

Evaluation of Weed Control with Authority and Valor in Roundup Ready Soybean.

01-51E-S140

OBJECTIVE: Evaluation of weed control with preplant incorporated and preemergence applications of Authority or Valor either with or without a postemergence application.

SUMMARY: Authority and Valor caused no soybean injury or stand reduction. Authority controlled giant foxtail, yellow nutsedge, ivyleaf morningglory, and common waterhemp, 93 to 100%, regardless of rate or application timing. Valor at 0.078 or 0.094 lb ai/A controlled giant foxtail, ivyleaf morningglory, and common waterhemp, 90 to 100%, regardless of application timing. Authority at 0.313 lb/A controlled common cocklebur, 90 to 92%, regardless of application timing. Valor provided poor control of common cocklebur. Authority and Valor provided poor control of giant ragweed. Authority and Valor applied PPI or PRE followed by glyphosate POST increased giant ragweed control to 85% or greater. Sequential applications of Roundup Ultra Max controlled all weeds, 95 to 100%.

Soybean grain yield ranged from 4 to 48 bu/A. In most instances, yield was greater in plots treated with Authority and Valor followed by Roundup Ultra Max compared to a single application of Roundup Ultra Max.

HERBICIDES

AUTHORITY 75 WG
ROUNDUP ULTRA MAX 3.7 SL
VALOR 50 WG

WEEDS

cocklebur, common
foxtail, giant
morningglory, ivyleaf
nutsedge, yellow
ragweed, giant
waterhemp, common

CROP

soybean

Ronald Krausz and Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Weed Control with Authority and Valor in Roundup Ready Soybean.

Project Code: 01-51E-S140 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final Initiation Date: 5-5-01**Objective:**

Evaluation of weed control with preplant incorporated and preemergence applications of Authority or Valor either with or without a postemergence application.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. XANST	cocklebur, common	Xanthium strumarium L.
3. AMBTR	ragweed, giant	Ambrosia trifida L.
4. IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.
5. CYPES	nutsedge, yellow	Cyperus esculentus L.
6. AMATA	waterhemp, common	Amaranthus rudis Sauer

Crop 1:	GLXMA soybean	Variety:	B-T 398CR
Planting Method:	Seeded	Planting Date:	5-16-01
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	27 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2000				
Field Prep./Maintenance:	N 0 LB/A, P205 0 LB/A, K20 200 LB/A				

Soil Name:	Weir	% OM:	1.7	pH:	7.1	CEC:	11
Texture:	Silt loam	Fert. Level:	P1: 84 LB/A, K: 172 LB/A				

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	5-16-01	5-16-01	6-19-01	7-3-01
Time of Day:	6:30	13:30	8:00	11:00
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PPI	PRE	4-6"W	2WA4-6"W
Applic. Placement:	BROSOI	BROSOI	BROFOL	BROFOL
Air Temp., Unit:	74 F	88 F	80 F	90 F
% Relative Humidity:	70	52	64	60
Wind Velocity, Unit:	2-3 MPH	5-10 MPH	0-3 MPH	5-10 MPH
Soil Moisture:	BELNOR	BELNOR	BELNOR	BELNOR
% Cloud Cover:	10	20	10	20

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code, Stage:	GLXMA NA	GLXMA NA	GLXMA V3	GLXMA V6
Height, Unit:	NA NA	NA NA	4-5 IN	9 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	SETFA	SETFA	SETFA	SETFA
Stage(leaves):			4-6	
Height(inches):			3-5	
Density:			Medium	
Weed 2 Code:	XANST	XANST	XANST	XANST
Stage(leaves):			6-8	
Height(inches):			4-6	
Density:			Medium	
Weed 3 Code:	AMBTR	AMBTR	AMBTR	AMBTR
Stage(leaves):			4-8	3-4
Height(inches):			4-6	2-3
Density:			High	Low

Weed 4 Code:	IPOHE	IPOHE	IPOHE	IPOHE
Stage(leaves):				6-10+
Height(inches):				2-4
Density:				Low

Weed 5 Code:	CYPES	CYPES	CYPES	CYPES
Stage(leaves):			4-8	4-6
Height(inches):			3-5	2-4
Density:			Medium	Medium

Weed 6 Code:	AMATA	AMATA	AMATA	AMATA
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APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8003	8002	8002
Boom Length, Unit:	10 FT	10 FT	10 FT	10 FT
Incorporation Equip.:	FC2X+CM			
Hours to Incorp.:	1			
Incorp. Depth, Unit:	2-4 IN			
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA

NOTES: HARVESTED 11-1-01, 2 ROWS X 24 FT.

