Early Preplant Weed Control in No-Till Corn.

00-2A-ME80

OBJECTIVE: Evaluate various early preplant herbicide treatments for weed control in no-till corn.

SUMMARY: No corn injury was observed for any treatment. Sequential treatments of an early preplant (EPP) application followed by a preemergence (PRE) or postemergence (POST) application provided greater overall weed control than EPP only treatments. Fall panicum and common waterhemp control was unacceptable from EPP treatments. However, all treatments provided good control of marestail and common lambsquarters.

Corn yield ranged from 28 bu/A in nontreated plots to 188 bu/A. The highest corn yields were observed in plots that received an EPP treatment followed by a PRE or POST treatment.

HERBICIDES

AATREX 90 WG
AXIOM 68 WG
AXIOM AT 75 WG
BASIS 75 WG
BICEP II MAGNUM 5.5 L
EPIC 58 WG
FULTIME 4 SC
GLYPHOMAX PLUS 3 SL
HORNET 68.5 WG
LEADOFF 5 L
PRINCEP 90 WG
PYTHON 80 WG
ROUNDUP ULTRA 3 SL
SENCOR 75 WG
SIU2000-H1 71.5 WG
SIU2000-H2
WEEDONE 638 2.8 EC

WEEDS

COCKLEBUR, COMMON
FOXTAIL, GIANT
HORSEWEED
LAMBSQUARTERS, COMMON
PANICUM, FALL
RAGWEED, COMMON
SMARTWEED, PENNSYLVANIA
WATERHEMP, COMMON

CROP

CORN, FIELD

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Early Preplant Weed Control in No-Till Corn.

Project Code: 00-2A-ME80 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code	Common Name	Scientific Name
1. CAPBP	SHEPHERDSPURSE	CAPSELLA BURSA-PASTORIS (L.) MEDIK.
2. CERVU	CHICKWEED, MOUSEEAR	CERASTIUM VULGATUM L.
3. LAMAM	HENBIT	LAMIUM AMPLEXICAULE L.
4. ALOCA	FOXTAIL, CAROLINA	ALOPECURUS CAROLINIANUS
5. SETFA	FOXTAIL, GIANT	SETARIA FABERI HERRM.
6. ERICA	HORSEWEED	CONYZA CANADENSIS (L.) CRONG.
7. AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
8. CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
9. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
10. PANDI	PANICUM, FALL	PANICUM DICHOTOMIFLORUM MICHX.
11. POLPY	SMARTWEED, PENNSYLVANIA	POLYGONUM PENSYLVANICUM L.
12. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L.

Crop 1:	ZEAMX CORN, FIELD	Variety:	P33G28 LL
Planting Method:	SEEDED	Planting Date:	May-12-00
Rate:	28000 S/A	Depth:	1.5 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	28 FT	Reps: 3
Tillage Type:	NO-TILL	Study Design:	RCB	
Previous Crop, Year:	GLXMA, 1999	Fertilizer applied:	N 150 LB/A,	P_2O_5 0 LB/A, K_2O 0 LB/A

Soil Name:	WEIR	% OM: 2.3	pH: 6.5	CEC: 10
Texture:	SILT LOAM	P_1: 78 LB/A,	K: 402 LB/A	

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	Apr-18-00	Apr-28-00	May-12-00	May-25-00	May-26-00
Time of Day:	13:00	9:00	13:00	14:00	7:00
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	EPP21	EPP_10	PRE	5"CN	2LCN
Applic. Placement:	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	60 F	58 F	82 F	75 F	62 F
% Relative Humidity:	72	85	90	20	96
Wind Velocity, Unit:	3 MPH	0 MPH	5-10 MPH	1-3 MPH	1-2 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover:	_	0	30	0	100

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	NA	NA	ZEAMX PRE	ZEAMX V2	ZEAMX V2
Height, Unit:	NA	NA	NA	4 IN	5 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	CAPBP	CAPBP			
Stage(leaves):	10+	10+			
Height(inches):	6-18	6-24			
Density:	HIGH	HIGH			
Weed 2 Code:	CERVU	CERVU			
Stage(leaves):	10+	10+			
Height(inches):	4-6	4-8			
Density:	MED	MED			
Weed 3 Code:	LAMAM	LAMAM			
Stage(leaves):	10+	10+			
Height(inches):	4-6	4-8			
Density:	MED	MED			
Weed 4 Code:	ALOCA	ALOCA			
Stage(leaves):	5-6	5-6			
Height(inches):	3-5	5-6			
Density:	MED	MED			
Weed 5 Code:				SETFA	SETFA
Stage(leaves):				2-5	2-5
Height(inches):				2-4	2-7
Density:				LOW	MED
Weed 6 Code:		ERICA			
Stage(leaves):		10+			
Height(inches):		5-6			
Density:		LOW			

(continued)

Early Preplant Weed Control in No-Till Corn.

