

Liberty Link vs Conventional Weed Management Systems.

00-51E-N60

OBJECTIVE: Evaluate preemergence and postemergence herbicide programs for weed control and grain yield in Liberty Link and conventional corn.

SUMMARY: Corn injury ranging from 8 to 22% was observed 7 days after treatment (DAT) in plots treated with Accent Gold plus Clarity, Basis Gold at 14 oz/A, or Distinct. Corn injury was 0 to 3% from Liberty treatments. No corn injury was observed from any treatment by 56 days after the late post application.

Giant foxtail control was excellent from all herbicide treatments. All herbicide treatments except Bicep II Magnum alone provided good control of ivyleaf morningglory, common cocklebur, velvetleaf and giant ragweed. Waterhemp control was at least 90% from all treatments except Accent Gold plus Clarity.

Corn yield ranged from 109 to 165 bu/A. Reduced corn yield was observed in plots that received Bicep II Magnum alone due to poor broadleaf weed control. Corn yield was also slightly reduced in plots treated with Axiom followed by Distinct, possibly due to persistent corn injury.

HERBICIDES

AATREX 90 WG
ACCENT GOLD 83.8 WG
AXIOM 68 WG
AXIOM AT 75 WG
BALANCE PRO 4 SC
BASIS GOLD 90 WG
BICEP II MAGNUM 5.5 L
CLARITY 4 EC
DISTINCT 70 WG
LEADOFF 5 L
LIBERTY 1.67 EC
LIBERTY ATZ 4.32 EC
NORTHSTAR 47.4 WG

WEEDS

COCKLEBUR, COMMON
FOXTAIL, GIANT
MORNINGGLORY, IVYLEAF
RAGWEED, GIANT
VELVETLEAF
WATERHEMP, COMMON

CROP

CORN, FIELD

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Liberty Link vs Conventional Weed Management Systems.

Project Code: 00-51E-N60 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. AMBTR	RAGWEED, GIANT	AMBROSIA TRIFIDA L.
3. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDIK.
4. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
5. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
6. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L.

Crop 1:	ZEAMX CORN, FIELD	Variety:	SEE NOTE
Planting Method:	SEEDED	Planting Date:	May-3-00
Rate:	28000 S/A	Depth:	1.5 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	27 FT	Reps:	3
Tillage Type:	REDUCED-TILL	Study Design:	SPLIT-PLOT		
Previous Crop, Year:	GLXMA, 1999	Fertilizer applied:	N 150 LB/A,	P ₂ O ₅	0 LB/A, K ₂ O
					0 LB/A

Soil Name:	WEIR	% OM:	2.1	pH:	6.5	CEC:	11
Texture:	SILT LOAM	P ₁ :	91 LB/A,	K:	405 LB/A		

APPLICATION DESCRIPTION

	A	B	C
Application Date:	May-5-00	May-25-00	May-31-00
Time of Day:	11:00	6:30	6:45
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	4"W-1	4"W-2
Applic. Placement:	BROSOL	BROFOL	BROFOL
Air Temp., Unit:	74 F	72 F	78 F
% Relative Humidity:	85	30	94
Wind Velocity, Unit:	5-10 MPH	0-1 MPH	0-1 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	NA	ZEAMX V4	ZEAMX V5
Height, Unit:	NA	9-11 IN	10-13 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:		SETFA	
Stage(leaves):		1-2	
Height(inches):		1-2	
Density:		LOW	
Weed 2 Code:		AMBTR	AMBTR
Stage(leaves):		2-4	3-4
Height(inches):		2-4	2-4
Density:		MEDIUM	MEDIUM
Weed 3 Code:		ABUTH	ABUTH
Stage(leaves):		1-3	2-3
Height(inches):		1-3	2-3
Density:		LOW	LOW
Weed 4 Code:		IPOHE	IPOHE
Stage(leaves):		COTL-3	COTL-2
Height(inches):		2-4	2-3
Density:		MEDIUM	MEDIUM
Weed 5 Code:		AMATA	AMATA
Stage(leaves):		1-4	2-5
Height(inches):		1-3	1-3
Density:		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:	8003	8002	8002
Boom Length, Unit:	7.33 FT	7.33 FT	7.33 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA

NOTES:

CORN HYBRIDS ARE P33G28LL AND P33G28 FOR LIBERTY LINK AND CONVENTIONAL, RESPECTIVELY.
Harvested Sep-28-00, (2) 30 inch rows by 24 ft.

