Sequential versus Total Postemergence Weed Control in Roundup Ready Corn.

00-19B

OBJECTIVE: Determine benefits of a soil residual herbicide in Roundup Ready corn such as extending the application window for Roundup.

SUMMARY: No corn injury or height reduction was observed from any treatment. Giant foxtail, common ragweed, and giant ragweed control on July 4 was good for all herbicide treatments. Velvetleaf and common cocklebur control was reduced when Roundup Ultra was applied at the 2 to 4 inch weed height timing. Applying Bicep II Magnum preemergence before Roundup Ultra at 2 to 4 inch weed height increased control of common cocklebur but not velvetleaf. Ivyleaf morningglory control was greatest with sequential applications, Roundup Ultra at 6 to 8 inch weed height, and Roundup Ultra tank mixed with Aatrex.

Corn yield was 147 to 157 bu/A in plots that received a sequential application of Roundup Ultra or Bicep II Magnum. Reduced corn yield of 122 bu/A was observed in plots treated with a single application of Roundup Ultra at 10 to 14 inch weed height.

HERBICIDES	WEEDS	CROP
AATREX 90 WG	COCKLEBUR, COMMON	CORN, FIELD
BICEP II MAGNUM 5.5 L	FOXTAIL, GIANT	
NORTHSTAR 47.4 WG	MORNINGGLORY, IVYLEAF	
ROUNDUP ULTRA 3 SL	NUTSEDGE, YELLOW	
	RAGWEED, COMMON	
	RAGWEED, GIANT	
	VELVETLEAF	

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Sequential versus Total Postemergence Weed Control in Roundup Ready Corn.

Project Code: 00-19B 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. CYPES	NUTSEDGE, YELLOW	CYPERUS ESCULENTUS L.
3. AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
4. AMBTR	RAGWEED, GIANT	AMBROSIA TRIFIDA L.
5. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDIK.
6. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
7. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L. SSP. STRUMARIUM

Crop 1:	ZEAMX CORN, FIELD		Variety:	DK 626 RR	
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:	25 FT	Reps: 6
Tillage Type:	REDUCED-TILL		Study Design:	RCB	
Previous Crop, Year:	ZEAMX, 1999		Fertilizer applied:	N 150 LB/A,	P_2O_5 50 LB/A, K_2O 150 LB/A
Soil Name:	EBBERT		% OM: 1.9	pH: 6.1	CEC: 14
Texture:	SILT LOAM		P_1: 51 LB/A,	K: 338 LB/A	

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	May-4-00	May-22-00	May-30-00	Jun-6-00
Time of Day:	11:30	10:30	17:00	8:00
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	2-4"W	6-8"W	10-14"W
Applic. Placement:	BROSOI	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	74 F	72 F	85 F	60 F
% Relative Humidity:	78	26	60	30
Wind Velocity, Unit:	4-6 MPH	2-4 MPH	2-3 MPH	4-6 MPH
Soil Moisture:		NORMAL	NORMAL	NORMAL
% Cloud Cover:			0	0

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code, Stage:	NA	ZEAMX V3	ZEAMX V5	ZEAMX V6
Height, Unit:	NA	5-7 IN	12-14 IN	20-22 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:		SETFA	SETFA	SETFA
Stage(leaves):		2-4	4-6	6-8
Height(inches):		2-4	4-8	14-16
Density:		HIGH	HIGH	HIGH
Weed 2 Code:		CYPES	CYPES	
Stage(leaves):		3-4	4-6	
Height(inches):		2-4	4-6	
Density:		LOW	LOW	
Weed 3 Code:		AMBEL	AMBEL	AMBEL
Stage(leaves):		COTL-4	4-6	8-9
Height(inches):		2-4	4-7	12-16
Density:		LOW	LOW	MEDIUM
Weed 4 Code:		AMBTR	AMBTR	AMBTR
Stage(leaves):		COTL-4	4-8	8-9
Height(inches):		2-4	5-8	13-14
Density:		LOW	LOW	LOW
Weed 5 Code:		ABUTH	ABUTH	ABUTH
Stage(leaves):		COTL-3	3-5	6-7
Height(inches):		1-3	4-8	12-17
Density:		MEDIUM	MEDIUM	MEDIUM
Weed 6 Code:		IPOHE	IPOHE	IPOHE
Stage(leaves):		COTL-2	2-4	5-6
Height(inches):		1-3	3-5	15-17
Density:		MEDIUM	MEDIUM	MEDIUM
Weed 7 Code:		XANST	XANST	XANST
Stage(leaves):		COTL-4	4-6	10-12
Height(inches):		2-4	4-8	15-17
Density:		HIGH	MEDIUM	LOW

APPLICATION EQUIPMENT

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

NOTES:

