	IPOHE W	IPOHE W
Height, Unit:		11.5 IN
Height Minimum, Maximum:		8 15
Density, Unit:		1 YD2
Pest 4 Code, Type, Scale:	CHEAL W	CHEAL W
Pest 5 Code, Type, Scale:	ABUTH W	ABUTH W
Height, Unit:		17 IN
Height Minimum, Maximum:		10 24
Density, Unit:		1 YD2

Application Equipment		
	A	B
Appl. Equipment:	CO2 BACKPACK	CO2 BACKPACK
Equipment Type:	SPRBAC	SPRBAC
Operating Pressure, Unit:	17 psi	17 psi
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	XR11002	XR11002
Nozzle Spacing, Unit:	15 IN	15 IN
Nozzles/Row:	8	8
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

No. Date	By	Deviations
1.5/22/09	PM	Spray mistake
Reasons: Plots 901 and 701 were miss-sprayed with 635 g ai/ha of Integrity from another trial.		

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed						
Pest Code	SETFA	AMBTR	ABUTH	IPOSS	SETFA	AMBTR						
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Abutilon theop>	Ipomoea sp.	Setaria faberi	Ambrosia trifi>						
Pest Name	Giant foxtail	Giant ragweed	Velvetleaf	Morning glory	Giant foxtail	Giant ragweed						
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	DCK 60-18	DCK 60-18	DCK 60-18	DCK 60-18	DCK 60-18	DCK 60-18						
Description	12-28"	12-28"	12-28"	12-28"	8-10 FT	8-10 FT						
Rating Date	6/23/09	6/23/09	6/23/09	6/23/09	7/20/09	7/20/09						
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO						
Rating Unit	%	%	%	%	%	%						
Number of Subsamples	1	1	1	1	1	1						
Crop Stage Majority	V5	V5	V5	V5	V12	V12						
Pest Stage Majority	0-12"	0-18"	0-8"	0-12"	12-36"	24-120"						
Pest Density, Unit	11 FT2	3 YD2	4 YD2	4 YD2	11 FT2	4 YD2						
Assessed By	MK	MK	MK	MK	MK	MK						
Days After First/Last Applic.	32 32	32 32	32 32	32 32	59 20	59 20						
Plant-Eval Interval	32 DP-1	32 DP-1	32 DP-1	32 DP-1	59 DP-1	59 DP-1						
Days After Emergence	27 DE-	27 DE-	27 DE-	27 DE-	54 DE-	54 DE-						
ARM Action Codes												
Number of Decimals												
Trt No.	Treatment Name	Rate	Appl Unit	Code	1	2	3	4	5	6		
1	UNTREATED CHECK	0.0			c	0.0	b	0.0	b	0.0	c	
2	Lumax	2.96 lb ai/a	A		98.3	a	99.5	a	100.0	a	97.0	a
3	Lexar	3.24 lb ai/a	A		99.5	a	99.3	a	100.0	a	99.5	a
4	Corvus Atrazine	0.115 lb ai/a 1 lb ai/a	A A		98.8	a	98.8	a	100.0	a	98.0	a
5	Balance Flexx Atrazine	0.094 lb ai/a 1.5 lb ai/a	A A		98.8	a	98.5	a	100.0	a	97.3	a
6	Integrity	0.87 lb ai/a	A		94.5	b	93.0	a	99.8	a	100.0	a
7	Lumax Atrazine	2.96 lb ai/a 1 lb ai/a	A A		98.3	a	99.0	a	100.0	a	98.5	a
8	Harness Extra 5.6 Sharpen	4.2 lb ai/a 0.067 lb ai/a	A A		100.0	a	99.8	a	100.0	a	99.8	a
9	Integrity Atrazine	0.875 lb ai/a 1.5 lb ai/a	A A		99.3	a	98.3	a	100.0	a	100.0	a
10	Harness Extra 5.6 Balance Flexx	4.2 lb ai/a 0.0625 lb ai/a	A A		100.0	a	99.8	a	100.0	a	99.5	a
11	Keystone Hornet	3.58 lb ai/a 0.128 lb ai/a	A A		98.8	a	99.5	a	99.8	a	100.0	a
12	Surestart Keystone Atrazine	1.33 lb ai/a 1.72 lb ai/a 1 lb ai/a	A A A		99.5	a	96.8	a	99.8	a	100.0	a
13	Bicep II Magnum Touchdown Total N-PAK AMS	1.79 lb ai/a 0.78 lb ae/a 5 % v/v	A B B		98.5	a	96.5	a	99.5	a	98.5	a
14	Lexar Touchdown Total N-PAK AMS	2.08 lb ai/a 0.78 lb ae/a 5 % v/v	A B B		98.5	a	99.8	a	100.0	a	99.8	a
15	Untreated				0.0	c	0.0	b	0.0	b	0.0	c
LSD (P=.05)		2.07				4.20			0.38		0.96	
Standard Deviation		1.45				2.94			0.26		0.67	
CV		1.69				3.45			0.31		0.78	
Bartlett's X2		29.322				72.264			0.095		14.553	
P(Bartlett's X2)		0.001*				0.001*			0.992		0.006*	