TABLE. LIBERTY LINK VS CONVENTIONAL WEED MANAGEMENT SYSTEMS. PROJECT CODE:00-51E-N60

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	ZEAMX INJURY						CONTROL							
								14 DA		7 DA	AT	DA 4"W-1		56 DA	SETFA			AMBTR			
								PRE	POST	4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%					
1 LIBERTY LINK							109	0	0	0	0	0	0	99	99	97	96	94	88	57	18
1 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A															
2 LIBERTY LINK							163	0	0	0	0	0	0	99	99	98	97	92	98	94	92
2 AATREX	90 WG	1.0	LB A/A	1.11 LB/A	PRE	A															
2 LIBERTY	1.67 EC	0.313	LB A/A	24.0 OZ/A	4"W-2	C															
2 AATREX	90 WG	0.5	LB A/A	0.56 LB/A	4"W-2	C															
2 AMS	100 DRY	3.0	LB A/A	3.0 LB/A	4"W-2	C															
3 LIBERTY LINK							159	3	0	0	0	0	0	95	99	98	96	89	98	98	95
3 BALANCE PRO	4 SC	0.0547	LB A/A	1.75 OZ/A	PRE	A															
3 LIBERTY	1.67 EC	0.313	LB A/A	24.0 OZ/A	4"W-2	C															
3 AATREX	90 WG	0.75	LB A/A	0.83 LB/A	4"W-2	C															
3 AMS	100 DRY	3.0	LB A/A	3.0 LB/A	4"W-2	C															
4 LIBERTY LINK							145	0	0	0	0	0	0	99	99	98	98	91	97	95	94
4 AXIOM AT	75 WG	1.31	LB A/A	1.75 LB/A	PRE	A															
4 LIBERTY	1.67 EC	0.313	LB A/A	24.0 OZ/A	4"W-2	C															
4 AATREX	90 WG	0.75	LB A/A	0.83 LB/A	4"W-2	C															
4 AMS	100 DRY	3.0	LB A/A	3.0 LB/A	4"W-2	C															
5 LIBERTY LINK							159		0		0	0	0		98	98	96		96	96	93
5 LIBERTY ATZ	4.32 EC	1.35	LB A/A	40.0 OZ/A	4"W-1	B															
5 AMS	100 DRY	3.0	LB A/A	3.0 LB/A	4"W-1	B															
6 LIBERTY LINK							17		0		0	0	0		0	0	0		0	0	0
6 NONTREATED																					
7 CONVENTIONAL							153		13		10	0	0		98	98	94		94	67	96
7 ACCENT GOLD	83.8 WG			3.5 OZ/A	4"W-1	B															
7 ->79406	75 WG	0.0234	LB A/A		4"W-1	B															
7 ->HORNET	68.5 WG	0.128	LB A/A		4"W-1	B															
7 CLARITY	4 EC	0.125	LB A/A	4.0 OZ/A	4"W-1	B															
7 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4"W-1	B															
7 28% UAN	100 LIQ	2.0	QT/A	2.0 QT/A	4"W-1	B															

(CONTINUED)

