

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

General Trial Information

Study Director: Dr. Bill Johnson **Title:** Professor
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide
Status: F one-year/final

ARM Trial Created On: Mar-4-2023
Initiation Date: May-5-2023 **Planned Completion Date:** Oct-15-2023

Trial Location

City: Lafayette **Country:** USA United States
State/Prov.: Indiana **County:** Tippecanoe
Postal Code: 47907

Latitude of LL Corner °: 40.26959 N
Longitude of LL Corner °: -86.88275 W

Regulations

Conducted Under GLP: No
Conducted Under GEP: No

Objectives:

What is the efficacy and crop safety of Enlist Weed Control Programs in E3 soybeans with or without a Group 15 herbicide in the tank mixture?

Contacts

Role: STYDIR study director
Study Director: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
Address 1: 915 W. State Street
Country: USA United States **E-mail:** wgj@purdue.edu
City: West Lafayette **State/Prov:** IN **Postal Code:** 47907
Role: INVEST investigator
Investigator: Dr. Bill Johnson **Title:** Professor
Organization: Purdue University
Address 1: 915 W. State Street
Country: USA United States **E-mail:** wgj@purdue.edu
City: West Lafayette **State/Prov:** IN **Postal Code:** 47907
Role: SPONSR sponsor
Sponsor: Kevin Johnson
Organization: Corteva
Role: COOPER cooperator
Cooperator: Jay Young **Title:** Superintendent
Organization: Purdue University
Address 1: 8343 US 231 S **Phone No.:** (765) 538-3422
Country: USA United States **E-mail:** jayyoung@purdue.edu
City: Lafayette **State/Prov:** IN **Postal Code:** 47907

Crop Description

Crop 1: C GLXMA Glycine max Soybean **BBCH Scale:** BSOY
Entry Date: Mar-10-2023 **Stage Scale:** BBCH
Variety: Stine 29EB62
Attributes: Glyphosate-R, Glufosinate-R, and 2,4-D-R
Planting Date: May-5-2023 **Planting Rate:** 140000 S/A
Depth: 1.5 IN
Rows per Plot: 4 **Planting Method:** PLANTD planted
Row Spacing: 30 IN **Planting Equipment:** PP plot planter
Soil Temperature: 63 F **Soil Moisture:** NORMAL normal, adequate
Emergence Date: May-15-2023

Pest Description

Pest 1 Type: W **Code:** AMATA **Amaranthus x tamariscinus** **Entry Date:** Jun-15-2023
Common Name: common water hemp **Stage Scale:** BBCH
Attributes: Glyphosate-R and PPO-R
Pest 2 Type: W **Code:** AMBTR **Ambrosia trifida** **Entry Date:** Jun-15-2023
Common Name: Giant ragweed **Stage Scale:** BBCH
Pest 3 Type: W **Code:** ECHCG **Echinochloa crus-galli** **Entry Date:** Jun-15-2023
Common Name: common barnyardgrass **Stage Scale:** BBCH

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Site and Design

Treated Plot Width: 6.67 FT
 Treated Plot Length: 30 FT
 Treated Plot Area: 200.1 FT²
 Replications: 4 Treatments: 10 Plots: 40

Site Type: FIELD field
 Experimental Unit: 1 PLOT plot
 Tillage Type: NOTILL no-till
 Study Design: RACOB L Randomized Complete Block (RCB)

Field Prep./Maintenance:

Roundup PowerMax 3 (30 fl oz/A) + 2,4-D (1 pint/A) applied 04/12/2023.
 Gramoxone (3 pt/A) applied 05/04/2023.

Soil Description

Description Name: MEIGS-S5
 % Sand: 27 % OM: 2.4 Texture: SIL silt loam
 % Silt: 52 Soil Name: Starks-Fincastle Complex
 % Clay: 21 Fert. Level: G good
 pH: 7.1 CEC: 9.3

