Herbicide Programs for Control of a Waterhemp Population.

02-Pierron-M90

OBJECTIVE: Evaluate potential herbicide programs for control of waterhemp.

SUMMARY: This study was initiated on a grower's field in Pierron where multiple applications of the PPO inhibiting herbicide lactofen (Cobra, Phoenix) had failed to control waterhemp the previous year. The purpose of this study was to evaluate various herbicide programs including preemergence (PRE) followed by postemergence (POST) treatments and total POST treatments for control of a waterhemp population suspected to be resistant to PPO inhibiting herbicides. Waterhemp control at the time of the POST applications was at least 96% from Dual II Magnum, Boundary, Canopy XL, Lasso, Domain, and Authority. Prowl and Pendimax plus FirstRate controlled only 39 to 48% of waterhemp. Waterhemp control 56 days after treatment (DAT) was 92 to 99% from all treatments that included a POST application of a glyphosate containing product (Roundup UltraMax, Touchdown, Extreme, Glyphomax Plus). Dual II Magnum or Boundary followed by Flexstar also provided 98% control of waterhemp at 56 DAT in this study. Since a related study indicated that Flexstar at 20 oz/A provides less than 20% control of this waterhemp population, the high level of control observed from those treatments must be due to the PRE herbicides. Valor PRE alone or tank mixed with Pendimax followed by Phoenix (POST) controlled only 30 to 59% of waterhemp at 56 DAT. Similarly, Prowl PRE followed by Ultra Blazer provided only 64% waterhemp control at 56 DAT. The POST tank mixture of Phoenix plus Supporrt did not control any more waterhemp than Phoenix alone.

HERBICIDES	WEEDS	CROP
AUTHORITY 75 WG	morningglory, ivyleaf	soybean
BOUNDARY 7.8 EC	waterhemp, common	
CANOPY XL 56.3 WG		
CLASSIC 25 WG		
DOMAIN 60 WG		
DUAL II MAGNUM 7.64 EC		
EXTREME 2.17 SL		
FIRSTRATE 84 WG		
FLEXSTAR 1.88 EC		
GLYPHOMAX PLUS 3 SL		
LASSO 4 L		
PENDIMAX 3.3 EC		
PHOENIX 2 EC		
PROWL 3.3 EC		
ROUNDUP ULTRA MAX 3.7 SL		
SUPPORRT 75 WP		
TOUCHDOWN 3 SL		
ULTRA BLAZER 2 SL		
VALOR 51 WG		

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Herbicide Programs for Control of a Waterhemp Population.

Project Code: 02-Pierron-M90 Location: Pierron, IL

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final **Updated:** 10-30-02

Objective:
Evaluate potential herbicide programs for control of waterhemp.

Weed Code	Common Name	Scientific Name
1.	AMATA waterhemp, common	Amaranthus rudis Sauer
2.	IPOHE morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.

Crop 1: GLXMA soybean
Planting Method: Seeded **Planting Date:** 6-7-02
Rate: 75 lb/A **Depth:** 1.0 IN
Row Spacing: 15 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 26 FT **Reps:** 4
Tillage Type: Reduced-Till **Study Design:** Randomized complete block
Previous Crop, Year: GLXMA, 2001

APPLICATION DESCRIPTION

	A	B
Application Date:	6-10-02	7-8-02
Time of Day:	13:00	17:30
Application Method:	Spray	Spray
Application Timing:	PRE	4-6"W-1
Applic. Placement:	BROSOI	BROFOL
Wind Velocity, Unit:	5-10 MPH	0 MPH
Soil Moisture:	ABONOR	BELNOR
% Cloud Cover:	75	3

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	GLXMA NA	GLXMA V2
Height, Unit:	NA NA	6 IN

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:		AMATA
Stage(leaves):		2-8
Height(inches):		1-6
Density:		High
Weed 2 Code:		IPOHE
Stage(leaves):		4-10
Height(inches):		3-7
Density:		Low

APPLICATION EQUIPMENT

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

NOTES:
This study was not harvested.

Herbicide Programs for Control of a Waterhemp Population.

