

Long-Term Tillage by Herbicide Study in a Transgenic Corn and Soybean Rotation.

02-9B-Corn

OBJECTIVE: To evaluate weed control and weed population shifts over a long period of time in transgenic crops.

SUMMARY: There was no difference between Roundup Ultra Max and Touchdown in “burndown” of little barley and common ragweed in no-till. Giant foxtail control ranged from 85 to 100% in no-till and 81 to 100% in reduced-till. In no-till, the herbicide treatments controlled 85 to 100% of all the weeds whereas in reduced-till weed control ranged from 64 to 100%. In reduced-till, common cocklebur was the most difficult weed to control. Common cocklebur control ranged from 64 to 100%. Sequential applications of Liberty and Liberty plus Aatrex provided 96 to 100% control of common cocklebur. In reduced-till, the herbicide treatments controlled ivyleaf morningglory, velvetleaf, and common waterhemp 89 to 100%. None of the herbicides caused corn injury. In no-till, weed competition reduced corn height by 28 to 34%. In reduced-till, weed competition reduced corn height by 20 to 22%. Corn height and grain yield tended to be greater in no-till compared to reduced-till because of the abnormally dry growing season. Grain yield ranged from 10 to 189 bu/A.

HERBICIDES/TILLAGES

AATREX 90 WG
 ACCENT 75 WG
 BASIS GOLD 90 WG
 BICEP II MAGNUM 5.5 L
 DUAL II MAGNUM 7.64 EC
 LIBERTY 1.67 EC
 ROUNDUP ULTRA MAX 3.7 SL
 TOUCHDOWN 3 SL
 NO-TILL
 REDUCED-TILL

WEEDS

barley, little
 cocklebur, common
 foxtail, giant
 morningglory, ivyleaf
 nutsedge, yellow
 ragweed, common
 velvetleaf
 waterhemp, common

CROP

corn, field

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Long-Term Tillage by Herbicide Study in a Transgenic Corn and Soybean Rotation.

Project Code: 02-9B-Corn Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 11-4-02

Objective:

To evaluate weed control and weed population shifts over a long period of time in transgenic crops.

Weed Code	Common Name	Scientific Name
1.	HORPU barley, little	Hordeum pusillum Nutt.
2.	AMBEL ragweed, common	Ambrosia artemisiifolia L.
3.	SETFA foxtail, giant	Setaria faberi Herrm.
4.	CYPES nutsedge, yellow	Cyperus esculentus L.
5.	XANST cocklebur, common	Xanthium strumarium L.
6.	IPOHE morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.
7.	ABUTH velvetleaf	Abutilon theophrasti Medicus
8.	AMATA waterhemp, common	Amaranthus rudis Sauer

Crop 1: ZEAMX corn, field Variety: Pioneer 33P69LL
 Planting Method: Seeded Planting Date: 6-2-02
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 27 FT Reps: 4
 Tillage Type: Reduced-Till Study Design: Split-block
 Previous Crop, Year: GLXMA, 2001

Field Prep./Maintenance: N 150 LB/A, P2O5 50 LB/A, K2O 150 LB/A

Soil Name: Ebbert % OM: 1.5 pH: 6.7 CEC: 14
 Texture: Silt loam Fert. Level: P1: 90 LB/A, K: 301 LB/A

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	6-1-02	6-18-02	6-28-02	6-24-02
Time of Day:	13:00	11:00	10:00	12:00
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	2-4"W-1	10DA2-4"	2-4"W-2
Applic. Placement:	BROSOI	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	88 F	84 F	86 F	88 F
% Relative Humidity:	48	40	50	50
Wind Velocity, Unit:	5-10 MPH	3-5 MPH	3 MPH	0-5 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL	BELNOR
% Cloud Cover:	5	5		20

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX V3-V4	ZEAMX V6	ZEAMX V5-V6
Height, Unit:	NA NA	6-8 IN	18 IN	12-16 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	HORPU			
Stage(leaves):	1-3			
Height(inches):	10-15			
Density:	High			
Weed 2 Code:	AMBEL			
Stage(leaves):	4-8			
Height(inches):	2-6			
Density:	Medium			
Weed 3 Code:	SETFA	SETFA	SETFA	SETFA
Stage(leaves):	2-4	3-5	3-4	3-7
Height(inches):	2-6	2-6	3-4	3-7
Density:	Low	Medium	Low	Low

