

## Effect of Grass Competition on Common Waterhemp Control.

02-6A-W150

**OBJECTIVE:** This study was designed to evaluate the effect of grass competition on common waterhemp control.

**SUMMARY:** None of the herbicides caused soybean injury. Raptor provided no control of common waterhemp. Giant foxtail in the nontreated plots provided 93% control of common waterhemp. Roundup Ultra Max controlled common waterhemp 85 to 100%. Giant foxtail at the 15 and 18 inch height decreased common waterhemp control with Roundup Ultra Max. Roundup Ultra Max controlled giant foxtail 100% regardless of height. Soybean grain yield decreased as giant foxtail height increased from 12 to 21 inches. Competition from 12 to 21 inch giant foxtail at 780,000 plants/A reduced grain yield by 15 to 36% with yield decreasing as height increased. Giant foxtail competition the entire growing season reduced grain yield by 86% whereas common waterhemp competition reduced grain yield by 60%.

### HERBICIDES

EXTREME 2.17 SL  
RAPTOR 1 AS  
ROUNDUP ULTRA MAX 3.7 SL

### WEEDS

foxtail, giant  
waterhemp, common

### CROP

soybean

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## Effect of Grass Competition on Common Waterhemp Control.

Project Code: 02-6A-W150 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA  
Trial Status: Final Updated: 10-24-02

Weed Code	Common Name	Scientific Name
1.	SETFA foxtail, giant	Setaria faberi Herrm.
2.	AMATA waterhemp, common	Amaranthus rudis Sauer

Crop 1:	GLXMA soybean	Variety:	Asgrow 4602 RR
Planting Method:	Seeded	Planting Date:	6-3-02
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	25 FT	Reps:	4
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2001				

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K20 150 LB/A

Soil Name:	Stoy	% OM:	2.1	pH:	5.7	CEC:	7
Texture:	Silt loam	Fert. Level:	P1: 82 LB/A, K: 266 LB/A				

## APPLICATION DESCRIPTION

	A	B	C	D	E	F
Application Date:	6-21-02	6-27-02	7-2-02	7-5-02	7-10-02	7-19-02
Time of Day:	9:00	19:00	9:00	10:00	7:00	10:00
Application Method:	Spray	Spray	Spray	Spray	Spray	Spray
Application Timing:	3"G	6"G	9"G	12"G	15"G	18"G
Applic. Placement:	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	76 F	88 F	80 F	96 F	78 F	86 F
% Relative Humidity:	44	80	60	40	94	62
Wind Velocity, Unit:	0 MPH	0-5 MPH	0 MPH	0 MPH	0 MPH	0 MPH
Soil Moisture:	NORMAL	BELNOR	BELNOR	BELNOR	BELNOR	ABONOR
% Cloud Cover:	0	20	15		90	
	G	H	I	J	K	L
Application Date:	7-26-02	7-19-02	7-26-02	7-26-02	7-26-02	7-26-02
Time of Day:	13:00	10:00	13:00	13:00	13:00	13:00
Application Method:	Spray	Spray	Spray	Spray	Spray	Spray
Application Timing:	21"G	14DA3"G	14DA6"G	14DA9"G	14DA12"G	14DA15"G
Applic. Placement:	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	82 F	86 F	82 F	82 F	82 F	82 F
% Relative Humidity:	60	62	60	60	60	60
Wind Velocity, Unit:	5 MPH	0 MPH	5 MPH	5 MPH	5 MPH	5 MPH
Soil Moisture:	ABONOR	ABONOR	ABONOR	ABONOR	ABONOR	ABONOR
% Cloud Cover:						
	M	N				
Application Date:	8-7-02	8-12-02				
Time of Day:	10:00	10:00				
Application Method:	Spray	Spray				
Application Timing:	14DA18"G	14DA21"G				
Applic. Placement:	BROFOL	BROFOL				
Air Temp., Unit:	75 F	80 F				
% Relative Humidity:	50	70				
Wind Velocity, Unit:	0 MPH	0 MPH				
Soil Moisture:	ABONOR	ABONOR				
% Cloud Cover:						

## CROP STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Crop 1 Code, Stage:	GLXMA V1	GLXMA V2	GLXMA V4	GLXMA V4	GLXMA V5	GLXMA V5
Height, Unit:	3-4 IN	4-6 IN	8 IN	8 IN	10 IN	10 IN
	G	H	I	J	K	L
Crop 1 Code, Stage:	GLXMA V6-V7	GLXMA V6	GLXMA V6-V7	GLXMA V6-V7	GLXMA V6-V7	GLXMA V6-V7
Height, Unit:	12-14 IN	12 IN	12-14 IN	12-14 IN	12-14 IN	12-14 IN
	M	N				
Crop 1 Code, Stage:	GLXMA R1	GLXMA R1				
Height, Unit:	20-24 IN	20-24 IN				

## WEED STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Weed 1 Code:	SETFA	SETFA	SETFA	SETFA	SETFA	SETFA
Stage (leaves):	1-3	3-5	5-7	5-8	6-10	6-10
Height (inches):	1-3	3-5	7-10	6-12	8-12	16-18
Density:	Medium	High	High	High	High	High

Weed 2 Code:	AMATA	AMATA	AMATA	AMATA	AMATA	AMATA
Stage (leaves):	1-2	3-6	5-7	5-8	6-8	8-10
Height (inches):	1-2	2-4	4-6	4-6	6-8	8-12
Density:	Low	Low	Low	Low	Low	Low

