

(01-ASC-8)

Weed control and yield response of soybeans to Roundup UltraMAX with various adjuvants and fertilizer additives, Ames, Iowa, 2001. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate novel herbicide additives in combination with glyphosate for weed efficacy and crop phytotoxicity in a glyphosate resistant soybean variety. The soil was a Canisteo, Nicollet, Clarion Webster clay loam with a pH 6.8 and 4.3% organic matter. The experimental design was a randomized complete block with four replications and plots were 10 by 25 ft. The 2000 crop was corn. Tillage included a fall chisel plowing and spring field cultivation. Crop residue on the soil surface was 12% at planting. "Asgrow variety AG 2401 RR" soybeans were planted 1.25 inches deep on May 30, at 154,000 seeds/A in 30-inch rows. May rainfall included: 0.18, 0.39, 0.83, 0.12, 0.15, 0.22, 0.07, 0.98, 0.26, 1.58, 0.05, 0.15, 0.03, 0.27, 0.20, 0.02, 0.13 and 0.64 inches on May 1, 2, 3, 4, 5, 6, 9, 10, 13, 20, 21, 23, 24, 25, 26, 27, 28 and 31, respectively. Total rainfall for May was 6.27 inches. June rainfall included: 0.07, 0.02, 0.30, 0.14, 0.59, 0.38, 0.16 and 0.01 inches on June 1, 4, 5, 10, 12, 14, 16 and 20, respectively. Total rainfall for June was 1.67 inches. July rainfall included: 0.44 inches and 1.24 inches from July 1 through 15 and 16 through 31, respectively. Rainfall total for August was 2.50 inches. Application information is listed below:

Date	June 27
Treatment	POST
Sprayer	
gpa	20
psi	30
nozzle	11002
Temperature (C)	
air	30
soil (4 inch)	28
Soil moisture	dry
Wind (mph)	0-3 NW
Sky	pt. cloudy
Relative	
humidity (%)	63%
Soybean growth	
leaf no.	V3
height (inch)	4
Giant foxtail	
leaf no.	1-4, 0-2 tillers
height (inch)	1-4
infestation (ft ²)	0-3
Common cocklebur	
leaf no.	2-7
height (inch)	2-6
infestation (ft ²)	0-8
Common lambsquarters	
leaf no.	numerous
height (inch)	2-4
infestation (ft ²)	0-3
Common ragweed	
leaf no.	numerous
height (inch)	1-5
infestation (ft ²)	0-1

Common waterhemp

leaf no.	numerous
height (inch)	1-5
infestation (ft ²)	0-10

Pennsylvania smartweed

leaf no.	numerous
height (inch)	1-5
infestation (ft ²)	0-1

Velvetleaf

leaf no.	2-5
height (inch)	2-4
infestation (ft ²)	0-1

No treatment caused soybean injury when observed on July 5 and 12, regardless of the adjuvant/additive included with Roundup UltraMAX. Four percent injury was noted on July 30 with Roundup UltraMAX plus Ammonium Sulfate. All treatments, except Roundup UltraMAX at 0.51 lb/A plus LI 143, provided 89 to 99% giant foxtail, velvetleaf, common waterhemp, common ragweed, common lambsquarters and common cocklebur control on July 12. Pennsylvania smartweed control was 83 to 86% with the same treatments. A similar trend in control was observed on July 30 and August 27. Generally, giant foxtail, velvetleaf, common waterhemp, common ragweed, common lambsquarters and common cocklebur control remained acceptable with all treatments, except Roundup UltraMAX at 0.51 lb/A plus LI 143. Roundup UltraMAX activity on Pennsylvania smartweed improved slowly following application, and by July 30 and August 27 control was 84 to 91%. Soybean yields ranged from 44 to 50 bu/A with the treatments. Roundup UltraMAX plus Choice and Route yielded the best and was significantly higher than several other treatments. (Dept. of Agronomy, Iowa State University, Ames)

DATA MEAN

TITLE: Weed control and yield response of soybeans to Roundup UltraMAX with various adjuvants and fertilizer additives.

CREATED: 06/05/2001 REVISED: 12/14/2001

COMPLETED: N

PROJECT TYPE: HERBICIDE

LOCATION: AMES, IA

RESEARCHED BY: IA State University

DESIGN: RANDOMIZED COMPLETE BLOCK DESIGN

PLOT SIZE: 10.00 FT WIDE X 25.00 FT LONG

REPS: 04

TRT NUM	TREATMENT COMPONENT	DOSAGE			GLXMA	GLXMA	SETFA	ABUTH	AMATA
		RATE	UNIT	TM	PHY % 07/05/01	PHY % 07/12/01	CON % 07/12/01	CON % 07/12/01	CON % 07/12/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»ROUNDUP ULTRAMAX (5SL)	0.51	LAA	1	0	0	99	59	51
	B»LI 143	2.00	QMA	1					
3A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	0	0	99	90	90
	B»LI 143	2.00	QMA	1					
4A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	0	0	99	96	89
	B»CHOICE	0.50	PMV	1					
	C»AWAKEN	2.00	QMA	1					
5A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	0	0	99	91	94
	B»CHOICE	0.50	PMV	1					
	C»ROUTE	1.50	PMA	1					
6A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	0	0	99	97	96
	B»CHOICE	0.50	PMV	1					
7A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	0	0	99	98	96
	B»AMMONIUM SULFATE	8.50	PMG	1					
8A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	0	0	99	96	98
		LSD (0.05)			0.00	0.00	0.00	4.47	5.75