No.	Date	Moisture Total	Unit	Min Temp	Max Temp	Avg Temp	Temp Unit	Max Wind	Avg Wind	Unit
1.	May-1-2023	0.011	IN	39.7	46.4	42.6	F	29.3	10.7	MPH
2.	May-2-2023	0	IN	41	57.9	47.1	F	25.1	7.8	MPH
3.	May-3-2023	0	IN	39.2	62.4	49.3	F	19.7	5.4	MPH
4.	May-4-2023	0	IN	36.3	71.4	55.6	F	12.5	2	MPH
5.	May-5-2023	0	IN	49.1	78.1	64.2	F	25.1	7.2	MPH
6.	May-6-2023	0.002	IN	57.7	77.5	67.1	F	31.5	9.2	MPH
7.	May-7-2023	0.03	IN	60.8	79.7	69.1	F	35.1	9.2	MPH
8.	May-8-2023	0.003	IN	58.3	75.9	66.9	F	20.8	6.7	MPH
9.	May-9-2023	0	IN	54	75.2	64	F	16.8	5.4	MPH
10.	May-10-2023	0	IN	52.9	78.3	65.8	F	17.2	3.1	MPH
11.	May-11-2023	0	IN	53	81.4	67.94	F	16.1	1.8	MPH
12.	May-12-2023	0.001	IN	63.4	79	70.76	F	17	0.9	MPH
13.	May-13-2023	0.007	IN	66.5	80	72.06	F	12	1.2	MPH
14.	May-14-2023	0.023	IN	58.7	72.8	65.19	F	16	4.8	MPH
15.	May-15-2023	0.002	IN	54.3	71.8	61.5	F	13	2.1	MPH
16.	May-16-2023	0.001	IN	53.9	71.4	62.06	F	12	0.9	MPH
17.	May-17-2023	0	IN	49.9	70.2	60.7	F	14	2.3	MPH
18.	May-18-2023	0	IN	44	74	59.75	F	11	2.2	MPH
19.	May-19-2023	0.045	IN	57.1	79.6	64.84	F	25	1.5	MPH
20.	May-20-2023	0	IN	47.6	66.3	57.57	F	11	0	MPH
21.	May-21-2023	0	IN	44.3	78	62.38	F	8	0.3	MPH
22.	May-22-2023	0	IN	51.1	80	67.15	F	9	0.2	MPH
23.	May-23-2023	0	IN	56.7	82	70.38	F	9	0.3	MPH
24.	May-24-2023	0	IN	54.4	82.9	70.73	F	15	1	MPH
25.	May-25-2023	0	IN	48.4	68.3	59.7	F	17	5.9	MPH
26.	May-26-2023	0	IN	46.8	75	61.24	F	17	4	MPH
27.	May-27-2023	0	IN	47.2	77	64.85	F	16	2.5	MPH
28.	May-28-2023	0	IN	57.6	79.6	68.81	F	13	0.5	MPH
29.	May-29-2023	0	IN	56.4	84.6	71.88	F	11	0.6	MPH
30.	May-30-2023	0	IN	58.7	87.1	75.14	F	14	1.3	MPH
31.	May-31-2023	0	IN	65.4	87.7	77.14	F	11	0.6	MPH
32.	Jun-1-2023	0	IN	64.6	89.2	77.42	F	17	1.6	MPH
33.	Jun-2-2023	0	IN	61	89.9	76.83	F	15	1.3	MPH
34.	Jun-3-2023	0	IN	63.1	89.9	78.15	F	11	1.2	MPH
35.	Jun-4-2023	0	IN	63.5	82	73.54	F	12	2.5	MPH
36.	Jun-5-2023	0	IN	54.1	78.8	67.66	F	12	1.6	MPH
37.	Jun-6-2023	0	IN	53.7	85.5	69.23	F	17	0.1	MPH

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38.	Jun-7-2023	0	IN	59.1	76.2	67.27	F	14	1	MPH
39.	Jun-8-2023	0	IN	45.9	76.6	62.87	F	10	0.6	MPH
40.	Jun-9-2023	0	IN	44.6	79.3	64.11	F	11	0.2	MPH
41.	Jun-10-2023	0	IN	56.5	84.1	71.38	F	15	1.3	MPH
42.	Jun-11-2023	0.03	IN	56.1	68.3	63.16	F	11	0.3	MPH
43.	Jun-12-2023	0	IN	51.5	67.7	58.29	F	15	0.7	MPH
44.	Jun-13-2023	0.001	IN	55	68.6	60.74	F	16	2.4	MPH
45.	Jun-14-2023	0.002	IN	56.9	76.7	66.76	F	7	0	MPH
46.	Jun-15-2023	0	IN	57.6	84.2	70.06	F	16	1.8	MPH
47.	Jun-16-2023	0	IN	50.8	71.7	60.86	F	13	0.4	MPH
48.	Jun-17-2023	0	IN	50.7	80.9	66.2	F	7	0	MPH
49.	Jun-18-2023	0	IN	57.3	82.5	70.7	F	15	1.2	MPH
50.	Jun-19-2023	0	IN	65.6	84	74.05	F	17	3.3	MPH
51.	Jun-20-2023	0	IN	63.8	86.9	74.64	F	22	4.4	MPH
52.	Jun-21-2023	0	IN	64.4	86	75.4	F	18	5.1	MPH
53.	Jun-22-2023	0	IN	61.1	81.1	71.33	F	16	2.4	MPH
54.	Jun-23-2023	0	IN	64.7	82.4	72.52	F	7	0	MPH
55.	Jun-24-2023	0	IN	59.3	89.2	75.93	F	8	0.2	MPH
56.	Jun-25-2023	0.046	IN	66.8	87.6	76.75	F	24	2.8	MPH
57.	Jun-26-2023	0	IN	65.4	74.7	70.53	F	26	4.3	MPH
58.	Jun-27-2023	0	IN	60.4	75.3	66.32	F	7	0.1	MPH
59.	Jun-28-2023	0	IN	52.6	79.7	66.17	F	12	0.4	MPH
60.	Jun-29-2023	0.032	IN	63.7	82.9	69.49	F	30	1.3	MPH
61.	Jun-30-2023	0	IN	62.4	83.8	73.03	F	13	0.6	MPH
62.	Jul-1-2023	0.019	IN	69	82.8	74.98	F	18	1.1	MPH
63.	Jul-2-2023	0.067	IN	67.7	81.4	72.16	F	15	1.2	MPH
64.	Jul-3-2023	0	IN	65.3	84.2	73.93	F	8	0.1	MPH
65.	Jul-4-2023	0	IN	64.4	88	76.25	F	7	0.3	MPH
66.	Jul-5-2023	0.07	IN	67.9	88.4	78.03	F	18	0.7	MPH
67.	Jul-6-2023	0.01	IN	68.8	82.9	74.17	F	11	0.6	MPH
68.	Jul-7-2023	0	IN	60.5	82.2	71.58	F	8	0.3	MPH

Application Description

	A	B
Date	May-5-2023	Jun-9-2023
Start Time	9:58 AM	4:36 PM
Stop Time	10:17 AM	5:05 PM
Method	SPRAY	SPRAY
Timing	PRE	4" WEEDS
Placement	BROSOI	BROFOL
Applied By	M. ZIMMER	M. ZIMMER
Entry Date	May-24-2023	Jun-15-2023
Air Temperature Start, Stop	64, 64 F	82.7, 82.7 F
% Relative Humidity Start, Stop	45, 45	29.4, 29.4
Wind Velocity+Dir. Start	5 MPH, SE	5 MPH, S
Wind Velocity+Dir. Stop	5 MPH, SSE	4 MPH, S
Wind Velocity+Dir. Max	8 MPH, SE	5 MPH, S
Wet Leaves (Y/N)	N, no	N, no
Soil Temperature	60 F	81 F
Soil Moisture	ADEQUATE	ADEQUATE
% Cloud Cover	0	5

