Deposition Agents with Roundup Ultra in Glyphosate Resistant Soybean.

00-10B-W90

OBJECTIVE: Evaluate the impact of enhancing deposition with various adjuvants on weed control with Roundup Ultra in glyphosate-resistant soybean.

SUMMARY: No soybean injury was observed from any treatment. All treatments controlled 99% of giant foxtail at 28 days after treatment (DAT). Tank mixing adjuvants with Roundup Ultra did not significantly increase or decrease control of common ragweed, common cocklebur, or Pennsylvania smartweed at 28 DAT compared to Roundup Ultra alone. Yellow nutsedge control was increased by 10% with the addition of PX3344L at 2.5% or 30% polyacrylamide plus AMS to Roundup Ultra. Tank mixing PX334 with Roundup Ultra improved common waterhemp control by at least 13%. Velvetleaf control was increased with the addition of AMS, Array, and some rates of PX334 and PX3344L. Control of morningglory species was increased by at least 10% when Roundup Ultra was tank mixed with PX334 at 1.08 or 2.16%, or 30% polyacrylamide plus AMS.

Soybean yield ranged from 19 bu/A in nontreated plots to 45 bu/A. No treatment resulted in soybean yield less than Roundup Ultra applied alone.

HERBICIDE/ADJUVANTS	WEEDS	CROP
ROUNDUP ULTRA 3 SL	COCKLEBUR, COMMON	SOYBEAN
30% POLYACRYLAMIDE 100 LIQ	FOXTAIL, GIANT	
AMS 100 DRY	MORNINGGLORY, IVYLEAF	
ARRAY 100 DRY	MORNINGGLORY, SPECIES	
PX334 100 DRY	NUTSEDGE, YELLOW	
PX3344L 100 LIQ	RAGWEED, COMMON	
PX3348L 100 LIQ	SMARTWEED, PENNSYLVANIA	
	VELVETLEAF	
	WATERHEMP, COMMON	

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Deposition Agents with Roundup Ultra in Glyphosate Resistant Soybean.

Project Code: 00-10B-W90 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. AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
5. POLPY	SMARTWEED, PENNSYLVANIA	POLYGONUM PENSYLVANICUM L.
6. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDIK.
7. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
8. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L. SSP. STRUMARIUM
9. 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:	24 FT	Reps: 3	
Tillage Type:	REDUCED-TILL	Study Design:	RCB		
Previous Crop, Year:	ZEAMX, 1999	Fertilizer applied:	N 0 LB/A,	P_2O_5 0 LB/A,	K_2O 0 LB/A
Soil Name:	WEIR	% OM: 2.2	pH: 6.5	CEC: 12	
Texture:	SILT LOAM	P_1: 87 LB/A,	K: 474 LB/A		

APPLICATION DESCRIPTION

	A
Application Date:	Jun-15-00
Time of Day:	9:00
Application Method:	SPRAY
Application Timing:	6"W
Applic. Placement:	BROFOL
Air Temp., Unit:	75 F
% Relative Humidity:	65
Wind Velocity, Unit:	2-3 MPH
Soil Moisture:	NORMAL
% Cloud Cover:	0

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	GLXMA V2
Height, Unit:	8-9 IN

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	SETFA
Stage(leaves):	5-6
Height(inches):	6-9
Density:	HIGH
Weed 2 Code:	CYPES
Stage(leaves):	9-11
Height(inches):	6-9
Density:	MEDIUM
Weed 3 Code:	AMATA
Stage(leaves):	6-9
Height(inches):	2-4
Density:	MEDIUM
Weed 4 Code:	AMBEL
Stage(leaves):	6-8
Height(inches):	3-4
Density:	LOW
Weed 5 Code:	POLPY
Stage(leaves):	5-6
Height(inches):	2-4
Density:	LOW
Weed 6 Code:	ABUTH
Stage(leaves):	3-4
Height(inches):	1-3
Density:	HIGH
Weed 7 Code:	IPOHE
Stage(leaves):	5-7
Height(inches):	3-5
Density:	MEDIUM
Weed 8 Code:	XANST
Stage(leaves):	6-7
Height(inches):	5-6
Density:	LOW

APPLICATION EQUIPMENT

	A
Appl. Equipment:	CO_2 SPRAY
Operating Pressure:	40 PSI
Nozzle Type:	FLAT FAN
Nozzle Size:	DG110015VS
Boom Length, Unit:	7.33 FT
Spray Volume, Unit:	10 GPA

NOTES: Harvested Oct-24-00, (2) 30 inch rows by 21 ft.

