

# Purdue Weed Science

## Engenia PRE and POST in Xtendflex Soybean

Trial ID: 23-TPAC-Soy-01  
 Protocol ID: 23-TPAC-Soy-01 Location: Throckmorton-Purdue Ag Center Trial Year: 2023  
 Study Director: Dr. Bill Johnson Sponsor Contact: Gery Welker

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-16-2023 **Meets All Objectives:** Y **Reliability:** GOOD good quality  
**Initiation Date:** May-18-2023 **Planned Completion Date:** Oct-15-2023  
**Completion Date:** Aug-25-2023

### Trial Location

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

**Latitude of LL Corner °:** 40.2918 N  
**Longitude of LL Corner °:** -86.90664 W

### Regulations

**Conducted Under GLP:** No  
**Conducted Under GEP:** No

### Objectives:

Show the importance and value of Engenia early (PRE/POST) in an Xtendflex soybean program.

### 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  
**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  
**Role:** SPONSR sponsor  
**Sponsor:** Gery Welker  
**Organization:** BASF  
**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

### Crop Description

**Crop 1:** C GLXMA Glycine max Soybean **BBCH Scale:** BSOY  
**Entry Date:** Jun-13-2023 **Stage Scale:** BBCH  
**Variety:** AG29XF1  
**Attributes:** Glyphosate-R, Glufosinate-R, and Dicamba-R  
**Planting Date:** May-18-2023 **Planting Rate:** 140000 S/A  
**Depth:** 1.5 IN  
**Rows per Plot:** 8 **Planting Method:** PLANTD planted  
**Row Spacing:** 15 IN **Planting Equipment:** PP plot planter  
**Soil Moisture:** NORMAL normal, adequate  
**Emergence Date:** May-31-2023

### Pest Description

**Pest 1 Type:** W **Code:** AMBTR Ambrosia trifida **Entry Date:** Jun-13-2023  
**Common Name:** Giant ragweed **Stage Scale:** BBCH  
**Attributes:** ALS-R

**Site and Design**

Treated Plot Width: 10 FT  
 Treated Plot Length: 30 FT  
 Treated Plot Area: 300.0 FT<sup>2</sup>  
 Replications: 4      Treatments: 9      Plots: 36

Site Type: FIELD field  
 Experimental Unit: 1 PLOT plot  
 Tillage Type: CONTIL conventional-till  
 Study Design: RACOBL Randomized Complete Block (RCB)

**Soil Description**

Description Name: TPAC - Field 4 BE  
 % Sand: 21      % OM: 3.4      Texture: SIL silt loam  
 % Silt: 54      Soil Name: Toronto-Millbrook Complex  
 % Clay: 25      Fert. Level: G good  
 pH: 5.8      CEC: 13.5

**Weather Conditions**

Overall Moisture Conditions: DRY dry      Irrigation Type: RAIN rain  
 Weather Station Name: TPAC MESONET      Distance: 0.5 MI

