

Group 15 herbicide application timing for residual waterhemp control in soybean

Trial ID: SOY20-25 Study Dir.: Stiles, Sprague
 Conducted: Shiawassee Co. (Morrice) Investigator: Christy Sprague

Planting Date: May-20-2025 **Row Spacing:** 30 "
Variety: P23Z82E **No. of Reps:** 4
Population: 150000 S/A **% OM:** 2.6
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 disked followed by soil finisher and cultipacker.

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
Application Timing:	PRE	POST
Date Treated:	May-20-2025	Jul-2-2025
Time Treated:	11:45 AM	10:55 AM
% Cloud Cover:	91	0
Air Temp., Unit:	51 F	80 F
% Relative Humidity:	65	57
Wind Speed/Unit/Dir:	5 MPH E	5 MPH WSW
Soil Temp, Unit:	55 F	80 F
Leaf Moist/Dew Presence (Y/N):	N	N
Soil Moist:	5	5

Crop Stage at Each Application

	A	B
Crop 1 Name:	GLXMA	GLXMA
Height:		10-12 " (11)
Stage:		V5

Weed Stage at Each Application

	A	B
Weed 1 Name:	AMATU	AMATU
Height:		2-14 " (8)
Stage:		4-18L

Weed Density

	1
Date:	Jul-2-2025
Weed Name:	AMATU
Density:	6 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	18.0 "	20.0 "	100.0 "	19 GAL/AC	WATER	30 PSI
B	CUB	3.8 MPH	AIXR	11003	30.0 "	20.0 "	100.0 "	19 GAL/AC	WATER	30 PSI

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

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Rating Date					Jun-23-2025	Jun-23-2025	Jul-1-2025	Jul-1-2025	Jul-17-2025	Jul-17-2025	Jul-30-2025	
Rating Type					injury	control	injury	control	injury	control	injury	
Rating Unit					%	%	%	%	%	%	%	
Crop Type, Code					C, GLXMA		C, GLXMA		C, GLXMA		C, GLXMA	
Pest Code						AMATU		AMATU		AMATU		
Treatment Appl. Interval					34 DA-A	34 DA-A	42 DA-A	42 DA-A	15 DA-B	15 DA-B	28 DA-B	
Number of Decimals					0	0	0	0	0	0	0	
Trt No.	Treatment Name	Rate	Appl Unit	Appl Code	Appl Timing							
1	Sonic	5 oz/a	A	PRE		0	100	0	98	0	100	0
	Enlist One	2 pt/a	B	POST								
	Liberty Ultra	24 fl oz/a	B	POST								
	Roundup PowerMax 3	30 fl oz/a	B	POST								
	Superb HC	0.5 % v/v	B	POST								
	AMS	2 lb/a	B	POST								
2	Sonic	5 oz/a	A	PRE		0	100	0	100	0	100	0
	Dual II Magnum	2 pt/a	A	PRE								
	Enlist One	2 pt/a	B	POST								
	Liberty Ultra	24 fl oz/a	B	POST								
	Roundup PowerMax 3	30 fl oz/a	B	POST								
	Superb HC	0.5 % v/v	B	POST								
3	AMS	2 lb/a	B	POST								
	Sonic	5 oz/a	A	PRE		0	100	0	100	0	100	0
	Zidua SC	3.5 fl oz/a	A	PRE								
	Enlist One	2 pt/a	B	POST								
	Liberty Ultra	24 fl oz/a	B	POST								
	Roundup PowerMax 3	30 fl oz/a	B	POST								
4	Superb HC	0.5 % v/v	B	POST								
	AMS	2 lb/a	B	POST								
	Sonic	5 oz/a	A	PRE		0	100	0	100	0	100	0
	Dual II Magnum	1 pt/a	A	PRE								
	Enlist One	2 pt/a	B	POST								
	Liberty Ultra	24 fl oz/a	B	POST								
5	Roundup PowerMax 3	30 fl oz/a	B	POST								
	Superb HC	0.5 % v/v	B	POST								
	AMS	2 lb/a	B	POST								
	Sonic	5 oz/a	A	PRE		0	99	0	97	0	100	0
	Zidua SC	1.75 fl oz/a	A	PRE								
	Enlist One	2 pt/a	B	POST								
6	Liberty Ultra	24 fl oz/a	B	POST								
	Roundup PowerMax 3	30 fl oz/a	B	POST								
	Superb HC	0.5 % v/v	B	POST								
	AMS	2 lb/a	B	POST								
	Sonic	5 oz/a	A	PRE		0	99	0	96	0	100	0
	Dual II Magnum	2 pt/a	B	POST								
7	Enlist One	2 pt/a	B	POST								
	Liberty Ultra	24 fl oz/a	B	POST								
	Roundup PowerMax 3	30 fl oz/a	B	POST								
	Superb HC	0.5 % v/v	B	POST								
	AMS	2 lb/a	B	POST								
	Sonic	5 oz/a	A	PRE		0	100	0	99	0	100	0

