

Comparison of Atrazine Alternatives in Conventional Corn.

00-21S-MME60

OBJECTIVE: Evaluate the performance on non-atrazine herbicide programs in conventional-till corn.

SUMMARY: Little to no corn injury was observed for any treatment. All treatments except the premix of Accent Gold provided good control of giant foxtail and yellow nutsedge. Common cocklebur control was at least 82% for all treatments except preemergence or postemergence applications of Basis or postemergence applications of Aatrex or Buctril. All treatments except, Dual II Magnum followed by either Aatrex, Buctril, or Basis, controlled 87 to 99% of of velvetleaf at 28 days after treatment. Only treatments including Aatrex controlled greater than 90% of ivyleaf morningglory. Corn yield was 153 bu/A in the handweeded plots. A significant reduction in corn yield compared to the handweeded plots was observed with Dual II Magnum alone (92 bu/A) and Dual II Magnum followed by Basis (106 bu/A).

HERBICIDES

AATREX 90 WG
ACCENT GOLD 83.8 WG
BALANCE 75 WG
BASIS 75 WG
BUCTRIL 2 EC
DISTINCT 70 WG
DUAL II MAGNUM 7.64 EC
HORNET 68.5 WG
NORTHSTAR 47.4 WG
PYTHON 80 WG
ZA1296 4 EC

WEEDS

COCKLEBUR, COMMON
FOXTAIL, GIANT
MORNINGGLORY, IVYLEAF
NUTSEDGE, YELLOW
VELVETLEAF

CROP

CORN, FIELD

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

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Project Code: 00-21S-MME60 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code	Common Name	Scientific Name
1. SETFA	FOXTAIL, GIANT	SETARIA FABERI HERRM.
2. CYPES	NUTSEDGE, YELLOW	CYPERUS ESCULENTUS L.
3. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L.
4. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
5. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDICUS

Crop 1:	ZEAMX CORN, FIELD	Variety:	P33G26
Planting Method:	SEEDED	Planting Date:	May-4-00
Rate:	28000 S/A	Depth:	1.5 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	30 FT	Reps:	3
Tillage Type:	REDUCED-TILL	Study Design:	RCB		
Previous Crop, Year:	GLXMA, 1999	Fertilizer applied:	N 150 LB/A,	P ₂ O ₅	50 LB/A, K ₂ O 150 LB/A

Soil Name:	EBBERT	% OM:	2.6	pH:	5.7	CEC:	14
Texture:	SILT LOAM	P ₁ :	72 LB/A,	K:	351 LB/A		

APPLICATION DESCRIPTION

	A	B
Application Date:	May-5-00	May-25-00
Time of Day:	14:00	19:30
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	10"CN
Applic. Placement:	BROFOL	BROFOL
Air Temp., Unit:	78 F	75 F
% Relative Humidity:	90	18
Wind Velocity, Unit:	5-10 MPH	0-2 MPH
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:		0

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	NA	ZEAMX V4
Height, Unit:	NA	10 IN

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:		SETFA
Stage(leaves):		2-5
Height(inches):		2-7
Density:		MEDIUM
Weed 2 Code:		CYPES
Stage(leaves):		3-4
Height(inches):		3-4
Density:		MEDIUM
Weed 3 Code:		XANST
Stage(leaves):		2-4
Height(inches):		2-5
Density:		HIGH
Weed 4 Code:		IPOHE
Stage(leaves):		COTL-3
Height(inches):		2-4
Density:		HIGH

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	CO, SPRAY	CO, SPRAY
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	8003	8002
Boom Length, Unit:	7.33 FT	7.33 FT
Spray Volume, Unit:	20 GPA	20 GPA

NOTES:

Harvested Sep-27-00, (2) 30 inch rows by 22 ft.