No.	Date	Moisture Total	Unit	Min Temp	Max Temp	Avg Temp	Temp Unit	Max Wind	Avg Wind	Unit	Avg Soil Temp	Unit
1.	May-15-2023	0.04	IN	55	75.6	63.1	F	15	3.6	MPH	64.2	F
2.	May-16-2023	0.01	IN	55.8	73.8	62.8	F	16.8	3.1	MPH	64.2	F
3.	May-17-2023	0	IN	50.7	72.7	61.3	F	17.9	5.4	MPH	63.9	F
4.	May-18-2023	0	IN	45.3	77.4	61.9	F	15	2.9	MPH	63.1	F
5.	May-19-2023	0.59	IN	55.8	83.1	65.8	F	30.4	7.6	MPH	63.3	F
6.	May-20-2023	0	IN	48.7	67.1	58.1	F	19	3.8	MPH	63.7	F
7.	May-21-2023	0	IN	45.9	81.1	64.2	F	14.3	1.1	MPH	63.9	F
8.	May-22-2023	0	IN	52.3	84	69.6	F	11.9	0.9	MPH	65.7	F
9.	May-23-2023	0	IN	55.8	86.2	72.3	F	15.4	1.3	MPH	67.1	F
10.	May-24-2023	0	IN	55.4	86.2	72.9	F	22.6	5.4	MPH	67.6	F
11.	May-25-2023	0	IN	48.9	71.6	59.7	F	23.3	9.2	MPH	65.1	F
12.	May-26-2023	0	IN	46.4	77	62.4	F	22.6	4.5	MPH	64.4	F
13.	May-27-2023	0	IN	48	78.4	65.8	F	7.2	0	MPH	64.2	F
14.	May-28-2023	0	IN	57.4	83.1	71.1	F	4.3	0	MPH	66.4	F
15.	Aug-29-2023	0	IN	57.7	88.7	74.8	F	6.5	0	MPH	69.1	F
16.	May-30-2023	0	IN	60.6	91	77.2	F	15.4	0.7	MPH	69.8	F
17.	May-31-2023	0	IN	66.4	90.7	78.3	F	20.4	3.6	MPH	71.6	F
18.	Jun-1-2023	0	IN	63.5	92.1	78.8	F	17.2	2.5	MPH	73.6	F
19.	Jun-2-2023	0	IN	61.9	92.3	79.3	F	13.2	0.7	MPH	74.5	F
20.	Jun-3-2023	0	IN	65.3	93.7	80.2	F	16.1	1.8	MPH	75.4	F
21.	Jun-4-2023	0	IN	64	84.4	74.3	F	17.9	6.5	MPH	75.4	F
22.	Jun-5-2023	0	IN	54.5	83.1	69.6	F	13.2	0	MPH	71.8	F
23.	Jun-6-2023	0	IN	54.3	88.3	71.1	F	7.2	0	MPH	71.6	F
24.	Jun-7-2023	0	IN	54.3	80.1	68.5	F	16.1	1.3	MPH	73.4	F
25.	Jun-8-2023	0	IN	46.9	80.2	64.9	F	1.8	0	MPH	72	F
26.	Jun-9-2023	0	IN	46.9	82	67.1	F	7.2	0	MPH	72.1	F
27.	Jun-10-2023	0	IN	55.2	86.5	72.7	F	13.2	0	MPH	74.1	F
28.	Jun-11-2023	0.38	IN	55.2	69.4	63.5	F	22.6	4	MPH	70.3	F
29.	Jun-12-2023	0	IN	54	69.1	62.8	F	25.1	5.6	MPH	70.5	F
30.	Jun-13-2023	0.05	IN	55.6	70.7	62.4	F	18.8	7.8	MPH	65.3	F
31.	Jun-14-2023	0	IN	59.4	78.8	68.4	F	14.1	2.9	MPH	68.9	F
32.	Jun-15-2023	0	IN	57.7	87.1	71.4	F	19.9	7.2	MPH	70.9	F
33.	Jun-16-2023	0	IN	51.3	75.6	62.6	F	14.1	4.3	MPH	69.3	F
34.	Jun-17-2023	0	IN	51.4	84.2	68.7	F	12.1	2.5	MPH	70.9	F
35.	Jun-18-2023	0	IN	57.9	86.4	72.7	F	18.1	4.5	MPH	73.4	F
36.	Jun-19-2023	0	IN	69.1	86.5	79.9	F	22.4	6.9	MPH	76.8	F
37.	Jun-20-2023	0	IN	65.5	89.4	76.1	F	27.1	8.9	MPH	76.8	F
38.	Jun-21-2023	0	IN	64.8	88.7	76.6	F	23.9	7.4	MPH	78.1	F
39.	Jun-22-2023	0	IN	63.5	83.7	73	F	21.5	5.4	MPH	77.9	F
40.	Jun-23-2023	0	IN	66.6	85.8	74.3	F	11.2	2.5	MPH	77.2	F
41.	Jun-24-2023	0	IN	60.6	91.6	77.5	F	15	3.6	MPH	77.7	F
42.	Jun-25-2023	0.93	IN	67.8	88.9	77.9	F	36	10.1	MPH	76.8	F
43.	Jun-26-2023	0	IN	66	77	71.1	F	26.6	8.9	MPH	72.9	F
44.	Jun-27-2023	0	IN	60.4	76.8	67.5	F	14.5	4	MPH	70.9	F

