

**Waterhemp control with various soil-applied (PRE) herbicides in soybean**

Trial ID: SOY29-23 Study Dir.: Stiles, Sprague  
 Conducted: Shiawassee County Investigator: Christy Sprague

**Planting Date:** May-17-2023 **Row Spacing:** 30 IN  
**Variety:** P25A16E **No. of Reps:** 4  
**Population:** 150000 seeds/A **% OM:** 1.5  
**Soil Type:** L 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
<b>Application Timing:</b>	PRE	POST
<b>Date Treated:</b>	May-17-2023	Jun-21-2023
<b>Time Treated:</b>	12:10 PM	11:30 AM
<b>% Cloud Cover:</b>	5	5
<b>Air Temp., Unit:</b>	51 F	79 F
<b>% Relative Humidity:</b>	50	49
<b>Wind Speed/Unit/Dir:</b>	10 MPH NE	7 MPH NE
<b>Soil Temp, Unit:</b>	57 F	82 F
<b>Leaf Moist/Dew Presence (Y/N):</b>		N
<b>Soil Moist:</b>	5	5

**Crop Stage at Each Application**

	A	B
<b>Crop 1 Name:</b>	GLXMA	GLXMA
<b>Height:</b>		2-6 " (4)
<b>Stage:</b>		V2

**Weed Stage at Each Application**

	A	B
<b>Weed 1 Name:</b>	AMATU	AMATU
<b>Height:</b>		1-4 " (4)
<b>Stage:</b>		3-many

**Weed Density**

<b>Date:</b>	1 Jun-21-2023
<b>Weed Name:</b>	AMATU
<b>Density:</b>	15 ft2

**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	AIXR	11003	24.0 "	20.0 "	100.0 "	19 GPA	WATER	30 PSI

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

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Rating Date	Jun-14-2023	Jun-21-2023	Jun-28-2023	Jun-28-2023	Jul-12-2023	Jul-12-2023
Rating Type	control	control	injury	control	injury	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code			C, GLXMA		C, GLXMA	
Pest Code	AMATU	AMATU		AMATU		AMATU
Trt-Eval Interval	28 DA-A	35 DA-A	7 DA-B	7 DA-B	21 DA-B	21 DA-B
Number of Decimals	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jun-14-2023	Jun-21-2023	Jun-28-2023	Jun-28-2023	Jul-12-2023	Jul-12-2023
1	SC 500 Diflufenican	4.125	fl oz/a	A	PRE	57	52	10	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
2	Valor EZ	2.5	fl oz/a	A	PRE	71	76	8	100	1	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
3	Spartan	8	fl oz/a	A	PRE	90	88	1	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
4	Untreated					0	0	0	0	0	0
5	Metribuzin	8	oz/a	A	PRE	83	82	0	100	0	98
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
6	Dimetric Charged	12	fl oz/a	A	PRE	81	83	0	100	0	99
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
7	Authority MTZ	16	oz/a	A	PRE	88	85	2	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
8	Boundary	2	pt/a	A	PRE	81	77	1	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
9	Zidua SC	4	fl oz/a	A	PRE	78	80	1	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
10	Dual II Magnum	2	pt/a	A	PRE	91	90	1	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
11	Warrant	3	pt/a	A	PRE	83	80	0	100	1	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
12	Outlook	18	fl oz/a	A	PRE	90	87	1	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
13	BroadAxe XC	26	fl oz/a	A	PRE	85	85	1	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						
14	Authority Edge	9	fl oz/a	A	PRE	93	90	0	100	0	100
	Liberty	32	fl oz/a	B	POST						
	Roundup PowerMax 3	30	fl oz/a	B	POST						
	AMS	17	lb/100 gal	B	POST						

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Rating Type	control	control	injury	control	injury	control				
Rating Unit/Min/Max	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100				
Crop Type, Code			C, GLXMA		C, GLXMA					
Pest Code	AMATU	AMATU		AMATU		AMATU				
Trt-Eval Interval	28 DA-A	35 DA-A	7 DA-B	7 DA-B	21 DA-B	21 DA-B				
Number of Decimals	0	0	0	0	0	0				
Trt Treatment	Rate	Unit	Appl Code	Appl Timing						
15 Fierce EZ	6 fl oz/a	A	PRE		86	89	9	100	3	100
Liberty	32 fl oz/a	B	POST							
Roundup PowerMax 3	30 fl oz/a	B	POST							
AMS	17 lb/100 gal	B	POST							
16 Fierce MTZ	16 fl oz/a	A	PRE		79	84	7	100	0	100
Liberty	32 fl oz/a	B	POST							
Roundup PowerMax 3	30 fl oz/a	B	POST							
AMS	17 lb/100 gal	B	POST							
LSD P=.05					15.6	15.2	3.5	.	2.2	1.4
Standard Deviation					10.9	10.6	2.4	0.0	1.5	1.0
CV					14.16	13.9	96.08	0.0	484.42	1.07

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Rating Date	Jul-19-2023	Oct-24-2023
Rating Type	control	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100
Crop Type, Code		
Pest Code	AMATU	AMATU
Trt-Eval Interval	28 DA-B	125 DA-B
Number of Decimals	0	0

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Appl Timing	Jul-19-2023	Oct-24-2023
1	SC 500 Diflufenican	4.125 fl oz/a		A	PRE	98	86
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
2	Valor EZ	2.5 fl oz/a		A	PRE	100	99
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
3	Spartan	8 fl oz/a		A	PRE	100	99
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
4	Untreated					0	0
5	Metribuzin	8 oz/a		A	PRE	92	77
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
6	Dimetric Charged	12 fl oz/a		A	PRE	96	83
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
7	Authority MTZ	16 oz/a		A	PRE	100	100
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
8	Boundary	2 pt/a		A	PRE	100	100
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
9	Zidua SC	4 fl oz/a		A	PRE	99	99
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
10	Dual II Magnum	2 pt/a		A	PRE	100	97
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
11	Warrant	3 pt/a		A	PRE	100	98
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
12	Outlook	18 fl oz/a		A	PRE	99	96
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
13	BroadAxe XC	26 fl oz/a		A	PRE	100	100
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		
14	Authority Edge	9 fl oz/a		A	PRE	100	100
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal	gal	B	POST		

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Rating Unit/Min/Max	%, 0, 100	%, 0, 100
Crop Type, Code		
Pest Code	AMATU	AMATU
Trt-Eval Interval	28 DA-B	125 DA-B
Number of Decimals	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing		
15	Fierce EZ	6 fl oz/a		A	PRE	100	100
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal		B	POST		
16	Fierce MTZ	16 fl oz/a		A	PRE	100	98
	Liberty	32 fl oz/a		B	POST		
	Roundup PowerMax 3	30 fl oz/a		B	POST		
	AMS	17 lb/100 gal		B	POST		
	LSD P=.05					2.5	6.0
	Standard Deviation					1.7	4.2
	CV					1.89	4.72

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