

**Glyphosate-resistant waterhemp control in Enlist E3 soybean**

Trial ID: SOY25-22 Study Dir.: Sprague, Powell, Stiles  
 Conducted: Shiawassee County Investigator: Christy Sprague

**Planting Date:** May-24-2022 **Row Spacing:** 30 "  
**Variety:** P24T35E **No. of Reps:** 4  
**Population:** 150000 seeds/A **% OM:** 3.1  
**Soil Type:** CL clay loam **pH:** 6.4  
**Plot Size:** 10 X 25 FT **Study Design:** Randomized Complete Block (RCB)

**Tillage/Previous Crops:** Fall chisled plow; spring disk and soil finished.  
**Fertilizer:**

**Crop and Weed Description**

Weed	Code	Common Name	Scientific Name
1	AMATU	tall 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-24-2022	Jun-21-2022	Jun-30-2022
<b>Time Treated:</b>	4:10 PM	10:00 AM	10:00 AM
<b>% Cloud Cover:</b>	5	0	0
<b>Air Temp., Unit:</b>	70 F	80 F	82 F
<b>% Relative Humidity:</b>	38	51	55
<b>Wind Speed/Unit/Dir:</b>	5 MPH NE	7 MPH W	9 MPH SW
<b>Soil Temp, Unit:</b>	70 F	75 F	81 F
<b>Leaf Moist/Dew Presence (Y/N):</b>	N	N	N
<b>Soil Moist:</b>	4	5	5

**Crop Stage at Each Application**

	A	B	C
<b>Crop 1 Name:</b>	GLXMA	GLXMA	GLXMA
<b>Height:</b>		3-5 " (4)	8 "
<b>Stage:</b>		V2	V3-V4 (V4)

**Weed Stage at Each Application**

	A	B	C
<b>Weed 1 Name:</b>	AMATU	AMATU	AMATU
<b>Height:</b>		2-5 " (4)	3-9 " (6)
<b>Stage:</b>		4L-12L (6L)	12L-20L (16L)

**Weed Density**

	1
<b>Date:</b>	Jun-30-2022
<b>Weed Name:</b>	AMATU
<b>Density:</b>	25 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	3.3 mph	AIXR	11003	18.0 "	20.0 "	100.0 "	19 GPA	WATER	30 PSI
B	CUB	3.3 mph	AIXR	11003	24.0 "	20.0 "	100.0 "	19 GPA	WATER	30 PSI
C	CUB	3.3 mph	AIXR	11003	28.0 "	20.0 "	100.0 "	19 GPA	WATER	30 PSI

**Comments:** Waterhemp at this location is glyphosate- (Group 9) and ALS- (Group 2) resistant. Location: 42°50'7.45"N; 84° 9'1.65"W.

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 Project ID:      Project ID 2:      Project ID 3:  
 Study Director: Sprague, Powell, Stiles      Sponsor Contact:  
 Investigator (Creator): Christy Sprague

Pest Code	AMATU		AMATU		AMATU	
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA
Rating Date	Jun-21-2022	Jun-21-2022	Jun-30-2022	Jun-30-2022	Jul-7-2022	Jul-7-2022
Rating Type	injury	control	injury	control	injury	control
Rating Unit/Min/Max	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100
Trt-Eval Interval	28 DA-A	28 DA-A	9 DA-B	9 DA-B	7 DA-C	7 DA-C
Number of Decimals	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Timing	Appl Code						
1	Valor EZ	2 fl oz/a		PRE	A	0	71	0	62	0	60
	Roundup PowerMax 3	30 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
2	Valor EZ	2 fl oz/a		PRE	A	0	73	0	65	2	92
	Enlist Duo	4.75 pt/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
3	Valor EZ	2 fl oz/a		PRE	A	0	78	0	70	1	90
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
4	Valor EZ	2 fl oz/a		PRE	A	0	75	0	67	4	96
	Enlist One	32 fl oz/a		POST	C						
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
5	Valor EZ	2 fl oz/a		PRE	A	0	71	0	61	0	91
	Warrant	3 pt/a		POST	C						
	Enlist Duo	4.75 pt/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
6	Valor EZ	2 fl oz/a		PRE	A	0	74	0	65	0	89
	Warrant	3 pt/a		POST	C						
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
7	Valor EZ	2 fl oz/a		PRE	A	0	79	0	69	3	96
	Warrant	3 pt/a		POST	C						
	Enlist One	32 fl oz/a		POST	C						
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
8	Valor EZ	2 fl oz/a		PRE	A	0	79	0	70	7	97
	Dual II Magnum	1.33 pt/a		POST	C						
	Enlist One	32 fl oz/a		POST	C						
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
9	Valor EZ	2 fl oz/a		PRE	A	0	75	0	65	5	95
	Outlook	16 fl oz/a		POST	C						
	Enlist One	32 fl oz/a		POST	C						
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
10	Valor EZ	2 fl oz/a		PRE	A	0	79	0	66	7	95
	Zidua SC	4 fl oz/a		POST	C						
	Enlist One	32 fl oz/a		POST	C						
	Liberty	32 fl oz/a		POST	C						
	AMS	17 lb/100 gal		POST	C						
11	Roundup PowerMax 3	30 fl oz/a		EPOS	B	0	0	0	0	0	0
	AMS	17 lb/100 gal		EPOS	B						
12	Enlist Duo	4.75 pt/a		EPOS	B	0	0	4	90	2	89
	AMS	17 lb/100 gal		EPOS	B						
13	Liberty	32 fl oz/a		EPOS	B	0	0	2	99	0	89
	AMS	17 lb/100 gal		EPOS	B						
14	Liberty	43 fl oz/a		EPOS	B	0	0	2	99	0	95
	AMS	17 lb/100 gal		EPOS	B						
15	Liberty	32 fl oz/a		EPOS	B	0	0	1	96	0	87
	Roundup PowerMax 3	30 fl oz/a		EPOS	B						
	AMS	17 lb/100 gal		EPOS	B						