45.	Jun-28-2023	0	IN	53.8	82.8	68.5	F	17	2.5	MPH	70.9	F
46.	Jun-29-2023	0.38	IN	64.9	84.9	70.9	F	44.7	7.4	MPH	71.8	F
47.	Jun-30-2023	0	IN	62.8	86	75	F	21	3.6	MPH	73.4	F
48.	Jul-1-2023	0.45	IN	69.4	87.6	75.7	F	31.3	5.1	MPH	76.1	F
49.	Jul-2-2023	0.65	IN	66	83.3	73.6	F	28.6	6.9	MPH	75.7	F
50.	Jul-3-2023	0	IN	65.8	87.8	75	F	14.5	4.7	MPH	76.3	F
51.	Jul-4-2023	0	IN	65.1	90.9	77.9	F	14.1	2.9	MPH	78.1	F
52.	Jul-5-2023	0.01	IN	68.4	89.6	78.6	F	25.1	5.1	MPH	79.3	F
53.	Jul-6-2023	0.01	IN	68.4	84.2	74.8	F	16.6	3.8	MPH	78.6	F
54.	Jul-7-2023	0	IN	60.6	84	73.4	F	11.4	2.7	MPH	77.7	F
55.	Jul-8-2023	0.75	IN	61.5	76.3	68.5	F	17.7	3.1	MPH	75.6	F
56.	Jul-9-2023	0	IN	57	82.2	69.4	F	11.6	2.2	MPH	74.5	F
57.	Jul-10-2023	0	IN	58.8	82.2	71.6	F	12.5	4	MPH	75.4	F
58.	Jul-11-2023	0	IN	62.6	85.1	74.5	F	21.3	7.2	MPH	75.6	F
59.	Jul-12-2023	0	IN	69.1	86.4	76.8	F	23	6.3	MPH	76.3	F
60.	Jul-13-2023	0	IN	64	80	71	F	10.1	2.9	MPH	75.4	F
61.	Jul-14-2023	0	IN	61	88	76	F	14.8	4.5	MPH	76.1	F
62.	Jul-15-2023	1.59	IN	67	83	74	C	20.8	4	MPH	75.9	F
63.	Jul-16-2023	0	IN	63	83	73	C	17.4	4.9	MPH	75.4	F
64.	Jul-17-2023	0.14	IN	65	81	72	C	12.8	3.6	MPH	74.7	F
65.	Jul-18-2023	0	IN	63	82	72	C	9.6	2.2	MPH	74.8	F
66.	Jul-19-2023	0	IN	57	86	73	C	9.2	1.8	MPH	74.7	F
67.	Jul-20-2023	0	IN	67	88	76	C	22.1	5.4	MPH	76.5	F
68.	Jul-21-2023	0	IN	62	81	71	C	11.9	2.5	MPH	75	F
69.	Jul-22-2023	0	IN	58	83	71	C	9.2	1.8	MPH	73.9	F
70.	Jul-23-2023	0	IN	59	86	72	C	14.1	3.4	MPH	73.6	F
71.	Jul-24-2023	0	IN	64	88	76	C	9.6	2.2	MPH	75.2	F
72.	Jul-25-2023	0	IN	62	87	76	C	11.4	2.7	MPH	75.2	F
73.	Jul-26-2023	0.06	IN	71	89	80	C	25.1	8.5	MPH	76.1	F