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Project Code: 01-51E-S140 Location: Belleville Research Center

Weed Code													SETFA	SETFA	SETFA	CYPES	CYPES	CYPES		
Crop Code													GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA		
Rating Data Type													Yield	Injury	Injury	Injury	STARED	STARED	STARED	
Rating Unit													bu/A	Percent	Percent	Percent	Percent	Percent	Percent	
Rating Date													11-1-01							
Trt-Eval Interval													14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code											
1	NONTREATED									4	0	0	0	0	0	0	0	0	0	0
2	AUTHORITY	75	WG	0.20	LB A/A	4.27	OZ/A	PPI	A	4	0	0	0	0	0	0	97	93	93	100
3	AUTHORITY	75	WG	0.25	LB A/A	5.33	OZ/A	PPI	A	4	0	0	0	0	0	0	97	92	92	100
4	AUTHORITY	75	WG	0.313	LB A/A	6.7	OZ/A	PPI	A	6	0	0	0	0	0	0	100	100	100	100
5	VALOR	50	WG	0.063	LB A/A	2	OZ/A	PPI	A	7	0	0	0	0	0	0	97	63	63	93
6	VALOR	50	WG	0.078	LB A/A	2.5	OZ/A	PPI	A	5	0	0	0	0	0	0	100	90	90	100
7	VALOR	50	WG	0.094	LB A/A	3	OZ/A	PPI	A	6	0	0	0	0	0	0	100	93	93	97
8	AUTHORITY	75	WG	0.20	LB A/A	4.27	OZ/A	PRE	B	3	0	0	0	0	0	0	100	100	100	100
9	AUTHORITY	75	WG	0.25	LB A/A	5.33	OZ/A	PRE	B	6	0	0	0	0	0	0	100	97	97	100
10	AUTHORITY	75	WG	0.313	LB A/A	6.7	OZ/A	PRE	B	7	0	0	0	0	0	0	100	100	100	100
11	VALOR	50	WG	0.063	LB A/A	2	OZ/A	PRE	B	4	0	0	0	0	0	0	100	83	83	95
12	VALOR	50	WG	0.078	LB A/A	2.5	OZ/A	PRE	B	11	0	0	0	0	0	0	100	90	90	95
13	VALOR	50	WG	0.094	LB A/A	3	OZ/A	PRE	B	8	0	0	0	0	0	0	100	93	93	93
14	AUTHORITY	75	WG	0.20	LB A/A	4.27	OZ/A	PPI	A	26	0	0	0	0	0	0	100	100	100	100
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
15	AUTHORITY	75	WG	0.25	LB A/A	5.33	OZ/A	PPI	A	32	0	0	0	0	0	0	100	100	100	100
15	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
16	AUTHORITY	75	WG	0.313	LB A/A	6.7	OZ/A	PPI	A	45	0	0	0	0	0	0	100	100	100	100
16	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
17	VALOR	50	WG	0.063	LB A/A	2	OZ/A	PPI	A	31	0	0	0	0	0	0	100	100	100	93
17	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
18	VALOR	50	WG	0.078	LB A/A	2.5	OZ/A	PPI	A	36	0	0	0	0	0	0	100	100	100	90
18	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
19	VALOR	50	WG	0.094	LB A/A	3	OZ/A	PPI	A	31	0	0	0	0	0	0	100	100	100	93
19	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
20	AUTHORITY	75	WG	0.20	LB A/A	4.27	OZ/A	PRE	B	37	0	0	0	0	0	0	100	100	100	100
20	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											
21	AUTHORITY	75	WG	0.25	LB A/A	5.33	OZ/A	PRE	B	42	0	0	0	0	0	0	100	100	100	100
21	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C											