Weed 4 Code:		CYPES		CYPES
Stage(leaves):		5-7		5-8
Height(inches):		4-7		4-7
Density:		Low		Low
Weed 5 Code:	XANST	XANST		XANST
Stage(leaves):	2-4	0-4		0-4
Height(inches):	3-6	1-4		1-4
Density:	Low	Medium		Medium
Weed 6 Code:		IPOHE	IPOHE	IPOHE
Stage(leaves):		0-4	4-5	0-2
Height(inches):		1-3	6-8	0-2
Density:		Low	Low	Low
Weed 7 Code:		ABUTH	ABUTH	ABUTH
Stage(leaves):		0-3	3-9	0-4
Height(inches):		0-2	3-4	0-3
Density:		Low	Low	Low
Weed 8 Code:		AMATA	AMATA	
Stage(leaves):		0-4	6-8	
Height(inches):		0-2	6-8	
Density:		Low	Low	

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8002	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA

NOTES:

Tillages are no-till and reduced-till, see treatment list.
Harvested Oct-14-02, (2) 30 inch rows by 24 ft.

Long-Term Tillage by Herbicide Study in a Transgenic Corn and Soybean Rotation.

Project Code: 02-9B-Corn Location: Belleville Research Center

Weed Code																									
Crop Code		ZEAMX					HORPU				AMBEL				SETFA										
Rating Data Type		Yield	Height	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control									
Rating Unit		bu/A	Inch	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent									
Rating Date		10-14-02	9-26-02				6-11-02	6-11-02				6-11-02													
Trt-Eval Interval		14 DAT			28 DAT		56 DAT		10 DA-A		10 DA-A		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	CORN IN 2002									10	71	0	50	50	100	0	0	0	0	0	0	0	0	0	0
1	NO-TILL																								
1	NONTREATED																								
2	CORN IN 2002									156	99	0	0	0	100	100	100	100	100	100	100	100	100	100	100
2	NO-TILL																								
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A																
2	HANDWEED																								
3	CORN IN 2002									180	106	0	0	0	100	100	100	100	100	100	100	100	100	93	93
3	NO-TILL																								
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A																
3	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A																
3	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A																
4	CORN IN 2002									186	108	0	0	0	100	100	100	100	100	100	100	100	99	99	99
4	NO-TILL																								
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A																
4	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A																
4	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A																
4	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-2	D																
4	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-2	D																
5	CORN IN 2002									179	106	0	0	0	100	100	100	100	100	100	100	100	100	100	100
5	NO-TILL																								
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A																
5	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A																
5	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A																
5	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"W-2	D																
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	% V/V	2-4"W-2	D																
6	CORN IN 2002									185	106	0	0	0	100	100	100	100	100	100	100	100	99	99	99
6	NO-TILL																								
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A																
6	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A																
6	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B																
6	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B																

Weed Code										HORPU	AMBEL	AMBEL	AMBEL	AMBEL	SETFA	SETFA	SETFA	SETFA
Crop Code										ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX				
Rating Data Type										Yield	Height	Injury	Injury	Injury	Control	Control	Control	Control
Rating Unit										bu/A	Inch	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date										10-14-02	9-26-02				6-11-02	6-11-02	6-11-02	
Trt-Eval Interval												14 DAT	28 DAT	56 DAT	10 DA-A	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										
7	CORN IN 2002									182	105	0	0	0	100	100	100	100	100
7	NO-TILL																		
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A										
7	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B										
7	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B										
7	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	10DA2-4"	C										
7	AMS	100	DRY	3	LB/A	3	LB/A	10DA2-4"	C										
8	CORN IN 2002									180	105	0	0	0	100	100	100	100	100
8	NO-TILL																		
8	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	PRE	A										
8	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B										
8	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B										
9	CORN IN 2002									186	107	0	0	0	100	100	100	100	100
9	NO-TILL																		
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A										
9	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B										
9	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	2-4"W-1	B										
9	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B										
10	CORN IN 2002									189	108	0	0	0	100	100	100	100	100
10	NO-TILL																		
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A										
10	BASIS GOLD	90	WG	0.79	LB A/A	14	OZ/A	2-4"W-1	B										
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-1	B										
11	CORN IN 2002									9	72	0	50	50		100	100	100	0
11	REDUCED-TILL																		
11	NONTREATED																		
12	CORN IN 2002									169	94	0	0	0		100	100	100	100
12	REDUCED-TILL																		
12	CULTIVATE																		
12	HANDWEED																		
13	CORN IN 2002									144	93	0	0	0		100	100	100	96
13	REDUCED-TILL																		
13	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A										
13	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A										
14	CORN IN 2002									169	92	0	0	0		100	100	100	100
14	REDUCED-TILL																		
14	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A										
14	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A										
14	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-2	D										
14	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-2	D										

