

Waterhemp Management.

00-6A-W140

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

SUMMARY: Soybean injury 25 DAT ranged from 5 to 12% from preemergence applications of Dual II Magnum and Authority. Injury ranging from 10 to 27% was observed with Cobra, Blazer and Reflex at 14 days after postemergence herbicide application. Excluding one pass of Roundup Ultra or Sencor, all treatments provided excellent control of common waterhemp. Postemergence applications of Cobra, Blazer, Reflex, and Roundup Ultra controlled 78 to 89% of common cocklebur. Applying Authority or Sencor preemergence did not increase common cocklebur control from postemergence herbicides. Postemergence herbicides controlled 87 to 95% and 83 to 86% of velvetleaf and ivyleaf morningglory, respectively. Preceding postemergence herbicides with Authority preemergence tended to increase velvetleaf and ivyleaf morningglory control. Soybean yield was 30 bu/A in handweeded plots. Reduced soybean yield was observed in all herbicide treated plots except Authority followed by Blazer or Roundup Ultra, Sencor followed by Roundup Ultra, and Roundup Ultra followed by Roundup Ultra. The very low soybean yields observed in this study were likely due to intense competition from common cocklebur.

HERBICIDES

AUTHORITY 75 WG
 BLAZER 2 EC
 COBRA 2 EC
 DUAL II MAGNUM 7.64 EC
 REFLEX 2 EC
 ROUNDUP ULTRA 3 SL
 SENCOR 75 WG

WEEDS

COCKLEBUR, COMMON
 FOXTAIL, GIANT
 MORNINGGLORY, SPECIES
 VELVETLEAF
 WATERHEMP, COMMON

CROP

SOYBEAN

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Waterhemp Management.

Project Code: 00-6A-W140 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code	Common Name	Scientific Name
1. SETFA	FOXTAIL, GIANT	SETARIA FABERI HERRM.
2. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
3. IPOSS	MORNINGGLORY, SPECIES	IPOMOEA SP.
4. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L. SSP. STRUMARIUM
5. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDICUS

Crop 1:	GLXMA SOYBEAN	Variety:	B-T 369CR
Planting Method:	SEEDDED	Planting Date:	May-11-00
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:	RCB		
Previous Crop, Year:	ZEAMX, 1999	Fertilizer applied:	N 0 LB/A,	P ₂ O ₅ 0 LB/A,	K ₂ O 0 LB/A

Soil Name:	STOY	% OM:	2.2	pH:	5.8	CEC:	7
Texture:	SILT LOAM	P ₁ :	82 LB/A,	K:	358 LB/A		

APPLICATION DESCRIPTION

	A	B	C
Application Date:	May-12-00	Jun-6-00	Jun-22-00
Time of Day:	6:00	10:30	9:15
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	4-6"W	4-6"W-RG
Applic. Placement:	BROSOI	BROFOL	BROFOL
Air Temp., Unit:	72 F	60 F	75 F
% Relative Humidity:	96	26	90
Wind Velocity, Unit:	0 MPH	0-5 MPH	2-4 MPH
Soil Moisture:	DRY	NORMAL	WET

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	NA	GLXMA V1	GLXMA V4
Height, Unit:	NA	3-4 IN	10 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:		SETFA	
Stage(leaves):		2-4	
Height(inches):		3-6	
Density:		HIGH	
Weed 2 Code:		AMATA	AMATA
Stage(leaves):		3-6	3-6
Height(inches):		3-6	3-6
Density:		LOW	LOW
Weed 3 Code:		IPOSS	IPOSS
Stage(leaves):		2-4	2-4
Height(inches):		1-3	2-4
Density:		LOW	LOW
Weed 4 Code:		XANST	XANST
Stage(leaves):		4	2-4
Height(inches):		2-5	2-4
Density:		MEDIUM	LOW

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	CO ₂ SPRAY	CO ₂ SPRAY	CO ₂ SPRAY
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 Oct-04-00, (2) 30 inch rows by 10 ft.