Project Code: 02-Pierron-M90 Location: Pierron, IL

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Injury 7-8-02 0 DA-B	GLXMA Injury 7-22-02 14 DA-B	GLXMA Injury 8-5-02 28 DA-B	GLXMA Height 9-2-02 56 DA-B	AMATA Control 7-8-02 0 DA-B	AMATA Control 7-22-02 14 DA-B	AMATA Control 8-5-02 28 DA-B	AMATA Control 9-2-02 56 DA-B	IPOHE Control 7-8-02 0 DA-B	IPOHE Control 7-22-02 14 DA-B	IPOHE Control 8-5-02 28 DA-B	AMATA Plants 7-8-02 0 DA-B	AMATA Plants 8-5-02 28 DA-B	IPOHE Plants 8-5-02 28 DA-B
	Weed Code													AMATA	AMATA	AMATA	AMATA	IPOHE	IPOHE	IPOHE	AMATA	AMATA	IPOHE
	Crop Code																						
	Rating Data Type													Control	Control	Control	Control	Control	Control	Control	Plants	Plants	Plants
	Rating Unit													Percent	Percent	Percent	Percent	Percent	Percent	Percent	1.0 m2	1.0 m2	1.0 m2
	Rating Date													7-8-02	7-22-02	8-5-02	9-2-02	7-8-02	7-22-02	8-5-02	7-8-02	8-5-02	8-5-02
	Trt-Eval Interval													0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	0 DA-B	28 DA-B	28 DA-B
1	NONTREATED									0	0	0	76	0	0	0	0	0	0	0	620	466	6
2	VALOR	51	WG	0.078	LB A/A	2.45	OZ/A	PRE	A	4	5	5	76	60	69	39	30	97	97	97	43	35	1
2	PHOENIX	2	EC	0.156	LB A/A	10	OZ/A	4-6"W	B														
2	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	B														
3	VALOR	51	WG	0.078	LB A/A	2.45	OZ/A	PRE	A	8	8	8	83	84	97	98	98	97	97	94	28	1	2
3	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	4-6"W	B														
3	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
4	VALOR	51	WG	0.063	LB A/A	2	OZ/A	PRE	A	0	0	0	89	84	91	81	59	99	99	99	31	17	1
4	PENDIMAX	3.3	EC	1.24	LB A/A	3	PT/A	PRE	A														
4	PHOENIX	2	EC	0.156	LB A/A	10	OZ/A	4-6"W	B														
4	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	B														
5	PROWL	3.3	EC	1.24	LB A/A	3	PT/A	PRE	A	0	0	0	82	39	48	40	64	25	35	20	123	67	4
5	ULTRA BLAZER	2	SL	0.188	LB A/A	12	OZ/A	4-6"W	B														
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B														
5	AMS	100	DRY	2.5	LB/A	2.5	LB/A	4-6"W	B														
6	PROWL	3.3	EC	1.24	LB A/A	3	PT/A	PRE	A	0	0	0	82	45	99	99	99	18	80	84	92	1	1
6	EXTREME	2.17	SL	0.814	LB A/A	3	PT/A	4-6"W	B														
6	ACTIVATOR 90	100	LIQ	0.125	% V/V	0.125	%V/V	4-6"W	B														
6	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
7	PENDIMAX	3.3	EC	1.24	LB A/A	3	PT/A	PRE	A	2	0	0	83	48	98	98	97	16	80	75	91	2	2
7	FIRSTRATE	84	WG	0.015	LB A/A	0.286	OZ/A	4-6"W	B														
7	GLYPHOMAX PLUS	3	SL	0.56	LB AE/A	1.5	PT/A	4-6"W	B														
7	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	B														
7	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
8	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	0	0	0	87	99	99	99	98	0	0	0	1	1	6
8	FLEXSTAR	1.88	EC	0.294	LB A/A	20	OZ/A	4-6"W	B														
8	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W	B														
8	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B														
9	BOUNDARY	7.8	EC	1.46	LB A/A	1.5	PT/A	PRE	A	8	8	8	84	99	99	99	98	0	0	0	0	0	7
9	FLEXSTAR	1.88	EC	0.294	LB A/A	20	OZ/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	DUAL II MAGNUM	7.64	EC	1.27	LB A/A	1.33	PT/A	PRE	A	1	0	0	84	99	99	99	99	0	73	75	1	0	3
10	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W	B														