Weed Code		HORPU AMBEL AMBEL AMBEL AMBEL SETFA SETFA SETFA SETFA																				
Crop Code		ZEAMX ZEAMX ZEAMX ZEAMX ZEAMX					Control Control Control Control				Control Control Control Control											
Rating Data Type		Yield	Height	Injury	Injury	Injury	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent						
Rating Unit		bu/A	Inch	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent						
Rating Date		10-14-02	9-26-02				6-11-02	6-11-02				6-11-02										
Trt-Eval Interval		14 DAT			28 DAT	56 DAT	10 DA-A	10 DA-A	14 DAT	28 DAT	56 DAT	10 DA-A	14 DAT	28 DAT	56 DAT							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code													
15	CORN IN 2002									177	92	0	0	0		100	100	100		100	100	100
15	REDUCED-TILL																					
15	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A													
15	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A													
15	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"W-2	D													
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-2	D													
16	CORN IN 2002									158	97	0	0	0		100	100	100		100	99	99
16	REDUCED-TILL																					
16	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A													
16	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B													
16	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B													
17	CORN IN 2002									180	93	0	0	0		100	100	100		100	100	100
17	REDUCED-TILL																					
17	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B													
17	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B													
17	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	10DA2-4"	C													
17	AMS	100	DRY	3	LB/A	3	LB/A	10DA2-4"	C													
18	CORN IN 2002									181	92	0	0	0		100	100	100		90	88	88
18	REDUCED-TILL																					
18	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B													
18	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B													
19	CORN IN 2002									164	90	0	0	0		100	100	100		97	94	94
19	REDUCED-TILL																					
19	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B													
19	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	2-4"W-1	B													
19	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B													
20	CORN IN 2002									162	92	0	0	0		100	100	100		90	81	81
20	REDUCED-TILL																					
20	BASIS GOLD	90	WG	0.79	LB A/A	14	OZ/A	2-4"W-1	B													
20	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-1	B													
LSD (P=.05)						19.2	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	6.1	6.1
Replicate F		1.601	0.874	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.807	3.214	3.214				
Replicate Prob(F)		0.1992	0.4598	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0476	0.0295	0.0295				
Treatment F		58.520	35.613	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	362.969	189.724	189.724				
Treatment Prob(F)		0.0001	0.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001				

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

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	CYPES	CYPES	CYPES	XANST	XANST	XANST	IPOHE	IPOHE	IPOHE	ABUTH	ABUTH	ABUTH
1	CORN IN 2002									94	94	94	98	98	98	100	100	100	100	100	100
1	NO-TILL																				
1	NONTREATED																				
2	CORN IN 2002									100	100	100	100	100	100	100	100	100	100	100	100
2	NO-TILL																				
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A												
2	HANDWEED																				
3	CORN IN 2002									97	97	97	100	99	99	100	100	100	100	100	100
3	NO-TILL																				
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A												
3	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A												
3	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A												
4	CORN IN 2002									100	100	100	100	100	100	100	100	100	100	100	100
4	NO-TILL																				
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A												
4	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A												
4	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A												
4	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-2	D												
4	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-2	D												
5	CORN IN 2002									100	100	100	100	100	100	100	100	100	100	100	100
5	NO-TILL																				
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A												
5	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A												
5	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A												
5	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"W-2	D												
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-2	D												
6	CORN IN 2002									99	99	99	98	98	98	100	100	100	100	100	100
6	NO-TILL																				
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A												
6	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A												
6	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B												
6	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B												
7	CORN IN 2002									96	96	96	100	100	100	100	100	100	100	100	100
7	NO-TILL																				
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A												
7	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B												
7	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B												
7	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	10DA2-4"	C												
7	AMS	100	DRY	3	LB/A	3	LB/A	10DA2-4"	C												

