

**Waterhemp control options in XtendFlex soybean**

Trial ID: SOY27-23 Study Dir.: Sprague, Stiles  
 Conducted: Shiawassee County Investigator: Christy Sprague

**Planting Date:** May-23-2023 **Row Spacing:** 30 IN  
**Variety:** AG26XF3 **No. of Reps:** 4  
**Population:** 150000 seeds/A **% OM:** 1.3  
**Soil Type:** SCL sandy clay loam **pH:** 6.1  
**Plot Size:** 10 X 25 FT **Study Design:** Randomized Complete Block (RCB)

**Tillage/Previous Crops:** Spring chisel plow and disked, followed by soil finisher twice.

**Fertilizer:**

**Crop and Weed Description**

Weed	Code	Common Name	Scientific Name
1	AMATU	waterhemp	Amaranthus tuberculatus
Crop	Code	Common Name	
1	GLXMA	Soybean	

**Application Description**

	A	B	C
<b>Application Timing:</b>	PRE	EPOS	POST
<b>Date Treated:</b>	May-23-2023	Jun-22-2023	Jun-29-2023
<b>Time Treated:</b>	3:10 PM	9:00 AM	10:45 AM
<b>% Cloud Cover:</b>	0	50	90
<b>Air Temp., Unit:</b>	75 F	79 F	67 F
<b>% Relative Humidity:</b>	37	38	70
<b>Wind Speed/Unit/Dir:</b>	1 MPH NW	5 MPH E	9 MPH SSE
<b>Soil Temp, Unit:</b>	69 F	80 F	65 F
<b>Leaf Moist/Dew Presence (Y/N):</b>		N	N
<b>Soil Moist:</b>	5	5	3

**Crop Stage at Each Application**

	A	B	C
<b>Crop 1 Name:</b>	GLXMA	GLXMA	GLXMA
<b>Height:</b>	4-6 " (6)	6-7 " (7)	
<b>Stage:</b>	V2	V3-V4 (V3)	

**Weed Stage at Each Application**

	A	B	C
<b>Weed 1 Name:</b>	AMATU	AMATU	AMATU
<b>Height:</b>	1-6 " (4)	4-6 " (4)	
<b>Stage:</b>	4L-18L	6L-20L	

**Weed Density**

**Date:** Jun-22-2023  
**Weed Name:** AMATU  
**Density:** 14 ft<sup>2</sup>

**Application Equipment**

Appl	Sprayer Type	Ground Speed	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	Spray Volume	Carrier	Operation Pressure
A	CUB	3.8 MPH	AIXR	11003	22.0 "	20.0 "	100.0 "	19 GPA	WATER	30 PSI
B	CUB	3.8 MPH	TTI	11003	22.0 "	20.0 "	100.0 "	19 GPA	WATER	27 PSI
C	CUB	3.8 MPH	TTI	11003	26.0 "	20.0 "	100.0 "	19 GPA	WATER	27 PSI

**Comments:** The waterhemp population at this location is resistant to glyphosate (Group 9) and ALS-inhibiting (Group 2) herbicides.

Michigan State University

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Trial ID: S0Y27-23

Protocol ID: S0Y27-23 Location: Shiawassee County Trial Year: 2022

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	Jun-20-2023	Jun-20-2023	Jun-29-2023	Jun-29-2023	Jul-11-2023	Jul-11-2023	Jul-20-2023
Rating Type	injury	control	injury	control	injury	control	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code	C, GLXMA		C, GLXMA		C, GLXMA		
Pest Code		AMATU		AMATU		AMATU	AMATU
Pest Stage Scale	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH
Trt-Eval Interval	28 DA-A	28 DA-A	7 DA-B	7 DA-B	12 DA-C	12 DA-C	21 DA-C
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jun-20-2023 injury	Jun-20-2023 control	Jun-29-2023 injury	Jun-29-2023 control	Jul-11-2023 injury	Jul-11-2023 control	Jul-20-2023 control
1	Valor EZ	2 fl oz/a		A	PRE	15	87	20	85	0	78	73
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	AMS	17 lb/100 gal		C	POST							
2	Valor EZ	2 fl oz/a		A	PRE	15	91	20	91	0	96	95
	Liberty	32 fl oz/a		C	POST							
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	AMS	17 lb/100 gal		C	POST							
3	Valor EZ	2 fl oz/a		A	PRE	15	91	20	85	0	92	93
	XtendiMax	22 fl oz/a		C	POST							
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	VaporGrip	20 fl oz/a		C	POST							
	Cognitive 1	0.5 % v/v		C	POST							
4	Valor EZ	2 fl oz/a		A	PRE	15	98	20	89	0	98	100
	XtendiMax	22 fl oz/a		C	POST							
	Liberty	32 fl oz/a		C	POST							
	VaporGrip	20 fl oz/a		C	POST							
	Cognitive 1	0.5 % v/v		C	POST							
5	Valor EZ	2 fl oz/a		A	PRE	15	95	20	91	0	99	100
	Warrant	3 pt/a		C	POST							
	Liberty	32 fl oz/a		C	POST							
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	AMS	17 lb/100 gal		C	POST							
6	Valor EZ	2 fl oz/a		A	PRE	15	94	20	86	0	94	98
	Warrant	3 pt/a		C	POST							
	XtendiMax	22 fl oz/a		C	POST							
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	VaporGrip	20 fl oz/a		C	POST							
	Cognitive 1	0.5 % v/v		C	POST							
7	Valor EZ	2 fl oz/a		A	PRE	15	93	20	91	0	93	94
	Warrant Ultra	50 fl oz/a		C	POST							
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	Crop oil concentrate	1 % v/v		C	POST							
	AMS	17 lb/100 gal		C	POST							
8	XtendiMax	22 fl oz/a		A	PRE	0	78	0	89	0	100	92
	Liberty	32 fl oz/a		C	POST							
	Roundup PowerMax 3	30 fl oz/a		C	POST							
	AMS	17 lb/100 gal		C	POST							
9	Roundup PowerMax 3	30 fl oz/a		B	EPOS	0	0	0	0	0	0	0
	AMS	17 lb/100 gal		B	EPOS							
10	Liberty	32 fl oz/a		B	EPOS	0	0	0	89	0	72	69
	Roundup PowerMax 3	30 fl oz/a		B	EPOS							
	AMS	17 lb/100 gal		B	EPOS							
11	XtendiMax	22 fl oz/a		B	EPOS	0	0	0	83	0	88	85
	Roundup PowerMax 3	30 fl oz/a		B	EPOS							
	VaporGrip	20 fl oz/a		B	EPOS							
	Cognitive 1	0.5 % v/v		B	EPOS							
12	XtendiMax	22 fl oz/a		B	EPOS	0	0	0	96	0	96	93
	Liberty	32 fl oz/a		B	EPOS							
	VaporGrip	20 fl oz/a		B	EPOS							
	Cognitive 1	0.5 % v/v		B	EPOS							
	LSD P=.05					.	8.6	.	9.2	.	10.4	11.1
	Standard Deviation					0.0	6.0	0.0	6.4	0.0	7.3	7.7
	CV					0.0	9.92	0.0	7.87	0.0	8.65	9.35

