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Preemergence Weed Control in Corn with Full Season Rates

Title No. 2: HRDL01A4
 Trial ID: 10S-THP-CTC-82 Protocol ID: 10S-THP-CTC-82
 Location: TPAC Study Director: Anthony F. Dobbels
 Project ID: 09PREC1 Investigator: Dr. Mark M. Loux
 Sponsor Contact: Dane Bowers, Syngenta

General Trial Information

Study Director: Anthony F. Dobbels
Investigator: Dr. Mark M. Loux

Discipline: H herbicide
Trial Status: E established
Initiation Date: 4-5-2010

Trial Location

City: Lafayette
State/Prov.: IN
Postal Code: 47909
Country: USA

Personnel

Study Director: Anthony F. Dobbels
Investigator: Dr. Mark M. Loux

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: US

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DEKALB DKC-61-19 **Description:** Roundup Ready
BBCH Scale: BCOR **Planting Date:** 4-19-2010
Rate, Unit: 32000 S/A
Depth, Unit: 1.5 IN
Row Spacing, Unit: 30 IN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 60 F
Soil Moisture: DRY dry **Emergence Date:** 5-2-2010

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

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:** RACOB� Randomized Complete Block (RCB)
Untreated Arrangement: INCLUDED single control randomized in each block

Soil Description

Description Name: TPAC Field 4A
% OM: 3.1 **Texture:** SIL silt loam
pH: 6 **Soil Name:** Toronto-Millbrook
CEC: 11.1

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Application Description		
	A	B
Application Date:	4-20-2010	5-26-2010
Time of Day:		9:45-10
Application Method:	SPRAY	SPRAY
Application Timing:	ATPLAN-A	EAPOWE
Application Placement:	FOLIAR	FOLIAR
Applied By:	AR	MH
Air Temperature, Unit:	55 F	84 F
% Relative Humidity:	57	51
Wind Velocity, Unit:	2 MPH	1.3 MPH
Wind Direction:	SE	NW
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	60 F	78 F
Soil Moisture:	DRY	DRY
% Cloud Cover:	80	20

Crop Stage At Each Application		
	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		BBCH
Stage Majority, Percent:		V5

Pest Stage At Each Application		
	A	B
Pest 1 Code, Type, Scale:	AMBTR W	AMBTR W
Height, Unit:		13 IN
Height Minimum, Maximum:		1 26
Density, Unit:		50 YD2
Pest 2 Code, Type, Scale:	SETFA W	SETFA W
Height, Unit:		4 IN
Height Minimum, Maximum:		1 7
Density, Unit:		100 YD2