Weed Code	CYPES	CYPES	CYPES	XANST	XANST	XANST	IPOHE	IPOHE	IPOHE	ABUTH	ABUTH	ABUTH					
Crop Code	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control					
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent					
Rating Unit	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT					
Rating Date																	
Trt-Eval Interval																	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code								
8	CORN IN 2002									91	91	91	100	100	100	100	100
8	NO-TILL																
8	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	PRE	A								
8	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B								
8	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B								
9	CORN IN 2002									95	95	95	100	100	100	100	100
9	NO-TILL																
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A								
9	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B								
9	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	2-4"W-1	B								
9	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B								
10	CORN IN 2002									99	99	99	100	100	100	100	100
10	NO-TILL																
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A								
10	BASIS GOLD	90	WG	0.79	LB A/A	14	OZ/A	2-4"W-1	B								
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-1	B								
11	CORN IN 2002									0	0	0	0	0	0	0	0
11	REDUCED-TILL																
11	NONTREATED																
12	CORN IN 2002									100	100	100	100	100	100	100	100
12	REDUCED-TILL																
12	CULTIVATE																
12	HANDWEED																
13	CORN IN 2002									93	91	91	84	64	64	98	98
13	REDUCED-TILL																
13	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A								
13	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A								
14	CORN IN 2002									97	97	97	100	100	100	100	94
14	REDUCED-TILL																
14	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A								
14	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A								
14	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-2	D								
14	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-2	D								
15	CORN IN 2002									96	96	96	81	79	79	100	90
15	REDUCED-TILL																
15	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A								
15	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A								
15	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"W-2	D								
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-2	D								

Weed Code	CYPES	CYPES	CYPES	XANST	XANST	XANST	IPOHE	IPOHE	IPOHE	ABUTH	ABUTH	ABUTH									
Crop Code	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control									
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent									
Rating Unit	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT									
Rating Date																					
Trt-Eval Interval																					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code												
16	CORN IN 2002									100	100	100	83	80	80	100	100	100	97	97	97
16	REDUCED-TILL																				
16	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A												
16	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B												
16	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B												
17	CORN IN 2002									93	93	93	100	100	100	100	100	100	100	100	100
17	REDUCED-TILL																				
17	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B												
17	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B												
17	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	10DA2-4"	C												
17	AMS	100	DRY	3	LB/A	3	LB/A	10DA2-4"	C												
18	CORN IN 2002									88	85	85	86	84	84	100	100	100	98	98	98
18	REDUCED-TILL																				
18	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B												
18	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B												
19	CORN IN 2002									88	86	86	96	96	96	100	100	100	100	100	100
19	REDUCED-TILL																				
19	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B												
19	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	2-4"W-1	B												
19	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B												
20	CORN IN 2002									88	84	84	99	99	99	100	100	100	98	98	98
20	REDUCED-TILL																				
20	BASIS GOLD	90	WG	0.79	LB A/A	14	OZ/A	2-4"W-1	B												
20	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-1	B												
LSD (P=.05)										5.1	5.3	5.3	3.5	6.3	6.3	1.7	1.9	1.9	2.9	2.9	2.9
Replicate F										0.989	3.222	3.222	0.858	0.339	0.339	0.718	0.416	0.416	0.133	0.133	0.133
Replicate Prob(F)										0.4044	0.0292	0.0292	0.4681	0.7970	0.7970	0.5453	0.7421	0.7421	0.9397	0.9397	0.9397
Treatment F										144.918	135.647	135.647	326.038	110.279	110.279	1456.165	1159.131	1159.131	485.035	485.035	485.035
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code			
1	CORN IN 2002									100	100	100
1	NO-TILL											
1	NONTREATED											
2	CORN IN 2002									100	100	100
2	NO-TILL											
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
2	HANDWEED											
3	CORN IN 2002									100	100	100
3	NO-TILL											
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
3	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A			
3	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A			
4	CORN IN 2002									100	100	100
4	NO-TILL											
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
4	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A			
4	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A			
4	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-2	D			
4	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-2	D			
5	CORN IN 2002									100	100	100
5	NO-TILL											
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
5	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A			
5	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A			
5	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"W-2	D			
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-2	D			
6	CORN IN 2002									100	100	100
6	NO-TILL											
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
6	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A			
6	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
6	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
7	CORN IN 2002									100	100	100
7	NO-TILL											
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
7	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
7	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
7	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	10DA2-4"	C			
7	AMS	100	DRY	3	LB/A	3	LB/A	10DA2-4"	C			