TABLE. COMPARISON OF ATRAZINE ALTERNATIVES IN CONVENTIONAL CORN. PROJECT CODE:00-21S-MME60

TREATMENT	FORM.	RATE	UNIT	PROD	RATE	APPL TIME	APPL CODE	YIELD	ZEAMX INJURY				CONTROL														
									INJURY				SETFA			CYPES			XANST			ABUTH			IPOHE		
									14 DAP	14 DA 10°CN	28 DAT	56 DA PRE	14 DA 10°CN	28 DAT	56 DA PRE	14 DA 10°CN	28 DAT	56 DA PRE	14 DA 10°CN	28 DAT	56 DA PRE	14 DA 10°CN	28 DAT	56 DA PRE	14 DA 10°CN	28 DAT	56 DA PRE
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%								
1 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	92	0	0	0	95	99	95	99	0	0	0	0	0	0						
2 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	153	4	0	0	98	99	98	99	83	35	95	92	92	92						
2 AATREX	90 WG	2.0	LB A/A	2.22	LB/A	PRE	A																				
3 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	155	1	0	0	97	98	89	98	82	50	98	99	53	63						
3 BALANCE	75 WG	0.094	LB A/A	2.0	OZ/A	PRE	A																				
4 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	140	0	0	0	96	99	94	99	85	50	98	99	48	50						
4 ZA1296	4 EC	0.18	LB A/A	5.76	OZ/A	PRE	A																				
5 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	140	0	0	0	98	99	96	99	83	58	95	96	53	40						
5 PYTHON	80 WG	0.057	LB A/A	1.14	OZ/A	PRE	A																				
6 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	148	0	0	0	97	96	93	98	92	80	96	99	55	33						
6 HORNET	68.5 WG	0.2676	LB A/A	6.25	OZ/A	PRE	A																				
7 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	106	1	0	0	99	99	95	98	67	30	87	30	43	27						
7 BASIS	75 WG	0.0469	LB A/A	1.0	OZ/A	PRE	A																				
8 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	145	0	0	0	99	99	98	99	37	30	35	83	75	93						
8 AATREX	90 WG	1.0	LB A/A	1.11	LB/A	10°CN	B																				
8 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	10°CN	B																				
8 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10°CN	B																				
9 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	185	0	0	0	96	95	97	99	93	98	98	99	88	85						
9 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	10°CN	B																				
9 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	10°CN	B																				
9 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10°CN	B																				
10 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	174	0	0	0	97	93	98	96	88	90	92	87	77	82						
10 NORTHSTAR	47.4 WG	0.148	LB A/A	5.0	OZ/A	10°CN	B																				
10 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	10°CN	B																				
10 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10°CN	B																				
11 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	158	0	0	0	98	96	96	94	95	92	82	87	82	85						
11 DISTINCT	70 WG	0.2625	LB A/A	6.0	OZ/A	10°CN	B																				
11 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	10°CN	B																				
11 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10°CN	B																				

(CONTINUED)

TABLE. COMPARISON OF ATRAZINE ALTERNATIVES IN CONVENTIONAL CORN. PROJECT CODE:00-21S-MME60 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	ZEAMX INJURY												CONTROL											
								ZEAMX INJURY				SETFA				CYPES				XANST			ABUTH			IPOHE					
								14 DAP	14 DA 10"CN	28 DAT	56 DA PRE	14 DA 10"CN	28 DAT	56 DA PRE	14 DA 10"CN	28 DAT	56 DA PRE	14 DA 10"CN	28 DAT	56 DA PRE	14 DA 10"CN	28 DAT	56 DA PRE	14 DA 10"CN	28 DAT	56 DA PRE					
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%												
12 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE A	163	0	0	0		97	95		96	92		93	99		96	98		83	88						
12 HORNET	68.5 WG	0.2676	LB A/A	6.25	OZ/A	10"CN B																									
12 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	10"CN B																									
12 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10"CN B																									
13 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE A	165	0	3	0		96	93		97	98		88	73		78	73		85	82						
13 BUCTRIL	2 EC	0.5	LB A/A	2.0	PT/A	10"CN B																									
13 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	10"CN B																									
13 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10"CN B																									
14 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE A	144	0	0	0		98	99		98	99		80	77		88	83		75	62						
14 BASIS	75 WG	0.01547	LB A/A	0.33	OZ/A	10"CN B																									
14 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	10"CN B																									
14 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10"CN B																									
15 ACCENT GOLD	83.8 WG			3.5	OZ/A	10"CN B	160		0	0		88	82		97	77		87	96		91	95		77	62						
15 ->79406	75 WG	0.0234	LB A/A			10"CN B																									
15 ->HORNET	68.5 WG	0.128	LB A/A			10"CN B																									
15 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	10"CN B																									
15 28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	10"CN B																									
16 NONTREATED							67	0	0	0		0	0		0	0		0	0		0	0		0	0						
17 HANDWEED							153	0	0	0		99	99		99	99		99	99		99	99		99	99						
LSD							28	1	2	0	0	2	6	3	2	9	2	9	17	28	10	13	18	21	15	28					
P							0.01	0.01	0.01	1.0	1.0	0.01	0.01	0.5	0.01	0.01	0.7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01					

1. PROTOCOL: SIU-BGY AND U OF I - CLS.
2. DAP = DAYS AFTER PLANTING, DAT = DAYS AFTER TREATMENT.
3. RATING DATES:
 14 DAYS AFTER PLANTING ON MAY-19-00 WAS ALSO 14 DAYS AFTER PRE AND PRIOR TO 10"CN APPLICATION.
 28 DAYS AFTER PRE AND 10"CN APPLICATION WAS ON 6-2-00 AND 6-22-00, RESPECTIVELY.
 56 DAYS AFTER PRE WAS ON JUN-30-00.