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Application Equipment		
	A	B
Appl. Equipment:	CO2 BKPK	CO2 BKPK
Equipment Type:	SPRBAC	SPRBAC
Operating Pressure, Unit:	17 PSI	17 PSI
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	XR 110 02	XR 110 02
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:	MEIGS	MEIGS
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 SETFA	W Weed AMBTR	W Weed IPOHE	W Weed ABUTH	W Weed CHEAL	W Weed SETFA	W Weed AMBTR			
Pest Code	Setaria faberi	Ambrosia trifi>	Ipomoea heder>	Abutilon theop>	Chenopodium al>	Setaria faberi	Ambrosia trifi>			
Pest Scientific Name	Giant foxtail	Giant ragweed	Ivyleaf mornin>	Velvetleaf	Common lambsqu>	Giant foxtail	Giant ragweed			
Pest Name										
Crop Code										
BBCH Scale										
Crop Scientific Name										
Crop Name	CORN									
Crop Variety										
Description										
Rating Date	5-18-2010	5-18-2010	5-18-2010	5-18-2010	5-18-2010	6-18-2010	6-18-2010			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1	1	1			
Crop Stage Majority	V3-4.5"					V10				
Pest Stage Majority	0.5-2.5"	0.5-6"	0.5"	0.5"	0.25"	24"	6"			
Pest Density, Unit	140 YD2	120 YD2	1 YD2	1 YD2	20 YD2		20 YD2			
Assessed By	MW	MW	MW	MW	MW	MW	MW			
Trt Treatment	Rate	Appl								
No. Name	Rate	Unit	Code	1	2	3	4	5	6	7
1 UNTREATED CHECK				0.0 d	0.0 c	0.0 b	0.0 b	0.0 c	0.0 c	0.0 e
2 Lumax	2.96 lb ai/a	A		99.0 a	71.3 a	96.8 a	99.0 a	99.0 a	96.0 a	85.0 a
3 Lexar	3.24 lb ai/a	A		99.0 a	67.5 a	99.0 a	99.0 a	99.0 a	94.8 a	67.5 abc
4 Corvus Atrazine	0.115 lb ai/a 1 lb ai/a	A A		92.3 bc	72.5 a	99.0 a	99.0 a	99.0 a	93.0 a	75.0 ab
5 Balance Flexx Atrazine	0.094 lb ai/a 1.5 lb ai/a	A A		88.8 c	73.8 a	96.8 a	99.0 a	99.0 a	81.3 b	77.5 ab
6 Integrity	0.87 lb ai/a	A		99.0 a	83.8 a	99.0 a	99.0 a	99.0 a	96.0 a	71.3 ab
7 Lumax Atrazine	2.96 lb ai/a 1 lb ai/a	A A		99.0 a	66.3 a	99.0 a	99.0 a	99.0 a	95.5 a	81.3 ab
8 Harness Extra 5.6 Sharpen	4.2 lb ai/a 0.067 lb ai/a	A A		99.0 a	88.8 a	99.0 a	99.0 a	99.0 a	93.8 a	77.5 ab
9 Integrity Atrazine	0.875 lb ai/a 1.5 lb ai/a	A A		99.0 a	71.3 a	99.0 a	99.0 a	99.0 a	95.5 a	47.5 cd
10 Harness Extra 5.6 Balance Flexx	4.2 lb ai/a 0.0625 lb ai/a	A A		99.0 a	71.3 a	99.0 a	99.0 a	99.0 a	94.8 a	56.3 bcd
11 Keystone Hornet	3.58 lb ai/a 0.128 lb ai/a	A A		99.0 a	66.3 a	89.3 a	99.0 a	99.0 a	96.0 a	40.0 d
12 Surestart Keystone Atrazine	1.33 lb ai/a 1.72 lb ai/a 1 lb ai/a	A A A		99.0 a	76.3 a	99.0 a	99.0 a	99.0 a	93.8 a	48.8 cd

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	SETFA	AMBTR	IPOHE	ABUTH	CHEAL	SETFA	AMBTR				
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Ipomoea hederata>	Abutilon theop>	Chenopodium al>	Setaria faberi	Ambrosia trifi>				
Pest Name	Giant foxtail	Giant ragweed	lyleaf mornin>	Velvetleaf	Common lambsqu>	Giant foxtail	Giant ragweed				
Crop Code											
BBCH Scale											
Crop Scientific Name											
Crop Name	CORN										
Crop Variety											
Description											
Rating Date	5-18-2010	5-18-2010	5-18-2010	5-18-2010	5-18-2010	6-18-2010	6-18-2010				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority	V3-4.5"					V10					
Pest Stage Majority	0.5-2.5"	0.5-6"	0.5"	0.5"	0.25"	24"	6"				
Pest Density, Unit	140 YD2	120 YD2	1 YD2	1 YD2	20 YD2		20 YD2				
Assessed By	MW	MW	MW	MW	MW	MW	MW				
Trt No.	Treatment Name	Rate	Appl Unit	Code	1	2	3	4	5	6	7
13	Bicep II Magnum Touchdown N-PAK AMS	1.79 lb ai/a 0.493 lb ae/a 5 % v/v	A B B		95.8 ab	25.0 b	82.0 a	99.0 a	99.0 a	94.3 a	82.5 a
14	Lexar Touchdown N-PAK AMS	2.08 lb ai/a 0.493 lb ae/a 5 % v/v	A B B		0.0 d	0.0 c	0.0 b	0.0 b	24.8 b	92.3 a	87.5 a
LSD (P=.05)					3.85	14.39	11.80	0.00	19.15	3.97	16.56
Standard Deviation					2.69	10.07	8.26	0.00	13.40	2.78	11.59
CV					3.23	16.91	10.0	0.0	15.47	3.19	18.08
Bartlett's X2					0.49	9.839	10.681	0.0	0.0	20.22	10.163
P(Bartlett's X2)					0.783	0.545	0.014*	.	.	0.063	0.602
Replicate F					0.075	10.882	1.013	0.000	0.974	0.299	8.780
Replicate Prob(F)					0.9732	0.0001	0.3973	1.0000	0.4149	0.8258	0.0001
Treatment F					694.666	33.168	73.248	0.000	22.560	332.297	17.001
Treatment Prob(F)					0.0001	0.0001	0.0001	1.0000	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.