TABLE. WATERHEMP MANAGEMENT. PROJECT CODE:00-6A-W140

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLXMA			SETFA				AMATA							
								INJURY, DAT			CONTROL		PLANTS		CONTROL		PLANTS					
								0	14	28	DAYS AFTER 4-6"W		DA 4-6"W		DAYS AFTER 4-6"W		DA 4-6"W					
								0	14	28	0	14	28	56	14	56	0	14	28	56	14	56
							BU/A	%	%	%	%	%	%	%	0.25 M2	%	%	%	%	0.25 M2		
1 NONTREATED							1	0	0	0	0	0	0	0	203	102	0	0	0	0	62	3
2 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	8	7	3	0	89	87	80	75	24	51	99	99	96	93	0	1
3 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33 PT/A	PRE	A	2	12	5	0	99	96	92	87	0	4	98	99	92	92	0	0
4 SENCOR	75 WG	0.375	LB A/A	8.0 OZ/A	PRE	A	5	0	0	0	60	8	7	7	134	43	98	83	78	77	19	0
5 BLAZER	2 EC	0.375	LB A/A	1.5 PT/A	4-6"W	B	4	0	15	5	0	37	17	2	137	67	0	93	88	90	4	1
5 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																
6 COBRA	2 EC	0.195	LB A/A	12.5 OZ/A	4-6"W	B	3	0	25	12	0	20	5	0	169	92	0	96	95	93	6	0
6 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																
7 REFLEX	2 EC	0.313	LB A/A	20.0 OZ/A	4-6"W	B	1	0	13	3	0	20	7	0	139	75	0	93	90	89	0	0
7 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																
8 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	4-6"W	B	19	0	0	0	0	98	90	89	2	2	0	83	50	40	11	5
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	22	8	15	2	92	92	92	89	5	1	99	99	96	95	0	1
9 BLAZER	2 EC	0.375	LB A/A	1.5 PT/A	4-6"W	B																
9 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																
10 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	14	10	25	13	93	89	85	75	9	14	99	99	96	93	0	1
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	1.0 %V/V	4-6"W	B																
11 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	13	8	10	0	90	90	89	85	7	2	99	99	96	93	0	0
11 REFLEX	2 EC	0.313	LB A/A	20.0 OZ/A	4-6"W	B																
11 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																
12 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	23	5	0	0	90	99	93	89	3	0	99	99	98	95	0	0
12 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 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	4	13	15	3	98	92	92	88	13	1	99	99	95	90	0	4
13 BLAZER	2 EC	0.375	LB A/A	1.5 PT/A	4-6"W	B																
13 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																
14 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33 PT/A	PRE	A	5	17	27	13	96	95	89	82	1	22	99	99	95	92	0	1
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	1.0 %V/V	4-6"W	B																
15 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33 PT/A	PRE	A	3	15	10	0	98	90	87	83	6	3	99	98	95	93	0	0
15 REFLEX	2 EC	0.313	LB A/A	20.0 OZ/A	4-6"W	B																
15 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																

(CONTINUED)