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Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA, BSOY	GLXMA, BSOY
Days after Emergence	-10	25
Stage Majority, Percent	0, -	V3, -
Stage Minimum, Percent	0, -	V4, -
Stage Maximum, Percent	0, -	V3, -
Height Average	0 IN	7 IN
Height Minimum, Maximum	0, 0	4, 8

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMATA, W, BBCH	AMATA, W, BBCH
Height Average	0 IN	4 IN
Height Minimum, Maximum	0, 0	2, 6
Density Average	0 FT2	3 FT2
Density Minimum, Maximum	0, 0	0, 6
Pest 2 Code, Type, Scale	AMBTR, W, BBCH	AMBTR, W, BBCH
Height Average	0 IN	4 IN
Height Minimum, Maximum	0, 0	3, 5
Density Average	0 FT2	1 FT2
Density Minimum, Maximum	0, 0	0, 3
Pest 3 Code, Type, Scale	ECHCG, W, BBCH	ECHCG, W, BBCH
Height Average	0 IN	3 IN
Height Minimum, Maximum	0, 0	1, 4
Density Average	0 FT2	4 FT2
Density Minimum, Maximum	0, 0	0, 8

Application Equipment

	A	B
Equipment Name	CO2 BACKPACK	CO2 BACKPACK
Equipment Type	BACSPR	BACSPR
Operation Pressure	39 PSI	41 PSI
Nozzle Model	AIXR	AIXR
Nozzle Type	FLAFAI	FLAFAI
Nozzle TradeName	TEEJET	TEEJET
Nozzle Tip Size, Color	110015, GREEN	110015, GREEN
Nozzle Spacing	20 IN	20 IN
Boom Length	6.67 FT	6.67 FT
Ground Speed	3 MPH	3 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Overage	75.6 mL	75.6 mL
Mix Size	1119.0 mL	1119.0 mL
Propellant	COMCO2	COMCO2

Notes

No.	Context	Date	By	Notes
1.	STATUS	Mar-4-2023	Dr. Bill Johnson	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
2.	STATUS	May-24-2023	Dr. Bryan Young	Automatically added by ARM: Status changed to: E: changed by (EINYOB).
3.	STATUS	Mar-7-2024	Dr. Bill Johnson	Automatically added by ARM: Status changed to: F: changed by (EINJOW).

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Assessed By	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland	Marcelo Zimmer	Marcelo Zimmer		
Rating Date	Jun-9-2023	Jun-16-2023	Jun-23-2023	Jun-30-2023	Jul-7-2023		
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P	PLOT, P		
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN		
Rating Unit	%	%	%	%	%		
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -	0, 100, -		
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety							
Pest Type							
Pest Code							
Pest Scientific Name							
Pest Name							
Rating Timing	AT POST (B)	7 DA-B	14 DA-B	21 DA-B	28 DA-B		
ARM Action Codes	EC	EC	EC	EC	EC		
Trt Treatment No. Name	Rate	Appl Unit Code	1*	6*	11*	16*	21*
1 UNTREATED			0.0	0.0	0.0	0.0	0.0
2 SONIC	6.45 oz/a	A	0.0 a	3.0 d	1.5 de	0.8 de	0.0 a
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
AMSOL	2.5 % v/v	B					
3 SONIC	6.45 oz/a	A	0.0 a	8.3 c	5.0 b	3.0 bc	0.0 a
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
4 SONIC	3.225 oz/a	A	0.0 a	3.0 d	0.0 e	0.0 e	0.0 a
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
AMSOL	2.5 % v/v	B					
5 SONIC	3.225 oz/a	A	0.0 a	0.0 e	0.0 e	0.0 e	0.0 a
ENLIST ONE	2 pt/a	B					
ROUNDUP POWERMAX 3	1 qt/a	B					
AMSOL	2.5 % v/v	B					
6 SONIC	3.225 oz/a	A	0.0 a	6.5 c	3.5 bc	2.3 cd	0.0 a
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
7 SONIC	3.225 oz/a	A	0.0 a	3.5 d	2.8 cd	1.5 cde	0.0 a
ENLIST ONE	2 pt/a	B					
ROUNDUP POWERMAX 3	1 qt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
8 SONIC	3.225 oz/a	A	0.0 a	23.8 a	9.5 a	5.3 a	0.0 a
FLEXSTAR	1 pt/a	B					
LIBERTY	2 pt/a	B					
AMSOL	2.5 % v/v	B					
9 SONIC	3.225 oz/a	A	0.0 a	15.8 b	10.0 a	4.5 ab	0.0 a
ROUNDUP POWERMAX 3	1 qt/a	B					
FLEXSTAR	1 pt/a	B					
AMSOL	2.5 % v/v	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,2,1,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

