Waterhemp Management in Soybean.

01-52-W90

OBJECTIVE: Evaluate various soil and foliar applied herbicides alone and in combination for control of common waterhemp.

SUMMARY: Soybean injury was observed from the preemergence (PRE) application of Valor (19%), and postemergence (POST) applications of Cobra (13 to 15%), Ultra Blazer (0 to 8%), and Flexstar (2 to 10%). By 28 days after postemergence applications (DAPO), soybean injury was 3% or less from all treatments except Authority followed by Cobra (7%).

Sequential applications of Authority PRE followed by a POST herbicide controlled 99% of waterhemp at 28 DAPO. Similarly, sequential applications of either Dual II Magnum or Sencor followed by a POST herbicide controlled at least 91% of waterhemp. Treatments with only a PRE application of Authority, Dual II Magnum, Sencor, Valor or Boundary controlled 90 to 99% of waterhemp on June 18. However, by July 17, waterhemp control from PRE only treatments declined to 52 to 87%. POST only treatments of Ultra Blazer, Cobra or Flexstar controlled only 72 to 74% of waterhemp at 28 DAPO. Roundup Ultra Max alone or as a sequential application controlled at least 91% of waterhemp.

Soybean yield ranged from 29 bu/A in the nontreated plots to 56 bu/A in handweeded plots. Plots treated with a PRE herbicide alone yielded 9 to 19 bu/A less than handweeded plots. There was no difference in soybean yield between handweeded plots and a single POST application of Roundup Ultra Max. Plots treated with a single POST application of Cobra or Flexstar yielded 10 to 11 bu/A less than handweeded plots. With the exception of Authority followed by Cobra and Sencor followed by Ultra Blazer, all PRE followed by POST treatments yielded similar to the handweed plots.

HERBICIDES	WEEDS	CROP
AUTHORITY 75 WG BOUNDARY 7.8 EC COBRA 2 EC DUAL II MAGNUM 7.64 EC FLEXSTAR 1.88 EC ROUNDUP ULTRA MAX 3.7 SL SENCOR 75 WG ULTRA BLAZER 2 SL VALOR 50 WG	waterhemp, common	soybean

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Waterhemp Management in Soybean.

Project Code: 01-52-W90 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:** 4-3-01

Objective:
Evaluate various soil and foliar applied herbicides alone and in combination for control of common waterhemp.

Weed Code	Common Name	Scientific Name
1.	AMATA waterhemp, common	Amaranthus rudis Sauer

Crop 1: GLXMA soybean **Variety:** B-T 371 CR
Planting Method: Seeded **Planting Date:** 5-10-01
Rate: 75 LB/A **Depth:** 1.0 IN
Row Spacing: 30 IN

Plot 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, P2O5 0 LB/A, K2O 150 LB/A

Soil 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
Application Date:	5-11-01	6-19-01	7-3-01
Time of Day:	8:30	11:00	11:30
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	4-6"W	4-6"W-RG
Applic. Placement:	BROSOI	BROFOL	BROFOL
Air Temp., Unit:	68 F	90 F	90 F
% Relative Humidity:	82	48	60
Wind Velocity, Unit:	2-4 MPH	3-6 MPH	5 MPH
Soil Moisture:	NORMAL	BELNOR	BELNOR
% Cloud Cover:	75	50	20

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	GLXMA PRE	GLXMA V4	GLXMA V9-V10
Height, Unit:	NA NA	5-6 IN	15 IN

WEED STAGE AT EACH APPLICATION

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

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8002	8002
Boom Length, Unit:	7.33 FT	7.33 FT	7.33 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA

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

Waterhemp Management in Soybean.

Project Code: 01-52-W90 Location: Belleville Research Center
See comments regarding postemergence applications.