TABLE. WATERHEMP MANAGEMENT. PROJECT CODE:00-6A-W140 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	YIELD	GLXMA				SETFA				AMATA							
								INJURY, DAT				CONTROL				PLANTS		CONTROL				PLANTS	
								0	14	28		DAYS AFTER 4-6"W				DA 4-6"W		DAYS AFTER 4-6"W				DA 4-6"W	
0	14	28		0	14	28	56	14	56	0	14	28	56	14	56								
							BU/A	%	%	%	%	%	%	%	0.25 M2	%	%	%	%	0.25 M2			
16 DUAL II MAGNUM	7.64 EC	1.27 LB	A/A	1.33 PT/A	PRE	A	14	17	7	0	99	99	95	93	1	0	99	99	95	95	0	0	
16 ROUNDUP ULTRA	3 SL	0.56 LB	AE/A	1.5 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	8.0 OZ/A	PRE	A	5	0	15	3	60	43	23	10	111	55	98	99	96	93	0	2	
17 BLAZER	2 EC	0.375 LB	A/A	1.5 PT/A	4-6"W	B																	
17 PRIME OIL COC	100 LIQ	1.0 %	V/V	1.0 %V/V	4-6"W	B																	
18 SENCOR	75 WG	0.375 LB	A/A	8.0 OZ/A	PRE	A	4	0	23	10	58	23	7	3	111	84	99	99	96	93	0	0	
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	1.0 %V/V	4-6"W	B																	
19 SENCOR	75 WG	0.375 LB	A/A	8.0 OZ/A	PRE	A	5	0	10	0	62	30	12	2	73	48	98	99	95	93	0	1	
19 REFLEX	2 EC	0.313 LB	A/A	20.0 OZ/A	4-6"W	B																	
19 PRIME OIL COC	100 LIQ	1.0 %	V/V	1.0 %V/V	4-6"W	B																	
20 SENCOR	75 WG	0.375 LB	A/A	8.0 OZ/A	PRE	A	22	2	0	0	67	99	89	89	1	0	99	99	95	91	1	0	
20 ROUNDUP ULTRA	3 SL	0.56 LB	AE/A	1.5 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							30	0	0	0	99	99	99	99	0	0	99	99	99	99	0	0	
22 ROUNDUP ULTRA	3 SL	0.56 LB	AE/A	1.5 PT/A	4-6"W	B	35	0	0	0	0	99	98	96	1	0	0	85	95	95	16	0	
22 AMS	100 DRY	1.0 %	W/W	8.5 LB/100 GAL	4-6"W	B																	
22 ROUNDUP ULTRA	3 SL	0.56 LB	AE/A	1.5 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																	
LSD							9	6	4	4	8	8	7	7	35	38	2	4	3	5	25	3	
P							0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	

(CONTINUED)

TABLE. WATERHEMP MANAGEMENT. PROJECT CODE:00-6A-W140 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	XANST						ABUTH						IPOSS					
							CONTROL				PLANTS		CONTROL				PLANTS		CONTROL				PLANTS	
							DAYS AFTER 4-6"W				DA 4-6"W		DAYS AFTER 4-6"W				DA 4-6"W		DAYS AFTER 4-6"W				DA 4-6"W	
0	14	28	56	14	56	0	14	28	56	14	56	0	14	28	56	14	56	0	14	28	56	14	56	
				0.25 M2						0.25 M2						0.25 M2								
1 NONTREATED							0	0	0	0	14	4	0	0	0	0	3	1	0	0	0	0	3	1
2 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	83	77	67	8	3	2	99	99	98	93	0	0	98	94	91	89	0	0
3 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33 PT/A	PRE	A	0	0	0	0	9	6	13	13	12	10	2	1	8	8	7	7	4	1
4 SENCOR	75 WG	0.375	LB A/A	8.0 OZ/A	PRE	A	20	7	7	3	4	3	92	90	88	84	2	0	38	43	37	32	2	1
5 BLAZER	2 EC	0.375	LB A/A	1.5 PT/A	4-6"W	B	0	87	83	80	1	2	0	90	90	90	2	0	0	87	86	83	0	0
5 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		
6 COBRA	2 EC	0.195	LB A/A	12.5 OZ/A	4-6"W	B	0	90	89	88	1	0	0	95	95	93	0	0	0	85	85	82	2	0
6 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		
7 REFLEX	2 EC	0.313	LB A/A	20.0 OZ/A	4-6"W	B	0	86	78	78	4	2	0	93	88	87	1	0	0	89	86	85	1	0
7 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		
8 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 PT/A	4-6"W	B	0	87	87	85	2	5	0	90	87	85	7	1	0	84	83	80	4	1
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	85	88	85	73	1	4	99	99	98	95	0	0	98	95	95	92	0	0
9 BLAZER	2 EC	0.375	LB A/A	1.5 PT/A	4-6"W	B																		
9 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		
10 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	83	96	89	83	0	4	99	99	96	95	0	0	96	96	93	90	0	1
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	1.0 %V/V	4-6"W	B																		
11 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	78	85	80	67	2	3	99	99	95	93	0	0	96	95	93	90	0	0
11 REFLEX	2 EC	0.313	LB A/A	20.0 OZ/A	4-6"W	B																		
11 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		
12 AUTHORITY	75 WG	0.249	LB A/A	5.3 OZ/A	PRE	A	80	89	87	85	2	2	99	99	98	95	0	0	95	95	92	90	1	0
12 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5 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	0	47	33	0	6	7	15	52	48	20	5	1	10	65	63	35	3	1
13 BLAZER	2 EC	0.375	LB A/A	1.5 PT/A	4-6"W	B																		
13 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		
14 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33 PT/A	PRE	A	0	85	71	23	3	3	13	88	83	57	2	1	5	80	73	43	6	2
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	1.0 %V/V	4-6"W	B																		
15 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33 PT/A	PRE	A	0	43	30	0	7	8	17	85	83	73	3	1	8	72	73	62	2	1
15 REFLEX	2 EC	0.313	LB A/A	20.0 OZ/A	4-6"W	B																		
15 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0 %V/V	4-6"W	B																		