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Assessed By	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland	Marcelo Zimmer	Marcelo Zimmer		
Rating Date	Jun-9-2023	Jun-16-2023	Jun-23-2023	Jun-30-2023	Jul-7-2023		
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P	PLOT, P		
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN		
Rating Unit	%	%	%	%	%		
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -	0, 100, -		
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety							
Pest Type							
Pest Code							
Pest Scientific Name							
Pest Name							
Rating Timing	AT POST (B)	7 DA-B	14 DA-B	21 DA-B	28 DA-B		
ARM Action Codes	EC	EC	EC	EC	EC		
Trt Treatment	1*	6*	11*	16*	21*		
No. Name							
Rate							
Unit							
Appl Code							
10 SONIC	3.225 oz/a	A	0.0 a	7.3 c	4.5 b	4.0 ab	0.0 a
ENLIST ONE	2 pt/a	B					
ROUNDUP POWERMAX 3	1 qt/a	B					
LIBERTY	2 pt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
LSD P=.05	.	2.02	1.51	1.74	.		.
Standard Deviation	0.00	1.38	1.04	1.19	0.00		0.00
CV	0.0	17.53	25.38	50.37	0.0		0.0
Levene's Prob(F)	.	0.843	0.26	0.675	.		.
P(Shapiro-Wilk)^	.	0.6004	0.5495	0.7188	.		.
P(Skewness)^	.	0.9415	0.7372	0.5022	.		.
P(Kurtosis)^	.	0.9703	0.2832	0.9117	.		.
Replicate F	0.000	2.634	1.543	1.957	0.000		0.000
Replicate Prob(F)	1.0000	0.0729	0.2291	0.1473	1.0000		1.0000
Treatment F	0.000	116.404	50.043	10.787	0.000		0.000
Treatment Prob(F)	1.0000	0.0001	0.0001	0.0001	1.0000		1.0000

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 * Adjusted means
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 ^Calculated from residual.

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Assessed By				Marcelo Zimmer	Marcelo Zimmer	Claudia Bland	Marcelo Zimmer
Rating Date				Jun-9-2023	Jun-16-2023	Jun-23-2023	Jun-30-2023
Part Rated				PLOT, P	PLOT, P	PLOT, P	PLOT, P
Rating Type				CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%	%
Rating Min/Max/Interval				0, 100, -	0, 100, -	0, 100, -	0, 100, -
Crop Type, Code				C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA
Crop Scientific Name				Glycine max	Glycine max	Glycine max	Glycine max
Crop Name				Soybean	Soybean	Soybean	Soybean
Crop Variety							
Pest Type				W, Weed	W, Weed	W, Weed	W, Weed
Pest Code				AMATA	AMATA	AMATA	AMATA
Pest Scientific Name				Amaranthus x ta>	Amaranthus x ta>	Amaranthus x ta>	Amaranthus x ta>
Pest Name				common water he>	common water he>	common water he>	common water he>
Rating Timing				AT POST (B)	7 DA-B	14 DA-B	21 DA-B
ARM Action Codes				EC	EC	EC	EC
Trt No.	Treatment Name	Rate	Appl Code	2*	7*	12*	17*
1	UNTREATED			0.0	0.0	0.0	0.0
2	SONIC	6.45 oz/a	A	89.5 a	97.0 a	96.8 a	98.5 a
	ENLIST ONE	2 pt/a	B				
	LIBERTY	2 pt/a	B				
	AMSOL	2.5 % v/v	B				
3	SONIC	6.45 oz/a	A	88.8 ab	97.8 a	97.8 a	98.5 a
	ENLIST ONE	2 pt/a	B				
	LIBERTY	2 pt/a	B				
	EVERPREX	1.3 pt/a	B				
	AMSOL	2.5 % v/v	B				
4	SONIC	3.225 oz/a	A	71.3 cd	88.8 bc	90.0 b	92.0 bc
	ENLIST ONE	2 pt/a	B				
	LIBERTY	2 pt/a	B				
	AMSOL	2.5 % v/v	B				
5	SONIC	3.225 oz/a	A	77.5 bcd	93.3 ab	91.3 b	93.3 abc
	ENLIST ONE	2 pt/a	B				
	ROUNDUP POWERMAX 3	1 qt/a	B				
	AMSOL	2.5 % v/v	B				
6	SONIC	3.225 oz/a	A	81.3 abc	96.8 a	96.8 a	97.8 ab
	ENLIST ONE	2 pt/a	B				
	LIBERTY	2 pt/a	B				
	EVERPREX	1.3 pt/a	B				
	AMSOL	2.5 % v/v	B				
7	SONIC	3.225 oz/a	A	77.5 bcd	92.8 ab	89.5 b	95.3 abc
	ENLIST ONE	2 pt/a	B				
	ROUNDUP POWERMAX 3	1 qt/a	B				
	EVERPREX	1.3 pt/a	B				
	AMSOL	2.5 % v/v	B				
8	SONIC	3.225 oz/a	A	73.8 cd	94.5 ab	91.3 b	89.5 c
	FLEXSTAR	1 pt/a	B				
	LIBERTY	2 pt/a	B				
	AMSOL	2.5 % v/v	B				
9	SONIC	3.225 oz/a	A	68.8 d	85.0 c	72.5 c	71.3 d
	ROUNDUP POWERMAX 3	1 qt/a	B				
	FLEXSTAR	1 pt/a	B				
	AMSOL	2.5 % v/v	B				

