Effect of Soil Residual on Weed Spectrum at Postemergence Timing - Study 1.

Project Code: 03-21S-E50 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final **Updated:** 10-28-03

Objective:
Determine any difference in weed spectrum from several soil residual herbicides at a postemergence application of glyphosate. Furthermore, determine if the performance of glyphosate is different as a response to the soil applied herbicides.

Weed	Code	Common Name	Scientific Name
1.	SETFA	foxtail, giant	Setaria faberi Herrm.
2.	XANST	cocklebur, common	Xanthium strumarium L.
3.	IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.
4.	AMBEL	ragweed, common	Ambrosia artemisiifolia L.
5.	CYPES	nutsedge, yellow	Cyperus esculentus L.
6.	AMATA	waterhemp, common	Amaranthus rudis Sauer
7.	SIDSP	sida, prickly	Sida spinosa L.
8.	ABUTH	velvetleaf	Abutilon theophrasti Medicus
9.	CHEAL	lambsquarters, common	Chenopodium album L.
10.	AMBTR	ragweed, giant	Ambrosia trifida L.
11.	TTTTT	weeds, generally	

Crop 1: GLXMA soybean **Variety:** Asgrow 4603 RR
Planting Method: Seeded **Planting Date:** 6-5-03
Rate: 75 lb/A **Depth:** 1.0 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 30 FT **Reps:** 3
Tillage Type: Reduced-Till **Study Design:** Randomized complete block
Previous Crop, Year: ZEAMX, 2002

Field Prep./Maintenance: N 0 LB/A, P2O5 50 LB/A, K2O 150 LB/A

Soil Name: Ebbert **% OM:** 1.4 **pH:** 5.7 **CEC:** 14
Texture: Silt loam **Fert. Level:** P1: 97 LB/A, K: 291 LB/A

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	6-6-03	7-3-03	7-14-03	7-17-03	7-23-03
Time of Day:	17:00	15:30	18:30	14:00	6:30
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	4-8"W	10-12"W1	10-12"W2	2-4"REGR
Applic. Placement:	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	68 F	92 F	90 F	86 F	70 F
% Relative Humidity:	96	48	42	38	70
Wind Velocity, Unit:	0 MPH	5 MPH	0 MPH	0 MPH	0 MPH
Soil Moisture:	ABONOR	NORMAL	NORMAL	NORMAL	NORMAL

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	GLXMA NA	GLXMA V2	GLXMA V5	GLXMA V5	GLXMA R1
Height, Unit:	NA NA	5 IN	8 IN	8 IN	16 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:		SETFA	SETFA	SETFA	
Stage(leaves):		3-5	5-10	5-10	
Height(inches):		4-6	6-12	5-10	
Density:		High	High	High	
Weed 2 Code:		XANST	XANST	XANST	
Stage(leaves):		3-6	6-12	6-12	
Height(inches):		4-6	6-14	6-14	
Density:		Medium	Medium	Medium	

Weed 3 Code:	IPOHE	IPOHE	IPOHE	IPOHE
Stage(leaves):	0-0	3-7	3-7	2-4
Height(inches):	0-1	6-8	6-8	2-4
Density:	Low	Low	Low	High
Weed 4 Code:		AMBEL	AMBEL	
Stage(leaves):		8-12	8-12	
Height(inches):		6-14	6-14	
Density:		Low	Low	
Weed 5 Code:		CYPES		
Stage(leaves):		5-6		
Height(inches):		4-8		
Density:		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:

Harvested Oct-20-03, (2) 30 inch rows by 27 ft.

Effect of Soil Residual on Weed Spectrum at Postemergence Timing - Study 1.

