

Sequential Herbicide Programs in Liberty Link Corn.

02-26C

OBJECTIVE: Evaluate various herbicide programs from Aventis and Bayer for weed control in Liberty Link corn.

SUMMARY: The only corn injury that occurred in this study was with the postemergence (POST) application of Buctril + atrazine (8%) and was attributed to Buctril since no other application of atrazine caused injury. Giant foxtail control at 14 days after treatment (DAT) was 91% or greater with all treatments. By 56 DAT, control of giant foxtail decreased to 75% for the treatment of Liberty & Aatrex POST. When applying a preemergence (PRE) of Balance PRO, Define or Axiom followed by (fb) the POST application of Liberty & Aatrex, control of giant foxtail at 56 DAT was 98% or greater. Control of common cocklebur at 56 DAT was lowest (80%) with the treatment of Option & Distinct POST. At 56 DAT, all treatments controlled at least 96% of velvetleaf with the exception of the POST treatment of Option & Distinct (90%). Control of common waterhemp was 95% or greater with all treatments. Control of common ragweed was 99% for all treatments. At 56 DAT the treatments of Balance PRO PRE fb Liberty & Aatrex POST and Axiom PRE fb Liberty & Aatrex POST provided 99% control of all weed species evaluated.

HERBICIDES

AATREX 90 WG
 AXIOM 68 WG
 BALANCE PRO 4 SC
 BUCTRIL+ATRAZINE 3 L
 DEFINE 60 WG
 DISTINCT 70 WG
 EPIC 58 WG
 LIBERTY 1.67 EC
 OPTION 35 WG

WEEDS

cocklebur, common
 foxtail, giant
 ragweed, common
 velvetleaf
 waterhemp, common

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Sequential Herbicide Programs in Liberty Link Corn.

Project Code: 02-26C

Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 10-31-02

Objective:

Evaluate various herbicide programs from Aventis and Bayer for weed control in Liberty Link corn.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. XANST	cocklebur, common	Xanthium strumarium L.
3. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
4. ABUTH	velvetleaf	Abutilon theophrasti Medicus
5. AMATA	waterhemp, common	Amaranthus rudis Sauer

Crop 1: ZEAMX corn, field Variety: Pioneer 33P69LL
 Planting Method: Seeded Planting Date: 5-29-02
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 33 FT Reps: 3
 Tillage Type: Reduced-Till Study Design: Randomized complete block
 Previous Crop, Year: SORVU, 2001

Field Prep./Maintenance: N 150 LB/A, P205 50 LB/A, K20 150 LB/A

Soil Name: Rushville % OM: 1.1 pH: 5.4 CEC: 8
 Texture: Silt loam Fert. Level: P1: 76 LB/A, K: 285 LB/A

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	5-30-02	6-10-02	6-14-02	6-10-02	6-17-02
Time of Day:	12:00	15:30	10:00	15:00	16:30
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	1-3"W	3-4"W	5"CN	12"CN
Applic. Placement:	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	79 F	86 F	74 F	86 F	82 F
% Relative Humidity:	60	98	42	98	30
Wind Velocity, Unit:	0-3 MPH	5-10 MPH	5-10 MPH	5-10 MPH	0-5 MPH
Soil Moisture:	NORMAL	NORMAL	ABONOR	NORMAL	NORMAL
% Cloud Cover:	15	70	20	70	20

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX V3-V4	ZEAMX V3	ZEAMX V3-V4	ZEAMX V5
Height, Unit:	NA NA	4-6 IN	6 IN	4-6 IN	12-14 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:		SETFA	SETFA	SETFA	SETFA
Stage(leaves):		1-3	1-3	1-3	2-4
Height(inches):		1-3	1-3	1-3	1-5
Density:		High	Low	High	Medium
Weed 2 Code:		XANST	XANST	XANST	XANST
Stage(leaves):		0-5	3-5	0-5	0-6
Height(inches):		0-4	3-4	0-4	1-8
Density:		Medium	Medium	Medium	Medium
Weed 3 Code:			AMBEL		AMBEL
Stage(leaves):			1-3		2-6
Height(inches):			1-3		1-3
Density:			Low		Low

Weed 4 Code:	ABUTH	ABUTH	ABUTH	ABUTH
Stage(leaves):	0-4	1-3	0-4	0-4
Height(inches):	0-3	1-3	0-3	0-6
Density:	Medium	Low	Medium	Medium

Weed 5 Code:		AMATA		AMATA
Stage(leaves):		1-3		0-5
Height(inches):		1-3		0-3
Density:		Low		Low

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
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	8002	8002	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA

NOTES:

This study was not harvested.