Could not calculate LSD (% mean diff) for columns 1,9,11 because error mean square = 0.



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 Trial Year: 2022

Pest Code				AMATU		AMATU		AMATU			
Crop Type, Code				C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	AMATU		
Rating Date				Jul-14-2022	Jul-14-2022	Jul-28-2022	Jul-28-2022	Sep-1-2022	Sep-1-2022		
Rating Type				injury		injury		injury			
Rating Unit/Min/Max				%, 0, 100		%, 0, 100		%, 0, 100			
Trt-Eval Interval				14 DA-C		28 DA-C		63 DA-C			
Number of Decimals				0		0		0			
Trt No.	Treatment Name	Rate	Appl Unit	Appl Timing	Appl Code						
1	Valor EZ	2 fl oz/a	PRE	A		0	55	0	53	0	23
	Roundup PowerMax 3	30 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
2	Valor EZ	2 fl oz/a	PRE	A		0	96	0	100	0	100
	Enlist Duo	4.75 pt/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
3	Valor EZ	2 fl oz/a	PRE	A		0	98	0	99	0	100
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
4	Valor EZ	2 fl oz/a	PRE	A		0	100	0	99	0	100
	Enlist One	32 fl oz/a	POST	C							
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
5	Valor EZ	2 fl oz/a	PRE	A		0	88	0	94	0	99
	Warrant	3 pt/a	POST	C							
	Enlist Duo	4.75 pt/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
6	Valor EZ	2 fl oz/a	PRE	A		0	96	0	93	0	98
	Warrant	3 pt/a	POST	C							
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
7	Valor EZ	2 fl oz/a	PRE	A		2	100	0	100	0	100
	Warrant	3 pt/a	POST	C							
	Enlist One	32 fl oz/a	POST	C							
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
8	Valor EZ	2 fl oz/a	PRE	A		9	100	0	100	0	100
	Dual II Magnum	1.33 pt/a	POST	C							
	Enlist One	32 fl oz/a	POST	C							
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
9	Valor EZ	2 fl oz/a	PRE	A		4	99	0	100	0	99
	Outlook	16 fl oz/a	POST	C							
	Enlist One	32 fl oz/a	POST	C							
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
10	Valor EZ	2 fl oz/a	PRE	A		10	100	0	100	0	100
	Zidua SC	4 fl oz/a	POST	C							
	Enlist One	32 fl oz/a	POST	C							
	Liberty	32 fl oz/a	POST	C							
	AMS	17 lb/100 gal	POST	C							
11	Roundup PowerMax 3	30 fl oz/a	EPOS	B		0	0	0	0	0	0
	AMS	17 lb/100 gal	EPOS	B							
12	Enlist Duo	4.75 pt/a	EPOS	B		0	87	0	87	0	86
	AMS	17 lb/100 gal	EPOS	B							
13	Liberty	32 fl oz/a	EPOS	B		0	82	0	73	0	62
	AMS	17 lb/100 gal	EPOS	B							
14	Liberty	43 fl oz/a	EPOS	B		0	84	0	72	0	62
	AMS	17 lb/100 gal	EPOS	B							
15	Liberty	32 fl oz/a	EPOS	B		0	79	0	68	0	67
	Roundup PowerMax 3	30 fl oz/a	EPOS	B							
	AMS	17 lb/100 gal	EPOS	B							

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	C, GLXMA Jul-14-2022	AMATU Jul-14-2022	C, GLXMA Jul-28-2022	AMATU Jul-28-2022	C, GLXMA Sep-1-2022	AMATU Sep-1-2022					
Crop Type, Code											
Rating Date											
Rating Type	injury		control		injury						
Rating Unit/Min/Max	%, 0, 100		%, 0, 100		%, 0, 100						
Trt-Eval Interval	14 DA-C		14 DA-C		28 DA-C						
Number of Decimals	0		0		0						
Trt No.	Treatment Name	Rate	Unit	Appl Timing	Appl Code						
16	Enlist One	32 fl oz/a		EPOS	B	0	90	0	78	0	72
	Liberty	32 fl oz/a		EPOS	B						
	AMS	17 lb/100 gal		EPOS	B						
	LSD P=.05					1.2	8.0	.	8.1	.	8.6
	Standard Deviation					0.9	5.6	0.0	5.7	0.0	6.1
	CV					55.77	6.63	0.0	6.93	0.0	7.66

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