

# Purdue Weed Science

**Soybean Showcase (UPL)**

Trial ID: 20S-TPAC-SOY-23\_UPL      Location: TPAC      Trial Year: 2020  
 Protocol ID: 20S-TPAC-SOY-23\_UPL      Investigator (Creator): Dr. Bill Johnson  
 Project ID:      Study Director: Brent Mansfield  
 Sponsor Contact: UPL-Ryan Henry

**General Trial Information**  
**Study Director:** Brent Mansfield    **Title:** Research Associate  
**Investigator:** Dr. Bill Johnson    **Title:** Professor

**Discipline:** H herbicide    **Trial Status:** E established    **Trial Reliability:** 1 usable data  
**ARM Trial Created On:** 12/8/2020  
**Initiation Date:** 5/9/2020

**Trial Location**  
**City:** Lafayette    **Country:** USA United States  
**State/Prov.:** Indiana

**Latitude of LL Corner °:** 40.2917353 N  
**Longitude of LL Corner °:** -86.9111584 W

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

**Contacts**

**Role:** STYDIR study director  
**Study Director:** Brent Mansfield    **Title:** Research Associate  
**Organization:** Purdue University  
**Address 1:** 915 W. State Street  
**Country:** USA United States    **E-mail:** brentmansfield@purdue.edu  
**City:** West Lafayette, 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, IN    **Postal Code:** 47907

**Role:** SPONSR sponsor  
**Sponsor:** UPL-Ryan Henry  
**Role:** OTHSPO other sponsor  
**Contact Name 5:** UPL- Ryan Henry

**Crop Description**

**Crop 1:** C GLXMA Glycine max    Soybean    **BBCH Scale:** BSOY  
**Entry Date:** 12/8/2020    **Stage Scale:** BBCH  
**Variety:** Stine 32EA12  
**Attributes:** Glyphosate-R and 2,4-D-R  
**Planting Date:** 5/8/2020    **Planting Rate:** 387790 S/ha  
**Depth:** 4.5 cm  
**Rows per Plot:** 7    **Planting Method:** PLANTD planted  
**Row Spacing:** 38.1 cm    **Planting Equipment:** PP plot planter  
**Soil Temperature:** 55 F    **Soil Moisture:** DRY dry  
**Emergence Date:** 5/18/2020

**Pest Description**

**Pest 1 Type:** W    **Code:** AMBTR Ambrosia trifida    **Entry Date:** 12/8/2020  
**Common Name:** Giant ragweed    **Stage Scale:** BBCH

**Pest 2 Type:** W    **Code:** ECHCG Echinochloa crus-galli    **Entry Date:** 12/8/2020  
**Common Name:** Common barnyard grass    **Stage Scale:** BBCH

**Site and Design**

**Treated Plot Width:** 10 FT    **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT    **Experimental Unit:** 1 PLOT plot  
**Treated Plot Area:** 300.0 FT2    **Treatments:** 6    **Tillage Type:** CONTIL conventional-till  
**Replications:** 4    **Study Design:** RACOBL Randomized Complete Block (RCB)

**Soil Description**

**Description Name:** Toronto-Millbrook complex  
**% Sand:** 21    **% OM:** 3.4    **Texture:** SIL silt loam  
**% Silt:** 54    **pH:** 5.8  
**% Clay:** 25    **CEC:** 13.5

No.	Date	Moisture Total	Unit
1.	5/2/2020	0.025	CM
2.	5/3/2020	0.585	CM
3.	5/5/2020	0.481	CM
4.	5/6/2020	0.025	CM
5.	5/10/2020	0.101	CM
6.	5/14/2020	0.405	CM
7.	5/15/2020	0.279	CM
8.	5/17/2020	1.497	CM
9.	5/18/2020	0.914	CM
10.	5/19/2020	0.684	CM
11.	5/23/2020	0.178	CM
12.	5/27/2020	0.025	CM
13.	5/28/2020	0.331	CM
14.	6/4/2020	0.33	CM
15.	6/9/2020	0.787	CM
16.	6/20/2020	0.025	CM
17.	6/21/2020	0.075	CM
18.	6/22/2020	0.711	CM
19.	6/23/2020	0.203	CM
20.	6/27/2020	2.769	CM
21.	6/28/2020	0.229	CM
22.	6/29/2020	0.076	CM
23.	6/30/2020	1.829	CM
24.	7/10/2020	0.05	CM
25.	7/11/2020	0.914	CM
26.	7/12/2020	0.66	CM
27.	7/15/2020	0.127	CM
28.	7/16/2020	0.456	CM
29.	7/19/2020	0.051	CM
30.	7/21/2020	1.423	CM
31.	7/22/2020	0.329	CM
32.	7/23/2020	0.178	CM
33.	7/27/2020	1.295	CM
34.	7/30/2020	1.599	CM