Sequential Herbicide Programs in Liberty Link Corn.

Project Code: 02-26C

Location: Belleville Research Center

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	ZEAMX Injury Percent	ZEAMX Injury Percent	ZEAMX Injury Percent	ZEAMX Injury Percent	SETFA Control Percent	SETFA Control Percent	SETFA Control Percent	XANST Control Percent	XANST Control Percent	XANST Control Percent	AMBEL Control Percent	AMBEL Control Percent	AMBEL Control Percent
				6-9-02	7 DAE	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code										
1	NONTREATED									0	0	0	0	0	0	0	0	0	0
2	BALANCE PRO	4	SC	0.047	LB A/A	1.5	OZ/A	PRE	A	0	0	0	0	98	99	98	99	99	99
2	LIBERTY	1.67	EC	0.313	LB A/A	24	OZ/A	3-4"W	C										
2	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	3-4"W	C										
2	AMS	100	DRY	3.0	LB/A	3	LB/A	3-4"W	C										
3	BALANCE PRO	4	SC	0.047	LB A/A	1.5	OZ/A	PRE	A	0	0	0	0	92	91	90	99	97	98
3	OPTION	35	WG	0.0328	LB A/A	1.5	OZ/A	3-4"W	C										
3	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	3-4"W	C										
3	DESTINY MSO	100	LIQ	1.5	PT/A	1.5	PT/A	3-4"W	C										
3	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	3-4"W	C										
4	BALANCE PRO	4	SC	0.094	LB A/A	3	OZ/A	PRE	A	0	0	0	0	98	97	97	96	95	95
4	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	PRE	A										
4	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A										
5	BALANCE PRO	4	SC	0.094	LB A/A	3	OZ/A	PRE	A	0	0	0	0	96	91	88	96	93	93
5	AATREX	90	WG	1.5	LB A/A	26.7	OZ/A	PRE	A										
6	BALANCE PRO	4	SC	0.0705	LB A/A	2.25	OZ/A	PRE	A	0	0	0	0	95	92	88	92	89	86
6	DEFINE	60	WG	0.375	LB A/A	10	OZ/A	PRE	A										
6	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A										
7	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	PRE	A	0	0	0	0	98	98	98	98	99	97
7	LIBERTY	1.67	EC	0.313	LB A/A	24	OZ/A	3-4"W	C										
7	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	3-4"W	C										
7	AMS	100	DRY	3.0	LB/A	3	LB/A	3-4"W	C										
8	BALANCE PRO	4	SC	0.047	LB A/A	1.5	OZ/A	PRE	A	0	0	0	0	95	95	94	93	90	89
8	OPTION	35	WG	0.0328	LB A/A	1.5	OZ/A	3-4"W	C										
8	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	3-4"W	C										
8	DESTINY MSO	100	LIQ	1.5	PT/A	1.5	PT/A	3-4"W	C										
8	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	3-4"W	C										
9	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B		0	0	0	91	85	75	95	91	87
9	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	1-3"W	B										
9	AMS	100	DRY	3.0	LB/A	3	LB/A	1-3"W	B										
10	DEFINE	60	WG	0.675	LB A/A	18	OZ/A	PRE	A	0	8	0	0	97	91	89	97	95	93
10	BUCTRIL+ATRAZINE	3	L	0.75	LB A/A	2	PT/A	3-4"W	C										
11	BALANCE PRO	4	SC	0.094	LB A/A	3	OZ/A	PRE	A	0	8	0	0	93	88	83	99	97	97
11	BUCTRIL+ATRAZINE	3	L	0.75	LB A/A	2	PT/A	3-4"W	C										