Weed Code
 Crop Code
 Rating Data Type
 Rating Unit
 Rating Date
 Trt-Eval Interval

GLXMA GLXMA GLXMA GLXMA GLXMA GLXMA GLXMA SETFA SETFA SETFA CYPES CYPES CYPES
 Yield Injury Injury Injury STARED STARED STARED Control Control Control Control Control Control
 11-1-01 bu/A Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent Percent
 14 DAT 28 DAT 56 DAT 14 DAT 28 DAT 56 DAT 14 DAT 28 DAT 56 DAT 14 DAT 28 DAT 56 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	Yield	Injury	Injury	Injury	STARED	STARED	STARED	Control	Control	Control	Control	Control	Control
22	AUTHORITY	75	WG	0.313	LB A/A	6.7	OZ/A	PRE	B	32	0	0	0	0	0	0	100	100	100	100	100	100
22	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C													
23	VALOR	50	WG	0.063	LB A/A	2	OZ/A	PRE	B	36	0	0	0	0	0	0	100	100	100	90	90	90
23	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C													
24	VALOR	50	WG	0.078	LB A/A	2.5	OZ/A	PRE	B	35	0	0	0	0	0	0	100	100	100	90	90	90
24	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C													
25	VALOR	50	WG	0.094	LB A/A	3	OZ/A	PRE	B	34	0	0	0	0	0	0	93	93	93	93	93	93
25	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C													
26	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C	24	0	0	0	0	0	0	100	100	100	90	90	90
27	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C	33	0	0	0	0	0	0	100	100	100	90	98	98
27	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	2WA4-6"W	D													
28	HANDWEED									48	0	0	0	0	0	0	100	100	100	100	100	100
28	NO HERBICIDE																					
LSD (P=.05)										8.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	9.3	9.3	4.4	5.3	5.3
Replicate F										2.898	0.000	0.000	0.000	0.000	0.000	0.000	0.243	2.286	2.286	0.162	0.352	0.352
Replicate Prob(F)										0.0638	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7849	0.1114	0.1114	0.8511	0.7049	0.7049
Treatment F										29.798	0.000	0.000	0.000	0.000	0.000	0.000	217.757	36.216	36.216	141.874	101.450	101.450
Treatment Prob(F)										0.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Evaluation of Weed Control with Authority and Valor in Roundup Ready Soybean.