(CONTINUED)

TABLE. WATERHEMP MANAGEMENT. PROJECT CODE:00-6A-W140 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	XANST				ABUTH				IPOSS										
							CONTROL		PLANTS		CONTROL		PLANTS		CONTROL		PLANTS								
							0	14	28	56	14	56	0	14	28	56	14	56	0	14	28	56	14	56	
							%	%	%	%	0.25	M2	%	%	%	%	0.25	M2	%	%	%	%	0.25	M2	
16 DUAL II MAGNUM	7.64 EC	1.27	LB A/A	1.33	PT/A	PRE	A	0	85	80	70	9	2	13	93	91	89	1	0	5	85	82	77	6	2
16 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	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	8.0	OZ/A	PRE	A	10	72	68	50	5	3	89	92	92	91	1	0	25	85	79	67	2	2
17 BLAZER	2 EC	0.375	LB A/A	1.5	PT/A	4-6"W	B																		
17 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4-6"W	B																		
18 SENCOR	75 WG	0.375	LB A/A	8.0	OZ/A	PRE	A	22	88	86	78	0	1	95	96	95	93	0	0	28	85	77	63	3	1
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	1.0	%V/V	4-6"W	B																		
19 SENCOR	75 WG	0.375	LB A/A	8.0	OZ/A	PRE	A	13	80	80	72	1	1	92	96	95	93	0	0	27	73	72	72	0	0
19 REFLEX	2 EC	0.313	LB A/A	20.0	OZ/A	4-6"W	B																		
19 PRIME OIL COC	100 LIQ	1.0	% V/V	1.0	%V/V	4-6"W	B																		
20 SENCOR	75 WG	0.375	LB A/A	8.0	OZ/A	PRE	A	10	90	88	84	1	1	90	99	93	92	0	0	23	85	80	73	9	2
20 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	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								99	99	99	99	0	0	99	99	99	99	0	0	99	99	99	99	0	0
22 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4-6"W	B	0	89	90	90	1	3	0	88	93	93	3	2	0	88	91	92	2	1
22 AMS	100 DRY	1.0	% W/W	8.5	LB/100 GAL	4-6"W	B																		
22 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	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																		
LSD								6	7	11	14	8	5	6	7	8	14	4	1.4	8	7	9	12	4	2
P								0.01	0.01	0.01	0.01	0.08	0.09	0.01	0.01	0.01	0.01	0.01	0.4	0.01	0.01	0.01	0.01	0.01	0.6

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1. PROTOCOL: ISPOB.
2. 14 DAYS AFTER 4-6"W IS ALSO PRIOR TO 4-6"W-RG APPLICATION.
3. RATING DATES:
0 DAYS AFTER 4-6"W, 14 DAYS AFTER 4-6"W, 28 DAYS AFTER 4-6"W, AND 56 DAYS AFTER 4-6"W ON JUN-6-00, JUN-20-00, JUL-4-00, AND AUG-1-00, RESPECTIVELY.