

Influence of Adjuvants on Performance of Roundup Ultra and Touchdown 5 in Soybean.

00-51W-S130

OBJECTIVE: Evaluate various adjuvants applied with Roundup Ultra and Touchdown 5 and determine if responses are similar for the two herbicides.

SUMMARY: Soybean injury was 2 to 3% from Roundup Ultra alone, Roundup Ultra plus Deliver, and Touchdown 5 plus Deliver at 7 days after treatment (DAT). No injury was observed from any treatment at 14 DAT.

Giant foxtail control was excellent from all Roundup Ultra and Touchdown 5 treatments regardless of adjuvant. Roundup Ultra alone and Touchdown 5 alone controlled 78 and 77% of common waterhemp at 14 DAT, respectively. Tank mixing AMS or Extra Point with Roundup Ultra increased common waterhemp control. In contrast, tank mixing Choice or Activator 90 plus AMS with Roundup Ultra decreased common waterhemp control by 15%. Common waterhemp control with Touchdown 5 was increased with the addition of AMS, Border Xtra, or Placement. Roundup Ultra and Touchdown 5 controlled 67% of velvetleaf at 14 DAT. Velvetleaf control from Roundup Ultra was increased with the addition of all adjuvants except Deliver, Choice, Cayuse Plus, Pro-pak, and Placement. The addition of all adjuvants except Extra Point, Deliver, Choice, and Pro-pak to Touchdown 5 increased velvetleaf control. Velvetleaf control with Roundup Ultra and Touchdown 5 was not decreased by the addition of any adjuvant.

Soybean yield ranged from 7 bu/A in nontreated plots to 31 bu/A. There were no significant differences in soybean yield among herbicide treated plots.

HERBICIDES/ADJUVANTS

ROUNDUP ULTRA 3 SL
TOUCHDOWN 5 5 SL
ACTIVATOR 90 100 LIQ
AMS 100 DRY
AMS COMPLETE 100 LIQ
ARRAY 100 DRY
BORDER XTRA 4L 100 LIQ
BORDER XTRA 8L 100 LIQ
CAYUSE PLUS 100 LIQ
CHOICE 100 LIQ
DELIVER 100 LIQ
DRYVE 100 DRY
ELECTRA PLUS 100 DRY
EXTRA POINT 100 LIQ
GLY AD ULTRA DC 100 DRY
PLACEMENT 100 LIQ
PRO-PAK 100 LIQ
ULTRA GARD 100 LIQ

WEEDS

FOXTAIL, GIANT
MORNINGGLORY, IVYLEAF
MORNINGGLORY, SPECIES
NUTSEDGE, YELLOW
WATERHEMP, COMMON

CROP

SOYBEAN

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Influence of Adjuvants on Performance of Roundup Ultra and Touchdown 5 in Soybean.

Project Code: 00-51W-S130 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. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
4. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
5. IPOSS	MORNINGGLORY, SPECIES	IPOMOEA SP.

Crop 1:	GLXMA SOYBEAN	Variety:	B-T 369CR
Planting Method:	SEEDED	Planting Date:	May-11-00
Rate:	75 LB/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	20 FT	Reps:	3
Tillage Type:	REDUCED-TILL	Study Design:	RCB		
Previous Crop, Year:	ZEAMX, 1999	Fertilizer applied:	N 0 LB/A,	P ₂ O ₅	50 LB/A, K ₂ O 150 LB/A

Soil Name:	WEIR	% OM:	2.6	pH:	7	CEC:	11
Texture:	SILT LOAM	P ₁ :	69 LB/A,	K:	373 LB/A		

APPLICATION DESCRIPTION

	A
Application Date:	Jun-15-00
Time of Day:	17:30
Application Method:	SPRAY
Application Timing:	6"W
Applic. Placement:	BROFOL
Air Temp., Unit:	85 F
% Relative Humidity:	32
Wind Velocity, Unit:	3-5 MPH
Soil Moisture:	NORMAL
% Cloud Cover:	0

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GLXMA V3
Height, Unit:	6 IN

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	SETFA
Stage(leaves):	2-8
Height(inches):	2-9
Density:	HIGH

Weed 2 Code:	CYPES
Stage(leaves):	4-6
Height(inches):	4-6
Density:	LOW

Weed 3 Code:	AMATA
Stage(leaves):	4-10
Height(inches):	1-7
Density:	HIGH

Weed 4 Code:	IPOHE
Stage(leaves):	2-5
Height(inches):	2-4
Density:	LOW

APPLICATION EQUIPMENT

	A
Appl. Equipment:	CO, SPRAY
Operating Pressure:	40 PSI
Nozzle Type:	FLAT FAN
Nozzle Size:	8002
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	15 GPA

NOTES:

Harvested Oct-24-00, (2) 30 inch rows by 17 ft.

