

Loveland Glyphosate Adjuvant Study.

02-10B-ME60

OBJECTIVE: Determine the efficacy of various adjuvants with Roundup UltraMax and Roundup Original.

SUMMARY: Soybean injury 14 DAT (days after treatment) was 3% or less from all herbicide treatments except Roundup UltraMax at 26 oz/A which caused 9% injury. No injury was observed from any treatment at 28 DAT. All herbicide treatments provided complete control of giant foxtail, common cocklebur, waterhemp, and common ragweed at 14 DAT. Velvetleaf control from Roundup UltraMax at 13 oz/A plus Thrust was similar to Roundup UltraMax at 26 oz/A plus Valid and Choice and was greater than Roundup UltraMax at 13 oz/A with Choice alone. Velvetleaf control 14 DAT was significantly less with Roundup Original plus LI 700 and Choice compared to Roundup Original plus Liberate and Choice and Roundup Original plus Choice Xtra. All Roundup Original treatments provided similar control of morningglory species at 14 DAT. In general, the level of weed control with the Roundup Original treatments was similar to the Roundup UltraMax treatments.

HERBICIDES/ADJUVANTS

ROUNDUP ORIGINAL 3 SL
 ROUNDUP ULTRA MAX 3.7 SL
 CHOICE 100 LIQ
 CHOICE XTRA 100 LIQ
 LI 700 100 LIQ
 LIBERATE 100 LIQ
 THRUST 100 DRY
 VALID 100 LIQ

WEEDS

cocklebur, common
 foxtail, giant
 morningglory, ivyleaf
 morningglory, pitted
 morningglory, species
 ragweed, common
 velvetleaf
 waterhemp, common

CROP

soybean

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Loveland Glyphosate Adjuvant Study.

Project Code: 02-10B-ME60 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 10-31-02

Objective:

Determine the efficacy of various adjuvants with Roundup Ultra Max and Roundup Original.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. XANST	cocklebur, common	Xanthium strumarium L.
3. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
4. ABUTH	velvetleaf	Abutilon theophrasti Medicus
5. IPOSS	morningglory, species	Ipomoea sp.
6. AMATA	waterhemp, common	Amaranthus rudis Sauer
7. IPOLA	morningglory, pitted	Ipomoea lacunosa L.
8. IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.

Crop 1: GLXMA soybean Variety: Asgrow 4602 RR
 Planting Method: Seeded Planting Date: 6-4-02
 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: Randomized complete block
 Previous Crop, Year: ZEAMX, 2001

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K20 150 LB/A

Soil Name: Weir % OM: 1.6 pH: 6.3 CEC: 12
 Texture: Silt loam Fert. Level: P1: 82 LB/A, K: 274 LB/A

APPLICATION DESCRIPTION

A
 Application Date: 6-28-02
 Time of Day: 10:30
 Application Method: Spray
 Application Timing: 4-8"W
 Applic. Placement: BROFOL
 Air Temp., Unit: 84 F
 % Relative Humidity: 50
 Wind Velocity, Unit: 0-5 MPH
 Soil Moisture: NORMAL
 % Cloud Cover: 5

CROP STAGE AT EACH APPLICATION

A
 Crop 1 Code, Stage: GLXMA V2
 Height, Unit: 7 IN

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code:	SETFA
Stage(leaves):	3-5
Height(inches):	5-7
Density:	High
Weed 2 Code:	XANST
Stage(leaves):	3-6
Height(inches):	5-7
Density:	Low
Weed 3 Code:	AMBEL
Stage(leaves):	2-6
Height(inches):	2-6
Density:	Low

Weed 4 Code: ABUTH
Stage(leaves): 2-4
Height(inches): 2-4
Density: Low

Weed 5 Code: IPOSS
Stage(leaves): 5-6
Height(inches): 6-10
Density: Low

Weed 6 Code: AMATA
Stage(leaves): 3-5
Height(inches): 2-4
Density: Low

APPLICATION EQUIPMENT

A

Appl. Equipment: CO2 sprayer
Operating Pressure: 40 PSI
Nozzle Type: Flat fan
Nozzle Size: 8002
Boom Length, Unit: 7.5 FT
Spray Volume, Unit: 15 GPA

NOTES:

This study was not harvested.