Project Code: 00-2A-ME80 Location: Belleville Research Center

(continued)

Weed 7 Code:		AMBEL		AMBEL	AMBEL
Stage(leaves):		3-4		COTL-2	COTL-2
Height(inches):		3-4		1-3	1-3
Density:		LOW		LOW	LOW
Weed 8 Code:		CHEAL			
Stage(leaves):		5-6			
Height(inches):		3-4			
Density:		LOW			
Weed 9 Code:				AMATA	AMATA
Stage(leaves):				2-5	2-5
Height(inches):				1-3	1-3
Density:				HIGH	HIGH

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	CO_2 SPRAY	CO_2 SPRAY	CO_2 SPRAY	CO_2 SPRAY	CO_2 SPRAY
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	8003	8003	8003	8002	8002
Boom Length, Unit:	7.33 FT	7.33 FT	7.33 FT	7.33 FT	7.33 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA

NOTES:

Harvested Oct-09-00, (2) 30 inch rows by 25 ft.

TABLE. EARLY PREPLANT WEED CONTROL IN NO-TILL CORN. PROJECT CODE:00-2A-ME80

									ZEAMX			CONTROL, DAYS AFTER PLANTING																			
						APPL	APPL		INJURY, DAP			SETFA			PANDI		ERICA			AMBEL			CHEAL			AMATA			POLPY		XANST	
	TREATMENT	FORM.	RATE	UNIT	PROD RATE	TIME	CODE	YIELD	14	28	56	14	28	56	28	56	14	28	56	14	28	56	14	28	56	14	28	56	28	56	28	56
								BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	EPIC	58	WG	0.435	LB A/A	12.0	OZ/A	EPP21	A	104	0	0	0	96	86	80	50	33	99	99	99	92	68	43	98	93	89	78	37	13	71	46	79	99
1	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP21	A																								
1	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP21	A																								
2	EPIC	58	WG	0.435	LB A/A	12.0	OZ/A	EPP21	A	158	0	0	0	98	96	90	82	43	99	99	99	98	96	91	99	99	99	98	80	10	99	99	98	85
2	AATREX	90	WG	1.25	LB A/A	1.4	LB/A	EPP21	A																								
2	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP21	A																								
2	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP21	A																								
3	SIU2000-H1	71.5	WG	0.715	LB A/A	16.0	OZ/A	EPP21	A	75	0	0	0	96	80	57	78	47	99	99	99	82	63	42	99	99	99	70	55	20	68	60	66	79
3	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP21	A																								
3	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP21	A																								
4	SIU2000-H2							EPP21	A	112	0	0	0	95	65	57	88	43	99	99	99	92	90	73	99	99	99	95	77	38	99	99	96	85
4	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP21	A																								
4	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP21	A																								
5	EPIC	58	WG	0.435	LB A/A	12.0	OZ/A	EPP10	B	129	0	0	0	98	99	80	88	57	99	99	99	97	87	75	99	99	99	92	70	10	91	76	98	93
5	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP10	B																								
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																								
6	EPIC	58	WG	0.435	LB A/A	12.0	OZ/A	EPP10	B	153	0	0	0	99	98	84	94	65	99	99	99	98	93	83	99	99	99	99	90	72	99	93	99	99
6	AATREX	90	WG	1.25	LB A/A	1.4	LB/A	EPP10	B																								
6	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP10	B																								
6	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																								
7	SIU2000-H1	71.5	WG	0.715	LB A/A	16.0	OZ/A	EPP10	B	135	0	0	0	99	99	87	92	70	99	99	99	90	77	40	99	99	99	88	65	0	73	27	99	99
7	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP10	B																								
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																								
8	SIU2000-H2							EPP10	B	160	0	0	0	98	95	77	93	53	99	99	99	98	90	80	99	99	99	99	88	60	99	99	99	93
8	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP10	B																								
8	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																								
9	AXIOM	68	WG	0.723	LB A/A	17.0	OZ/A	EPP10	B	132	0	0	0	95	96	85	93	70	99	99	99	83	94	99	99	99	99	77	63	0	99	99	99	99
9	ROUNDUP ULTRA	3	SL	0.56	LB AE/A	1.5	PT/A	EPP10	B																								
9	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP10	B																								
9	HORNET	68.5	WG	0.128	LB A/A	3.0	OZ/A	5"CN	D																								
9	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	5"CN	D																								
9	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	5"CN	D																								
10	AXIOM AT	75	WG	0.9375	LB A/A	1.25	LB/A	EPP10	B	162	0	0	0	99	89	83	95	57	99	99	99	96	90	82	99	99	99	96	85	47	99	99	98	93
10	EPIC	58	WG	0.254	LB A/A	7.0	OZ/A	EPP10	B																								
10	WEEDONE 638	2.8	EC	0.5	LB A/A	1.43	PT/A	EPP10	B																								
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																								