Replicate F		0.562				0.762			1.511		0.921	
Replicate Prob(F)		0.6429				0.5218			0.2255		0.4390	
Treatment F		2304.447				554.749			70774.101		10894.201	
Treatment Prob(F)		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	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	ABUTH	IPOSS	SETFA	AMBTR	ABUTH	IPOSS			
Pest Scientific Name	Abutilon theop>	Ipomoea sp.	Setaria faberi	Ambrosia trifi>	Abutilon theop>	Ipomoea sp.			
Pest Name	Velvetleaf	Morning glory	Giant foxtail	Giant ragweed	Velvetleaf	Morning glory			
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	DCK 60-18	DCK 60-18	DCK 60-18	DCK 60-18	DCK 60-18	DCK 60-18			
Description	8-10 FT	8-10 FT							
Rating Date	7/20/09	7/20/09	11/13/09	11/13/09	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	V12	V12	99	99	99	99			
Pest Stage Majority	18-60"	20-40"	12-36"	24-120"	18-60"	20-40"			
Pest Density, Unit	6 YD2	4 YD2	11 FT2	4 YD2	6 YD2	4 YD2			
Assessed By	MK	MK	PM	PM	PM	PM			
Days After First/Last Applic.	59 20	59 20	175 136	175 136	175 136	175 136			
Plant-Eval Interval	59 DP-1	59 DP-1	175 DP-1	175 DP-1	175 DP-1	175 DP-1			
Days After Emergence	54 DE-	54 DE-	170 DE	170 DE	170 DE	170 DE			
ARM Action Codes									
Number of Decimals									
Trt Treatment	Rate	Appl							
No. Name	Rate	Unit	Code	7	8	9	10	11	12
1 UNTREATED CHECK				0.0 b	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
2 Lumax	2.96 lb ai/a	A		99.8 a	99.5 a	100.0 a	100.0 a	100.0 a	100.0 a
3 Lexar	3.24 lb ai/a	A		100.0 a	99.8 a	100.0 a	100.0 a	100.0 a	100.0 a
4 Corvus	0.115 lb ai/a	A		100.0 a	99.8 a	100.0 a	100.0 a	100.0 a	100.0 a
Atrazine	1 lb ai/a	A							
5 Balance Flexx	0.094 lb ai/a	A		100.0 a	99.3 a	100.0 a	100.0 a	100.0 a	100.0 a
Atrazine	1.5 lb ai/a	A							
6 Integrity	0.87 lb ai/a	A		96.8 a	99.8 a	100.0 a	100.0 a	100.0 a	100.0 a
7 Lumax	2.96 lb ai/a	A		99.8 a	100.0 a	100.0 a	100.0 a	100.0 a	100.0 a
Atrazine	1 lb ai/a	A							
8 Harness Extra 5.6	4.2 lb ai/a	A		99.8 a	99.8 a	100.0 a	100.0 a	100.0 a	100.0 a
Sharpen	0.067 lb ai/a	A							
9 Integrity	0.875 lb ai/a	A		100.0 a	100.0 a	100.0 a	100.0 a	100.0 a	100.0 a
Atrazine	1.5 lb ai/a	A							
10 Harness Extra 5.6	4.2 lb ai/a	A		99.5 a	99.5 a	100.0 a	100.0 a	100.0 a	100.0 a
Balance Flexx	0.0625 lb ai/a	A							
11 Keystone	3.58 lb ai/a	A		99.8 a	100.0 a	100.0 a	100.0 a	100.0 a	100.0 a
Hornet	0.128 lb ai/a	A							
12 Surestart	1.33 lb ai/a	A		99.0 a	99.3 a	100.0 a	100.0 a	100.0 a	100.0 a
Keystone	1.72 lb ai/a	A							
Atrazine	1 lb ai/a	A							
13 Bicep II Magnum	1.79 lb ai/a	A		100.0 a	99.8 a	100.0 a	100.0 a	100.0 a	100.0 a
Touchdown Total	0.78 lb ae/a	B							
N-PAK AMS	5 % v/v	B							
14 Lexar	2.08 lb ai/a	A		99.8 a	99.5 a	100.0 a	100.0 a	100.0 a	100.0 a
Touchdown Total	0.78 lb ae/a	B							
N-PAK AMS	5 % v/v	B							
15 Untreated				0.0 b	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
LSD (P=.05)	2.46			0.82	0.00	0.00	0.00	0.00	0.00
Standard Deviation	1.72			0.57	0.00	0.00	0.00	0.00	0.00
CV	2.0			0.66	0.0	0.0	0.0	0.0	0.0
Bartlett's X2	52.215			5.194	0.0	0.0	0.0	0.0	0.0
P(Bartlett's X2)	0.001*			0.817
Replicate F	1.004			0.598	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)	0.4005			0.6201	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F	1655.312			15120.865	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)	0.0001			0.0001	1.0000	1.0000	1.0000	1.0000	1.0000