Means followed by same letter or symbol do not significantly differ (P=,05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,2,15,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland	Marcelo Zimmer	
Rating Date	Jun-9-2023	Jun-16-2023	Jun-23-2023	Jun-30-2023	
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P	
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit	%	%	%	%	
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -	
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	
Crop Name	Soybean	Soybean	Soybean	Soybean	
Crop Variety					
Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	
Pest Code	AMATA	AMATA	AMATA	AMATA	
Pest Scientific Name	Amaranthus x ta>	Amaranthus x ta>	Amaranthus x ta>	Amaranthus x ta>	
Pest Name	common water he>	common water he>	common water he>	common water he>	
Rating Timing	AT POST (B)	7 DA-B	14 DA-B	21 DA-B	
ARM Action Codes	EC	EC	EC	EC	
Trt Treatment					
No. Name	Rate Unit Appl Code	2*	7*	12*	17*
10 SONIC	3.225 oz/a A	76.3 cd	95.0 ab	93.3 ab	95.5 abc
ENLIST ONE	2 pt/a B				
ROUNDUP POWERMAX 3	1 qt/a B				
LIBERTY	2 pt/a B				
EVERPREX	1.3 pt/a B				
AMSOL	2.5 % v/v B				
LSD P=.05	11.30	7.64	5.48	6.12	
Standard Deviation	7.74	5.24	3.75	4.20	
CV	9.89	5.61	4.12	4.54	
Levene's Prob(F)	0.885	0.158	0.31	0.683	
P(Shapiro-Wilk)^	0.083	0.0375*	0.1137	0.0669	
P(Skewness)^	0.0649	0.0468*	0.1916	0.0255*	
P(Kurtosis)^	0.6479	0.0409*	0.0448*	0.1478	
Replicate F	2.152	0.101	0.963	0.158	
Replicate Prob(F)	0.1200	0.9587	0.4263	0.9237	
Treatment F	3.424	2.542	16.424	16.393	
Treatment Prob(F)	0.0091	0.0367	0.0001	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland	Marcelo Zimmer			
Rating Date	Jul-7-2023	Jun-9-2023	Jun-16-2023	Jun-23-2023	Jun-30-2023			
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P	PLOT, P			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%			
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -	0, 100, -			
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean			
Crop Variety								
Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	AMATA	AMBTR	AMBTR	AMBTR	AMBTR			
Pest Scientific Name	Amaranthus x ta>	Ambrosia trifida	Ambrosia trifida	Ambrosia trifida	Ambrosia trifida			
Pest Name	common water he>	Giant ragweed	Giant ragweed	Giant ragweed	Giant ragweed			
Rating Timing	28 DA-B	AT POST (B)	7 DA-B	14 DA-B	21 DA-B			
ARM Action Codes	EC	EC	EC	EC	EC			
Trt Treatment No. Name	Rate Rate	Appl Unit	Code	22*	3*	8*	13*	18*
1 UNTREATED				0.0	0.0	0.0	0.0	0.0
2 SONIC ENLIST ONE LIBERTY AMSOL	6.45 oz/a 2 pt/a 2 pt/a 2.5 % v/v	A B B B		96.0 ab	87.0 a	98.0 a	98.5 a	99.8 a
3 SONIC ENLIST ONE LIBERTY EVERPREX AMSOL	6.45 oz/a 2 pt/a 2 pt/a 1.3 pt/a 2.5 % v/v	A B B B B		97.8 a	83.8 ab	95.3 ab	97.5 ab	99.5 a
4 SONIC ENLIST ONE LIBERTY AMSOL	3.225 oz/a 2 pt/a 2 pt/a 2.5 % v/v	A B B B		88.3 ab	61.3 c	92.0 abc	96.5 abc	99.0 a
5 SONIC ENLIST ONE ROUNDUP POWERMAX 3 AMSOL	3.225 oz/a 2 pt/a 1 qt/a 2.5 % v/v	A B B B		89.5 ab	55.0 c	81.3 d	91.3 cd	99.0 a
6 SONIC ENLIST ONE LIBERTY EVERPREX AMSOL	3.225 oz/a 2 pt/a 2 pt/a 1.3 pt/a 2.5 % v/v	A B B B B		96.5 ab	66.3 bc	92.0 abc	94.8 a-d	99.5 a
7 SONIC ENLIST ONE ROUNDUP POWERMAX 3 EVERPREX AMSOL	3.225 oz/a 2 pt/a 1 qt/a 1.3 pt/a 2.5 % v/v	A B B B B		93.3 ab	72.5 abc	87.5 cd	94.8 a-d	99.5 a
8 SONIC FLEXSTAR LIBERTY AMSOL	3.225 oz/a 1 pt/a 2 pt/a 2.5 % v/v	A B B B		85.8 b	53.8 c	94.5 abc	98.3 a	99.5 a
9 SONIC ROUNDUP POWERMAX 3 FLEXSTAR AMSOL	3.225 oz/a 1 qt/a 1 pt/a 2.5 % v/v	A B B B		57.5 c	56.3 c	91.3 abc	89.5 d	82.5 b