Application Description		
	A	B
Application Date	5/9/2020	6/12/2020
Appl. Start Time	11:05 AM	12:05 AM
Appl. Stop Time	11:25 AM	12:25 AM
Interval to Prev. Appl.		34 DAYS
Application Method	SPRAY	SPRAY
Application Timing	A	B
Application Placement	BROSOI	BROFOL
Applied By	J. Haarmann	B. Mansfield
Appl. Entry Date	12/8/2020	12/8/2020
Air Temperature Start, Stop	49, 49 F	83, 83 F
% Relative Humidity Start, Stop	29, 29	49, 49
Wind Velocity+Dir. Start	7 MPH, W	2.8 MPH, N
Wind Velocity+Dir. Max	7 MPH, W	2.8 MPH, N
Wet Leaves (Y/N)	N, no	N, no
Soil Temperature	48 F	87 F
Soil Moisture	DRY	NORMAL
% Cloud Cover	0	0

**Crop Stage At Each Application**

	<b>A</b>	<b>B</b>
<b>Crop 1 Code, BBCH Scale</b>	GLXMA, BSOY	GLXMA, BSOY
<b>Days after Emergence</b>	-9	25
<b>Stage Majority, Percent</b>	00, -	13, -
<b>Stage Minimum, Percent</b>	00, -	13, -
<b>Stage Maximum, Percent</b>	00, -	14, -
<b>Height Average</b>	0 IN	5 IN
<b>Height Minimum, Maximum</b>	0, 0	5, 6

**Pest Stage At Each Application**

	<b>A</b>	<b>B</b>
<b>Pest 1 Code, Type, Scale</b>	AMBTR, W, BBCH	AMBTR, W, BBCH
<b>Stage Majority, Percent</b>	0, -	16, -
<b>Stage Minimum, Percent</b>	0, -	12, -
<b>Stage Maximum, Percent</b>	0, -	18, -
<b>Height Average</b>	0 IN	6 in
<b>Height Minimum, Maximum</b>	0, 0	1, 12
<b>Density Average</b>	0 FT2	5 FT2
<b>Pest 2 Code, Type, Scale</b>	ECHCG, W, BBCH	ECHCG, W, BBCH
<b>Stage Majority, Percent</b>	0, -	13, -
<b>Stage Minimum, Percent</b>	0, -	11, -
<b>Stage Maximum, Percent</b>	0, -	14, -
<b>Height Average</b>	0 IN	3 in
<b>Height Minimum, Maximum</b>	0, 0	0.5, 4
<b>Density Average</b>	0 FT2	14 FT2

**Application Equipment**

	<b>A</b>	<b>B</b>
<b>Appl. Equipment</b>	CO2 BACKPACK	CO2 BACKPACK
<b>Equipment Type</b>	BACSPR	BACSPR
<b>Operation Pressure</b>	23 PSI	22 PSI
<b>Nozzle Model</b>	TT1110015	TT110015
<b>Nozzle Type</b>	TEEJAI	TEEJTU
<b>Nozzle Spacing</b>	15 IN	15 IN
<b>Nozzles/Row</b>	8	8
<b>Boom Length</b>	10 FT	10 FT
<b>Boom Height</b>	17.0 IN	25.0 IN
<b>Ground Speed</b>	3 MPH	3 MPH
<b>Carrier</b>	WATER	WATER
<b>Application Amount</b>	15 GAL/AC	15 GAL/AC
<b>Mix Overage</b>	0 mL	0 mL
<b>Mix Size</b>	1.8 L	1.8 L
<b>Propellant</b>	COMCO2	COMCO2

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## Soybean Showcase (UPL)

Trial ID: 20S-TPAC-SOY-23_UPL	Location: TPAC	Trial Year: 2020
Protocol ID: 20S-TPAC-SOY-23_UPL	Investigator (Creator): Dr. Bill Johnson	
Project ID:	Study Director: Brent Mansfield	
	Sponsor Contact: UPL-Ryan Henry	