Project Code: 03-21S-E50 Location: Belleville Research Center

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Yield bu/A	GLXMA Injury Percent	GLXMA Injury Percent	GLXMA Injury Percent	SETFA Control Percent	SETFA Control Percent	SETFA Control Percent	XANST Control Percent	XANST Control Percent	XANST Control Percent	IPOHE Control Percent	IPOHE Control Percent	IPOHE Control Percent
	Weed Code																					
	Crop Code									GLXMA	GLXMA	GLXMA	GLXMA	SETFA	SETFA	SETFA	XANST	XANST	XANST	IPOHE	IPOHE	IPOHE
	Rating Data Type									Yield	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control
	Rating Unit									bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
	Rating Date									10-20-03	6-26-03											
	Trt-Eval Interval										21 DAP	14 DAT	28 DAT	0 DAT	14 DAT	28 DAT	0 DAT	14 DAT	28 DAT	0 DAT	14 DAT	28 DAT
1	NONTREATED									13	0	0	0	0	0	0	0	0	0	0	0	0
2	PROWL	3.3	EC	0.743	LB A/A	1.8	PT/A	PRE	A	44	3	0	0	58	99	98	7	99	99	7	53	53
2	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
3	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	42	3	0	0	78	99	98	0	99	99	13	45	53
3	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
4	AXIOM	68	WG	0.2975	LB A/A	7	OZ/A	PRE	A	48	2	0	0	79	99	98	0	98	99	17	45	53
4	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
5	BOUNDARY	7.8	EC	1.22	LB A/A	1.25	PT/A	PRE	A	43	3	0	0	83	99	98	27	98	98	28	58	53
5	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
6	DOMAIN	60	WG	0.3375	LB A/A	9	OZ/A	PRE	A	43	5	0	0	58	99	97	3	99	99	13	50	57
6	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
7	SENCOR	75	WG	0.5	LB A/A	0.67	LB/A	PRE	A	47	0	0	0	30	99	99	53	99	99	13	53	55
7	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
8	PYTHON	80	WG	0.057	LB A/A	1.14	OZ/A	PRE	A	44	2	0	0	7	99	98	95	99	99	43	52	50
8	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
8	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
9	AUTHORITY	75	WG	0.1406	LB A/A	3	OZ/A	PRE	A	43	3	0	0	13	99	99	37	98	99	67	70	78
9	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
10	CANOPY XL	56.3	WG			4.5	OZ/A	PRE	A	47	7	0	0	50	99	99	93	99	99	57	65	75
10	->CLASSIC	25	WG	0.0264	LB A/A			PRE	A													
10	->AUTHORITY	75	WG	0.132	LB A/A			PRE	A													
10	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W2	D													
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W2	D													
11	VALOR	51	WG	0.0781	LB A/A	2.45	OZ/A	PRE	A	44	5	0	0	37	99	98	27	99	98	30	45	57
11	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
11	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Yield bu/A	GLXMA Injury Percent	GLXMA Injury Percent	GLXMA Injury Percent	SETFA Control Percent	SETFA Control Percent	SETFA Control Percent	XANST Control Percent	XANST Control Percent	XANST Control Percent	IPOHE Control Percent	IPOHE Control Percent	IPOHE Control Percent
Weed Code																						
Crop Code										GLXMA	GLXMA	GLXMA	GLXMA	SETFA	SETFA	SETFA	XANST	XANST	XANST	IPOHE	IPOHE	IPOHE
Rating Data Type										Yield	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control
Rating Unit										bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date										10-20-03	6-26-03											
Trt-Eval Interval											21 DAP	14 DAT	28 DAT	0 DAT	14 DAT	28 DAT	0 DAT	14 DAT	28 DAT	0 DAT	14 DAT	28 DAT
12	FIRSTRATE	84	WG	0.0315	LB A/A	0.6	OZ/A	PRE	A	47	0	0	0	0	99	99	93	99	99	53	60	70
12	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W2	D													
12	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W2	D													
13	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C	43	0	0	0		99	98		99	99		47	55
13	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-8"W	B	51	0	0	0	99	99	99	99	99	99	95	68	75
14	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	4-8"W	B													
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	2-4"REGR	E													
14	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	2-4"REGR	E													
15	HANDWEED									57	0	0	0	99	99	99	99	99	99	99	99	96
LSD (P=.05)										7.1	5.8	0.0	0.0	17.1	0.0	0.9	15.3	1.3	0.6	14.0	9.9	11.6
Replicate F										0.440	3.559	0.000	0.000	1.079	0.000	1.690	1.095	0.256	1.806	1.169	3.104	3.876
Replicate Prob(F)										0.6484	0.0420	1.0000	1.0000	0.3548	1.0000	0.2029	0.3494	0.7760	0.1829	0.3265	0.0606	0.0327
Treatment F										14.763	1.271	0.000	0.000	36.708	0.000	7008.759	64.502	3209.598	13222.517	44.198	36.024	27.169
Treatment Prob(F)										0.0001	0.2845	1.0000	1.0000	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMBEL Control Percent 14 DAT	AMBEL Control Percent 28 DAT	SETFA Plants 1.0 m2 At Post	XANST Plants 1.0 m2 At Post	AMBEL Plants 1.0 m2 At Post	IPOHE Plants 1.0 m2 At Post	CYPES Plants 1.0 m2 At Post	AMATA Plants 1.0 m2 At Post	SIDSP Plants 1.0 m2 At Post	ABUTH Plants 1.0 m2 At Post	CHEAL Plants 1.0 m2 At Post	AMBTR Plants 1.0 m2 At Post	TTTTT Dry Wt. g/1.0 m2 At Post
1	NONTREATED									0	0	300	18	1	12	9	1	3	3	0	0	126.03
2	PROWL	3.3	EC	0.743	LB A/A	1.8	PT/A	PRE	A	98	96	291	22	5	8	19	2	6	6	3	0	105.53
2	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
3	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	99	99	116	59	5	8	2	0	4	6	1	1	114.90
3	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
4	AXIOM	68	WG	0.2975	LB A/A	7	OZ/A	PRE	A	98	98	145	31	2	10	17	1	6	2	1	0	107.30
4	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
5	BOUNDARY	7.8	EC	1.22	LB A/A	1.25	PT/A	PRE	A	99	98	92	34	1	11	3	0	7	4	0	1	89.73
5	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
6	DOMAIN	60	WG	0.3375	LB A/A	9	OZ/A	PRE	A	99	99	177	28	3	15	4	1	3	3	0	0	116.20
6	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
7	SENCOR	75	WG	0.5	LB A/A	0.67	LB/A	PRE	A	99	99	289	9	0	12	16	0	5	1	0	0	105.13
7	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
8	PYTHON	80	WG	0.057	LB A/A	1.14	OZ/A	PRE	A	99	99	273	4	1	8	13	4	0	0	0	0	105.87
8	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
8	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
9	AUTHORITY	75	WG	0.1406	LB A/A	3	OZ/A	PRE	A	99	98	248	16	2	8	8	1	2	0	0	0	105.93
9	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
10	CANOPY XL	56.3	WG			4.5	OZ/A	PRE	A	99	99	169	6	0	8	5	1	7	0	0	0	78.23
10	->CLASSIC	25	WG	0.0264	LB A/A			PRE	A													
10	->AUTHORITY	75	WG	0.132	LB A/A			PRE	A													
10	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W2	D													
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W2	D													
11	VALOR	51	WG	0.0781	LB A/A	2.45	OZ/A	PRE	A	99	99	223	22	1	7	24	1	4	2	0	0	130.03
11	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
11	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C													
12	FIRSTRATE	84	WG	0.0315	LB A/A	0.6	OZ/A	PRE	A	99	99	367	3	0	7	9	2	5	0	0	0	106.04
12	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W2	D													
12	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W2	D													