Column 1: Weed or volunteer crop; US; control / burndown or knockdown; percent; V3-4.5"; 0.5-2.5"; per square yard; MW
Column 2: Weed or volunteer crop; US; control / burndown or knockdown; percent; 0.5-6"; per square yard; MW
Column 3: Weed or volunteer crop; US; control / burndown or knockdown; percent; 0.5"; per square yard; MW
Column 4: Weed or volunteer crop; US; control / burndown or knockdown; percent; 0.5"; per square yard; MW
Column 5: Weed or volunteer crop; US; control / burndown or knockdown; percent; 0.25"; per square yard; MW
Column 6: Weed or volunteer crop; US; control / burndown or knockdown; percent; V10; 24"; MW
Column 7: Weed or volunteer crop; US; control / burndown or knockdown; percent; 6"; per square yard; MW
Column 8: Weed or volunteer crop; US; control / burndown or knockdown; percent; 10"; per square yard
Column 9: Weed or volunteer crop; US; control / burndown or knockdown; percent; 36"; per square yard
Column 10: US; yield; bushel 56 lb
Column 11: US; moisture content; percent

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Pest Type	W Weed	W Weed						
Pest Code	AMBTR	SETFA						
Pest Scientific Name	Ambrosia trifi>	Setaria faberi						
Pest Name	Giant ragweed	Giant foxtail						
Crop Code			ZEAMD	ZEAMD				
BBCH Scale			BCOR	BCOR				
Crop Scientific Name			Zea mays inden>	Zea mays inden>				
Crop Name			Dent corn	Dent corn				
Crop Variety								
Description								
Rating Date	9-7-2010	9-7-2010	9-27-2010	9-27-2010				
Rating Type	CONTRO	CONTRO	YIELD	MOICON				
Rating Unit	%	%	BU56LB	%				
Number of Subsamples	1	1	1	1				
Crop Stage Majority								
Pest Stage Majority	10'	36"						
Pest Density, Unit	20 YD2	75 YD2						
Assessed By								
Trt No.	Treatment Name	Rate	Appl Unit	Code	8	9	10	11
1	UNTREATED CHECK				0.0 c	0.0 b	20.00 c	19.70 a
2	Lumax	2.96 lb ai/a	A		85.0 ab	96.5 a	167.05 a	12.63 b
3	Lexar	3.24 lb ai/a	A		66.3 ab	95.5 a	95.75 b	13.43 b
4	Corvus Atrazine	0.115 lb ai/a 1 lb ai/a	A A		81.3 ab	91.3 a	116.70 b	12.70 b
5	Balance Flexx Atrazine	0.094 lb ai/a 1.5 lb ai/a	A A		77.5 ab	86.3 a	178.98 a	12.53 b
6	Integrity	0.87 lb ai/a	A		70.0 ab	96.0 a	178.98 a	12.35 b
7	Lumax Atrazine	2.96 lb ai/a 1 lb ai/a	A A		89.3 a	97.0 a	189.65 a	12.88 b
8	Harness Extra 5.6 Sharpen	4.2 lb ai/a 0.067 lb ai/a	A A		73.8 ab	95.5 a	191.48 a	15.35 b
9	Integrity Atrazine	0.875 lb ai/a 1.5 lb ai/a	A A		52.5 ab	95.5 a	101.10 b	14.30 b
10	Harness Extra 5.6 Balance Flexx	4.2 lb ai/a 0.0625 lb ai/a	A A		52.5 ab	72.3 a	89.30 b	15.00 b
11	Keystone Hornet	3.58 lb ai/a 0.128 lb ai/a	A A		47.5 b	96.5 a	82.53 b	15.03 b
12	Surestart Keystone Atrazine	1.33 lb ai/a 1.72 lb ai/a 1 lb ai/a	A A A		45.0 b	97.0 a	94.03 b	13.93 b