TABLE. INFLUENCE OF ADJUVANTS ON PERFORMANCE OF ROUNDUP ULTRA AND TOUCHDOWN 5 IN SOYBEAN. PROJECT CODE:00-51W-S130

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLYMA INJURY			CONTROL									IPOSS EOS
								DA 6"W			SETFA			AMATA			ABUTH			
								7	14	28	14	28	EOS	14	28	EOS	14	28	EOS	
BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%						
1 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	23	2	0	0	96	98	95	78	68	73	67	68	90	77
2 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	31	1	0	0	98	99	98	89	85	87	93	96	96	88
2 AMS	100 DRY	2.0	% W/W	2.0 %W/W	6"W	A														
3 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	27	1	0	0	99	99	95	85	82	82	86	90	96	88
3 GLY AD ULTRA DC	100 DRY	1.08	% W/W	9.0 LB/100 GAL	6"W	A														
4 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	37	0	0	0	99	98	98	90	85	88	83	94	99	87
4 EXTRA POINT	100 LIQ	2.5	% V/V	2.5 %V/V	6"W	A														
5 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	27	0	0	0	99	99	99	87	78	87	85	90	98	93
5 ARRAY	100 DRY	1.08	% W/W	9.0 LB/100 GAL	6"W	A														
6 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	23	3	0	0	99	99	98	88	82	86	75	78	98	87
6 DELIVER	100 LIQ	2.5	% V/V	2.5 %V/V	6"W	A														
7 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	25	0	0	0	99	99	99	82	78	83	88	87	95	92
7 BORDER XTRA 8L	100 LIQ	2.5	% V/V	2.5 %V/V	6"W	A														
8 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	22	0	0	0	99	99	99	88	81	85	82	88	94	87
8 BORDER XTRA 4L	100 LIQ	5.0	% V/V	5.0 %V/V	6"W	A														
9 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	22	0	0	0	99	99	95	63	55	67	68	75	92	83
9 CHOICE	100 LIQ	0.5	PT/A	0.5 PT/A	6"W	A														
10 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	24	0	0	0	99	99	98	85	73	84	77	78	98	83
10 CAYUSE PLUS	100 LIQ	2.0	PT/A	2.0 PT/A	6"W	A														
11 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	30	0	0	0	99	99	99	82	74	79	88	88	95	83
11 ELECTRA PLUS	100 DRY	2.0	% W/W	2.0 %W/W	6"W	A														
12 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	24	0	0	0	99	99	99	82	67	80	67	73	88	83
12 PRO-PAK	100 LIQ	1.0	% V/V	1.0 %V/V	6"W	A														
13 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	22	0	0	0	99	99	99	77	77	78	72	73	89	82
13 PLACEMENT	100 LIQ	4.0	OZ/A	4.0 OZ/A	6"W	A														
14 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	27	0	0	0	99	99	98	83	78	86	83	75	91	89
14 AMS COMPLETE	100 LIQ	2.5	% V/V	2.5 %V/V	6"W	A														
15 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	26	0	0	0	99	99	98	63	57	58	87	87	95	75
15 ACTIVATOR 90	100 LIQ	0.25	% V/V	0.25 %V/V	6"W	A														
15 AMS	100 DRY	2.0	% W/W	2.0 %W/W	6"W	A														
16 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	24	0	0	0	99	99	99	80	78	88	85	88	96	89
16 DRYVE	100 DRY	1.08	% W/W	9.0 LB/100 GAL	6"W	A														
17 ROUNDUP ULTRA	3 SL	0.375	LB AE/A	1.0 PT/A	6"W	A	29	0	0	0	99	99	96	72	68	75	75	72	83	88
17 ULTRA GARD	100 LIQ	0.25	% V/V	0.25 %V/V	6"W	A														
18 TOUCHDOWN 5	5 SL	0.5	LB A/A	0.8 PT/A	6"W	A	25	0	0	0	99	99	99	77	73	83	67	75	93	85
19 TOUCHDOWN 5	5 SL	0.5	LB A/A	0.8 PT/A	6"W	A	26	0	0	0	99	99	99	90	73	87	90	85	98	93
19 AMS	100 DRY	2.0	% W/W	2.0 %W/W	6"W	A														
20 TOUCHDOWN 5	5 SL	0.5	LB A/A	0.8 PT/A	6"W	A	24	0	0	0	99	99	99	78	81	84	88	93	98	92
20 GLY AD ULTRA DC	100 DRY	1.08	% W/W	9.0 LB/100 GAL	6"W	A														