74.	Jul-27-2023	0	IN	74	95	83	C	11.6	3.4	MPH	78.4	F
75.	Jul-28-2023	0.48	IN	70	90	81	C	36.2	6.3	MPH	79.2	F
76.	Jul-29-2023	0.73	IN	67	85	75	F	32	4.5	MPH	78.1	F
77.	Jul-30-2023	0	IN	62	85	73	F	15.7	2.9	MPH	76.3	F
78.	Jul-31-2023	0	IN	57	81	69	F	11.9	2.5	MPH	74.7	F
79.	Aug-1-2023	0	IN	56	82	71	F	10.3	2	MPH	73.4	F
80.	Aug-2-2023	0	IN	62	84	72	F	12.3	3.6	MPH	74.7	F
81.	Aug-3-2023	0	IN	64	89	75	F	11.6	1.8	MPH	77.5	F
82.	Aug-4-2023	0	IN	61	91	77	F	8.5	1.8	MPH	78.8	F
83.	Aug-5-2023	0.05	IN	69	80	74	F	29.8	5.6	MPH	76.8	F
84.	Aug-6-2023	0.73	IN	64	78	69	F	18.1	5.8	MPH	74.3	F
85.	Aug-7-2023	0	IN	65	78	70	F	17.2	3.4	MPH	74.3	F
86.	Aug-8-2023	0	IN	60	82	69	F	22.1	4	MPH	74.5	F
87.	Aug-9-2023	0	IN	61	81	69	F	19.9	2.7	MPH	73.9	F
88.	Aug-10-2023	0	IN	63	80	71	F	15.4	3.8	MPH	75	F
89.	Aug-11-2023	0	IN	64	84	74	F	22.1	5.6	MPH	75.2	F
90.	Aug-12-2023	0	IN	65	85	75	F	20.1	5.6	MPH	76.1	F
91.	Aug-13-2023	1.27	IN	63	85	74	F	11.4	3.1	MPH	76.1	F
92.	Aug-14-2023	0	IN	65	77	70	F	18.3	5.1	MPH	74.7	F
93.	Aug-15-2023	0.15	IN	59	75	66	F	19	5.6	MPH	71.8	F
94.	Aug-16-2023	0.46	IN	55	80	68	F	9.8	2.7	MPH	71.6	F
95.	Aug-17-2023	0.5	IN	60	78	68	F	24.2	7.2	MPH	71.2	F
96.	Aug-18-2023	0	IN	53	77	65	F	12.8	2.2	MPH	70.5	F
97.	Aug-19-2023	0	IN	57	81	69	F	16.1	4.3	MPH	70.9	F
98.	Aug-20-2023	0.35	IN	66	91	78	F	11.9	3.4	MPH	73.6	F
99.	Aug-21-2023	0	IN	73	91	82	F	11.9	3.4	MPH	76.8	F
100.	Aug-22-2023	0.08	IN	71	88	78	F	11.2	3.8	MPH	77.5	F
101.	Aug-23-2023	0	IN	70	91	80	F	17	6	MPH	77.5	F
102.	Aug-24-2023	0	IN	76	92	84	F	19.5	6.5	MPH	79.2	F
103.	Aug-25-2023	0.25	IN	76	92	82	F	11	3.4	MPH	80.1	F

