

Waterhemp Control in Roundup Ready Soybean with Various Herbicides.

01-52-ME80

OBJECTIVE: To evaluate common waterhemp control in Roundup Ready soybean.

SUMMARY: Authority caused no soybean injury. Canopy XL caused 20% injury (height reduction) 60 days after planting. Cobra caused 22% injury 14 days after application and Blazer and Flexstar caused 10% injury 14 days after application. Prowl provided only 17% control of common waterhemp whereas Authority alone controlled 92% of the common waterhemp. Cobra, Blazer, and Flexstar provided poor control of common waterhemp. Roundup Ultra, Roundup Ultra Max, Touchdown 5, and Touchdown alone controlled common waterhemp, 85 to 90%. Soil herbicides applied PRE followed by POST herbicides controlled 100% of the common waterhemp.

Soybean yield ranged from 33 to 56 bu/A. Common waterhemp competition during the entire growing season reduced soybean grain yield by approximately 30 to 40%.

HERBICIDES

AUTHORITY 75 WG
 BLAZER 2 EC
 BOUNDARY 7.8 EC
 CANOPY XL 56.3 WG
 COBRA 2 EC
 DUAL II MAGNUM 7.64 EC
 FLEXSTAR 1.88 EC
 FUSION 2.66 EC
 PROWL 3.3 EC
 ROUNDUP ULTRA 3 SL
 ROUNDUP ULTRA MAX 3.7 SL
 TOUCHDOWN 3 SL
 TOUCHDOWN 5 5 SL

WEEDS

waterhemp, common

CROP

soybean

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Waterhemp Control in Roundup Ready Soybean with Various Herbicides.

Project Code: 01-52-ME80 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: 5-8-01

Objective:

To evaluate common waterhemp control in Roundup Ready soybean.

Weed Code Common Name Scientific Name
1. AMATA waterhemp, common Amaranthus rudis SauerCrop 1: GLXMA soybean Variety: B-T 371CR
Planting Method: Seeded Planting Date: 5-10-01
Rate: 75 lb/A Depth: 1.0 IN
Row Spacing: 30 INPlot Width, Unit: 10 FT Plot Length, Unit: 25 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 150 LB/ASoil Name: Weir % OM: 1.9 pH: 7.1 CEC: 12
Texture: Silt loam Fert. Level: P1: 97 LB/A, K: 282 LB/A

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	5-11-01	6-19-01	6-25-01	6-26-01	6-26-01
Time of Day:	11:00	14:30	10:00	9:30	9:30
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	4-6"W-1	6-8"W	2-4"W	4-6"W-2
Applic. Placement:	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	78 F	91 F	75 F	77 F	77 F
% Relative Humidity:	52	46	69	55	55
Wind Velocity, Unit:	2-5 MPH	0-2 MPH	0-3 MPH	0-2 MPH	0-2 MPH
Soil Moisture:	BELNOR	BELNOR	NORMAL	BELNOR	BELNOR

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	GLXMA NA	GLXMA V3	GLXMA V5	GLXMA V5-V6	GLXMA V5-V6
Height, Unit:	NA NA	3-5 IN	8 IN	8-9 IN	8-9 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	AMATA	AMATA	AMATA	AMATA	AMATA
Stage(leaves):		2-10+	4-10+	6-10+	6-10+
Height(inches):		1-7	2-10	2-4	2-8
Density:		High	High	Low	Low

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8002	8002	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA

NOTES: HARVESTED 10-22-01, 2 ROWS X 22 FT.

Waterhemp Control in Roundup Ready Soybean with Various Herbicides.