TABLE. LIBERTY LINK VS CONVENTIONAL WEED MANAGEMENT SYSTEMS. PROJECT CODE:00-51E-N60 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	ZEAMX INJURY						CONTROL								
								14 DA		7 DA	AT	DA 4"W-1		56 DA	SETFA			AMBTR				
								PRE	POST		4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2
								BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%
8 CONVENTIONAL							156	0	22	0	22	0	0	99	99	98	98	87	97	96	91	
8 LEADOFF	5 L	0.9375	LB A/A	24.0	OZ/A	PRE	A															
8 BASIS GOLD	90 WG	0.788	LB A/A	14.0	OZ/A	4"W-2	C															
8 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-2	C															
8 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-2	C															
9 CONVENTIONAL							165	0	4	0	4	0	0	99	99	99	98	95	97	98	96	
9 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1	QT/A	PRE	A															
9 NORTHSTAR	47.4 WG	0.148	LB A/A	5.0	OZ/A	4"W-2	C															
9 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-2	C															
9 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-2	C															
10 CONVENTIONAL							156	5		0	0	0	0	99	99	98	96	96	97	96	90	
10 BICEP II MAGNUM	5.5 L	0.859	LB A/A	1.25	PT/A	PRE	A															
10 BALANCE PRO	4 SC	0.094	LB A/A	3.0	OZ/A	PRE	A															
10 AATREX	90 WG	0.45	LB A/A	8.0	OZ/A	PRE	A															
11 CONVENTIONAL							125	1	8	0	8	10	0	99	98	98	95	17	93	97	94	
11 AXIOM	68 WG	0.722	LB A/A	17.0	OZ/A	PRE	A															
11 DISTINCT	70 WG	0.263	LB A/A	6.0	OZ/A	4"W-2	C															
11 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	4"W-2	C															
11 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-2	C															
12 CONVENTIONAL							145		0		0	0	0		98	98	94		97	96	92	
12 BASIS GOLD	90 WG	0.7875	LB A/A	14.0	OZ/A	4"W-1	B															
12 CLARITY	4 EC	0.125	LB A/A	4.0	OZ/A	4"W-1	B															
12 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-1	B															
12 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-1	B															
LSD							26	1	2	0	5	0	0	2	2	0.40	3	5	2	25	6	
P							0.01	0.01	0.01	1.0	0.01	1.0	1.0	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	

(CONTINUED)

TABLE. LIBERTY LINK VS CONVENTIONAL WEED MANAGEMENT SYSTEMS. PROJECT CODE:00-51E-N60 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	CONTROL																									
							XANST				IPOHE				ABUTH				AMATA													
							AT	DA	4"W-1	56 DA	AT	DA	4"W-1	56 DA	AT	DA	4"W-1	56 DA	AT	DA	4"W-1	56 DA										
4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2	4"W-2	14	28	4"W-2																	
																	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1 LIBERTY LINK							92	88	62	50	91	92	84	53	97	96	72	87	99	99	85	90										
1 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1	QT/A	PRE A																										
2 LIBERTY LINK							93	97	96	92	94	98	95	94	97	99	98	96	99	99	98	96										
2 AATREX	90 WG	1.0	LB A/A	1.11	LB/A	PRE A																										
2 LIBERTY	1.67 EC	0.313	LB A/A	24.0	OZ/A	4"W-2 C																										
2 AATREX	90 WG	0.5	LB A/A	0.56	LB/A	4"W-2 C																										
2 AMS	100 DRY	3.0	LB A/A	3.0	LB/A	4"W-2 C																										
3 LIBERTY LINK							88	98	97	94	82	98	95	93	98	99	98	97	99	99	98	96										
3 BALANCE PRO	4 SC	0.0547	LB A/A	1.75	OZ/A	PRE A																										
3 LIBERTY	1.67 EC	0.313	LB A/A	24.0	OZ/A	4"W-2 C																										
3 AATREX	90 WG	0.75	LB A/A	0.83	LB/A	4"W-2 C																										
3 AMS	100 DRY	3.0	LB A/A	3.0	LB/A	4"W-2 C																										
4 LIBERTY LINK							93	98	97	96	92	99	96	87	98	99	98	97	99	99	98	96										
4 AXIOM AT	75 WG	1.31	LB A/A	1.75	LB/A	PRE A																										
4 LIBERTY	1.67 EC	0.313	LB A/A	24.0	OZ/A	4"W-2 C																										
4 AATREX	90 WG	0.75	LB A/A	0.83	LB/A	4"W-2 C																										
4 AMS	100 DRY	3.0	LB A/A	3.0	LB/A	4"W-2 C																										
5 LIBERTY LINK							98	96	93		98	95	91		98	98	96		98	98	98											
5 LIBERTY ATZ	4.32 EC	1.35	LB A/A	40.0	OZ/A	4"W-1 B																										
5 AMS	100 DRY	3.0	LB A/A	3.0	LB/A	4"W-1 B																										
6 LIBERTY LINK								0	0	0		0	0	0		0	0	0		0	0	0										
6 NONTREATED																																
7 CONVENTIONAL							96	97	96		96	96	93		98	98	95		95	77	40											
7 ACCENT GOLD	83.8 WG			3.5	OZ/A	4"W-1 B																										
7 ->79406	75 WG	0.0234	LB A/A			4"W-1 B																										
7 ->HORNET	68.5 WG	0.128	LB A/A			4"W-1 B																										
7 CLARITY	4 EC	0.125	LB A/A	4.0	OZ/A	4"W-1 B																										
7 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-1 B																										
7 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-1 B																										

