

Residual Herbicides in Roundup Ready Soybean Programs.

00-10B-E120

OBJECTIVE: Comparison of soil residual herbicides in a Roundup Ready soybean program.

SUMMARY: Soybean injury was less than 10% from all treatments except Extreme (20%) and Prowl followed by Extreme (11%) at 28 days after planting (DAP). No soybean injury was observed from any treatment at 56 DAP. All treatments controlled greater than 90% of giant foxtail, common waterhemp, and ivyleaf morningglory at 56 DAP. Extreme and Prowl followed by Extreme provided the greatest control of yellow nutsedge (89 to 90%). Common cocklebur control was at least 95% from all treatments except Boundary followed by Roundup Original (89%). Soybean yield ranged from 23 bu/A in nontreated plots to 50 bu/A. Soybean yield was highest in plots treated with FirstRate plus Glyphomax Plus or Canopy XL followed by Roundup Original.

HERBICIDES

BOUNDARY 7.8 EC
 CANOPY 75 WG
 CANOPY XL 56.3 WG
 DOMAIN 60 WG
 EXTREME 2.17 SL
 FIRSTRATE 84 WG
 GLYPHOMAX PLUS 3 SL
 MICROTECH 4 ME
 PENDIMAX 3.3 EC
 PROWL 3.3 EC
 ROUNDUP ORIGINAL 3 SL
 ROUNDUP ULTRA 3 SL
 ROUNDUP ULTRA MAX 3.75 SL

WEEDS

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

CROP

SOYBEAN

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Residual Herbicides in Roundup Ready Soybean Programs.

Project Code: 00-10B-E120 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. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDICUS
5. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
6. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
7. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L.

Crop 1:	GLXMA SOYBEAN	Variety:	B-T 369CR
Planting Method:	SEEDS	Planting Date:	May-11-00
Rate:	75 LB/A	Depth:	1.0 IN
Row Spacing:	15 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	25 FT	Reps:	4
Tillage Type:	REDUCED-TILL	Study Design:	RCB		
Previous Crop, Year:	ZEAMX, 1999	Fertilizer applied:	N 0 LB/A,	P ₂ O ₅ 0 LB/A,	K ₂ O 0 LB/A

Soil Name:	WEIR	% OM:	2.2	pH:	6.5	CEC:	12
Texture:	SILT LOAM	P _i :	87 LB/A,	K:	474 LB/A		

APPLICATION DESCRIPTION

	A	B	C	D	E	F
Application Date:	May-12-00	Jun-1-00	Jun-19-00	Jun-9-00	Jun-19-00	Jul-5-00
Time of Day:	8:00	16:00				11:30
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	1-3"W	4-8"W-1	3-6"W	4-8"W-2	2-8"WRG
Applic. Placement:	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	80 F	89 F	78 F	82 F	78 F	84 F
% Relative Humidity:	96	52	80	30	80	60
Wind Velocity, Unit:	0 MPH	5-10 MPH	0-3 MPH	7-10 MPH	0-3 MPH	1-3 MPH
Soil Moisture:	DRY	NORMAL	WET	NORMAL	WET	NORMAL
% Cloud Cover:		10	50	0	50	0