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Weed Code																	
Rating	Data Type	XANST	XANST	XANST	AMBTR	AMBTR	AMBTR	IPOHE	IPOHE	IPOHE	AMATA	AMATA	AMATA				
Rating Unit	Trt-Eval Interval	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT
1	NONTREATED								0	0	0	0	0	0	0	0	0
2	AUTHORITY	75 WG		0.20 LB A/A	4.27 OZ/A	PPI	A		90	85	73	72	27	17	100	100	100
3	AUTHORITY	75 WG		0.25 LB A/A	5.33 OZ/A	PPI	A		87	85	75	82	55	30	100	100	100
4	AUTHORITY	75 WG		0.313 LB A/A	6.7 OZ/A	PPI	A		93	90	90	85	78	0	100	100	100
5	VALOR	50 WG		0.063 LB A/A	2 OZ/A	PPI	A		92	85	58	90	90	75	100	100	100
6	VALOR	50 WG		0.078 LB A/A	2.5 OZ/A	PPI	A		90	82	57	90	83	28	100	90	90
7	VALOR	50 WG		0.094 LB A/A	3 OZ/A	PPI	A		94	83	47	94	90	63	98	100	100
8	AUTHORITY	75 WG		0.20 LB A/A	4.27 OZ/A	PRE	B		92	88	62	92	52	27	100	100	100
9	AUTHORITY	75 WG		0.25 LB A/A	5.33 OZ/A	PRE	B		88	87	60	83	27	0	100	100	100
10	AUTHORITY	75 WG		0.313 LB A/A	6.7 OZ/A	PRE	B		97	92	92	94	87	30	100	100	100
11	VALOR	50 WG		0.063 LB A/A	2 OZ/A	PRE	B		88	82	28	93	87	60	95	100	100
12	VALOR	50 WG		0.078 LB A/A	2.5 OZ/A	PRE	B		92	85	60	93	88	47	98	100	100
13	VALOR	50 WG		0.094 LB A/A	3 OZ/A	PRE	B		94	87	42	96	90	72	97	100	100
14	AUTHORITY	75 WG		0.20 LB A/A	4.27 OZ/A	PPI	A		93	92	92	90	85	85	98	99	99
14	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	97	97
15	AUTHORITY	75 WG		0.25 LB A/A	5.33 OZ/A	PPI	A		98	98	98	90	90	90	100	100	100
15	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	100	100
16	AUTHORITY	75 WG		0.313 LB A/A	6.7 OZ/A	PPI	A		100	100	100	92	92	92	100	100	100
16	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	97	97
17	VALOR	50 WG		0.063 LB A/A	2 OZ/A	PPI	A		90	88	88	88	88	88	90	90	90
17	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	93	93
18	VALOR	50 WG		0.078 LB A/A	2.5 OZ/A	PPI	A		87	88	88	92	88	88	88	88	88
18	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	95	95
19	VALOR	50 WG		0.094 LB A/A	3 OZ/A	PPI	A		93	93	93	94	87	87	88	88	88
19	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	96	96
20	AUTHORITY	75 WG		0.20 LB A/A	4.27 OZ/A	PRE	B		92	92	92	92	92	92	90	93	93
20	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	100	100
21	AUTHORITY	75 WG		0.25 LB A/A	5.33 OZ/A	PRE	B		98	98	98	93	93	93	97	97	97
21	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	98	98
22	AUTHORITY	75 WG		0.313 LB A/A	6.7 OZ/A	PRE	B		100	99	99	92	88	88	100	100	100
22	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	99	99
23	VALOR	50 WG		0.063 LB A/A	2 OZ/A	PRE	B		87	88	88	90	90	90	83	87	87
23	ROUNDUP ULTRA MAX	3.7 SL		0.75 LB AE/A	1.6 PT/A	4-6"W	C								100	92	92

Weed Code		XANST	XANST	XANST	AMBTR	AMBTR	AMBTR	IPOHE	IPOHE	IPOHE	AMATA	AMATA	AMATA
Rating Data Type		Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Rating Unit		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Trt-Eval Interval		14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	90	93	93	88	88	88	90	90	90	100	93	93
24	VALOR	50	WG	0.078	LB A/A	2.5	OZ/A	PRE	B	90	93	93	88	88	88	90	90	90	100	93	93
24	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C												
25	VALOR	50	WG	0.094	LB A/A	3	OZ/A	PRE	B	93	93	93	90	90	90	90	90	90	100	97	97
25	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C												
26	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C	90	100	100	90	85	85	90	85	85	97	88	88
27	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W	C	90	98	98	90	98	98	90	95	95	100	100	100
27	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	2WA4-6"W	D												
28	HANDWEED									100	100	100	100	100	100	100	100	100	100	100	100
28	NO HERBICIDE																				
LSD (P=.05)										4.7	6.5	39.7	8.3	29.2	39.5	3.7	3.4	3.4	1.8	4.6	4.6
Replicate F										2.278	5.667	7.226	0.051	0.872	2.360	0.403	0.384	0.384	1.000	3.530	3.530
Replicate Prob(F)										0.1123	0.0058	0.0017	0.9503	0.4239	0.1040	0.6703	0.6830	0.6830	0.3746	0.0363	0.0363
Treatment F										114.571	62.400	3.288	36.724	5.477	5.813	204.802	248.074	248.074	898.778	131.242	131.242
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Trial Comments

1. Protocol: SIU - RFK.
2. STARED = stand reduction. DAT = days after final application of each treatment.
 - 14 days after PPI, PRE and 4-6"W applications was on 5-30-01, 5-30-01 and 7-3-01, respectively.
 - 28 days after PPI, PRE and 4-6"W applications was on 6-13-01, 6-13-01 and 7-17-01, respectively.
 - 56 days after PPI, PRE and 4-6"W applications was on 7-11-01, 7-11-01 and 8-14-01, respectively.