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

TABLE. SEQUENTIAL VERSUS TOTAL POSTEMERGENCE WEED CONTROL IN ROUNDUP READY CORN. PROJECT CODE:00-19B

									ZEAMX					CONTROL						
												HEIGHT		SETFA			CYPES	ABUTH		
									INJURY			REDUCTION			DA		14		DA	
						APPL	APPL		DAT		0 DA	DA 10-14"W		AT	10-14"W		DA	AT	10-14"W	
	TREATMENT	FORM.	RATE	UNIT	PROD RATE	TIME	CODE	YIELD	14	28	10-14"W	0	28	2-4"W	14	28	10-14"W	2-4"W	14	28
								BU/A	%	%	%	%	%	%	%	%	%	%	%	%
1	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	2-4"W	B	134	0	0	0	0	0		96	98	52		81	83
1	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	2-4"W	B													
2	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	6-8"W	C	146	0	0	0	0	0		99	99	87		96	96
2	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C													
3	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	10-14"W	D	122	0	0	0	0	0		96	98	62		68	90
3	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	10-14"W	D													
4	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	2-4"W	B	154	0	0	0	0	0		99	98	83		97	96
4	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	2-4"W	B													
4	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	10-14"W	D													
4	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	10-14"W	D													
5	ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0 PT/A	6-8"W	C	131	0	0	0	0	0		99	99	98		97	98
5	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C													
6	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	6-8"W	C	143	0	0	0	0	0		99	99	95		99	97
6	AATREX	90 WG	1.0	LB A/A	1.11 LB/A	6-8"W	C													
6	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C													
7	NONTREATED							60	0	0	0	0	0	0	0	0	0	0	0	0
8	BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	154	0	0	0	0	0	99	99	99	99	98	55	81
9	BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	147	0	0	0	0	0	99	99	99	97	97	63	73
9	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	2-4"W	B													
9	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	2-4"W	B													
10	BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	156	0	0	0	0	0	99	99	99	98	99	92	96
10	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	6-8"W	C													
10	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C													
11	BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	157	0	0	0	0	0	99	99	99	97	96	96	96
11	ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	10-14"W	D													
11	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	10-14"W	D													
12	BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	150	0	0	0	0	0	99	99	99	97	99	98	97
12	NORTHSTAR	47.4 WG	0.148	LB A/A	5.0 OZ/A	6-8"W	C													
12	ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25 % V/V	6-8"W	C													
12	AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C													
LSD								18	0	0	0	0	0	0.3	1	0.9	12	2	11	11
P								0.01	1.0	1.0	1.0	1.0	1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01

(CONTINUED)

TABLE. SEQUENTIAL VERSUS TOTAL POSTEMERGENCE WEED CONTROL IN ROUNDUP READY CORN. PROJECT CODE:00-19B (CONTINUED)

								CONTROL													
								AMBEL			XANST			IPOHE			AMBTR		
									DA			DA			DA			DA	
					APPL	APPL	AT	10-14"W		AT	10-14"W		AT	10-14"W		AT	10-14"W	
TREATMENT	FORM.	RATE	UNIT	PROD RATE	TIME	CODE	2-4"W	14	28	2-4"W	14	28	2-4"W	14	28	2-4"W	14	28
							%	%	%	%	%	%	%	%	%	%	%	%
1 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	2-4"W	B		96	98		85	85		55	52		91	91
1AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	2-4"W	B												
2 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	6-8"W	C		99	99		98	96		87	87		96	96
2AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C												
3 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	10-14"W	D		87	93		96	98		50	76		82	89
3AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	10-14"W	D												
4 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	2-4"W	B		99	97		98	98		89	90		98	97
4AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	2-4"W	B												
4 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	10-14"W	D												
4AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	10-14"W	D												
5 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0 PT/A	6-8"W	C		98	98		98	96		95	96		98	98
5AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C												
6 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	6-8"W	C		99	99		99	98		97	98		98	98
6 AATREX	90 WG	1.0	LB A/A	1.11 LB/A	6-8"W	C												
6AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C												
7 NONTREATED							0	0	0	0	0	0	0	0	0	0	0	0
8 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	99	96	76	95	69	84	99	72	74	99	85	94
9 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	99	99	99	96	84	92	99	79	97	99	82	91
9 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	2-4"W	B												
9AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	2-4"W	B												
10 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	99	99	98	96	94	94	99	84	92	99	95	95
10 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	6-8"W	C												
10 AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C												
11 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	99	99	99	97	97	98	99	96	96	99	98	99
11 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	10-14"W	D												
11 AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	10-14"W	D												
12 BICEP II MAGNUM	5.5 L	2.89	LB A/A	2.1 QT/A	PRE	A	99	99	99	96	98	98	99	97	98	98	98	98
12 NORTHSTAR	47.4 WG	0.148	LB A/A	5.0 OZ/A	6-8"W	C												
12 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25 % V/V	6-8"W	C												
12 AMS	100 DRY	1.0	% W/W	8.5 LB/100 GAL	6-8"W	C												
LSD								0.2	5	14	4	10	6	0.2	12	14	0.9	12	8
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. PROTOCOL = NOVARTIS MJ035A
2. CROP INJURY RATING DATES:
   0 DAYS AFTER 10-14"W WAS ON JUN-6-00.
   14 DAYS AFTER 2-4"W, 6-8"W, AND 10-14"W APPLICATIONS WAS ON JUN-5-00, JUN-13-00, AND JUN-20-00 RESPECTIVELY.
   28 DAYS AFTER 2-4"W, 6-8"W, AND 10-14"W APPLICATIONS WAS ON JUN-19-00, JUN-27-00, AND JUL-4-00 RESPECTIVELY.
3. WEED CONTROL RATING DATES:
   AT 2-4"W, 14 DA 10-14"W, AND 28 DA 10-14"W ON MAY-22-00, JUN-20-00, AND JUL-4-00, RESPECTIVELY.