**Application Description**

	A	B	C	D	E
Date	May-18-2023	Jun-8-2023	Jun-28-2023	Jun-28-2023	Jun-28-2023
Start Time	7:12 PM	10:57 AM	6:20 PM	6:20 AM	8:03 PM
Stop Time	7:25 PM	11:00 AM	6:48 PM	6:48 AM	8:19 PM
Method	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Timing	PRE	VC/V1 SOY	V4	V4	V5
Placement	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL
Applied By	M. ZIMMER	M. ZIMMER	Maia, Lucas	Maia, Lucas	Maia, Lucas
Entry Date	Jun-13-2023	Jun-13-2023	Mar-12-2024	Mar-12-2024	Mar-12-2024
Air Temperature Start, Stop	78, 78 F	66, 66 F	78, 77 F	78, 77 F	77, 75 F
% Relative Humidity Start, Stop	23, 23	35, 35			
Wind Velocity+Dir. Start	3 MPH, S	3.2 MPH, ENE	1 MPH, SE	1 MPH, SE	1 MPH, SE
Wind Velocity+Dir. Stop	3 MPH, S	3.5 MPH, E	1 MPH, SE	1 MPH, SE	1 MPH, SE
Wind Velocity+Dir. Max	3 MPH, S	5.9 MPH, E	1 MPH, SE	1 MPH, SE	1 MPH, SE
Wet Leaves (Y/N)	N, no	N, no	N, no	N, no	N, no
Soil Temperature	78 F	70 F	80 F	80 F	80 F
Soil Temperature Depth			4 IN	4 IN	4 IN
Soil Moisture	ADEQUATE	DRY	GOOD	GOOD	GOOD
% Cloud Cover	10	0			

**Crop Stage At Each Application**

	A	B	C	D	E
Crop 1 Code, BBCH Scale	GLXMA, BSOY				
Days after Emergence	-13	8	28	28	28
Stage Majority, Percent	0, -	11, -	14, -	14, -	14, -
Stage Minimum, Percent	0, -	10, -	14, -	14, -	14, -
Stage Maximum, Percent	0, -	11, -	15, -	15, -	15, -
Height Average	0 IN	2 IN			
Height Minimum, Maximum	0, 0	2, 3			

**Pest Stage At Each Application**

	A	B	C	D	E
Pest 1 Code, Type, Scale	AMBTR, W, BBCH				
Height Average	0 IN	2 IN	10 IN	10 IN	10 IN
Height Minimum, Maximum	0, 0	1, 3	2, 15	2, 15	2, 15
Density Average	0 FT2	8 FT2	8 FT2	8 FT2	9 FT2
Density Minimum, Maximum	0, 0	5, 15			

**Application Equipment**

	A	B	C	D	E
Equipment Name	CO2 BACKPACK	CO2 BACKAPCK	CO2 BACKAPCK	CO2 BACKAPCK	CO2 BACKAPCK
Equipment Type	BACSPR	BACSPR	BACSPR	BACSPR	BACSPR
Operation Pressure	28 PSI	27 PSI	27 PSI	- PSI	- PSI
Nozzle Model	TTI	TTI	TTI	XR11002	XR11002
Nozzle Type	TEEJAI	TEEJAI	TEEJAI	FLAFXR	FLAFXR
Nozzle TradeName	TEEJET	TEEJET	TEEJET	TEEJET	TEEJET
Nozzle Tip Size, Color	110015, GREEN	110015, GREEN	110015, GREEN	11002, YELLOW	11002, YELLOW
Nozzle Spacing	15.0 IN				
Boom Length	10.0 FT				
Ground Speed	3 MPH				
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC	20 GAL/AC	20 GAL/AC
Mix Overage	236.0 mL				
Mix Size	1800.0 mL	1800.0 mL	1800.0 mL	2322 mL	2322 mL
Propellant	COMCO2	COMCO2	COMCO2	COMCO2	COMCO2

## Purdue Weed Science

### Engenia PRE and POST in Xtendflex Soybean

Trial ID: 23-TPAC-Soy-01  
 Protocol ID: 23-TPAC-Soy-01 Location: Throckmorton-Purdue Ag Center Trial Year: 2023  
 Study Director: Dr. Bill Johnson Sponsor Contact: Gery Welker

