

Southern Illinois University

Liberty Herbicide Tolerance and Yield Implications in Liberty Link Soybean.

Trial ID: 12-2B-E95  
 Location: Belleville Res. Center  
 Investigator: Bryan Young

General Trial Information	
<b>Study Director:</b> Bryan Young	<b>Title:</b> Professor
<b>Investigator:</b> Bryan Young	
<b>Trial Status:</b> F - one-year/final	
<b>Initiation Date:</b> 5-22-12	
Trial Location	
<b>City:</b> Belleville	
<b>State/Prov.:</b> IL	
<b>Postal Code:</b> 62221	
<b>Country:</b> USA	

<b>Objectives:</b> Evaluate soybean response to Liberty applied at two rates, three application timings and in sequential applications under weedfree conditions.
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Personnel	
<b>Study Director:</b> Bryan Young	<b>Title:</b> Professor
<b>Investigator:</b> Bryan Young	
<b>Affiliation:</b> Southern Illinois University	
<b>Address:</b> 1205 Lincoln Drive - AG 176 - MC 4415	
<b>Location:</b> Carbondale IL	
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Crop Description	
<b>Crop 1:</b> GLXMA Glycine max Soybean	<b>Description:</b> LL
<b>Variety:</b> HS 43L12	<b>Planting Date:</b> 5-22-12
<b>BBCH Scale:</b> BSOY	<b>Rate, Unit:</b> 75 LB/A
<b>Planting Method:</b> SEEDED Seeded	
<b>Depth, Unit:</b> 1 IN	
<b>Row Spacing, Unit:</b> 30 IN	

Pest Description	
<b>Pest 1 Type:</b> W	<b>Code:</b> NA
<b>Common Name:</b> crop tolerance only	

Site and Design	
<b>Plot Width, Unit:</b> 10 FT	<b>Site Type:</b> FIELD field
<b>Plot Length, Unit:</b> 28 FT	
<b>Plot Area, Unit:</b> 280 FT <sup>2</sup>	<b>Tillage Type:</b> REDTIL reduced-till
<b>Replications:</b> 4	<b>Study Design:</b> RACOB� Randomized Complete Block (RCB)

No.	Previous Crop	Year
1.	ZEAMD	2011

Maintenance	
<b>No.</b>	<b>Maintenance Treatment Name</b>
1.	N 0 LB/A, P205 50 LB/A, K20 150 LB/A

Soil Description	
<b>% OM:</b> 1.6	<b>Texture:</b> SIL SILT LOAM
<b>pH:</b> 6.8	<b>Soil Name:</b> PIERRON
<b>CEC:</b> 8	

Additional Measured Elements		
Element	Quantity	Unit
P1	77	LB/A
K	252	LB/A

Moisture and Weather Conditions	
<b>Overall Moisture Conditions:</b>	BELNOR below normal
<b>Closest Weather Station:</b> ICN - Belleville IL	<b>Distance, Unit:</b> 0.5 MI

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No.	Date	Amount	Unit	Type	Type Description	Interval	Unit	Min Temp	Max Temp	Temp Unit
1.	4-24-12					7	DAY	42.6	74.3	F
2.	4-29-12	3.06	IN	RAIN	rain					
3.	4-30-12	0.66	IN	RAIN	rain					
4.	5-1-12	0.13	IN	RAIN	rain					
5.	5-1-12					7	DAY	33.5	76	F
6.	5-4-12	0.25	IN	RAIN	rain					
7.	5-7-12	0.29	IN	RAIN	rain					
8.	5-8-12					7	DAY	47.5	87.8	F
9.	5-15-12					7	DAY	37.7	81.3	F
10.	5-21-12	0.18	IN	RAIN	rain					
11.	5-22-12					7	DAY	47.6	82.3	F
12.	5-29-12					7	DAY	48.1	90	F
13.	5-30-12	0.07	IN	RAIN	rain					
14.	5-31-12	0.21	IN	RAIN	rain					
15.	6-5-12					7	DAY	50.2	90.1	F
16.	6-11-12	0.75	IN	RAIN	rain					
17.	6-12-12					7	DAY	52.4	93.6	F
18.	6-17-12	0.36	IN	RAIN	rain					
19.	6-19-12					7	DAY	56.3	94	F
20.	6-26-12					7	DAY	51.8	105.4	F
21.	7-3-12					7	DAY	68.9	104.7	F
22.	7-8-12	0.28	IN	RAIN	rain					
23.	7-10-12					7	DAY	63.4	95	F
24.	7-17-12					7	DAY	61	102.2	F
25.	7-24-12					7	DAY	61	103	F
26.	7-29-12	0.15	IN	RAIN	rain					
27.	7-31-12					7	DAY	60.2	99.1	F
28.	8-5-12	0.18	IN	RAIN	rain					
29.	8-7-12					7	DAY	50.2	99.8	F
30.	8-13-12	0.88	IN	RAIN	rain					
31.	8-14-12					7	DAY	51	95.6	F
32.	8-17-12	1.19	IN	RAIN	rain					
33.	8-21-12					7	DAY	54.7	94.2	F
34.	8-26-12	0.04	IN	RAIN	rain					
35.	8-27-12	1.66	IN	RAIN	rain					
36.	8-31-12	0.11	IN	RAIN	rain					