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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	DCK 60-18	DCK 60-18	
Description			
Rating Date	11/13/09	11/13/09	
Rating Type	YIELD	YIELD	
Rating Unit	LB	BU	
Number of Subsamples	1	1	
Crop Stage Majority			
Pest Stage Majority			
Pest Density, Unit			
Assessed By	PM	PM	
Days After First/Last Applic.	175 136	175 136	
Plant-Eval Interval	175 DP-1	175 DP-1	
Days After Emergence	170 DE	170 DE	
ARM Action Codes		TY1	
Number of Decimals		1	
Trt No.	Treatment Name	Rate	Appl Code
		Unit	
1	UNTREATED CHECK		
		65.050 b	196.4 b
2	Lumax	2.96 lb ai/a A	85.525 a
			258.2 a
3	Lexar	3.24 lb ai/a A	81.325 a
			245.6 a
4	Corvus	0.115 lb ai/a A	79.675 a
	Atrazine	1 lb ai/a A	240.6 a
5	Balance Flexx	0.094 lb ai/a A	81.675 a
	Atrazine	1.5 lb ai/a A	246.6 a
6	Integrity	0.87 lb ai/a A	77.075 a
			232.7 a
7	Lumax	2.96 lb ai/a A	86.000 a
	Atrazine	1 lb ai/a A	259.7 a
8	Harness Extra 5.6	4.2 lb ai/a A	84.750 a
	Sharpen	0.067 lb ai/a A	255.9 a
9	Integrity	0.875 lb ai/a A	81.850 a
	Atrazine	1.5 lb ai/a A	247.1 a
10	Harness Extra 5.6	4.2 lb ai/a A	88.425 a
	Balance Flexx	0.0625 lb ai/a A	267.0 a
11	Keystone	3.58 lb ai/a A	85.275 a
	Hornet	0.128 lb ai/a A	257.5 a
12	Surestart	1.33 lb ai/a A	83.900 a
	Keystone	1.72 lb ai/a A	253.3 a
	Atrazine	1 lb ai/a A	
13	Bicep II Magnum	1.79 lb ai/a A	86.425 a
	Touchdown Total	0.78 lb ae/a B	260.9 a
	N-PAK AMS	5 % v/v B	
14	Lexar	2.08 lb ai/a A	80.363 a
	Touchdown Total	0.78 lb ae/a B	242.6 a
	N-PAK AMS	5 % v/v B	
15	Untreated		64.450 b
			194.6 b
LSD (P=.05)		7.0670	21.34
Standard Deviation		4.9452	14.93
CV		6.12	6.12
Bartlett's X2		14.336	14.338
P(Bartlett's X2)		0.425	0.425
Replicate F		5.321	5.320
Replicate Prob(F)		0.0034	0.0034
Treatment F		8.380	8.379
Treatment Prob(F)		0.0001	0.0001

Purdue University

Preemergence Weed Control in Corn with Full Season Rates

Trial ID: 09S-THP-CTC-67 Protocol ID: 09PREC1
 Location: Throckmorton PAC Study Director: Paul Marquardt/Melissa Kruger
 Project ID: 09PREC1 Investigator: Dr. Mark M. Loux
 Sponsor Contact: Dane Bowers, Syngenta

Pest Type

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

Pest Code

SETFA, Setaria faberi, = US
 AMBTR, Ambrosia trifida, = US
 ABUTH, Abutilon theophrasti, = US
 IPOSS, Ipomoea sp., = 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

FT2 = per square foot

YD2 = per square yard

Plant-Eval Interval

32 DP-1 = 1 5/22/09

59 DP-1 = 1 5/22/09

175 DP-1 = 1 5/22/09

ARM Action Codes

TY1 = 3.019374*13