Weed Code	AMATA	AMATA	AMATA
Crop Code			
Rating Data Type	Control	Control	Control
Rating Unit	Percent	Percent	Percent
Rating Date			
Trt-Eval Interval	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			
8	CORN IN 2002									95	95	95
8	NO-TILL											
8	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	PRE	A			
8	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
8	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
9	CORN IN 2002									100	100	100
9	NO-TILL											
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
9	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
9	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	2-4"W-1	B			
9	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
10	CORN IN 2002									100	100	100
10	NO-TILL											
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.62	PT/A	PRE	A			
10	BASIS GOLD	90	WG	0.79	LB A/A	14	OZ/A	2-4"W-1	B			
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-1	B			
11	CORN IN 2002									0	0	0
11	REDUCED-TILL											
11	NONTREATED											
12	CORN IN 2002									100	100	100
12	REDUCED-TILL											
12	CULTIVATE											
12	HANDWEED											
13	CORN IN 2002									100	100	100
13	REDUCED-TILL											
13	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A			
13	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A			
14	CORN IN 2002									100	100	100
14	REDUCED-TILL											
14	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A			
14	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A			
14	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-2	D			
14	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-2	D			
15	CORN IN 2002									100	100	100
15	REDUCED-TILL											
15	BICEP II MAGNUM	5.5	L	2.88	LB A/A	2.1	QT/A	PRE	A			
15	AATREX	90	WG	0.40	LB A/A	7.1	OZ/A	PRE	A			
15	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"W-2	D			
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-2	D			

Weed Code		AMATA	AMATA	AMATA
Crop Code				
Rating Data Type		Control	Control	Control
Rating Unit		Percent	Percent	Percent
Rating Date				
Trt-Eval Interval		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	14 DAT	28 DAT	56 DAT
16	CORN IN 2002									100	100	100
16	REDUCED-TILL											
16	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A			
16	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
16	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
17	CORN IN 2002									100	100	100
17	REDUCED-TILL											
17	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
17	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
17	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	10DA2-4"	C			
17	AMS	100	DRY	3	LB/A	3	LB/A	10DA2-4"	C			
18	CORN IN 2002									100	100	100
18	REDUCED-TILL											
18	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
18	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
19	CORN IN 2002									100	100	100
19	REDUCED-TILL											
19	LIBERTY	1.67	EC	0.27	LB A/A	20.7	OZ/A	2-4"W-1	B			
19	AATREX	90	WG	0.75	LB A/A	13.3	OZ/A	2-4"W-1	B			
19	AMS	100	DRY	3	LB/A	3	LB/A	2-4"W-1	B			
20	CORN IN 2002									90	89	89
20	REDUCED-TILL											
20	BASIS GOLD	90	WG	0.79	LB A/A	14	OZ/A	2-4"W-1	B			
20	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"W-1	B			
LSD (P=.05)										3.4	3.9	3.9
Replicate F										1.303	1.329	1.329
Replicate Prob(F)										0.2824	0.2740	0.2740
Treatment F										343.572	257.746	257.746
Treatment Prob(F)										0.0001	0.0001	0.0001

Long-Term Tillage by Herbicide Study in a Transgenic Corn and Soybean Rotation.

Project Code: 02-9B-Corn Location: Belleville Research Center

Trial Comments

1. Protocol: SIU (RFK).
2. Study conducted since 1998 on same area.
3. DA-A = days after PRE application. DAT = days after PRE or first POST application for PRE only or PRE/POST, POST and POST/POST treatments, respectively.
Ratings at 14 days after PRE, 2-4"W-1 and 2-4"W-2 applications were on 6-15-02, 7-2-02, and 7-8-02, respectively.
Ratings at 28 days after PRE, 2-4"W-1 and 2-4"W-2 applications were on 6-29-02, 7-16-02, and 7-22-02, respectively.
Ratings at 56 days after PRE, 2-4"W-1 and 2-4"W-2 applications were on 7-27-02, 8-13-02, and 8-19-02, respectively.
4. Non-zero crop injury and weed control ratings in the nontreated plots reflect the effects of; competition among weeds, tillage, and/or dense matting of burned-down weeds.