Missing data estimates are included in columns: Average=1,11

Could not calculate LSD (% mean diff) or mean separation letters for columns 1,3,5,6,7,8,9 because error variance is 0.

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Rating Type				injury	control	injury	control	injury	control	injury
Rating Unit				%	%	%	%	%	%	%
Crop Type, Code				C, GLXMA		C, GLXMA		C, GLXMA		C, GLXMA
Pest Code					AMATU		AMATU		AMATU	
Treatment Appl. Interval				34 DA-A	34 DA-A	42 DA-A	42 DA-A	15 DA-B	15 DA-B	28 DA-B
Number of Decimals				0	0	0	0	0	0	0
Trt	Treatment	Rate	Appl							
No.	Name	Rate Unit	Code Timing							
8	Sonic	5 oz/a	A PRE	0	99	0	97	0	100	0
	Dual II Magnum	1 pt/a	B POST							
	Enlist One	2 pt/a	B POST							
	Liberty Ultra	24 fl oz/a	B POST							
	Roundup PowerMax 3	30 fl oz/a	B POST							
	Superb HC	0.5 % v/v	B POST							
	AMS	2 lb/a	B POST							
9	Sonic	5 oz/a	A PRE	0	100	0	98	0	100	0
	Zidua SC	1.75 fl oz/a	B POST							
	Enlist One	2 pt/a	B POST							
	Liberty Ultra	24 fl oz/a	B POST							
	Roundup PowerMax 3	30 fl oz/a	B POST							
	Superb HC	0.5 % v/v	B POST							
	AMS	2 lb/a	B POST							
10	Sonic	5 oz/a	A PRE	0	99	0	99	0	100	0
	Dual II Magnum	1 pt/a	A PRE							
	Dual II Magnum	1 pt/a	B POST							
	Enlist One	2 pt/a	B POST							
	Liberty Ultra	24 fl oz/a	B POST							
	Roundup PowerMax 3	30 fl oz/a	B POST							
	Superb HC	0.5 % v/v	B POST							
	AMS	2 lb/a	B POST							
11	Sonic	5 oz/a	A PRE	0	100	0	98	0	100	0
	Zidua SC	1.75 fl oz/a	A PRE							
	Zidua SC	1.75 fl oz/a	B POST							
	Enlist One	2 pt/a	B POST							
	Liberty Ultra	24 fl oz/a	B POST							
	Roundup PowerMax 3	30 fl oz/a	B POST							
	Superb HC	0.5 % v/v	B POST							
	AMS	2 lb/a	B POST							
12	Untreated			0	0	0	0	0	0	0
	LSD P=.05			.	1.5	.	3.7	.	.	.
	Standard Deviation			0.0	1.0	0.0	2.6	0.0	0.0	0.0
	CV			0.0	1.11	0.0	2.87	0.0	0.0	0.0