Project Code: 01-52-ME80 Location: Belleville Research Center

Weed Code																	
Crop Code																	
Rating Data Type																	
Rating Unit																	
Rating Date																	
Trt-Eval Interval																	
		GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	
		Yield	Injury	Injury	Injury	Injury	Injury	STARED	STARED	STARED	STARED	STARED	STARED	STARED	STARED	STARED	
		bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
		10-22-01	5-25-01	6-8-01	14 DAT	28 DAT	56 DAT	14 DA-A	28 DA-A	14 DAT	28 DAT	56 DAT	14 DA-A	28 DA-A	14 DAT	28 DAT	
Trt	Treatment	Form	Form	Rate	Rate	Prod	Prod	Grow	Appl								
No.	Name	Conc	Type	Unit	Unit	Rate	Unit	Stg	Code								
1	NONTREATED									27	0	0	0	0	0	0	0
2	AUTHORITY	75	WG	0.25	LB A/A	5.3	OZ/A	PRE	A	38	0	0	0	0	0	0	0
3	PROWL	3.3	EC	1.0	LB A/A	2.4	PT/A	PRE	A	24	0	0	0	0	0	0	0
4	PROWL	3.3	EC	1.0	LB A/A	2.4	PT/A	PRE	A	36	0	0	0	0	0	0	0
4	AUTHORITY	75	WG	0.25	LB A/A	5.3	OZ/A	PRE	A								
5	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	4-6"W-1	B	44		0	0	0		0	0
6	TOUCHDOWN 5	5	SL	1.0	LB A/A	1.6	PT/A	4-6"W-1	B	45		0	0	0		0	0
7	COBRA	2	EC	0.20	LB A/A	13	OZ/A	4-6"W-1	B	33		22	0	0		0	0
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-1	B								
7	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-1	B								
8	FLEXSTAR	1.88	EC	0.294	LB A/A	1.25	PT/A	4-6"W-1	B	37		10	0	0		0	0
8	SUN-IT II	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-1	B								
8	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-1	B								
9	BLAZER	2	EC	0.375	LB A/A	1.5	PT/A	4-6"W-1	B	38		10	0	0		0	0
9	PRIME OIL COC	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-1	B								
9	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-1	B								
10	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	6-8"W	C	41		0	0	0		0	0
11	TOUCHDOWN 5	5	SL	1.0	LB A/A	1.6	PT/A	6-8"W	C	38		0	0	0		0	0
12	AUTHORITY	75	WG	0.25	LB A/A	5.3	OZ/A	PRE	A	40		0	0	0		0	0
12	ROUNDUP ULTRA	3	SL	0.56	LB AE/A	1.5	PT/A	2-4"W	D								
13	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-1	B	42		0	0	0		0	0
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W-1	B	38		0	0	0		0	0
15	FLEXSTAR	1.88	EC	0.176	LB A/A	12	OZ/A	4-6"W-1	B	39		0	0	0		0	0
15	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-1	B								
16	DUAL II MAGNUM	7.64	EC	1.43	LB A/A	1.5	PT/A	PRE	A	38	0	0	0	0	0	0	0
16	AUTHORITY	75	WG	0.1875	LB A/A	4	OZ/A	PRE	A								
16	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E								
17	DUAL II MAGNUM	7.64	EC	1.43	LB A/A	1.5	PT/A	PRE	A	36	0	10	20	15	10	0	0
17	CANOPY XL	56.3	WG			6	OZ/A	PRE	A								
17	->CLASSIC	25	WG	0.03519	LB A/A			PRE	A								
17	->AUTHORITY	75	WG	0.1759	LB A/A			PRE	A								
17	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E								
18	BOUNDARY	7.8	EC	1.46	LB A/A	1.5	PT/A	PRE	A	39	0	0	0	0	0	0	0
18	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E								