Means followed by same letter or symbol do not significantly differ (P=,05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland	Marcelo Zimmer		
Rating Date	Jul-7-2023	Jun-9-2023	Jun-16-2023	Jun-23-2023	Jun-30-2023		
Part Rated	PLOT, P						
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -	0, 100, -		
Crop Type, Code	C, GLXMA						
Crop Scientific Name	Glycine max						
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Crop Variety							
Pest Type	W, Weed						
Pest Code	AMATA	AMBTR	AMBTR	AMBTR	AMBTR		
Pest Scientific Name	Amaranthus x ta>	Ambrosia trifida	Ambrosia trifida	Ambrosia trifida	Ambrosia trifida		
Pest Name	common water he>	Giant ragweed	Giant ragweed	Giant ragweed	Giant ragweed		
Rating Timing	28 DA-B	AT POST (B)	7 DA-B	14 DA-B	21 DA-B		
ARM Action Codes	EC	EC	EC	EC	EC		
Trt Treatment No. Name	Rate	Appl Code	22*	3*	8*	13*	18*
10 SONIC	3.225 oz/a	A	90.3 ab	67.5 abc	90.0 bc	92.5 bcd	99.3 a
ENLIST ONE	2 pt/a	B					
ROUNDUP POWERMAX 3	1 qt/a	B					
LIBERTY	2 pt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
LSD P=.05	10.97		19.98	7.13	5.27	2.37	
Standard Deviation	7.52		13.69	4.89	3.61	1.63	
CV	8.51		20.43	5.35	3.81	1.67	
Levene's Prob(F)	0.322		0.599	0.178	0.032*	0.584	
P(Shapiro-Wilk)^	0.0*		0.0848	0.2504	0.5047	0.0*	
P(Skewness)^	0.0*		0.8298	0.0886	0.5268	0.0*	
P(Kurtosis)^	0.0*		0.3996	0.3219	0.4235	0.0*	
Replicate F	0.239		9.537	1.378	1.355	3.402	
Replicate Prob(F)	0.8682		0.0002	0.2736	0.2804	0.0340	
Treatment F	10.624		3.147	3.951	3.134	47.929	
Treatment Prob(F)	0.0001		0.0140	0.0042	0.0142	0.0001	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland			
Rating Date	Jul-7-2023	Jun-9-2023	Jun-16-2023	Jun-23-2023			
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%			
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -			
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean			
Crop Variety							
Pest Type	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	AMBTR	ECHCG	ECHCG	ECHCG			
Pest Scientific Name	Ambrosia trifida	Echinochloa cru>	Echinochloa cru>	Echinochloa cru>			
Pest Name	Giant ragweed	common barnyard>	common barnyard>	common barnyard>			
Rating Timing	28 DA-B	AT POST (B)	7 DA-B	14 DA-B			
ARM Action Codes	EC	EC	EC	EC			
Trt Treatment No. Name	Rate Rate	Appl Unit	Code	23*	4*	9*	14*
1 UNTREATED				0.0	0.0	0.0	0.0
2 SONIC	6.45 oz/a	A		99.8 a	88.8 a	95.0 abc	95.5 bcd
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
AMSOL	2.5 % v/v	B					
3 SONIC	6.45 oz/a	A		99.5 a	88.8 a	96.8 ab	98.0 abc
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
4 SONIC	3.225 oz/a	A		99.0 a	71.3 b	83.8 d	87.5 f
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
AMSOL	2.5 % v/v	B					
5 SONIC	3.225 oz/a	A		98.5 a	76.3 b	99.0 a	100.0 a
ENLIST ONE	2 pt/a	B					
ROUNDUP POWERMAX 3	1 qt/a	B					
AMSOL	2.5 % v/v	B					
6 SONIC	3.225 oz/a	A		99.3 a	76.3 b	90.8 bcd	90.0 ef
ENLIST ONE	2 pt/a	B					
LIBERTY	2 pt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
7 SONIC	3.225 oz/a	A		98.3 a	78.8 b	99.3 a	99.8 ab
ENLIST ONE	2 pt/a	B					
ROUNDUP POWERMAX 3	1 qt/a	B					
EVERPREX	1.3 pt/a	B					
AMSOL	2.5 % v/v	B					
8 SONIC	3.225 oz/a	A		97.3 a	71.3 b	88.8 cd	93.5 de
FLEXSTAR	1 pt/a	B					
LIBERTY	2 pt/a	B					
AMSOL	2.5 % v/v	B					
9 SONIC	3.225 oz/a	A		68.8 b	75.0 b	97.8 ab	99.3 abc
ROUNDUP POWERMAX 3	1 qt/a	B					
FLEXSTAR	1 pt/a	B					
AMSOL	2.5 % v/v	B					

Means followed by same letter or symbol do not significantly differ (P=,05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.

^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	Claudia Bland		
Rating Date	Jul-7-2023	Jun-9-2023	Jun-16-2023	Jun-23-2023		
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%		
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -		
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean		
Crop Variety						
Pest Type	W, Weed	W, Weed	W, Weed	W, Weed		
Pest Code	AMBTR	ECHCG	ECHCG	ECHCG		
Pest Scientific Name	Ambrosia trifida	Echinochloa cru>	Echinochloa cru>	Echinochloa cru>		
Pest Name	Giant ragweed	common barnyard>	common barnyard>	common barnyard>		
Rating Timing	28 DA-B	AT POST (B)	7 DA-B	14 DA-B		
ARM Action Codes	EC	EC	EC	EC		
Trt Treatment	23*	4*	9*	14*		
No. Name						
10 SONIC	3.225 oz/a	A	95.8 a	75.0 b	89.5 cd	95.0 cd
ENLIST ONE	2 pt/a	B				
ROUNDUP POWERMAX 3	1 qt/a	B				
LIBERTY	2 pt/a	B				
EVERPREX	1.3 pt/a	B				
AMSOL	2.5 % v/v	B				
LSD P=.05	9.03	8.92	7.13	4.47		
Standard Deviation	6.19	6.11	4.88	3.06		
CV	6.51	7.84	5.23	3.21		
Levene's Prob(F)	0.291	0.583	0.772	0.745		
P(Shapiro-Wilk)^	0.0*	0.1642	0.8583	0.5149		
P(Skewness)^	0.0*	0.6068	0.8153	0.5459		
P(Kurtosis)^	0.0*	0.4836	0.7551	0.9101		
Replicate F	1.089	0.763	2.082	2.764		
Replicate Prob(F)	0.3729	0.5260	0.1292	0.0640		
Treatment F	10.367	4.647	4.931	8.380		
Treatment Prob(F)	0.0001	0.0016	0.0011	0.0001		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.