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Rating Date	Jul-30-2025	Oct-10-2025	Oct-15-2025	Oct-15-2025
Rating Type	control	control	moisture	yield
Rating Unit	%	%	%	bu/A
Crop Type, Code			C, GLXMA	C, GLXMA
Pest Code	AMATU	AMATU		
Treatment Appl. Interval	28 DA-B	100 DA-B		@13%M
Number of Decimals	0	0	1	1

Trt	Treatment	Rate	Appl	Appl				
No.	Name	Rate Unit	Code	Timing				
1	Sonic	5 oz/a	A	PRE	100	100	9.5	54.1
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				
2	Sonic	5 oz/a	A	PRE	100	100	10.2	52.5
	Dual II Magnum	2 pt/a	A	PRE				
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				
3	Sonic	5 oz/a	A	PRE	100	100	9.8	54.2
	Zidua SC	3.5 fl oz/a	A	PRE				
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				
4	Sonic	5 oz/a	A	PRE	100	100	9.9	54.7
	Dual II Magnum	1 pt/a	A	PRE				
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				
5	Sonic	5 oz/a	A	PRE	100	100	9.7	56.1
	Zidua SC	1.75 fl oz/a	A	PRE				
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				
6	Sonic	5 oz/a	A	PRE	100	100	9.5	55.2
	Dual II Magnum	2 pt/a	B	POST				
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				
7	Sonic	5 oz/a	A	PRE	100	100	9.8	55.5
	Zidua SC	3.5 fl oz/a	B	POST				
	Enlist One	2 pt/a	B	POST				
	Liberty Ultra	24 fl oz/a	B	POST				
	Roundup PowerMax 3	30 fl oz/a	B	POST				
	Superb HC	0.5 % v/v	B	POST				
	AMS	2 lb/a	B	POST				

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Rating Type				control	control	moisture	yield
Rating Unit				%	%	%	bu/A
Crop Type, Code						C, GLXMA	C, GLXMA
Pest Code				AMATU	AMATU		
Treatment Appl. Interval				28 DA-B	100 DA-B		@13%M
Number of Decimals				0	0	1	1
Trt No.	Treatment Name	Rate Rate Unit	Appl Code	Appl Timing			
8	Sonic	5 oz/a	A	PRE	100	100	9.7
	Dual II Magnum	1 pt/a	B	POST			57.6
	Enlist One	2 pt/a	B	POST			
	Liberty Ultra	24 fl oz/a	B	POST			
	Roundup PowerMax 3	30 fl oz/a	B	POST			
	Superb HC	0.5 % v/v	B	POST			
	AMS	2 lb/a	B	POST			
9	Sonic	5 oz/a	A	PRE	100	100	9.6
	Zidua SC	1.75 fl oz/a	B	POST			60.3
	Enlist One	2 pt/a	B	POST			
	Liberty Ultra	24 fl oz/a	B	POST			
	Roundup PowerMax 3	30 fl oz/a	B	POST			
	Superb HC	0.5 % v/v	B	POST			
	AMS	2 lb/a	B	POST			
10	Sonic	5 oz/a	A	PRE	100	100	9.7
	Dual II Magnum	1 pt/a	A	PRE			54.1
	Dual II Magnum	1 pt/a	B	POST			
	Enlist One	2 pt/a	B	POST			
	Liberty Ultra	24 fl oz/a	B	POST			
	Roundup PowerMax 3	30 fl oz/a	B	POST			
	Superb HC	0.5 % v/v	B	POST			
	AMS	2 lb/a	B	POST			
11	Sonic	5 oz/a	A	PRE	100	100	9.9
	Zidua SC	1.75 fl oz/a	A	PRE			54.8
	Zidua SC	1.75 fl oz/a	B	POST			
	Enlist One	2 pt/a	B	POST			
	Liberty Ultra	24 fl oz/a	B	POST			
	Roundup PowerMax 3	30 fl oz/a	B	POST			
	Superb HC	0.5 % v/v	B	POST			
	AMS	2 lb/a	B	POST			
12	Untreated				0	0	9.5
	LSD P=.05				.	.	0.64
	Standard Deviation				0.0	0.0	0.44
	CV				0.0	0.0	4.56
							12.01

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