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Crop 1 Code, Stage:	NA	GLXMA V1	GLXMA V4	GLXMA V2	GLXMA V3	GLXMA V7-R1
Height, Unit:	NA	3-5 IN	6-7 IN	4 IN	6-7 IN	14-16 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Weed 1 Code:	SETFA	SETFA	SETFA	SETFA	SETFA	
Stage(leaves):	2-3	5-7	4-7	3-5	4-7	
Height(inches):	1-3	4-8	3-6	2-5	2-5	
Density:	HIGH	HIGH	HIGH	HIGH	HIGH	
Weed 2 Code:	CYPES	CYPES	CYPES	CYPES	CYPES	CYPES
Stage(leaves):	4-6	5-7	5-7	6-10	6-9	6-9
Height(inches):	1-4	4-6	4-6	4-8	4-8	4-8
Density:	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM
Weed 3 Code:	AMBEL	AMBEL	AMBEL	AMBEL	AMBEL	
Stage(leaves):	2-4	6-10+	4-6	6-8	3-6	
Height(inches):	1-2	6-8	2-4	3-6	3-6	
Density:	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	
Weed 4 Code:	ABUTH	ABUTH	ABUTH	ABUTH	ABUTH	
Stage(leaves):	COTL-1	4-6	2-4	3-4	2-4	
Height(inches):	1-3	4-6	1-2	2-4	2-4	
Density:	MEDIUM	LOW	MEDIUM	LOW	LOW	
Weed 5 Code:	IPOHE	IPOHE	IPOHE	IPOHE	IPOHE	IPOHE
Stage(leaves):	COTL-2	4-6	4-6	4-10	4-10	COTL-3
Height(inches):	1-3	2-4	2-3	2-4	2-4	2-5
Density:	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Weed 6 Code:	AMATA	AMATA	AMATA	AMATA	AMATA	AMATA
Stage(leaves):	2-4	5-7	2-4	4-5	5-7	5-7
Height(inches):	0-1	2-4	0-1	1-2	2-5	2-5
Density:	LOW	MEDIUM	LOW	LOW	LOW	MEDIUM
Weed 7 Code:	XANST	XANST	XANST	XANST	XANST	
Stage(leaves):	6-8	4-6	4-6	6	6-8	
Height(inches):	6-8	4-6	4-6	6-8	6-8	
Density:	HIGH	LOW	LOW	LOW	LOW	

APPLICATION EQUIPMENT

	A	B	C	D	E	F
Appl. Equipment:	CO ₂ SPRAY	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	40 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	8003	8002	8002	8002	8002	8002
Boom Length, Unit:	7.33 FT	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	20 GPA

NOTES:

Harvested Oct-21-00, (5) 30 inch rows by 21 ft.

TABLE. RESIDUAL HERBICIDES IN ROUNDUP READY SOYBEAN PROGRAMS. PROJECT CODE:00-10B-E120

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD BU/A	GLXMA INJURY DAP		CONTROL, DAYS AFTER PLANITING														
								28	56	SETFA		CYPES		XANST		AMATA		IPOHE		ABUTH		AMBEL		
										%	%	%	%	%	%	%	%	%	%	%	%	%	%	
1 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	4-8"W-1	C	44	0	0	0	99	0	79	0	95	0	99	0	98	0	99	0	99
1 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-1	C																	
2 ROUNDUP ULTRA MAX	3.75 SL	0.75	LB AE/A	1.6	PT/A	4-8"W-1	C	46	0	0	0	99	0	83	0	98	0	99	0	94	0	99	0	99
2 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-1	C																	
3 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	4-8"W-1	C	47	0	0	0	99	0	79	0	97	0	99	0	96	0	99	0	99
3 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-1	C																	
3 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	2-8"WRG	F																	
3 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	2-8"WRG	F																	
4 MICROTECH	4 ME	2.0	LB A/A	4.0	PT/A	PRE	A	45	5	0	95	99	91	75	10	99	97	99	10	98	0	99	0	99
4 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	4-8"W-2	E																	
4 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-2	E																	
5 PENDIMAX	3.3 EC	0.928	LB A/A	2.25	PT/A	PRE	A	41	6	0	76	99	48	76	13	99	96	99	5	98	6	99	4	99
5 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	4-8"W-2	E																	
5 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-2	E																	
6 FIRSTRATE	84 WG	0.016	LB A/A	0.305	OZ/A	PRE	A	44	0	0	39	99	48	84	98	97	10	99	84	99	94	99	79	99
6 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	4-8"W-2	E																	
6 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-2	E																	
7 FIRSTRATE	84 WG	0.031	LB A/A	0.59	OZ/A	PRE	A	46	0	0	60	99	75	80	97	98	15	99	90	99	97	99	98	99
7 ROUNDUP ULTRA	3 SL	0.75	LB AE/A	2.0	PT/A	4-8"W-2	E																	
7 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-2	E																	
8 FIRSTRATE	84 WG	0.016	LB A/A	0.305	OZ/A	4-8"W-1	C	50	0	0	0	99	0	80	0	99	0	99	0	98	0	99	0	99
8 GLYPHOMAX PLUS	3 SL	0.56	LB AE/A	1.5	PT/A	4-8"W-1	C																	
8 AMS	100 DRY	2.0	% W/W	17.0	LB/100 GAL	4-8"W-1	C																	
9 EXTREME	2.17 SL	0.814	LB A/A	3.0	PT/A	1-3"W	B	40	20	0	99	99	81	89	99	97	99	98	94	94	97	98	99	99
9 ACTIVATOR 90	100 LIQ	0.125	% V/V	0.125	%V/V	1-3"W	B																	
9 AMS	100 DRY	1.5	% W/W	12.5	LB/100 GAL	1-3"W	B																	
10 PROWL	3.3 EC	1.05	LB A/A	2.55	PT/A	PRE	A	43	11	0	69	99	75	90	33	97	99	98	21	95	56	99	23	97
10 EXTREME	2.17 SL	0.814	LB A/A	3.0	PT/A	3-6"W	D																	
10 ACTIVATOR 90	100 LIQ	0.125	% V/V	0.125	%V/V	3-6"W	D																	
10 AMS	100 DRY	1.5	% W/W	12.5	LB/100 GAL	3-6"W	D																	

