

Influence of Application Timing and Atrazine on the Postemergence Broadleaf Activity of ZA1296.

00-21S-E70

OBJECTIVE: Determine the influence of application timing and application rate on the postemergence activity of ZA1296 as well as evaluation of the benefit of the addition of Aatrex to ZA1296.

SUMMARY: Corn injury was 0 to 15% from ZA 1296 at 7 days after treatment. ZA 1296 controlled 85 to 99% of common cocklebur present at time of application. Common cocklebur control increased as the rate of ZA 1296 increased at the 1 to 3" weed timing. ZA 1296 did not effectively control common cocklebur that emerged after herbicide application. Yellow nutsedge control was highly variable ranging from 35 to 84% at 28 days after treatment. ZA 1296 controlled 73 to 88% of ivyleaf morningglory with greater control usually observed at later application timings. Increasing the ZA 1296 rate did not usually increase ivyleaf morningglory control. Prickly sida control varied from 77 to 93% at 28 days after treatment. Prickly sida control was greater at the earlier application timings and increased as the ZA 1296 rate increased at the 1 to 3" weed timing. The addition of Aatrex to ZA 1296 increased control of yellow nutsedge and ivyleaf morningglory at the 1-3" weed timing. Corn yield in all ZA 1296 treated plots was similar to the handweeded plots.

HERBICIDES

AATREX 90 WG
ZA1296 4 EC

WEEDS

COCKLEBUR, COMMON
MORNINGGLORY, IVYLEAF
NUTSEDGE, YELLOW
SIDA, PRICKLY

CROP

CORN, FIELD

Bryan Young and Brad Johnson

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Influence of Application Timing and Atrazine on the Postemergence Broadleaf Activity of ZA1296.

Project Code: 00-21S-E70 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code	Common Name	Scientific Name
1. CYPES	NUTSEDGE, YELLOW	CYPERUS ESCULENTUS L.
2. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
3. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L. SSP. STRUMARIUM
4. SIDSP	SIDA, PRICKLY	SIDA SPINOSA L.

Crop 1:	ZEAMX CORN, FIELD	Variety:	DK 683 SR
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	C
Application Date:	May-22-00	May-30-00	Jun-1-00
Time of Day:	13:30	9:30	18:45
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	1-3"W	3-6"W	6-9"W
Applic. Placement:	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	80 F	74 F	88 F
% Relative Humidity:	26	82	52
Wind Velocity, Unit:	2-4 MPH	4-6 MPH	4-6 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	ZEAMX V3	ZEAMX V4	ZEAMX V5
Height, Unit:	5-6 IN	8-10 IN	12-14 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	CYPES	CYPES	CYPES
Stage(leaves):	3-4	4-6	4-6
Height(inches):	1-3	3-5	4-7
Density:	MEDIUM	MEDIUM	MEDIUM
Weed 2 Code:	IPOHE	IPOHE	IPOHE
Stage(leaves):	COTL-3	1-4	2-6
Height(inches):	1-2	2-4	3-7
Density:	HIGH	HIGH	HIGH
Weed 3 Code:	XANST	XANST	XANST
Stage(leaves):	COTL-3	2-6	4-6
Height(inches):	1-3	3-7	4-10
Density:	HIGH	HIGH	HIGH
Weed 4 Code:	SIDSP	SIDSP	SIDSP
Stage(leaves):	COTL-1	1-3	2-4
Height(inches):	1-2	2-4	2-5
Density:	LOW	LOW	LOW

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	CO ₂ SPRAY	CO ₂ SPRAY	CO ₂ SPRAY
Operating Pressure:	40 PSI	40 PSI	40 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	8002	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA

NOTES:

Harvested Sep-26-00, (2) 30 inch rows by 22 ft.

TABLE. INFLUENCE OF APPLICATION TIMING AND ATRAZINE ON THE POSTEMERGENCE BROADLEAF ACTIVITY OF ZA1296. PROJECT CODE:00-21S-E70

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	ZEAMX			CONTROL, DAYS AFTER TREATMENT														
								INJURY, DAT			CYPES			XANST-NE		XANST-PA		XANST	IPOHE			SIDSP			
								7	14	28	14	28	56	14	28	14	28	56	14	28	56	14	28	56	
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%							
1 ZA1296	4 EC	0.0624	LB A/A	2.0	OZ/A	1-3"W	A	131	3	0	0	40	38	35	84	78	93	91	70	77	73	68	88	84	78
1 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
1 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		
2 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	1-3"W	A	130	7	6	0	45	40	40	86	82	98	98	80	78	75	70	90	85	84
2 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
2 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		
3 ZA1296	4 EC	0.125	LB A/A	4.0	OZ/A	1-3"W	A	127	11	9	0	55	43	43	90	87	99	99	85	80	75	75	93	88	87
3 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
3 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		
4 ZA1296	4 EC	0.0624	LB A/A	2.0	OZ/A	3-6"W	B	134	0	0	0	50	35	35	83	82	91	91	81	85	85	83	87	83	83
4 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	3-6"W	B																		
4 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	3-6"W	B																		
5 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	3-6"W	B	119	2	2	1	53	43	43	87	86	96	95	86	87	85	85	88	86	85
5 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	3-6"W	B																		
5 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	3-6"W	B																		
6 ZA1296	4 EC	0.125	LB A/A	4.0	OZ/A	3-6"W	B	114	4	4	1	62	60	57	89	88	95	95	83	89	87	86	89	88	87
6 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	3-6"W	B																		
6 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	3-6"W	B																		
7 ZA1296	4 EC	0.0624	LB A/A	2.0	OZ/A	6-9"W	C	129	0	0	0	47	48	48	80	80	88	88	80	82	82	80	78	77	75
7 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	6-9"W	C																		
7 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	6-9"W	C																		
8 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	6-9"W	C	107	10	10	4	53	57	55	67	68	85	85	65	80	80	80	82	77	77
8 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	6-9"W	C																		
8 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	6-9"W	C																		
9 ZA1296	4 EC	0.125	LB A/A	4.0	OZ/A	6-9"W	C	144	15	15	8	58	68	72	78	85	87	87	86	80	83	83	80	77	77
9 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	6-9"W	C																		
9 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	6-9"W	C																		
10 ZA1296	4 EC	0.0624	LB A/A	2.0	OZ/A	1-3"W	A	142	5	5	0	85	75	77	87	86	98	98	83	82	77	75	93	87	86
10 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	1-3"W	A																		
10 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
10 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		
11 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	1-3"W	A	141	7	7	2	85	77	78	91	87	98	98	83	88	80	80	95	88	88
11 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	1-3"W	A																		
11 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
11 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		
12 ZA1296	4 EC	0.125	LB A/A	4.0	OZ/A	1-3"W	A	129	12	11	0	90	80	78	93	90	99	99	88	90	82	82	95	92	90
12 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	1-3"W	A																		
12 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
12 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		