(CONTINUED)

TABLE. EARLY PREPLANT WEED CONTROL IN NO-TILL CORN. PROJECT CODE:00-2A-ME80 (CONTINUED)

									ZEAMX			CONTROL, DAYS AFTER PLANTING																					
							APPL	APPL		INJURY, DAP			SETFA			PANDI			ERICA			AMBEL			CHEAL			AMATA			POLPY		XANST	
	TREATMENT	FORM.	RATE	UNIT	PROD RATE		TIME	CODE	YIELD	14	28	56	14	28	56	28	56	14	28	56	14	28	56	14	28	56	14	28	56	28	56	28	56
									BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
11	AXIOM AT	75 WG	1.5	LB A/A	2.0	LB/A	EPP10	B	188	0	0	0	98	98	94	98	92	99	99	99	95	99	94	99	99	99	98	97	92	99	99	98	94
11	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	EPP10	B																									
11	WEEDONE 638	2.8 EC	0.5	LB A/A	1.43	PT/A	EPP10	B																									
11	AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	EPP10	B																									
11	AXIOM AT	75 WG	0.75	LB A/A	1.0	LB/A	5"CN	D																									
11	ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	5"CN	D																									
12	PYTHON	80 WG	0.05	LB A/A	1.0	OZ/A	EPP10	B	179	0	0	0	80	93	90	95	93	99	96	99	96	99	98	99	99	99	65	99	96	99	99	99	99
12	SENCOR	75 WG	0.188	LB A/A	4.0	OZ/A	EPP10	B																									
12	WEEDONE 638	2.8 EC	0.5	LB A/A	1.43	PT/A	EPP10	B																									
12	PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																									
12	FULTIME	4 SC	3.3	LB A/A	3.3	QT/A	2LCN	E																									
12	PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	2LCN	E																									
13	PYTHON	80 WG	0.05	LB A/A	1.0	OZ/A	EPP10	B	167	0	0	0	65	90	83	97	98	99	99	99	93	99	98	99	99	99	83	99	96	99	99	99	98
13	GLYPHOMAX PLUS	3 SL	0.75	LB AE/A	2.0	PT/A	EPP10	B																									
13	WEEDONE 638	2.8 EC	0.5	LB A/A	1.43	PT/A	EPP10	B																									
13	AMS	100 DRY	1.5	% W/W	12.5	LB/100 GAL	EPP10	B																									
13	FULTIME	4 SC	3.3	LB A/A	3.3	QT/A	2LCN	E																									
13	PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	2LCN	E																									
14	GLYPHOMAX PLUS	3 SL	0.75	LB AE/A	2.0	PT/A	EPP10	B	179	0	0	0	99	99	95	99	96	99	99	99	99	99	98	99	99	99	99	99	92	99	99	98	98
14	PRINCEP	90 WG	1.0	LB A/A	1.11	LB/A	EPP10	B																									
14	AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	EPP10	B																									
14	BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1	QT/A	PRE	C																									
14	HORNET	68.5 WG	0.128	LB A/A	3.0	OZ/A	PRE	C																									
15	BASIS	75 WG	0.02344	LB A/A	0.5	OZ/A	EPP10	B	161	0	0	0	99	96	78	90	73	99	99	99	99	96	91	99	99	99	99	82	40	99	99	99	85
15	WEEDONE 638	2.8 EC	0.5	LB A/A	1.43	PT/A	EPP10	B																									
15	LEADOFF	5 L	3.125	LB A/A	5.0	PT/A	EPP10	B																									
15	PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	EPP10	B																									
15	28% UAN	100 LIQ	2.5	% V/V	2.5	%V/V	EPP10	B																									
16	NONTREATED								28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD									41	0	0	0	16	20	19	10	20	0	2	0	9	15	22	1	5	7	10	11	24	22	29	18	20
P									0.01	1.0	1.0	1.0	0.01	0.01	0.01	0.01	0.01	1.0	0.01	1.0	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: BAYER TRTS 1-11 (827-00-93103); DOW TRTS 12-14.
2. ON MAY-12-00, ALL WINTER ANNUAL WEEDS WERE DEAD NATURALLY.
3. RATING DATES:
   14 DAP, 28 DAP, AND 56 DAP ON MAY-26-00, JUN-9-00, AND JUL-7-00, RESPECTIVELY.