Weed Code																			
Crop Code																			
Rating Data Type		GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA					
Rating Unit		Yield	Injury	Injury	Injury	Injury	Injury	STARED	STARED	STARED	STARED	STARED	STARED	STARED					
Rating Date		bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent					
Trt-Eval Interval		10-22-01	5-25-01	6-8-01				5-25-01	6-8-01										
		14 DA-A	28 DA-A	14 DAT	28 DAT	56 DAT	14 DA-A	28 DA-A	14 DAT	28 DAT	56 DAT								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code										
19	BOUNDARY	7.8	EC	1.22	LB A/A	1.25	PT/A	PRE	A	42	0	0	5	0	0	0	0	0	0
19	FLEXSTAR	1.88	EC	0.294	LB A/A	1.25	PT/A	4-6"W-2	E										
19	FUSION	2.66	EC	0.2078	LB A/A	10	OZ/A	4-6"W-2	E										
19	IF NEEDED ADD FUSION																		
19	SUN-IT II	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-2	E										
19	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-2	E										
20	BOUNDARY	7.8	EC	1.22	LB A/A	1.25	PT/A	PRE	A	39	0	0	0	0	0	0	0	0	0
20	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E										
LSD (P=.05)										6.4	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0
Replicate F										2.125	0.000	0.000	0.060	0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)										0.1334	1.0000	1.0000	0.9423	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F										4.941	0.000	0.000	19.687	0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)										0.0001	1.0000	1.0000	0.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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Weed Code	AMATA	AMATA	AMATA	AMATA	AMATA
Rating Data Type	Control	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent	Percent
Rating Date	5-25-01	6-8-01			
Trt-Eval Interval	14 DA-A	28 DA-A	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									0	0	0	0	0
2	AUTHORITY	75	WG	0.25	LB A/A	5.3	OZ/A	PRE	A	100	100	100	100	92
3	PROWL	3.3	EC	1.0	LB A/A	2.4	PT/A	PRE	A	90	80	90	80	17
4	PROWL	3.3	EC	1.0	LB A/A	2.4	PT/A	PRE	A	100	100	100	100	95
4	AUTHORITY	75	WG	0.25	LB A/A	5.3	OZ/A	PRE	A					
5	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	4-6"W-1	B			98	90	90
6	TOUCHDOWN 5	5	SL	1.0	LB A/A	1.6	PT/A	4-6"W-1	B			97	90	88
7	COBRA	2	EC	0.20	LB A/A	13	OZ/A	4-6"W-1	B			94	83	68
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-1	B					
7	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-1	B					
8	FLEXSTAR	1.88	EC	0.294	LB A/A	1.25	PT/A	4-6"W-1	B			93	87	70
8	SUN-IT II	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-1	B					
8	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-1	B					
9	BLAZER	2	EC	0.375	LB A/A	1.5	PT/A	4-6"W-1	B			92	78	77
9	PRIME OIL COC	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-1	B					
9	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-1	B					
10	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	6-8"W	C			90	85	85
11	TOUCHDOWN 5	5	SL	1.0	LB A/A	1.6	PT/A	6-8"W	C			90	88	88
12	AUTHORITY	75	WG	0.25	LB A/A	5.3	OZ/A	PRE	A			100	100	100
12	ROUNDUP ULTRA	3	SL	0.56	LB AE/A	1.5	PT/A	2-4"W	D					
13	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-1	B			97	88	90
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	1.6	PT/A	4-6"W-1	B			97	85	85
15	FLEXSTAR	1.88	EC	0.176	LB A/A	12	OZ/A	4-6"W-1	B			98	92	90
15	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-1	B					
16	DUAL II MAGNUM	7.64	EC	1.43	LB A/A	1.5	PT/A	PRE	A	100	100	100	100	100
16	AUTHORITY	75	WG	0.1875	LB A/A	4	OZ/A	PRE	A					
16	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E					
17	DUAL II MAGNUM	7.64	EC	1.43	LB A/A	1.5	PT/A	PRE	A	100	100	100	99	100
17	CANOPY XL	56.3	WG			6	OZ/A	PRE	A					
17	->CLASSIC	25	WG	0.03519	LB A/A			PRE	A					
17	->AUTHORITY	75	WG	0.1759	LB A/A			PRE	A					
17	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E					
18	BOUNDARY	7.8	EC	1.46	LB A/A	1.5	PT/A	PRE	A	100	100	100	98	100
18	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E					

Weed Code	AMATA	AMATA	AMATA	AMATA	AMATA
Rating Data Type	Control	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent	Percent
Rating Date	5-25-01	6-8-01			
Tri-Eval Interval	14 DA-A	28 DA-A	14 DAT	28 DAT	56 DAT

Tri No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code					
19	BOUNDARY	7.8	EC	1.22	LB A/A	1.25	PT/A	PRE	A	100	100	100	100	100
19	FLEXSTAR	1.88	EC	0.294	LB A/A	1.25	PT/A	4-6"W-2	E					
19	FUSION	2.66	EC	0.2078	LB A/A	10	OZ/A	4-6"W-2	E					
19	IF NEEDED ADD FUSION													
19	SUN-IT II	100	LIQ	1.0	% V/V	1.6	PT/A	4-6"W-2	E					
19	28% UAN	100	LIQ	2.0	QT/A	4.0	PT/A	4-6"W-2	E					
20	BOUNDARY	7.8	EC	1.22	LB A/A	1.25	PT/A	PRE	A	100	100	100	99	100
20	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W-2	E					
LSD (P=.05)										0.0	0.0	3.8	3.8	14.7
Replicate F										0.000	0.000	0.913	0.152	0.238
Replicate Prob(F)										1.0000	1.0000	0.4097	0.8592	0.7895
Treatment F										0.000	0.000	273.700	265.911	27.575
Treatment Prob(F)										1.0000	1.0000	0.0001	0.0001	0.0001

Waterhemp Control in Roundup Ready Soybean with Various Herbicides.

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Trial Comments

1. Protocol: SIU - RFK (trts 1-12); Syngenta (trts 13-20).
2. Treatment 19, IF NEEDED ADD FUSION, Fusion was not added, not needed.
3. STARED = stand reduction. DA-A = days after PRE application. DAT = days after final application of each treatment.
14 days after PRE, 4-6"W-1, 6-8"W, 2-4"W and 4-6"W-2 applications was on 5-25-01, 7-3-01, 7-9-01, 7-10-01 and 7-10-01, respectively.
28 days after PRE, 4-6"W-1, 6-8"W, 2-4"W and 4-6"W-2 applications was on 6-8-01, 7-17-01, 7-23-01, 7-24-01 and 7-24-01, respectively.
56 days after PRE, 4-6"W-1, 6-8"W, 2-4"W and 4-6"W-2 applications was on 7-6-01, 8-14-01, 8-20-01, 8-21-01 and 8-21-01, respectively.