(CONTINUED)

TABLE. INFLUENCE OF APPLICATION TIMING AND ATRAZINE ON THE POSTEMERGENCE BROADLEAF ACTIVITY OF ZA1296. PROJECT CODE:00-21S-E70 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	ZEAMX			CONTROL, DAYS AFTER TREATMENT														
								INJURY, DAT			CYPES			XANST-NE		XANST-PA		XANST	IPOHE			SIDSP			
								7	14	28	14	28	56	14	28	14	28	56	14	28	56	14	28	56	
13 ZA1296	4 EC	0.0624	LB A/A	2.0	OZ/A	3-6"W	B	120	0	0	0	75	50	45	87	83	95	95	78	89	83	80	89	85	82
13 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	3-6"W	B																		
13 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	3-6"W	B																		
13 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	3-6"W	B																		
14 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	3-6"W	B	123	4	3	0	87	81	81	87	83	96	95	80	90	88	88	91	90	90
14 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	3-6"W	B																		
14 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	3-6"W	B																		
14 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	3-6"W	B																		
15 ZA1296	4 EC	0.125	LB A/A	4.0	OZ/A	3-6"W	B	136	5	5	4	84	84	84	91	88	99	99	85	91	88	88	93	93	93
15 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	3-6"W	B																		
15 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	3-6"W	B																		
15 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	3-6"W	B																		
16 ZA1296	4 EC	0.0624	LB A/A	2.0	OZ/A	6-9"W	C	117	0	0	0	67	60	57	77	78	88	85	73	86	84	83	83	82	82
16 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	6-9"W	C																		
16 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	6-9"W	C																		
16 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	6-9"W	C																		
17 ZA1296	4 EC	0.094	LB A/A	3.0	OZ/A	6-9"W	C	118	2	2	0	78	75	72	83	82	90	90	82	88	87	86	86	86	86
17 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	6-9"W	C																		
17 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	6-9"W	C																		
17 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	6-9"W	C																		
18 ZA1296	4 EC	0.125	LB A/A	4.0	OZ/A	6-9"W	C	133	8	7	5	78	82	82	91	91	96	96	90	88	88	88	88	86	84
18 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	6-9"W	C																		
18 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	6-9"W	C																		
18 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	6-9"W	C																		
19 AATREX	90 WG	0.25	LB A/A	4.44	OZ/A	1-3"W	A	89	0	0	0	3	10	5	13	23	17	23	7	15	17	8	0	10	10
19 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	% V/V	1-3"W	A																		
19 28% UAN	100 LIQ	2.5	% V/V	2.5	% V/V	1-3"W	A																		
20 NONTREATED								66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 HANDWEED								139	0	0	0	99	99	99	99	99	99	99	99	99	99	99	99	99	99
LSD								31	3	3	2	8	11	13	11	11	5	8	14	5	4	4	5	6	7
P								0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

1. PROTOCOL: SIU/BJ.
2. BLANKET APPLICATION: POAST PLUS AND COC, 0.2 LBA/A AND 1.0 %V/V AT 1-2 INCH GRASS HEIGHT TO ALL PLOTS ON 5-19-00.
3. XANST-PA = COCKLEBUR PRESENT AT APPLICATION. XANST-NE = NEWLY EMERGED COCKLEBUR, AFTER APPLICATION. DAT = DAYS AFTER TREATMENT
4. RATING DATES:
 7 DAYS AFTER 1-3"W, 3-6"W, AND 6-9"W APPLICATIONS ON MAY-29-00, JUN-6-00, AND JUN-8-00, RESPECTIVELY.
 14 DAYS AFTER 1-3"W, 3-6"W, AND 6-9"W APPLICATIONS ON JUN-5-00, JUN-13-00, AND JUN-15-00, RESPECTIVELY.
 28 DAYS AFTER 1-3"W, 3-6"W, AND 6-9"W APPLICATIONS ON JUN-19-00, JUN-27-00, AND JUN-29-00, RESPECTIVELY.
 56 DAYS AFTER 1-3"W, 3-6"W, AND 6-9"W APPLICATIONS ON JUL-18-00, JUL-25-00, AND JUL-27-00, RESPECTIVELY.