Investigator: Dr. Bill Johnson

Assessed By	Bland, Claudia	Bland, Claudia	Bland, Claudia	Bland, Claudia	Bland, Claudia	Bland, Claudia	
Rating Date	Jul-12-2023	Jul-20-2023	Aug-11-2023	Aug-25-2023	Jul-12-2023	Jul-20-2023	
Part Rated	PLOT, C	PLOT, C	PLOT, C	PLOT, C	PLOT, P	PLOT, P	
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	CONTRO	CONTRO	
Rating Unit	%	%	%	%	%	%	
Rating Min/Max/Interval	0, 100, -	0, 100, -	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	AG29XF1	AG29XF1	AG29XF1	AG29XF1			
Pest Type					W, Weed	W, Weed	
Pest Code					AMBTR	AMBTR	
Pest Scientific Name					Ambrosia trifida	Ambrosia trifida	
Pest Name					Giant ragweed	Giant ragweed	
Rating Timing	14 DA-C	21 DA-C	42 DA-C	56 DA-C	14 DA-C	21 DA-C	
Trt No.							
Treatment Name							
Rate							
Appl Code							
Rate Unit							
1	NONTREATED	0.0 d	0.0 a	0.0 a	0.0 a	0.0 e	0.0 d
2	ENGENIA 12.8 fl oz/a A SENTRIS 8 fl oz/a A ZIDUA SC 3.25 fl oz/a A LIBERTY 36 fl oz/a D OUTLOOK 12 fl oz/a D AMSOL 112 fl oz/a D	6.5 ab	2.8 a	0.0 a	0.0 a	90.0 ab	88.8 ab
3	ENGENIA 12.8 fl oz/a A SENTRIS 8 fl oz/a A ZIDUA SC 3.25 fl oz/a A LIBERTY 36 fl oz/a E OUTLOOK 12 fl oz/a E AMSOL 112 fl oz/a E	4.0 c	2.0 a	0.0 a	0.0 a	81.5 d	78.8 c
4	ENGENIA 12.8 fl oz/a B SENTRIS 8 fl oz/a B ZIDUA SC 3.25 fl oz/a B INTACT 0.5 % v/v B LIBERTY 36 fl oz/a D OUTLOOK 12 fl oz/a D AMSOL 112 fl oz/a D	5.0 bc	1.5 a	0.0 a	0.0 a	95.0 a	91.3 ab
5	ENGENIA 12.8 fl oz/a B SENTRIS 8 fl oz/a B ZIDUA SC 3.25 fl oz/a B LIBERTY 36 fl oz/a E OUTLOOK 12 fl oz/a E AMSOL 112 fl oz/a E	4.5 c	0.8 a	0.0 a	0.0 a	93.8 a	93.3 a
6	ZIDUA PRO 6 fl oz/a A ENGENIA 12.8 fl oz/a C SENTRIS 8 fl oz/a C OUTLOOK 12 fl oz/a C VOLUNTEER 9 fl oz/a C PRIME OIL 1 % v/v C INTACT 0.5 % v/v C	6.5 ab	0.8 a	0.0 a	0.0 a	83.8 bcd	90.3 ab
7	VERDICT 5 fl oz/a A ENGENIA 12.8 fl oz/a C SENTRIS 8 fl oz/a C ZIDUA SC 3.25 fl oz/a C VOLUNTEER 9 fl oz/a C PRIME OIL 1 % v/v C INTACT 0.5 % v/v C	5.0 bc	1.5 a	0.0 a	0.0 a	83.8 bcd	88.3 ab

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 5,7 because error mean square = 0.

^Calculated from residual.