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Yield bu/A 10-22-01	GLXMA Injury Percent 6-18-01 -1 DA-B	GLXMA Injury Percent 7-3-01 14 DA-B	GLXMA Injury Percent 7-17-01 28 DA-B	AMATA Control Percent 6-18-01 -1 DA-B	AMATA Control Percent 7-3-01 14 DA-B	AMATA Control Percent 7-17-01 28 DA-B	AMATA Plants 1.0 m2 7-3-01 14 DA-B
1	NONTREATED									29	0	0	0	0	0	0	209.3
2	AUTHORITY	75	WG	0.249	LB A/A	5.3	OZ/A	PRE	A	48	0	0	0	95	93	87	6.0
3	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	38	0	0	0	92	75	52	40.7
4	SENCOR	75	WG	0.375	LB A/A	8	OZ/A	PRE	A	37	0	0	0	90	67	53	61.3
5	ULTRA BLAZER	2	SL	0.375	LB A/A	1.5	PT/A	4-6"W	B	48		0	0		83	74	54.0
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
5	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
6	COBRA	2	EC	0.195	LB A/A	12.5	OZ/A	4-6"W	B	46		13	3		89	72	30.0
6	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
6	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
7	FLEXSTAR	1.88	EC	0.294	LB A/A	20	OZ/A	4-6"W	B	45		3	0		78	72	62.0
7	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
7	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
8	ROUNDUP ULTRA MAX	3.7	SL	0.56	LB AE/A	1.2	PT/A	4-6"W	B	50		0	0		97	91	6.0
8	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W	B								
9	AUTHORITY	75	WG	0.249	LB A/A	5.3	OZ/A	PRE	A	51	0	5	0	97	99	99	0.0
9	ULTRA BLAZER	2	SL	0.375	LB A/A	1.5	PT/A	4-6"W	B								
9	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
9	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
10	AUTHORITY	75	WG	0.249	LB A/A	5.3	OZ/A	PRE	A	46	0	13	7	96	99	99	0.0
10	COBRA	2	EC	0.195	LB A/A	12.5	OZ/A	4-6"W	B								
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
10	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
11	AUTHORITY	75	WG	0.249	LB A/A	5.3	OZ/A	PRE	A	51	0	10	0	97	99	99	0.0
11	FLEXSTAR	1.88	EC	0.294	LB A/A	20	OZ/A	4-6"W	B								
11	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
11	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
12	AUTHORITY	75	WG	0.249	LB A/A	5.3	OZ/A	PRE	A	52	0	0	0	96	99	99	0.0
12	ROUNDUP ULTRA MAX	3.7	SL	0.56	LB AE/A	1.2	PT/A	4-6"W	B								
12	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W	B								
13	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	51	0	8	0	90	98	97	0.7
13	ULTRA BLAZER	2	SL	0.375	LB A/A	1.5	PT/A	4-6"W	B								
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
13	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
14	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	53	0	13	0	86	98	96	0.0
14	COBRA	2	EC	0.195	LB A/A	12.5	OZ/A	4-6"W	B								
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
14	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
15	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	51	0	0	0	91	98	98	1.3
15	FLEXSTAR	1.88	EC	0.294	LB A/A	20	OZ/A	4-6"W	B								
15	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
15	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
16	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	54	0	0	0	87	97	93	4.7
16	ROUNDUP ULTRA MAX	3.7	SL	0.56	LB AE/A	1.2	PT/A	4-6"W	B								
16	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W	B								
17	SENCOR	75	WG	0.375	LB A/A	8	OZ/A	PRE	A	46	3	8	0	88	99	95	1.3
17	ULTRA BLAZER	2	SL	0.375	LB A/A	1.5	PT/A	4-6"W	B								
17	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
17	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
18	SENCOR	75	WG	0.375	LB A/A	8	OZ/A	PRE	A	47	0	15	2	91	99	92	0.7
18	COBRA	2	EC	0.195	LB A/A	12.5	OZ/A	4-6"W	B								
18	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
18	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Yield bu/A 10-22-01	GLXMA Injury Percent 6-18-01 -1 DA-B	GLXMA Injury Percent 7-3-01 14 DA-B	GLXMA Injury Percent 7-17-01 28 DA-B	AMATA Control Percent 6-18-01 -1 DA-B	AMATA Control Percent 7-3-01 14 DA-B	AMATA Control Percent 7-17-01 28 DA-B	AMATA Plants 1.0 m2 7-3-01 14 DA-B
19	SENCOR	75	WG	0.375	LB A/A	8	OZ/A	PRE	A	48	0	2	0	87	98	98	2.7
19	FLEXSTAR	1.88	EC	0.294	LB A/A	20	OZ/A	4-6"W	B								
19	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B								
19	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B								
20	SENCOR	75	WG	0.375	LB A/A	8	OZ/A	PRE	A	52	0	0	0	90	98	91	4.0
20	ROUNDUP ULTRA MAX	3.7	SL	0.56	LB AE/A	1.2	PT/A	4-6"W	B								
20	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W	B								
21	HANDWEED									56		0	0		94	99	0.0
22	ROUNDUP ULTRA MAX	3.7	SL	0.56	LB AE/A	1.2	PT/A	4-6"W	B	52		0	0		99	98	2.7
22	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W	B								
22	ROUNDUP ULTRA MAX	3.7	SL	0.56	LB AE/A	1.2	PT/A	4-6"W-RG	C								
22	AMS	100	DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W-RG	C								
23	VALOR	50	WG	0.078	LB A/A	2.5	OZ/A	PRE	A	46	19	5	0	99	89	82	12.0
24	BOUNDARY	7.8	EC	1.46	LB A/A	1.5	PT/A	PRE	A	40	0	0	0	97	82	68	28.7
LSD (P=.05)										8.7	2.3	4.0	2.4	4.6	6.6	11.9	22.42
Replicate F										6.076	1.206	5.495	1.175	2.598	1.667	3.827	3.514
Replicate Prob(F)										0.0046	0.3119	0.0072	0.3179	0.0891	0.1999	0.0290	0.0380
Treatment F										3.978	33.025	14.313	3.321	192.605	81.959	30.164	32.766
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0001	0.0001

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Project Code: 01-52-W90 Location: Belleville Research Center
See comments regarding postemergence applications.

Trial Comments

1. Protocol: ISPOB.
2. Blanket application of Basagran 0.75 lbai/A + Select 0.125 lbai/A + COC 1.0 %v/v applied to all treatments including nontreated and handweeded on 6-7-01.
3. DA-B = days after 4-6"W application. -1 DA-B = prior to postemergence application. 6-18-01 was also 38 days after the PRE application. 1.0 m2 = 1.0 square meter.
4. Study incomplete, 56 DA-B weed counts to be done.