10	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	GLXMA Injury Percent 7-8-02 0 DA-B	GLXMA Injury Percent 7-22-02 14 DA-B	GLXMA Injury Percent 8-5-02 28 DA-B	GLXMA Height cm 9-2-02 56 DA-B	AMATA Control Percent 7-8-02 0 DA-B	AMATA Control Percent 7-22-02 14 DA-B	AMATA Control Percent 8-5-02 28 DA-B	AMATA Control Percent 9-2-02 56 DA-B	IPOHE Control Percent 7-8-02 0 DA-B	IPOHE Control Percent 7-22-02 14 DA-B	IPOHE Control Percent 8-5-02 28 DA-B	AMATA Plants 1.0 m2 7-8-02 0 DA-B	AMATA Plants 1.0 m2 8-5-02 28 DA-B	IPOHE Plants 1.0 m2 8-5-02 28 DA-B
	Weed Code													AMATA	AMATA	AMATA	AMATA	IPOHE	IPOHE	IPOHE	AMATA	AMATA	IPOHE
	Crop Code																						
	Rating Data Type																						
	Rating Unit																						
	Rating Date																						
	Trt-Eval Interval																						
11	BOUNDARY	7.8	EC	1.46	LB A/A	1.5	PT/A	PRE	A	5	3	3	74	99	99	99	99	0	75	75	0	0	5
11	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W	B														
11	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
12	CANOPY XL	56.3	WG			4.5	OZ/A	PRE	A	1	3	3	84	98	99	99	99	99	99	99	2	0	0
12	->CLASSIC	25	WG	0.0264	LB A/A			PRE	A														
12	->AUTHORITY	75	WG	0.1319	LB A/A			PRE	A														
12	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	4-6"W	B														
12	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
13	LASSO	4	L	1.5	LB A/A	1.5	QT/A	PRE	A	0	0	0	86	96	99	99	99	0	73	73	5	0	2
13	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	4-6"W	B														
13	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
14	DOMAIN	60	WG	0.45	LB A/A	12	OZ/A	PRE	A	2	0	0	75	99	99	99	98	3	73	70	0	0	4
14	ROUNDUP ULTRA MAX	3.7	SL	0.58	LB AE/A	20	OZ/A	4-6"W	B														
14	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
15	AUTHORITY	75	WG	0.1875	LB A/A	4	OZ/A	PRE	A	3	3	3	91	98	99	99	99	99	99	99	5	0	0
15	ROUNDUP ULTRA MAX	3.7	SL	0.58	LB AE/A	20	OZ/A	4-6"W	B														
15	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
16	TOUCHDOWN	3	SL	0.75	LB AE/A	2	PT/A	4-6"W	B		0	0	79		99	97	92		93	90		16	2
16	FLEXSTAR	1.88	EC	0.147	LB A/A	10	OZ/A	4-6"W	B														
16	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
17	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	4-6"W	B		0	0	74		99	98	96		94	90		6	3
17	PHOENIX	2	EC	0.156	LB A/A	10	OZ/A	4-6"W	B														
17	AMS	100	DRY	2.0	% W/W	2	%W/W	4-6"W	B														
18	PHOENIX	2	EC	0.195	LB A/A	12.5	OZ/A	4-6"W	B		0	0	68		0	0	0		0	0		471	7
18	SUPPORRT	75	WP	0.047	LB A/A	1	OZ/A	4-6"W	B														
18	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W	B														
18	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W	B														
LSD (P=.05)										5.7	5.5	5.5	18.3	6.3	2.9	5.9	11.7	4.3	6.1	7.1	79.5	86.9	2.7
Replicate F										3.331	2.580	2.580	14.366	0.275	1.405	0.280	0.873	1.998	0.920	1.694	0.839	1.673	4.935
Replicate Prob(F)										0.0284	0.0637	0.0637	0.0001	0.8428	0.2520	0.8397	0.4611	0.1289	0.4380	0.1799	0.4804	0.1843	0.0044
Treatment F										1.718	1.804	1.804	0.914	192.803	1054.009	282.736	68.972	904.220	326.800	242.453	32.129	23.728	5.310
Treatment Prob(F)										0.0883	0.0536	0.0536	0.5629	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Herbicide Programs for Control of a Waterhemp Population.

Project Code: 02-Pierron-M90 Location: Pierron, IL

Trial Comments

1. Protocol: SIU (BGY).
2. DA-B = days after 4-6"W application. 1.0 m2 = 1.0 square meter.