Weed Code																
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	SETFA	SETFA	SETFA	XANST	XANST	XANST	AMBEL	AMBEL	AMBEL			
Rating Data Type	Injury	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
Rating Date	6-9-02															
Trt-Eval Interval	7 DAE	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code														
12	OPTION	35	WG	0.0328	LB A/A	1.5	OZ/A	1-3"W	B			0	0	0	97	96	95	92	90	80	99	99	99
12	DISTINCT	70	WG	0.175	LB A/A	4	OZ/A	1-3"W	B														
12	DESTINY MSO	100	LIQ	1.5	PT/A	1.5	PT/A	1-3"W	B														
12	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	1-3"W	B														
13	EPIC	58	WG	0.254	LB A/A	7	OZ/A	PRE	A			0	0	0	95	90	86	97	97	96	99	99	99
13	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A														
13	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	5"CN	D														
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	5"CN	D														
14	DEFINE	60	WG	0.338	LB A/A	9	OZ/A	PRE	A			0	0	0	98	98	98	98	98	95	99	99	99
14	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A														
14	DEFINE	60	WG	0.263	LB A/A	7	OZ/A	5"CN	D														
14	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	5"CN	D														
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	5"CN	D														
15	AXIOM	68	WG	0.425	LB A/A	10	OZ/A	PRE	A			0	0	0	99	99	99	99	99	99	99	99	99
15	LIBERTY	1.67	EC	0.313	LB A/A	24	OZ/A	12"CN	E														
15	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	12"CN	E														
15	AMS	100	DRY	3.0	LB/A	3	LB/A	12"CN	E														
LSD (P=.05)										0.0	1.1	0.0	0.0	2.5	3.3	4.5	3.2	4.2	5.3	0.0	0.0	0.0	
Replicate F										0.000	0.483	0.000	0.000	10.837	2.964	2.108	1.822	5.381	3.076	0.000	0.000	0.000	
Replicate Prob(F)										1.0000	0.6221	1.0000	1.0000	0.0003	0.0680	0.1404	0.1804	0.0105	0.0620	1.0000	1.0000	1.0000	
Treatment F										0.000	57.379	0.000	0.000	830.819	471.182	248.322	505.837	293.348	181.727	0.000	0.000	0.000	
Treatment Prob(F)										1.0000	0.0001	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	1.0000	1.0000	1.0000	

Weed Code		ABUTH	ABUTH	ABUTH	AMATA	AMATA	AMATA
Crop Code							
Rating Data Type		Control	Control	Control	Control	Control	Control
Rating Unit		Percent	Percent	Percent	Percent	Percent	Percent
Rating Date							
Trt-Eval Interval		14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code						
1	NONTREATED									0	0	0	0	0	0
2	BALANCE PRO	4	SC	0.047	LB A/A	1.5	OZ/A	PRE	A	99	99	99	99	99	99
2	LIBERTY	1.67	EC	0.313	LB A/A	24	OZ/A	3-4"W	C						
2	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	3-4"W	C						
2	AMS	100	DRY	3.0	LB/A	3	LB/A	3-4"W	C						
3	BALANCE PRO	4	SC	0.047	LB A/A	1.5	OZ/A	PRE	A	99	99	99	98	98	96
3	OPTION	35	WG	0.0328	LB A/A	1.5	OZ/A	3-4"W	C						
3	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	3-4"W	C						
3	DESTINY MSO	100	LIQ	1.5	PT/A	1.5	PT/A	3-4"W	C						
3	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	3-4"W	C						
4	BALANCE PRO	4	SC	0.094	LB A/A	3	OZ/A	PRE	A	99	99	99	99	99	99
4	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	PRE	A						
4	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A						
5	BALANCE PRO	4	SC	0.094	LB A/A	3	OZ/A	PRE	A	99	99	99	99	99	99
5	AATREX	90	WG	1.5	LB A/A	26.7	OZ/A	PRE	A						
6	BALANCE PRO	4	SC	0.0705	LB A/A	2.25	OZ/A	PRE	A	99	99	99	99	99	99
6	DEFINE	60	WG	0.375	LB A/A	10	OZ/A	PRE	A						
6	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A						
7	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	PRE	A	99	99	96	99	99	99
7	LIBERTY	1.67	EC	0.313	LB A/A	24	OZ/A	3-4"W	C						
7	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	3-4"W	C						
7	AMS	100	DRY	3.0	LB/A	3	LB/A	3-4"W	C						
8	BALANCE PRO	4	SC	0.047	LB A/A	1.5	OZ/A	PRE	A	94	97	96	97	97	97
8	OPTION	35	WG	0.0328	LB A/A	1.5	OZ/A	3-4"W	C						
8	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	3-4"W	C						
8	DESTINY MSO	100	LIQ	1.5	PT/A	1.5	PT/A	3-4"W	C						
8	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	3-4"W	C						
9	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B	98	99	99	95	97	98
9	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	1-3"W	B						
9	AMS	100	DRY	3.0	LB/A	3	LB/A	1-3"W	B						
10	DEFINE	60	WG	0.675	LB A/A	18	OZ/A	PRE	A	98	98	97	99	99	99
10	BUCTRIL+ATRAZINE	3	L	0.75	LB A/A	2	PT/A	3-4"W	C						
11	BALANCE PRO	4	SC	0.094	LB A/A	3	OZ/A	PRE	A	99	99	99	99	99	99
11	BUCTRIL+ATRAZINE	3	L	0.75	LB A/A	2	PT/A	3-4"W	C						
12	OPTION	35	WG	0.0328	LB A/A	1.5	OZ/A	1-3"W	B	94	92	90	96	95	95
12	DISTINCT	70	WG	0.175	LB A/A	4	OZ/A	1-3"W	B						
12	DESTINY MSO	100	LIQ	1.5	PT/A	1.5	PT/A	1-3"W	B						
12	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	1-3"W	B						