Assessed By	Bland, Claudia	Bland, Claudia						
Rating Date	Jul-12-2023	Jul-20-2023	Aug-11-2023	Aug-25-2023	Jul-12-2023	Jul-20-2023		
Part Rated	PLOT, C	PLOT, C	PLOT, C	PLOT, C	PLOT, P	PLOT, P		
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Rating Min/Max/Interval	0, 100, -	0, 100, -	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	AG29XF1	AG29XF1	AG29XF1	AG29XF1				
Pest Type					W, Weed	W, Weed		
Pest Code					AMBTR	AMBTR		
Pest Scientific Name					Ambrosia trifida	Ambrosia trifida		
Pest Name					Giant ragweed	Giant ragweed		
Rating Timing	14 DA-C	21 DA-C	42 DA-C	56 DA-C	14 DA-C	21 DA-C		
Trt Treatment No. Name	Rate	Appl Code	1*	3*	5*	7*	2*	4*
8 VERDICT	5 fl oz/a	A	5.0 bc	2.3 a	0.0 a	0.0 a	88.8 abc	87.5 b
ENGENIA	12.8 fl oz/a	A						
SENTRIS	8 fl oz/a	A						
LIBERTY	36 fl oz/a	D						
ZIDUA SC	3.25 fl oz/a	D						
VOLUNTEER	9 fl oz/a	D						
PRIME OIL	1 % v/v	D						
9 BOUNDARY	1.8 pt/a	A	7.3 a	2.3 a	0.0 a	0.0 a	82.5 cd	89.5 ab
TAVIUM	3.53 pt/a	C						
ROUNDUP POWERMAX 3	30 fl oz/a	C						
INTACT	0.5 % v/v	C						
SENTRIS	8 fl oz/a	C						
LSD P=.05			1.65	1.69	.	.	6.46	5.11
Standard Deviation			1.13	1.16	0.00	0.00	4.43	3.50
CV			23.3	75.97	0.0	0.0	5.7	4.45
Levene's Prob(F)			0.001*	0.727	.	.	0.062	0.397
P(Shapiro-Wilk)^			0.169	0.7486	.	.	0.4249	0.1842
P(Skewness)^			0.3437	0.8673	.	.	0.2317	0.0914
P(Kurtosis)^			0.9241	0.3271	.	.	0.8815	0.402
Replicate F			0.253	10.742	0.000	0.000	0.819	1.804
Replicate Prob(F)			0.8586	0.0001	1.0000	1.0000	0.4959	0.1734
Treatment F			13.895	2.340	0.000	0.000	177.874	288.918
Treatment Prob(F)			0.0001	0.0512	1.0000	1.0000	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 5,7 because error mean square = 0.  
^Calculated from residual.

Assessed By	Bland, Claudia		Bland, Claudia		
Rating Date	Aug-11-2023		Aug-25-2023		
Part Rated	PLOT, P		PLOT, P		
Rating Type	CONTRO		CONTRO		
Rating Unit	%		%		
Rating Min/Max/Interval	0, 100, -		0, 100, -		
Crop Type, Code					
Crop Scientific Name					
Crop Name					
Crop Variety					
Pest Type	W, Weed		W, Weed		
Pest Code	AMBTR		AMBTR		
Pest Scientific Name	Ambrosia trifida		Ambrosia trifida		
Pest Name	Giant ragweed		Giant ragweed		
Rating Timing	42 DA-C		56 DA-C		
Trt No.	Treatment Name	Rate Rate Unit	Appl Code	6*	8*
1	NONTREATED			0.0 e	0.0 d
2	ENGENIA SENTRIS ZIDUA SC LIBERTY OUTLOOK AMSOL	12.8 fl oz/a A 8 fl oz/a A 3.25 fl oz/a A 36 fl oz/a D 12 fl oz/a D 112 fl oz/a D		80.0 bc	71.3 b
3	ENGENIA SENTRIS ZIDUA SC LIBERTY OUTLOOK AMSOL	12.8 fl oz/a A 8 fl oz/a A 3.25 fl oz/a A 36 fl oz/a E 12 fl oz/a E 112 fl oz/a E		66.3 d	57.5 c
4	ENGENIA SENTRIS ZIDUA SC INTACT LIBERTY OUTLOOK AMSOL	12.8 fl oz/a B 8 fl oz/a B 3.25 fl oz/a B 0.5 % v/v B 36 fl oz/a D 12 fl oz/a D 112 fl oz/a D		80.0 bc	71.3 b
5	ENGENIA SENTRIS ZIDUA SC LIBERTY OUTLOOK AMSOL	12.8 fl oz/a B 8 fl oz/a B 3.25 fl oz/a B 36 fl oz/a E 12 fl oz/a E 112 fl oz/a E		85.0 ab	80.0 ab
6	ZIDUA PRO ENGENIA SENTRIS OUTLOOK VOLUNTEER PRIME OIL INTACT	6 fl oz/a A 12.8 fl oz/a C 8 fl oz/a C 12 fl oz/a C 9 fl oz/a C 1 % v/v C 0.5 % v/v C		90.0 a	88.8 a
7	VERDICT ENGENIA SENTRIS ZIDUA SC VOLUNTEER PRIME OIL INTACT	5 fl oz/a A 12.8 fl oz/a C 8 fl oz/a C 3.25 fl oz/a C 9 fl oz/a C 1 % v/v C 0.5 % v/v C		86.3 ab	85.0 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 5,7 because error mean square = 0.  
^Calculated from residual.