(CONTINUED)

TABLE. INFLUENCE OF ADJUVANTS ON PERFORMANCE OF ROUNDUP ULTRA AND TOUCHDOWN 5 IN SOYBEAN. PROJECT CODE:00-51W-S130 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLYMA INJURY			CONTROL									IPOSS EOS
								DA 6"W			SETFA			AMATA			ABUTH			
								7	14	28	14	28	EOS	14	28	EOS	14	28	EOS	
							BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%
21 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	25	0	0	0	99	99	99	80	81	83	77	87	98	82
21 EXTRA POINT	100 LIQ	2.5 %	V/V	2.5 %V/V	6"W	A														
22 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	22	0	0	0	99	99	98	73	75	65	83	88	96	85
22 ARRAY	100 DRY	1.08 %	W/W	9.0 LB/100 GAL	6"W	A														
23 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	24	2	0	0	99	99	98	82	75	85	70	77	94	90
23 DELIVER	100 LIQ	2.5 %	V/V	2.5 %V/V	6"W	A														
24 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	24	0	0	0	99	99	96	88	77	88	95	92	98	90
24 BORDER XTRA 8L	100 LIQ	2.5 %	V/V	2.5 %V/V	6"W	A														
25 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	28	0	0	0	99	99	99	93	89	91	90	91	98	96
25 BORDER XTRA 4L	100 LIQ	5.0 %	V/V	5.0 %V/V	6"W	A														
26 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	23	0	0	0	99	99	99	73	77	72	70	70	91	85
26 CHOICE	100 LIQ	0.5 PT/A		0.5 PT/A	6"W	A														
27 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	30	0	0	0	99	99	99	77	72	78	83	85	96	90
27 CAYUSE PLUS	100 LIQ	2.0 PT/A		2.0 PT/A	6"W	A														
28 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	29	0	0	0	99	99	98	80	70	78	87	86	98	88
28 ELECTRA PLUS	100 DRY	2.0 %	W/W	2.0 %W/W	6"W	A														
29 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	24	0	0	0	99	99	99	75	75	81	63	63	96	83
29 PRO-PAK	100 LIQ	1.0 %	V/V	1.0 %V/V	6"W	A														
30 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	24	0	0	0	99	99	99	88	73	82	82	78	92	88
30 PLACEMENT	100 LIQ	4.0 OZ/A		4.0 OZ/A	6"W	A														
31 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	28	0	0	0	99	98	96	85	73	78	80	86	98	87
31 AMS COMPLETE	100 LIQ	2.5 %	V/V	2.5 %V/V	6"W	A														
32 TOUCHDOWN 5	5 SL	0.5 LB	A/A	0.8 PT/A	6"W	A	26	0	0	0	99	99	95	68	65	67	88	95	93	87
32 ACTIVATOR 90	100 LIQ	0.25 %	V/V	0.25 %V/V	6"W	A														
32 AMS	100 DRY	2.0 %	W/W	2.0 %W/W	6"W	A														
33 NONTREATED							7	0	0	0	0	0	0	0	0	0	0	0	0	0
34 HANDWEED							28	0	0	0	99	99	99	99	99	99	99	99	99	99
LSD							10	2	0	0	0.9	1	3	11	15	12	13	14	7	9
P							0.02	0.1	1.0	1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

1. PROTOCOL: SIU-BGY.

2. EOS = END OF SEASON.

3. RATING DATES:

7 DAYS AFTER 6"W, 14 DAYS AFTER 6"W, 28 DAYS AFTER 6"W, AND EOS ON JUN-22-00, JUN-29-00, JUL-13-00, AND AUG-16-00, RESPECTIVELY.