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Weed Code	GLXMA		SETFA	SETFA	XANST	XANST	AMBEL	AMBEL	ABUTH	ABUTH	IPOSS	IPOSS
Crop Code	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Rating Data Type	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Unit	7-12-02	7-26-02	7-12-02	7-26-02	7-12-02	7-26-02	7-12-02	7-26-02	7-12-02	7-26-02	7-12-02	7-26-02
Rating Date	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A
Trt-Eval Interval	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code												
1	NONTREATED									0	0	0	0	0	0	0	0	0	0		
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	4-8"	W A	9	0	99	99	99	99	98	98	83	68	83	78
2	VALID	100	LIQ	0.125	% V/V	0.125	%V/V	4-8"	W A												
2	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"	W A												
3	ROUNDUP ULTRA MAX	3.7	SL	0.375	LB AE/A	13	OZ/A	4-8"	W A	1	0	99	99	99	99	99	95	77	55	75	73
3	VALID	100	LIQ	0.125	% V/V	0.125	%V/V	4-8"	W A												
3	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"	W A												
4	ROUNDUP ULTRA MAX	3.7	SL	0.375	LB AE/A	13	OZ/A	4-8"	W A	2	0	99	98	99	99	99	98	73	50	68	70
4	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"	W A												
5	ROUNDUP ULTRA MAX	3.7	SL	0.375	LB AE/A	13	OZ/A	4-8"	W A	3	0	99	98	99	99	99	98	82	75	73	75
5	THRUST	100	DRY	1.08	% W/W	9	LB/100 GAL	4-8"	W A												
6	ROUNDUP ORIGINAL	3	SL	0.75	LB AE/A	32	OZ/A	4-8"	W A	3	0	99	99	99	99	99	99	87	68	78	81
6	LIBERATE	100	LIQ	0.25	% V/V	0.25	%V/V	4-8"	W A												
6	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"	W A												
7	ROUNDUP ORIGINAL	3	SL	0.375	LB AE/A	16	OZ/A	4-8"	W A	1	0	99	98	99	99	99	99	76	62	73	73
7	LIBERATE	100	LIQ	0.25	% V/V	0.25	%V/V	4-8"	W A												
7	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"	W A												
8	ROUNDUP ORIGINAL	3	SL	0.375	LB AE/A	16	OZ/A	4-8"	W A	2	0	99	98	99	99	96	95	65	57	70	68
8	LI 700	100	LIQ	0.25	% V/V	0.25	%V/V	4-8"	W A												
8	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"	W A												
9	ROUNDUP ORIGINAL	3	SL	0.375	LB AE/A	16	OZ/A	4-8"	W A	2	0	99	99	99	99	99	96	72	50	73	71
9	CHOICE XTRA	100	LIQ	0.625	% V/V	5	PT/100 GAL	4-8"	W A												
10	NONTREATED									0	0	0	0	0	0	0	0	0	0	0	0
LSD (P=.05)										2.7	0.0	0.0	0.6	0.0	0.0	3.1	3.1	5.6	7.8	8.4	3.9
Replicate F										0.910	0.000	0.000	0.730	0.000	0.000	0.604	0.321	0.823	1.090	0.419	0.590
Replicate Prob(F)										0.4205	1.0000	1.0000	0.4958	1.0000	1.0000	0.5574	0.7294	0.4548	0.3575	0.6642	0.5649
Treatment F										8.109	0.000	0.000	37762.813	0.000	0.000	1536.525	1572.064	310.823	104.614	125.663	572.706
Treatment Prob(F)										0.0001	1.0000	1.0000	0.0001	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Weed Code	AMATA	AMATA
Crop Code		
Rating Data Type	Control	Control
Rating Unit	Percent	Percent
Rating Date	7-12-02	7-26-02
Trt-Eval Interval	14 DA-A	28 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code		
1	NONTREATED									0	0
2	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	4-8"W	A	99	90
2	VALID	100	LIQ	0.125	% V/V	0.125	%V/V	4-8"W	A		
2	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"W	A		
3	ROUNDUP ULTRA MAX	3.7	SL	0.375	LB AE/A	13	OZ/A	4-8"W	A	99	90
3	VALID	100	LIQ	0.125	% V/V	0.125	%V/V	4-8"W	A		
3	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"W	A		
4	ROUNDUP ULTRA MAX	3.7	SL	0.375	LB AE/A	13	OZ/A	4-8"W	A	99	93
4	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"W	A		
5	ROUNDUP ULTRA MAX	3.7	SL	0.375	LB AE/A	13	OZ/A	4-8"W	A	99	93
5	THRUST	100	DRY	1.08	% W/W	9	LB/100 GAL	4-8"W	A		
6	ROUNDUP ORIGINAL	3	SL	0.75	LB AE/A	32	OZ/A	4-8"W	A	99	94
6	LIBERATE	100	LIQ	0.25	% V/V	0.25	%V/V	4-8"W	A		
6	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"W	A		
7	ROUNDUP ORIGINAL	3	SL	0.375	LB AE/A	16	OZ/A	4-8"W	A	99	86
7	LIBERATE	100	LIQ	0.25	% V/V	0.25	%V/V	4-8"W	A		
7	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"W	A		
8	ROUNDUP ORIGINAL	3	SL	0.375	LB AE/A	16	OZ/A	4-8"W	A	99	85
8	LI 700	100	LIQ	0.25	% V/V	0.25	%V/V	4-8"W	A		
8	CHOICE	100	LIQ	0.5	% V/V	0.5	%V/V	4-8"W	A		
9	ROUNDUP ORIGINAL	3	SL	0.375	LB AE/A	16	OZ/A	4-8"W	A	99	88
9	CHOICE XTRA	100	LIQ	0.625	% V/V	5	PT/100 GAL	4-8"W	A		
10	NONTREATED									0	0
	LSD (P=.05)									0.0	5.1
	Replicate F									0.000	0.660
	Replicate Prob(F)									1.0000	0.5287
	Treatment F									0.000	491.677
	Treatment Prob(F)									1.0000	0.0001

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Trial Comments

1. Protocol: Loveland.
2. DA-A = days after 4-8"W application.
3. IPOSS = morninglory species which included pitted and ivyleaf morninglory.