Assessed By		Bland, Claudia	Bland, Claudia
Rating Date		Aug-11-2023	Aug-25-2023
Part Rated		PLOT, P	PLOT, P
Rating Type		CONTRO	CONTRO
Rating Unit		%	%
Rating Min/Max/Interval		0, 100, -	0, 100, -
Crop Type, Code			
Crop Scientific Name			
Crop Name			
Crop Variety			
Pest Type		W, Weed	W, Weed
Pest Code		AMBTR	AMBTR
Pest Scientific Name		Ambrosia trifida	Ambrosia trifida
Pest Name		Giant ragweed	Giant ragweed
Rating Timing		42 DA-C	56 DA-C
Trt No.	Treatment Name	Rate	Appl Code
		Rate Unit	
8	VERDICT	5 fl oz/a	A
	ENGENIA	12.8 fl oz/a	A
	SENTRIS	8 fl oz/a	A
	LIBERTY	36 fl oz/a	D
	ZIDUA SC	3.25 fl oz/a	D
	VOLUNTEER	9 fl oz/a	D
	PRIME OIL	1 % v/v	D
9	BOUNDARY	1.8 pt/a	A
	TAVIUM	3.53 pt/a	C
	ROUNDUP POWERMAX 3	30 fl oz/a	C
	INTACT	0.5 % v/v	C
	SENTRIS	8 fl oz/a	C
	LSD P=.05		
	Standard Deviation		
	CV		
	Levene's Prob(F)		
	P(Shapiro-Wilk)^		
	P(Skewness)^		
	P(Kurtosis)^		
	Replicate F		
	Replicate Prob(F)		
	Treatment F		
	Treatment Prob(F)		
		6*	8*
		76.3 c	68.8 bc
		87.5 ab	84.5 a
		7.83	11.36
		5.36	7.79
		7.41	11.55
		0.105	0.01*
		0.8524	0.602
		0.3142	0.7836
		0.8692	0.3264
		1.634	2.075
		0.2079	0.1301
		109.491	48.554
		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 5,7 because error mean square = 0.

^Calculated from residual.

## Purdue Weed Science

### Engenia PRE and POST in Xtendflex Soybean

Trial ID: 23-TPAC-Soy-01  
Protocol ID: 23-TPAC-Soy-01 Location: Throckmorton-Purdue Ag Center Trial Year: 2023  
Project ID: MKD-H-2023-US-D61 Project ID 2: Project ID 3:  
Study Director: Dr. Bill Johnson Sponsor Contact: Gery Welker  
Investigator: Dr. Bill Johnson

#### Part Rated

PLOT = plot

C = Crop is Part Rated

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

AMBTR, Ambrosia trifida, Giant ragweed = US