TABLE. DEPOSITION AGENTS WITH ROUNDUP ULTRA IN GLYPHOSATE RESISTANT SOYBEAN. PROJECT CODE:00-10B-W90

	TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLXMA INJURY DA 6"W		CONTROL, DAYS AFTER 6"W															
											SETFA		CYPES		AMBEL		AMATA		XANST		ABUTH		IPOSS		POLPY	
									14	28	14	28	14	28	14	28	14	28	14	28	14	28	14	28	14	28
								BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	NONTREATED							19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	45	0	0	98	99	63	67	86	93	93	73	95	88	82	90	82	82	90	96
3	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	42	0	0	99	99	68	67	93	92	96	83	95	86	93	99	88	90	83	98
3	AMS	100 DRY	1.02	% W/W	8.5 LB/100 GAL	6"W	A																			
4	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	39	0	0	99	99	78	73	87	96	95	75	98	94	95	98	85	91	95	98
4	AMS	100 DRY	2.04	% W/W	17.0 LB/100 GAL	6"W	A																			
5	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	40	0	0	99	99	68	72	93	96	95	88	99	99	95	99	83	93	87	97
5	PX334	100 DRY	1.08	% W/W	9.0 LB/100 GAL	6"W	A																			
6	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	43	0	0	98	99	72	73	96	98	96	86	97	94	96	95	85	90	85	95
6	PX334	100 DRY	1.44	% W/W	12.0 LB/100 GAL	6"W	A																			
7	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	40	0	0	99	99	83	73	96	96	99	87	97	91	98	99	90	92	88	98
7	PX334	100 DRY	2.16	% W/W	18.0 LB/100 GAL	6"W	A																			
8	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	45	0	0	98	99	70	77	95	98	95	81	99	91	95	97	82	88	89	98
8	PX3344L	100 LIQ	2.5	% V/V	2.5 GAL/100 GAL	6"W	A																			
9	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	41	0	0	96	99	72	73	90	88	92	82	96	94	96	95	82	90	96	91
9	PX3344L	100 LIQ	3.5	% V/V	3.5 GAL/100 GAL	6"W	A																			
10	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	43	0	0	99	99	73	72	91	98	98	83	96	93	98	98	88	91	95	93
10	PX3344L	100 LIQ	5.0	% V/V	5.0 GAL/100 GAL	6"W	A																			
11	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	43	0	0	99	99	72	70	85	90	95	80	96	99	96	95	85	87	92	91
11	PX3348L	100 LIQ	2.5	% V/V	2.5 GAL/100 GAL	6"W	A																			
12	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	40	0	0	96	99	67	72	91	95	95	76	99	95	95	95	87	91	88	96
12	30% POLYACRYLAMIDE	100 LIQ	0.0313	% V/V	4.0 OZ/100 GAL	6"W	A																			
12	AMS	100 DRY	1.02	% W/W	8.5 LB/100 GAL	6"W	A																			
13	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	38	0	0	98	99	70	77	91	98	88	76	96	91	94	98	88	96	90	96
13	30% POLYACRYLAMIDE	100 LIQ	0.0313	% V/V	4.0 OZ/100 GAL	6"W	A																			
13	AMS	100 DRY	2.04	% W/W	17.0 LB/100 GAL	6"W	A																			
14	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	39	0	0	99	99	70	72	91	93	92	73	96	80	98	99	87	90	85	96
14	ARRAY	100 DRY	1.08	% W/W	9.0 LB/100 GAL	6"W	A																			
15	ROUNDUP ULTRA	3 SL	0.38	LB AE/A	1.0 PT/A	6"W	A	38	0	0	99	99	68	70	88	95	94	81	98	93	99	99	91	91	90	96
15	ARRAY	100 DRY	1.68	% W/W	14.0 LB/100 GAL	6"W	A																			
LSD								7	0	0	3	0	10	9	14	10	4	13	4	14	6	6	8	10	15	9
P								0.01	1.0	1.0	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	0.01

1. PROTOCOL: PRECISION LABS.
2. RATING DATES:
   14 DAT, AND 28 DAT ON JUN-29-00, AND JUL-13-00, RESPECTIVELY.