Application Description

	A	B	C
Application Date:	6-20-12	7-6-12	7-13-12
Time of Day:	7:00	8:00	10:00
Application Method:	Spray	Spray	Spray
Application Timing:	V3	R1	R2
Application Placement:	BROFOL	BROFOL	BROFOL
Applied By:	RFK	TAR	TAR
Air Temperature, Unit:	76 F	90 F	85 F
% Relative Humidity:	71	57	63
Wind Velocity, Unit:	3 MPH	0 MPH	0 MPH
Wind Direction:	S		
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	77 F	84 F	81 F
Soil Moisture:	NORMAL	BELNOR	BELNOR
% Cloud Cover:	0	0	0
Next Rain Occurred On:	7-8-12	7-8-12	7-29-12

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Crop Stage At Each Application						
	A		B		C	
<b>Crop 1 Code, BBCH Scale:</b>	GLXMA	BSOY	GLXMA	BSOY	GLXMA	BSOY
<b>Stage Scale Used:</b>	DESC		DESC		DESC	
<b>Stage Majority, Percent:</b>	V3		R1		R2	
<b>Stage Minimum, Percent:</b>	V3		R1		R2	
<b>Stage Maximum, Percent:</b>	V3		R1		R2	
<b>Height, Unit:</b>	6	IN	14	IN	18	IN
<b>Height Minimum, Maximum:</b>	4	6	12	14	16	18

Pest Stage At Each Application						
	A		B		C	
<b>Pest 1 Code, Type, Scale:</b>	NA	W DESC	NA	W DESC	NA	W DESC
<b>Stage Majority, Percent:</b>	NA		NA		NA	

Application Equipment						
	A		B		C	
<b>Appl. Equipment:</b>	CO2 sprayer		CO2 sprayer		CO2 sprayer	
<b>Equipment Type:</b>	BACSPR		BACSPR		BACSPR	
<b>Operation Pressure, Unit:</b>	30	PSI	30	PSI	30	PSI
<b>Nozzle Type:</b>	XR		XR		XR	
<b>Nozzle Size:</b>	8002		8002		8002	
<b>Boom Length, Unit:</b>	10	FT	10	FT	10	FT
<b>Spray Volume, Unit:</b>	15	GPA	15	GPA	15	GPA

