

Effect of Soil and Foliar Herbicides on Roundup Ready Soybean Tolerance and Yield under Weed-Free Conditions.

00-WF-NES-130

OBJECTIVE: To evaluate the effect of soil and foliar herbicides on Roundup Ready and non-Roundup Ready soybean under weed-free conditions.

SUMMARY: Canopy XL and Squadron caused 6 to 11% height reduction of non-Roundup Ready soybean (Asgrow 4922) and 7 to 8% Roundup Ready (Asgrow 4902 RR) soybean 28 days after treatment (DAT). Cobra caused 23 to 25% height reduction at 14 DAT and 7 to 10% height reduction 28 DAT, regardless of soybean variety. Cobra caused 25% necrosis of soybean, regardless of variety. Asgrow 4922 soybean matured earlier than Asgrow 4902 RR soybean. Asgrow 4922 soybean height was greater than Asgrow 4902 RR soybean. There was no difference in soybean height among herbicide treatments with Asgrow 4922. Cobra reduced soybean height of Asgrow 4902 RR, compared with the no herbicide hand-weed treatment. There was no difference in yield between Asgrow 4922 and Asgrow 4902 RR soybean in the no herbicide hand-weed plots. There also was no difference in yield (with the exception of Roundup Ultra on non-Roundup Ready soybean) within each variety, due to herbicide treatment, when compared with the no herbicide hand-weed treatment.

HERBICIDES

CANOPY XL 56.3 WG
COBRA 2 EC
PURSUIT 70 WG
ROUNDUP ULTRA 3 SL
SQUADRON 2.33 EC

WEEDS

CROP TOLERANCE ONLY

CROP

SOYBEAN

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

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Project Code: 00-WF-NES-130 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code

1. NA CROP TOLERANCE ONLY

Crop 1:	GLXMA SOYBEAN	Variety:	SEE NOTE
Planting Method:	SEEDED	Planting Date:	May-18-00
Rate:	75 LB/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	30 FT	Reps:	6
Tillage Type:	REDUCED-TILL	Study Design:	SPLIT-PLOT		
Previous Crop, Year:	ZEAMX, 1999	Fertilizer applied:	N 150 LB/A,	P ₂ O ₅ 50 LB/A,	K ₂ O 150 LB/A

Texture:	SILT LOAM	% OM: 1.9	pH: 6.2	CEC: 11
		P ₁ : 58 LB/A,	K: 254 LB/A	

APPLICATION DESCRIPTION

	A	B
Application Date:	May-18-00	Jun-22-00
Time of Day:	6:00	8:15
Application Method:	SPRAY	SPRAY
Application Timing:	PPI	V4
Applic. Placement:	BROSOL	BROFOL
Air Temp., Unit:	82 F	74 F
% Relative Humidity:	82	90
Wind Velocity, Unit:	5 MPH	2-4 MPH
Soil Moisture:	DRY	WET

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	NA	GLXMA V4
Height, Unit:	NA	8-10 IN

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	NA	NA

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	CO ₂ SPRAY	CO ₂ SPRAY
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	8002	8002
Boom Length, Unit:	10 FT	10 FT
Incorporation Equip.:	FC2X+CM	
Incorp. Depth, Unit:	2-4 IN	
Spray Volume, Unit:	21.78 GPA	21.78 GPA

NOTES:

SOYBEAN VARIETIES ARE AG4922 AND AG4902 RR, SEE TREATMENT LIST.

Harvested Oct-20-00, (2) 30 inch rows by 22 ft.

TABLE. EFFECT OF SOIL AND FOLIAR HERBICIDES ON ROUNDUP READY SOYBEAN TOLERANCE AND YIELD UNDER WEED-FREE CONDITIONS.
PROJECT CODE:00-WF-NES-130