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TRT NUM	TREATMENT COMPONENT	DOSAGE			AMBEL	CHEAL	POLPY	XANST	GLXMA
		RATE	UNIT	TM	CON % 07/12/01	CON % 07/12/01	CON % 07/12/01	CON % 07/12/01	PHY % 07/30/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»ROUNDUP ULTRAMAX (5SL)	0.51	LAA	1	60	63	51	68	0
	B»LI 143	2.00	QMA	1					
3A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	90	91	83	98	0
	B»LI 143	2.00	QMA	1					
4A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	92	96	84	98	0
	B»CHOICE	0.50	PMV	1					
	C»AWAKEN	2.00	QMA	1					
5A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	89	95	83	97	1
	B»CHOICE	0.50	PMV	1					
	C»ROUTE	1.50	PMA	1					
6A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	96	95	86	98	1
	B»CHOICE	0.50	PMV	1					
7A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	95	96	84	99	4
	B»AMMONIUM SULFATE	8.50	PMG	1					
8A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	96	99	86	99	0
				LSD (0.05)	6.28	2.94	5.05	5.47	2.22

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TRT NUM	TREATMENT COMPONENT	DOSAGE			SETFA	ABUTH	AMATA	AMBEL	CHEAL
		RATE	UNIT	TM	CON % 07/30/01	CON % 07/30/01	CON % 07/30/01	CON % 07/30/01	CON % 07/30/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»ROUNDUP ULTRAMAX (5SL)	0.51	LAA	1	99	58	51	60	51
	B»LI 143	2.00	QMA	1					
3A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	99	88	88	90	89
	B»LI 143	2.00	QMA	1					
4A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	99	94	88	91	92
	B»CHOICE	0.50	PMV	1					
	C»AWAKEN	2.00	QMA	1					
5A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	99	90	89	89	91
	B»CHOICE	0.50	PMV	1					
	C»ROUTE	1.50	PMA	1					
6A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	99	96	91	96	93
	B»CHOICE	0.50	PMV	1					
7A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	99	98	95	95	94
	B»AMMONIUM SULFATE	8.50	PMG	1					
8A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	99	96	94	95	98
				LSD (0.05)	0.00	6.37	4.75	7.17	5.53

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TRT NUM	TREATMENT COMPONENT	DOSAGE			POLPY	XANST	SETFA	ABUTH	AMATA
		RATE	UNIT	TM	CON % 07/30/01	CON % 07/30/01	CON % 08/27/01	CON % 08/27/01	CON % 08/27/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»ROUNDUP ULTRAMAX (5SL)	0.51	LAA	1	53	68	99	58	45
	B»LI 143	2.00	QMA	1					
3A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	85	98	99	88	81
	B»LI 143	2.00	QMA	1					
4A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	85	98	99	90	84
	B»CHOICE	0.50	PMV	1					
	C»AWAKEN	2.00	QMA	1					
5A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	85	98	99	88	83
	B»CHOICE	0.50	PMV	1					
	C»ROUTE	1.50	PMA	1					
6A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	89	99	99	96	86
	B»CHOICE	0.50	PMV	1					
7A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	89	99	99	97	90
	B»AMMONIUM SULFATE	8.50	PMG	1					
8A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	90	99	99	95	91
				LSD (0.05)	4.75	5.55	0.00	6.55	7.70

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TRT NUM	TREATMENT COMPONENT	DOSAGE			AMBEL	CHEAL	POLPY	XANST	YIELD	
		RATE	UNIT	TM	CON % 08/27/01	CON % 08/27/01	CON % 08/27/01	CON % 08/27/01	BU/A 10/18/01	
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	9	
2A	»ROUNDUP ULTRAMAX (5SL)	0.51	LAA	1	60	44	53	68	44	
	B»LI 143	2.00	QMA	1						
3A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	89	85	84	98	45	
	B»LI 143	2.00	QMA	1						
4A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	91	90	85	96	49	
	B»CHOICE	0.50	PMV	1						
	C»AWAKEN	2.00	QMA	1						
5A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	89	89	86	98	50	
	B»CHOICE	0.50	PMV	1						
	C»ROUTE	1.50	PMA	1						
6A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	96	90	89	99	45	
	B»CHOICE	0.50	PMV	1						
7A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	95	91	89	99	45	
	B»AMMONIUM SULFATE	8.50	PMG	1						
8A	»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	1	95	98	91	99	48	
					LSD (0.05)	7.40	8.23	4.65	6.17	3.53

» = SUPPLEMENTAL CHEMICAL

* TIMING CODES

00 = UNTRCHK / UNTREATED TIMING (FP)

01 = POSPOS / POST 06/27/2001(1)