Weed Code	ABUTH	ABUTH	ABUTH	AMATA	AMATA	AMATA
Crop Code						
Rating Data Type	Control	Control	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date						
Trt-Eval Interval	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code						
13	EPIC	58	WG	0.254	LB A/A	7	OZ/A	PRE	A	99	97	99	99	99	99
13	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A						
13	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	5"CN	D						
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	5"CN	D						
14	DEFINE	60	WG	0.338	LB A/A	9	OZ/A	PRE	A	99	99	99	99	99	99
14	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	PRE	A						
14	DEFINE	60	WG	0.263	LB A/A	7	OZ/A	5"CN	D						
14	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	5"CN	D						
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	5"CN	D						
15	AXIOM	68	WG	0.425	LB A/A	10	OZ/A	PRE	A	99	99	99	99	99	99
15	LIBERTY	1.67	EC	0.313	LB A/A	24	OZ/A	12"CN	E						
15	AATREX	90	WG	1.0	LB A/A	17.8	OZ/A	12"CN	E						
15	AMS	100	DRY	3.0	LB/A	3	LB/A	12"CN	E						
LSD (P=.05)										2.2	2.0	2.6	1.5	2.0	3.2
Replicate F										0.750	0.467	1.790	0.660	1.172	1.748
Replicate Prob(F)										0.4817	0.6316	0.1855	0.5245	0.3245	0.1926
Treatment F										1069.482	1312.530	781.694	2301.332	1401.119	537.902
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Project Code: 02-26C

Location: Belleville Research Center

Trial Comments

1. Protocol: Aventis (2-12); Bayer (13-15).
2. DAE = days after emergence. DAT = days after POST application.
3. For PRE only treatments, ratings were on the same day as ratings for the first POST applications. Thus ratings at 14, 28 , and 56 days after POST were also 25, 39, and 67 days after the PRE application.
4. Rating dates:
 - 14 days after 1-3"W, 5"CN, 3-4"W, and 12"CN applications were on 6-24-02, 6-24-02, 6-28-02, and 7-1-02, respectively.
 - 28 days after 1-3"W, 5"CN, 3-4"W, and 12"CN applications were on 7-8-02, 7-8-02, 7-12-02, and 7-15-02, respectively.
 - 56 days after 1-3"W, 5"CN, 3-4"W, and 12"CN applications were on 8-5-02, 8-5-02, 8-9-02, and 8-12-02, respectively.