(CONTINUED)

TABLE. LIBERTY LINK VS CONVENTIONAL WEED MANAGEMENT SYSTEMS. PROJECT CODE:00-51E-N60 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	CONTROL																
							XANST				IPOHE				ABUTH				AMATA				
							AT 4"W-2	DA 4"W-1 14	28	56 DA 4"W-2	AT 4"W-2	DA 4"W-1 14	28	56 DA 4"W-2	AT 4"W-2	DA 4"W-1 14	28	56 DA 4"W-2	AT 4"W-2	DA 4"W-1 14	28	56 DA 4"W-2	
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%							
8 CONVENTIONAL							83	98	97	95	90	98	95	92	92	99	97	96	99	99	98	97	
8 LEADOFF	5 L	0.9375	LB A/A	24.0	OZ/A	PRE	A																
8 BASIS GOLD	90 WG	0.788	LB A/A	14.0	OZ/A	4"W-2	C																
8 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-2	C																
8 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-2	C																
9 CONVENTIONAL							97	98	98	95	98	98	97	92	97	99	98	96	99	99	98	98	
9 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1	QT/A	PRE	A																
9 NORTHSTAR	47.4 WG	0.148	LB A/A	5.0	OZ/A	4"W-2	C																
9 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-2	C																
9 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-2	C																
10 CONVENTIONAL							98	97	95	93	93	97	93	89	99	98	98	96	99	99	97	98	
10 BICEP II MAGNUM	5.5 L	0.859	LB A/A	1.25	PT/A	PRE	A																
10 BALANCE PRO	4 SC	0.094	LB A/A	3.0	OZ/A	PRE	A																
10 AATREX	90 WG	0.45	LB A/A	8.0	OZ/A	PRE	A																
11 CONVENTIONAL							52	93	98	95	65	94	96	92	99	98	98	96	99	98	96	97	
11 AXIOM	68 WG	0.722	LB A/A	17.0	OZ/A	PRE	A																
11 DISTINCT	70 WG	0.263	LB A/A	6.0	OZ/A	4"W-2	C																
11 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25	%V/V	4"W-2	C																
11 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-2	C																
12 CONVENTIONAL								98	96	95		98	94	92		97	96	95			97	93	90
12 BASIS GOLD	90 WG	0.7875	LB A/A	14.0	OZ/A	4"W-1	B																
12 CLARITY	4 EC	0.125	LB A/A	4.0	OZ/A	4"W-1	B																
12 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4"W-1	B																
12 28% UAN	100 LIQ	2.0	QT/A	2.0	QT/A	4"W-1	B																
LSD							8	2	3	3	10	2	3	5	3	1	2	3	0	2	6	2	
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	1.0	0.01	0.01	0.01	

1. PROTOCOL: AVENTIS "C26".

2. RATING DATES:

14 DA PRE ON MAY-19-00, 7 DAYS AFTER 4"W-1 AND 4"W-2 APPLICATIONS ON JUN-1-00 AND JUN-7-00, RESPECTIVELY.

AT 4"W-2, 14 DA 4"W-1, 28 DA 4"W-1, AND 56 DA 4"W-1 ON MAY-31-00, JUN-8-00, JUN-22-00, AND JUL-26-00, RESPECTIVELY.