(CONTINUED)

TABLE. RESIDUAL HERBICIDES IN ROUNDUP READY SOYBEAN PROGRAMS. PROJECT CODE:00-10B-E120 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD BU/A	GLXMA INJURY		CONTROL, DAYS AFTER PLANITING													
								DAP		SETFA		CYPES		XANST		AMATA		IPOHE		ABUTH		AMBEL	
								28	56	28	56	28	56	28	56	28	56	28	56	28	56	28	56
11 BOUNDARY	7.8 EC	1.22 LB A/A	1.25 PT/A	PRE	A	43	1	0	97	99	86	61	23	89	99	99	11	93	23	99	36	98	
11 ROUNDUP ORIGINAL	3 SL	0.56 LB AE/A	1.5 PT/A	3-6"W	D																		
11 ACTIVATOR 90	100 LIQ	0.5 % V/V	0.5 %V/V	3-6"W	D																		
11 AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	3-6"W	D																		
12 DOMAIN	60 WG	0.375 LB A/A	10.0 OZ/A	PRE	A	40	0	0	89	99	55	50	26	96	99	99	15	94	55	98	44	99	
12 ROUNDUP ORIGINAL	3 SL	0.56 LB AE/A	1.5 PT/A	3-6"W	D																		
12 ACTIVATOR 90	100 LIQ	0.5 % V/V	0.5 %V/V	3-6"W	D																		
12 AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	3-6"W	D																		
13 CANOPY	75 WG	0.14 LB A/A	3.0 OZ/A	PRE	A	44	0	0	23	99	81	75	64	96	97	98	80	91	94	98	95	99	
13 ROUNDUP ORIGINAL	3 SL	0.56 LB AE/A	1.5 PT/A	3-6"W	D																		
13 ACTIVATOR 90	100 LIQ	0.5 % V/V	0.5 %V/V	3-6"W	D																		
13 AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	3-6"W	D																		
14 CANOPY XL	56.3 WG		3.4 OZ/A	PRE	A	47	0	0	31	99	99	80	94	98	99	99	94	99	96	99	99	99	
14 ->CLASSIC	25 WG	0.02 LB A/A		PRE	A																		
14 ->AUTHORITY	75 WG	0.1 LB A/A		PRE	A																		
14 ROUNDUP ORIGINAL	3 SL	0.56 LB AE/A	1.5 PT/A	3-6"W	D																		
14 ACTIVATOR 90	100 LIQ	0.5 % V/V	0.5 %V/V	3-6"W	D																		
14 AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	3-6"W	D																		
15 NONTREATED							23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LSD							5	4	0	21	1	31	16	31	5	12	1	17	4	22	1	31	1
P							0.01	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: MONSANTO TRT1-14 (200-01-30-07); AMCY TRT10.
2. DAP = DAYS AFTER PLANTING
3. 28 DAP WAS ALSO 27 DAYS AFTER PRE AND 7 DAYS AFTER 1-3"W APPLICATION.
4. RATING DATES:
28 DAP, AND 56 DAP ON JUN-8-00, AND JUL-6-00, RESPECTIVELY.