^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By			Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	
Rating Date			Jun-30-2023	Jul-7-2023	Jun-9-2023	Jun-16-2023	
Part Rated			PLOT, P	PLOT, P	PLOT, P	PLOT, P	
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit			%	%	%	%	
Rating Min/Max/Interval			0, 100, -	0, 100, -	0, 100, -	0, 100, -	
Crop Type, Code			C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	
Crop Scientific Name			Glycine max	Glycine max	Glycine max	Glycine max	
Crop Name			Soybean	Soybean	Soybean	Soybean	
Crop Variety							
Pest Type			W, Weed	W, Weed	W, Weed	W, Weed	
Pest Code			ECHCG	ECHCG	CHEAL	CHEAL	
Pest Scientific Name			Echinochloa cru>	Echinochloa cru>	Chenopodium alb>	Chenopodium alb>	
Pest Name			common barnyard>	common barnyard>	common lambsqua>	common lambsqua>	
Rating Timing			21 DA-B	28 DA-B	AT POST (B)	7 DA-B	
ARM Action Codes			EC	EC	EC	EC	
Trt No.	Treatment Name	Rate	Appl Code	19*	24*	5*	10*
		Rate Unit					
1	UNTREATED			0.0	0.0	0.0	0.0
2	SONIC ENLIST ONE LIBERTY AMSOL	6.45 oz/a 2 pt/a 2 pt/a 2.5 % v/v	A B B B	94.8 a	93.8 ab	100.0 a	100.0 a
3	SONIC ENLIST ONE LIBERTY EVERPREX AMSOL	6.45 oz/a 2 pt/a 2 pt/a 1.3 pt/a 2.5 % v/v	A B B B B	97.0 a	93.8 ab	100.0 a	100.0 a
4	SONIC ENLIST ONE LIBERTY AMSOL	3.225 oz/a 2 pt/a 2 pt/a 2.5 % v/v	A B B B	82.5 b	73.8 d	100.0 a	100.0 a
5	SONIC ENLIST ONE ROUNDUP POWERMAX 3 AMSOL	3.225 oz/a 2 pt/a 1 qt/a 2.5 % v/v	A B B B	96.3 a	94.5 ab	100.0 a	100.0 a
6	SONIC ENLIST ONE LIBERTY EVERPREX AMSOL	3.225 oz/a 2 pt/a 2 pt/a 1.3 pt/a 2.5 % v/v	A B B B B	95.0 a	89.5 b	100.0 a	100.0 a
7	SONIC ENLIST ONE ROUNDUP POWERMAX 3 EVERPREX AMSOL	3.225 oz/a 2 pt/a 1 qt/a 1.3 pt/a 2.5 % v/v	A B B B B	99.3 a	98.0 a	100.0 a	100.0 a
8	SONIC FLEXSTAR LIBERTY AMSOL	3.225 oz/a 1 pt/a 2 pt/a 2.5 % v/v	A B B B	85.0 b	81.3 c	100.0 a	100.0 a
9	SONIC ROUNDUP POWERMAX 3 FLEXSTAR AMSOL	3.225 oz/a 1 qt/a 1 pt/a 2.5 % v/v	A B B B	98.8 a	97.0 a	100.0 a	100.0 a

Means followed by same letter or symbol do not significantly differ (P=0.05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer	Marcelo Zimmer		
Rating Date	Jun-30-2023	Jul-7-2023	Jun-9-2023	Jun-16-2023		
Part Rated	PLOT, P	PLOT, P	PLOT, P	PLOT, P		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%		
Rating Min/Max/Interval	0, 100, -	0, 100, -	0, 100, -	0, 100, -		
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean		
Crop Variety						
Pest Type	W, Weed	W, Weed	W, Weed	W, Weed		
Pest Code	ECHCG	ECHCG	CHEAL	CHEAL		
Pest Scientific Name	Echinochloa cru>	Echinochloa cru>	Chenopodium alb>	Chenopodium alb>		
Pest Name	common barnyard>	common barnyard>	common lambsqua>	common lambsqua>		
Rating Timing	21 DA-B	28 DA-B	AT POST (B)	7 DA-B		
ARM Action Codes	EC	EC	EC	EC		
Trt Treatment No. Name	Rate	Appl Code	19*	24*	5*	10*
10 SONIC	3.225 oz/a	A	97.3 a	95.0 ab	100.0 a	100.0 a
ENLIST ONE	2 pt/a	B				
ROUNDUP POWERMAX 3	1 qt/a	B				
LIBERTY	2 pt/a	B				
EVERPREX	1.3 pt/a	B				
AMSOL	2.5 % v/v	B				
LSD P=.05	5.77		6.44			
Standard Deviation	3.95		4.41	0.00	0.00	
CV	4.21		4.86	0.0	0.0	
Levene's Prob(F)	0.354		0.485	.	.	
P(Shapiro-Wilk)^	0.084		0.9851	.	.	
P(Skewness)^	0.0775		0.965	.	.	
P(Kurtosis)^	0.5024		0.7578	.	.	
Replicate F	1.443		0.002	0.000	0.000	
Replicate Prob(F)	0.2551		0.9999	1.0000	1.0000	
Treatment F	9.263		13.431	0.000	0.000	
Treatment Prob(F)	0.0001		0.0001	1.0000	1.0000	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.