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Pest Code Crop Code Rating Date Rating Type Rating Unit Rating Timing Trt-Eval Interval								GLXMA 10-30-12 Plants 000/A	GLXMA 10-30-12 Moisture Percent	GLXMA 10-30-12 Test wt. lb/bu	GLXMA 10-30-12 Yield bu/A	GLXMA 10-30-12 Seeds per Pod	GLXMA 10-30-12 Seed wt g/200 s	GLXMA Injury Percent 7 DAT	GLXMA Injury Percent 14 DAT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code								
1	LIBERTY 280 N-PAK AMS	2.34	EC	100 SL	0.53 lb ai/a 5 % v/v	29 fl oz/a 5 % v/v	V3 V3	A A	135.5 a	12.2 a	57.1 a	49 a	2.35 a	42.56 a	5 bc	0 f
2	LIBERTY 280 N-PAK AMS	2.34	EC	100 SL	0.66 lb ai/a 5 % v/v	36 fl oz/a 5 % v/v	V3 V3	A A	122.8 a	12.2 a	57.0 a	48 a	2.34 a	43.53 a	6 b	0 f
3	COBRA COC (PRIME OIL) N-PAK AMS	2 100 100	EC SL SL		0.195 lb ai/a 1 % v/v 5 % v/v	12.5 fl oz/a 1 % v/v 5 % v/v	V3 V3 V3	A A A	127.5 a	12.1 a	57.1 a	52 a	2.66 a	42.18 a	19 a	14 b
4	LIBERTY 280 N-PAK AMS	2.34	EC	100 SL	0.53 lb ai/a 5 % v/v	29 fl oz/a 5 % v/v	R1 R1	B B	135.5 a	12.1 a	57.2 a	50 a	2.27 a	41.96 a	3 c	1 ef
5	LIBERTY 280 N-PAK AMS	2.34	EC	100 SL	0.66 lb ai/a 5 % v/v	36 fl oz/a 5 % v/v	R1 R1	B B	130.8 a	11.9 a	57.2 a	53 a	2.20 a	41.10 a	4 c	4 d
6	COBRA COC (PRIME OIL) N-PAK AMS	2 100 100	EC SL SL		0.195 lb ai/a 1 % v/v 5 % v/v	12.5 fl oz/a 1 % v/v 5 % v/v	R1 R1 R1	B B B	127.5 a	12.3 a	57.0 a	49 a	2.33 a	41.91 a	19 a	12 c
7	LIBERTY 280 N-PAK AMS	2.34	EC	100 SL	0.53 lb ai/a 5 % v/v	29 fl oz/a 5 % v/v	R2 R2	C C	124.2 a	12.2 a	57.1 a	48 a	2.20 a	41.53 a	4 bc	2 ef
8	LIBERTY 280 N-PAK AMS	2.34	EC	100 SL	0.66 lb ai/a 5 % v/v	36 fl oz/a 5 % v/v	R2 R2	C C	129.5 a	12.0 a	57.2 a	54 a	2.25 a	39.57 a	4 c	2 de
9	COBRA COC (PRIME OIL) N-PAK AMS	2 100 100	EC SL SL		0.195 lb ai/a 1 % v/v 5 % v/v	12.5 fl oz/a 1 % v/v 5 % v/v	R2 R2 R2	C C C	123.1 a	12.4 a	57.0 a	43 a	1.99 a	42.27 a	19 a	17 a
10	LIBERTY 280 N-PAK AMS LIBERTY 280 N-PAK AMS	2.34 100 2.34 100	EC SL EC SL		0.53 lb ai/a 5 % v/v 0.53 lb ai/a 5 % v/v	29 fl oz/a 5 % v/v 29 fl oz/a 5 % v/v	V3 V3 R1 R1	A A B B	131.0 a	12.0 a	57.2 a	48 a	2.27 a	41.02 a	4 c	0 f
11	LIBERTY 280 N-PAK AMS LIBERTY 280 N-PAK AMS	2.34 100 2.34 100	EC SL EC SL		0.53 lb ai/a 5 % v/v 0.66 lb ai/a 5 % v/v	29 fl oz/a 5 % v/v 36 fl oz/a 5 % v/v	V3 V3 R1 R1	A A B B	130.8 a	12.1 a	57.1 a	50 a	2.30 a	40.69 a	4 bc	2 ef
12	NONTREATED								119.5 a	12.1 a	57.1 a	50 a	2.45 a	41.83 a	0 d	0 f
LSD (P=.05)									14.71	0.40	0.23	7.7	0.363	2.012	1.8	1.8
Standard Deviation									10.19	0.28	0.16	5.4	0.251	1.393	1.2	1.2
CV									7.95	2.3	0.28	10.8	10.91	3.34	16.5	28.39
Replicate F									1.424	0.447	1.179	3.739	1.467	3.700	1.637	1.078
Replicate Prob(F)									0.2546	0.7210	0.3338	0.0211	0.2427	0.0219	0.2010	0.3728
Treatment F									0.968	0.887	1.294	1.181	1.615	2.092	137.865	95.664
Treatment Prob(F)									0.4943	0.5625	0.2734	0.3393	0.1434	0.0524	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)  
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Trial Comments

1. Protocol:ISA (Liberty).
2. Ratings: CI 7 and 14 DAT.
3. Measure harvest indices: plants/acre, pods/plant, seeds/pod, 200 seed wt.
4. Yield.
5. Blanket PRE application of Sonic (6.4 oz/A) plus Dual Magnum (1.33 pt/A) was applied to all plots 10 ft wide on 5-23-12.
6. Maintain weed-free.
7. Missing data for plots 201 and 202 were due to application error.
8. DAT = Days after various postemergence applications.  
Ratings 7 days after the V2, R1, and R2 applications were on 6-27-12, 7-13-12, and 7-20-12, respectively.  
Ratings 14 days after the V2, R1, and R2 applications were on 7-4-12, 7-20-12, and 7-27-12, respectively.  
Ratings at 7 and 14 DAT for treatments 10 and 11 were following the second application, injury following the first application in treatments 10 and 11 were similar to treatment 1.
9. Harvested 10-30-12, (2) 30 inch rows by 25 ft.