	G	H	I	J	K	L
Weed 1 Code:	SETFA					
Stage (leaves):	8-10					
Height (inches):	18-21					
Density:	High					

Weed 2 Code:	AMATA
Stage (leaves):	8-20
Height (inches):	8-14
Density:	Low

	M	N
Weed 1 Code:		
Stage (leaves):		
Height (inches):		
Density:		

Weed 2 Code:	
Stage (leaves):	
Height (inches):	
Density:	

## APPLICATION EQUIPMENT

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

	G	H	I	J	K	L
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	8002	8002	8002	8002	8002	8002
Boom Length, Unit:	7.5 FT	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	20 GPA

	M	N
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan
Nozzle Size:	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA

## NOTES:

For applications "H-N", no weeds present at application.  
Harvested Oct-15-02, (2) 30 inch rows by 22 ft.

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Weed Code					AMATA	AMATA	AMATA	SETFA	SETFA	SETFA
Crop Code					GLXMA	GLXMA	GLXMA	GLXMA		
Rating Data Type					Yield	Injury	Injury	Injury	Control	Control
Rating Unit					bu/A	Percent	Percent	Percent	Percent	Percent
Rating Date					10-9-02					
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	14 DAT	28 DAT	56 DAT	14 DAT	28 DAT	56 DAT	
1	NONTREATED									8	0	0	0	92	89	93
2	NO HERBICIDE									53	0	0	0	100	100	100
2	HANDWEED ALL SEASON															
3	RAPTOR	1	AS	0.039	LB A/A	5	OZ/A	3"G	A	21	0	0	0	0	0	0
3	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	3"G	A							
3	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	3"G	A							
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	3"G	A	48	0	0	0	98	96	95
5	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	6"G	B	49	0	0	0	100	98	99
6	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	9"G	C	48	0	0	0	100	100	100
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	12"G	D	45	0	0	0	100	97	98
8	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	15"G	E	40	0	0	0	90	83	85
9	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	18"G	F	37	0	0	0	87	87	87
10	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	21"G	G	35	0	0	0	100	100	100
11	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	3"G	A	48	0	0	0	100	100	100
11	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA3"G	H							
11	HANDWEED AFTER LAST POST															
12	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	6"G	B	47	0	0	0	100	100	100
12	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA6"G	I							
12	HANDWEED AFTER LAST POST															
13	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	9"G	C	47	0	0	0	100	100	100
13	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA9"G	J							
13	HANDWEED AFTER LAST POST															
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	12"G	D	45	0	0	0	100	100	100
14	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA12"G	K							
14	HANDWEED AFTER LAST POST															
15	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	15"G	E	43	0	0	0	100	100	100
15	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA15"G	L							
15	HANDWEED AFTER LAST POST															

Weed Code									AMATA	AMATA	AMATA	SETFA	SETFA	SETFA
Crop Code									GLXMA	GLXMA	GLXMA	GLXMA		
Rating Data Type									Yield	Injury	Injury	Injury	Control	Control
Rating Unit									bu/A	Percent	Percent	Percent	Percent	Percent
Rating Date									10-9-02					
Trt-Eval Interval										14 DAT	28 DAT	56 DAT	14 DAT	28 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	Yield	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control
16	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	18"G	F	41	0	0	0	100	100	100	100	100	100
16	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA18"G	M										
16	HANDWEED AFTER LAST POST																		
17	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	21"G	G	34	0	0	0	100	100	100	100	100	100
17	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14DA21"G	N										
17	HANDWEED AFTER LAST POST																		
18	EXTREME	2.17	SL	0.814	LB A/A	3	PT/A	6"G	B	46	0	0	0	100	99	99	100	100	100
18	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	6"G	B										
18	AMS	100	DRY	2.5	LB/A	2.5	LB/A	6"G	B										
LSD (P=.05)										5.9	0.0	0.0	0.0	3.2	4.1	3.9	0.0	0.0	0.0
Replicate F										4.872	0.000	0.000	0.000	1.580	1.881	2.853	0.000	0.000	0.000
Replicate Prob(F)										0.0047	1.0000	1.0000	1.0000	0.2057	0.1444	0.0463	1.0000	1.0000	1.0000
Treatment F										28.766	0.000	0.000	0.000	417.584	257.548	290.843	0.000	0.000	0.000
Treatment Prob(F)										0.0001	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001	1.0000	1.0000	1.0000

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Trial Comments

1. Protocol: SIU (RFK).
2. Rating dates:
  - 14 days after 3"G, 6"G, 9"G, 12"G, 15"G, 18"G, and 21"G applications was on 7-5-02, 7-11-02, 7-16-02, 7-19-02, 7-24-02, 8-2-02, and 8-9-02, respectively.
  - 28 days after 3"G, 6"G, 9"G, 12"G, 15"G, 18"G, and 21"G applications was on 7-19-02, 7-25-02, 7-30-02, 8-2-02, 8-7-02, 8-16-02, and 8-23-02, respectively.
  - 56 days after 3"G, 6"G, 9"G, 12"G, 15"G, 18"G, and 21"G applications was on 8-16-02, 8-22-02, 8-27-02, 8-30-02, 9-4-02, 9-13-02, and 9-20-02, respectively.
3. Non-zero weed control ratings in the nontreated plots reflect competition between weeds.