^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By				Claudia Bland	Marcelo Zimmer	Marcelo Zimmer
Rating Date				Jun-23-2023	Jun-30-2023	Jul-7-2023
Part Rated				PLOT, P	PLOT, P	PLOT, P
Rating Type				CONTRO	CONTRO	CONTRO
Rating Unit				%	%	%
Rating Min/Max/Interval				0, 100, -	0, 100, -	0, 100, -
Crop Type, Code				C, GLXMA	C, GLXMA	C, GLXMA
Crop Scientific Name				Glycine max	Glycine max	Glycine max
Crop Name				Soybean	Soybean	Soybean
Crop Variety						
Pest Type				W, Weed	W, Weed	W, Weed
Pest Code				CHEAL	CHEAL	CHEAL
Pest Scientific Name				Chenopodium alb>	Chenopodium alb>	Chenopodium alb>
Pest Name				common lambsqua>	common lambsqua>	common lambsqua>
Rating Timing				14 DA-B	21 DA-B	28 DA-B
ARM Action Codes				EC	EC	EC
Trt No.	Treatment Name	Rate	Appl Code	15*	20*	25*
		Rate Unit				
1	UNTREATED			0.0	0.0	0.0
2	SONIC ENLIST ONE LIBERTY AMSOL	6.45 oz/a 2 pt/a 2 pt/a 2.5 % v/v	A B B B	100.0 a	100.0 a	100.0 a
3	SONIC ENLIST ONE LIBERTY EVERPREX AMSOL	6.45 oz/a 2 pt/a 2 pt/a 1.3 pt/a 2.5 % v/v	A B B B B	100.0 a	100.0 a	100.0 a
4	SONIC ENLIST ONE LIBERTY AMSOL	3.225 oz/a 2 pt/a 2 pt/a 2.5 % v/v	A B B B	100.0 a	100.0 a	100.0 a
5	SONIC ENLIST ONE ROUNDUP POWERMAX 3 AMSOL	3.225 oz/a 2 pt/a 1 qt/a 2.5 % v/v	A B B B	100.0 a	100.0 a	100.0 a
6	SONIC ENLIST ONE LIBERTY EVERPREX AMSOL	3.225 oz/a 2 pt/a 2 pt/a 1.3 pt/a 2.5 % v/v	A B B B B	100.0 a	100.0 a	100.0 a
7	SONIC ENLIST ONE ROUNDUP POWERMAX 3 EVERPREX AMSOL	3.225 oz/a 2 pt/a 1 qt/a 1.3 pt/a 2.5 % v/v	A B B B B	100.0 a	100.0 a	100.0 a
8	SONIC FLEXSTAR LIBERTY AMSOL	3.225 oz/a 1 pt/a 2 pt/a 2.5 % v/v	A B B B	100.0 a	100.0 a	100.0 a
9	SONIC ROUNDUP POWERMAX 3 FLEXSTAR AMSOL	3.225 oz/a 1 qt/a 1 pt/a 2.5 % v/v	A B B B	100.0 a	100.0 a	100.0 a

Means followed by same letter or symbol do not significantly differ (P=,05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,2,1,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
 Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
 Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
 Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
 Investigator: Dr. Bill Johnson

Assessed By	Claudia Bland		Marcelo Zimmer	Marcelo Zimmer	
Rating Date	Jun-23-2023		Jun-30-2023	Jul-7-2023	
Part Rated	PLOT, P		PLOT, P	PLOT, P	
Rating Type	CONTRO		CONTRO	CONTRO	
Rating Unit	%		%	%	
Rating Min/Max/Interval	0, 100, -		0, 100, -	0, 100, -	
Crop Type, Code	C, GLXMA		C, GLXMA	C, GLXMA	
Crop Scientific Name	Glycine max		Glycine max	Glycine max	
Crop Name	Soybean		Soybean	Soybean	
Crop Variety					
Pest Type	W, Weed		W, Weed	W, Weed	
Pest Code	CHEAL		CHEAL	CHEAL	
Pest Scientific Name	Chenopodium alb>		Chenopodium alb>	Chenopodium alb>	
Pest Name	common lambsqua>		common lambsqua>	common lambsqua>	
Rating Timing	14 DA-B		21 DA-B	28 DA-B	
ARM Action Codes	EC		EC	EC	
Trt Treatment	Rate	Appl	15*	20*	25*
No. Name	Rate Unit	Code			
10 SONIC	3.225 oz/a	A	100.0 a	100.0 a	100.0 a
ENLIST ONE	2 pt/a	B			
ROUNDUP POWERMAX 3	1 qt/a	B			
LIBERTY	2 pt/a	B			
EVERPREX	1.3 pt/a	B			
AMSOL	2.5 % v/v	B			
LSD P=.05			.	.	.
Standard Deviation			0.00	0.00	0.00
CV			0.0	0.0	0.0
Levene's Prob(F)			.	.	.
P(Shapiro-Wilk)^			.	.	.
P(Skewness)^			.	.	.
P(Kurtosis)^			.	.	.
Replicate F			0.000	0.000	0.000
Replicate Prob(F)			1.0000	1.0000	1.0000
Treatment F			0.000	0.000	0.000
Treatment Prob(F)			1.0000	1.0000	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 * Adjusted means
 Could not calculate LSD (% mean diff) for columns 1,21,5,10,15,20,25 because error mean square = 0.
 ^Calculated from residual.

Purdue Weed Science

Enlist Weed Control Systems in Soybean

Trial ID: 23-MGS-Soy-01
Protocol ID: 23-MGS-Soy-01 Location: Meigs Trial Year: 2023
Project ID: NA23K1A011H Project ID 2: IN23KJA029 Project ID 3:
Study Director: Dr. Bill Johnson Sponsor Contact: Kevin Johnson
Investigator: Dr. Bill Johnson

Assessed By

Marcelo Zimmer = MZ

Part Rated

PLOT = plot

P = Pest is Part Rated

Rating Type

PHYGEN = phytotoxicity - general / injury

CONTRO = control / burndown or knockdown

Rating Unit

%, 0, 100, = percent

Crop Type Code

C = EPPO species (Bayer) codes

GLXMA, BSOY, Glycine max, Soybean = US

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMATA, Amaranthus x tamariscinus, common water hemp = US

AMBTR, Ambrosia trifida, Giant ragweed = US

ECHCG, Echinochloa crus-galli, common barnyardgrass = US

CHEAL, Chenopodium album, common lambsquarters = US

ARM Action Codes

EC = Do not analyze untreated check, while still reporting treatment mean on AOV Means Table