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMBEL	AMBEL	SETFA	XANST	AMBEL	IPOHE	CYPES	AMATA	SIDSP	ABUTH	CHEAL	AMBTR	TTTTT
	Weed Code									AMBEL	AMBEL	SETFA	XANST	AMBEL	IPOHE	CYPES	AMATA	SIDSP	ABUTH	CHEAL	AMBTR	TTTTT
	Crop Code																					
	Rating Data Type									Control	Control	Plants	Plants	Plants	Plants	Plants	Plants	Plants	Plants	Plants	Plants	Dry Wt.
	Rating Unit									Percent	Percent	1.0 m2	1.0 m2	1.0 m2	1.0 m2	1.0 m2	1.0 m2	1.0 m2	1.0 m2	1.0 m2	1.0 m2	g/1.0 m2
	Rating Date																					
	Trt-Eval Interval									14 DAT	28 DAT	At Post	At Post	At Post	At Post	At Post	At Post	At Post	At Post	At Post	At Post	At Post
13	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	10-12"W1	C	97	96	300	18	1	12	9	1	3	3	0	0	126.03
13	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	10-12"W1	C													
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-8"W	B	99	99	606	20	2	8	4	4	8	2	0	0	42.38
14	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	4-8"W	B													
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	2-4"REGR	E													
14	AMS	100	DRY	2.0	% W/W	17	LB/100 GAL	2-4"REGR	E													
15	HANDWEED									99	99											
LSD (P=.05)										2.2	3.6	193.1	29.1	3.6	9.8	12.6	2.4	4.8	5.1	2.5	0.8	24.420
Replicate F										1.160	1.139	2.566	2.195	7.539	11.544	2.366	6.131	0.092	0.686	3.108	0.893	3.340
Replicate Prob(F)										0.3280	0.3345	0.0962	0.1315	0.0026	0.0003	0.1137	0.0066	0.9126	0.5123	0.0616	0.4216	0.0512
Treatment F										1093.588	418.591	3.755	2.173	1.961	0.531	2.374	1.887	1.604	1.162	1.000	0.794	7.205
Treatment Prob(F)										0.0001	0.0001	0.0020	0.0447	0.0697	0.8836	0.0294	0.0815	0.1479	0.3578	0.4786	0.6605	0.0001

Effect of Soil Residual on Weed Spectrum at Postemergence Timing - Study 1.

Project Code: 03-21S-E50 Location: Belleville Research Center

Trial Comments

1. Protocol: SIU (BGY).
2. Ratings: CI at 21 DAP and at each postemergence timing;
   WC at each postemergence timing and at 14 and 28 DA 10-12"W2 application; Yield.
3. For postemergence applications, determine timing for each treatment. Record application information on a rating sheet by treatment.
4. Take weed counts per 0.5 square meter and biomass at 4-8"W for all plots, and again at each postemergence timing for treatments 2-12.
5. DAP = days after planting. At Post = at various postemergence application timings.
6. DAT = days after 10-12"W1 or 10-12"W2 application.
   Ratings at 0 days after 10-12"W1 and 10-12"W2 application were made on 7-14-03 and 7-17-03, respectively.
   Ratings at 14 days after 10-12"W1 and 10-12"W2 application were made on 7-28-03 and 7-31-03, respectively.
   Ratings at 28 days after 10-12"W1 and 10-12"W2 application were made on 8-11-03 and 8-14-03, respectively.