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLXMA, DAYS AFTER TREATMENT									GLXMA				
								STUNTING			REDUCTION			CHLOROSIS			NECROSIS			HEIGHT	MATURITY
								14	28	56	14	28	56	14	28	56	14	28	56	INCHES	DAP
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%							
1 AG4922 NON RR 1 NO HERBICIDE 1 HANDWEED 1 CULTIVATE							56	0	0	0	0	0	0	0	0	0	0	0	0	49	137
2 AG4922 NON RR 2 SQUADRON 2 HANDWEED 2 CULTIVATE	2.33 EC	0.87 LB A/A		3.0 PT/A	PPI	A	57	0	11	0	0	0	0	0	0	0	0	0	0	50	137
3 AG4922 NON RR 3 CANOPY XL 3 ->AUTHORITY 3 ->CLASSIC 3 HANDWEED 3 CULTIVATE	56.3 WG 75 WG 25 WG			6.8 OZ/A	PPI	A	57	0	6	0	0	0	0	0	0	0	0	0	0	51	137
4 AG4922 NON RR 4 COBRA 4 PRIME OIL COC 4 28% UAN 4 HANDWEED 4 CULTIVATE	2 EC 100 LIQ 100 LIQ	0.15 LB A/A 1.0 % V/V 2.0 QT/A		9.6 OZ/A 1.0 % V/V 4.0 PT/A	V4	B	55	23	7	0	0	0	0	0	0	0	25	0	0	48	137
5 AG4922 NON RR 5 PURSUIT 5 SUN-IT II 5 28% UAN 5 HANDWEED 5 CULTIVATE	70 WG 100 LIQ 100 LIQ	0.063 LB A/A 1.5 PT/A 2.0 QT/A		1.44 OZ/A 1.5 PT/A 4.0 PT/A	V4	B	57	0	2	0	0	0	0	0	0	0	0	0	0	50	137
6 AG4922 NON RR 6 ROUNDUP ULTRA 6 HANDWEED 6 CULTIVATE	3 SL	0.75 LB AE/A		2.0 PT/A	V4	B	36	73	49	28	14	14	14	25	0	0	33	0	0	37	141
7 AG4902 RR 7 NO HERBICIDE 7 HANDWEED 7 CULTIVATE							61	0	0	0	0	0	0	0	0	0	0	0	0	43	144

(CONTINUED)

TABLE. EFFECT OF SOIL AND FOLIAR HERBICIDES ON ROUNDUP READY SOYBEAN TOLERANCE AND YIELD UNDER WEED-FREE CONDITIONS.
PROJECT CODE:00-WF-NES-130 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLXMA, DAYS AFTER TREATMENT												GLXMA	
								STAND												HEIGHT	MATURITY
								STUNTING			REDUCTION			CHLOROSIS			NECROSIS			INCHES	DAP
14	28	56	14	28	56	14	28	56	14	28	56	14	28	56							
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%							
8 AG4902 RR							61	0	8	0	0	0	0	0	0	0	0	0	0	42	144
8 SQUADRON	2.33 EC	0.87 LB A/A		3.0 PT/A	PPI	A															
8 HANDWEED																					
8 CULTIVATE																					
9 AG4902 RR							60	0	7	0	0	0	0	0	0	0	0	0	0	41	144
9 CANOPY XL	56.3 WG			6.8 OZ/A	PPI	A															
9 ->AUTHORITY	75 WG	0.2 LB A/A			PPI	A															
9 ->CLASSIC	25 WG	0.04 LB A/A			PPI	A															
9 HANDWEED																					
9 CULTIVATE																					
10 AG4902 RR							57	25	10	0	0	0	0	0	0	0	25	0	0	40	144
10 COBRA	2 EC	0.15 LB A/A		9.6 OZ/A	V4	B															
10 PRIME OIL COC	100 LIQ	1.0 % V/V		1.0 % V/V	V4	B															
10 28% UAN	100 LIQ	2.0 QT/A		4.0 PT/A	V4	B															
10 HANDWEED																					
10 CULTIVATE																					
11 AG4902 RR							59	0	0	0	0	0	0	0	0	0	0	0	0	42	144
11 PURSUIT	70 WG	0.063 LB A/A		1.44 OZ/A	V4	B															
11 SUN-IT II	100 LIQ	1.5 PT/A		1.5 PT/A	V4	B															
11 28% UAN	100 LIQ	2.0 QT/A		4.0 PT/A	V4	B															
11 HANDWEED																					
11 CULTIVATE																					
12 AG4902 RR							62	0	0	0	0	0	0	0	0	0	0	0	0	41	144
12 ROUNDUP ULTRA	3 SL	0.75 LB AE/A		2.0 PT/A	V4	B															
12 HANDWEED																					
12 CULTIVATE																					
LSD							5	4	8	4	3	3	3	0	0	0	7	0	0	2	0
P							0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.0	1.0	1.0	0.01	1.0	1.0	0.01	1.0

1. PROTOCOL: SIU/RFK.
2. RATING DATES;
14 DAYS AFTER PPI AND V4 APPLICATIONS WAS ON JUN-1-00 AND JUL-6-00, RESPECTIVELY.
28 DAYS AFTER PPI AND V4 APPLICATIONS WAS ON JUN-15-00 AND JUL-20-00, RESPECTIVELY.
56 DAYS AFTER PPI AND V4 APPLICATIONS WAS ON JUL-13-00 AND AUG-17-00, RESPECTIVELY