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8  
 Could not calculate LSD (% mean diff) for columns 1,3,5 because error mean square = 0.

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Trial ID: S0Y27-23

Protocol ID: S0Y27-23 Location: Shiawassee County Trial Year: 2022

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	Sep-21-2023
Rating Type	control
Rating Unit/Min/Max	%, 0, 100
Crop Type, Code	
Pest Code	AMATU
Pest Stage Scale	BBCH
Trt-Eval Interval	84 DA-C
Number of Decimals	0

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Appl Timing	
1	Valor EZ	2 fl oz/a		A	PRE	70
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	AMS	17 lb/100 gal		C	POST	
2	Valor EZ	2 fl oz/a		A	PRE	93
	Liberty	32 fl oz/a		C	POST	
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	AMS	17 lb/100 gal		C	POST	
3	Valor EZ	2 fl oz/a		A	PRE	100
	XtendiMax	22 fl oz/a		C	POST	
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	VaporGrip	20 fl oz/a		C	POST	
	Cognitive 1	0.5 % v/v		C	POST	
4	Valor EZ	2 fl oz/a		A	PRE	100
	XtendiMax	22 fl oz/a		C	POST	
	Liberty	32 fl oz/a		C	POST	
	VaporGrip	20 fl oz/a		C	POST	
	Cognitive 1	0.5 % v/v		C	POST	
5	Valor EZ	2 fl oz/a		A	PRE	100
	Warrant	3 pt/a		C	POST	
	Liberty	32 fl oz/a		C	POST	
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	AMS	17 lb/100 gal		C	POST	
6	Valor EZ	2 fl oz/a		A	PRE	100
	Warrant	3 pt/a		C	POST	
	XtendiMax	22 fl oz/a		C	POST	
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	VaporGrip	20 fl oz/a		C	POST	
	Cognitive 1	0.5 % v/v		C	POST	
7	Valor EZ	2 fl oz/a		A	PRE	95
	Warrant Ultra	50 fl oz/a		C	POST	
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	Crop oil concentrate	1 % v/v		C	POST	
	AMS	17 lb/100 gal		C	POST	
8	XtendiMax	22 fl oz/a		A	PRE	94
	Liberty	32 fl oz/a		C	POST	
	Roundup PowerMax 3	30 fl oz/a		C	POST	
	AMS	17 lb/100 gal		C	POST	
9	Roundup PowerMax 3	30 fl oz/a		B	EPOS	0
	AMS	17 lb/100 gal		B	EPOS	
10	Liberty	32 fl oz/a		B	EPOS	63
	Roundup PowerMax 3	30 fl oz/a		B	EPOS	
	AMS	17 lb/100 gal		B	EPOS	
11	XtendiMax	22 fl oz/a		B	EPOS	76
	Roundup PowerMax 3	30 fl oz/a		B	EPOS	
	VaporGrip	20 fl oz/a		B	EPOS	
	Cognitive 1	0.5 % v/v		B	EPOS	
12	XtendiMax	22 fl oz/a		B	EPOS	92
	Liberty	32 fl oz/a		B	EPOS	
	VaporGrip	20 fl oz/a		B	EPOS	
	Cognitive 1	0.5 % v/v		B	EPOS	
	LSD P=.05					9.8
	Standard Deviation					6.8
	CV					8.27

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8

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