Pest Type		W, Weed AMBTR	W, Weed ECHCG	W, Weed AMBTR	W, Weed ECHCG	W, Weed AMBTR			
Pest Code		AMBTR	ECHCG	AMBTR	ECHCG	AMBTR			
Pest Scientific Name		Ambrosia trifida	Echinochloa cru>	Ambrosia trifida	Echinochloa cru>	Ambrosia trifida			
Pest Name		Giant ragweed	Common barnyard>	Giant ragweed	Common barnyard>	Giant ragweed			
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA			
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean			
Rating Date	5/23/2020	5/23/2020	5/23/2020	6/12/2020	6/12/2020	6/20/2020			
Part Rated	PLANT, C	PLANT, P	PLANT, P	PLANT, P	PLANT, P	PLANT, P			
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit/Min/Max	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100			
Number of Subsamples	1	1	1	1	1	1			
Assessed By	B. Mansfield	B. Mansfield	B. Mansfield	B. Mansfield	B. Mansfield	B. Mansfield			
Data Entry Date	12/8/2020	12/8/2020	12/8/2020	12/8/2020	12/8/2020	12/8/2020			
Rating Timing	14 DAA	14 DAA	14 DAA	0 DAB	0 DAB	8 DAB			
Days After First/Last Applic.	14, 14	14, 14	14, 14	34, 34	34, 34	42, 8			
Trt-Eval Interval		14 DA-A	14 DA-A	34 DA-A	34 DA-A	42 DA-A			
Plant-Eval Interval	15 DP-1	15 DP-1	15 DP-1	35 DP-1	35 DP-1	43 DP-1			
Days After Emergence	5 DE-1	5 DE-1	5 DE-1	25 DE-1	25 DE-1	33 DE-1			
Trt No.	Treatment Name	Rate	Appl Code	1	2	3	4	5	6
1	UNTREATED CHECK			0.0	0.0	0.0	0.0	0.0	0.0
2	TRIPZIN ZC INTERLINE MOCCASIN II PLUS AMSOL	44 FL OZ/A A 32 FL OZ/A B 1 PT/A B 2.5 % V/V B		0.0 -	100.0 -	100.0 -	71.3 ab	95.0 a	100.0 -
3	MOCCASIN MTZ INTERLINE MOCCASIN II PLUS AMSOL	42 FL OZ/A A 32 FL OZ/A B 1 PT/A B 2.5 % V/V B		0.0 -	100.0 -	100.0 -	76.3 a	96.3 a	100.0 -
4	MOCCASIN MTZ INTERMOC AMSOL	42 FL OZ/A A 64 FL OZ/A B 2.5 % V/V B		0.0 -	100.0 -	100.0 -	70.0 ab	95.0 a	100.0 -
5	TRICOR INTERLINE MOCCASIN II PLUS AMSOL	5.33 OZ/A A 32 FL OZ/A B 1 PT/A B 2.5 % V/V B		0.0 -	100.0 -	100.0 -	58.8 c	90.0 b	100.0 -
6	TRICOR INTERLINE MOCCASIN II PLUS AMSOL	8 OZ/A A 32 FL OZ/A B 1 PT/A B 2.5 % V/V B		0.0 -	100.0 -	100.0 -	66.3 bc	93.8 ab	100.0 -
LSD P=.05				.	.	.	9.11	3.92	.
Standard Deviation	0.00	0.00	0.00	0.00	0.00	0.00	5.92	2.54	0.00
CV	0.0	0.0	0.0	0.0	0.0	0.0	8.64	2.7	0.0
Grand Mean	0.00	100.00	100.00	100.00	100.00	100.00	68.50	94.00	100.00
Levene's F^	.	.	.	.	.	.	0.269	0.826	.
Levene's Prob(F)	.	.	.	.	.	.	0.893	0.529	.
Rank X2	.	.	.	.	.	.	.	.	.
P(Rank X2)	.	.	.	.	.	.	.	.	.
Skewness^	.	.	.	.	.	.	-0.3482	0.0	.
Kurtosis^	.	.	.	.	.	.	0.1684	0.6622	.
Replicate F	0.000	0.000	0.000	0.000	0.000	0.000	10.524	0.516	0.000
Replicate Prob(F)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0011	0.6790	1.0000
Treatment F	0.000	0.000	0.000	0.000	0.000	0.000	4.857	3.581	0.000
Treatment Prob(F)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0146	0.0383	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.  
 Untreated treatment(s) 1 excluded from analysis.  
 Could not calculate LSD (% mean diff) for columns 1,2,3,6,7,8,9,10,11,12 because error mean square = 0.  
 ^Calculated from residual.

Pest Type	W, Weed		W, Weed	W, Weed	W, Weed		
Pest Code	ECHCG		AMBTR	ECHCG	AMBTR		
Pest Scientific Name	Echinochloa cru>		Ambrosia trifida	Echinochloa cru>	Ambrosia trifida		
Pest Name	Common barnyard>		Giant ragweed	Common barnyard>	Giant ragweed		
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA		
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY		
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max		
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean		
Rating Date	6/20/2020	6/26/2020	6/26/2020	6/26/2020	7/3/2020		
Part Rated	PLANT, P	PLANT, C	PLANT, P	PLANT, P	PLANT, P		
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO		
Rating Unit/Min/Max	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100	% , 0, 100		
Number of Subsamples	1	1	1	1	1		
Assessed By	B. Mansfield	B. Mansfield	B. Mansfield	B. Mansfield	B. Mansfield		
Data Entry Date	12/8/2020	12/8/2020	12/8/2020	12/8/2020	12/8/2020		
Rating Timing	8 DAB	14 DAB	14 DAB	14 DAB	21 DAB		
Days After First/Last Applic.	42, 8	48, 14	48, 14	48, 14	55, 21		
Trt-Eval Interval	42 DA-A		48 DA-A	48 DA-A	55 DA-A		
Plant-Eval Interval	43 DP-1	49 DP-1	49 DP-1	49 DP-1	56 DP-1		
Days After Emergence	33 DE-1	39 DE-1	39 DE-1	39 DE-1	46 DE-1		
Trt Treatment	Rate	Appl	7	8	9	10	11
No. Name	Rate Unit	Code					
1 UNTREATED CHECK	0.0		0.0	0.0	0.0	0.0	0.0
2 TRIPZIN ZC	44 FL OZ/A A		100.0 -	0.0 -	100.0 -	100.0 -	100.0 -
INTERLINE	32 FL OZ/A B						
MOCCASIN II PLUS	1 PT/A B						
AMSOL	2.5 % V/V B						
3 MOCCASIN MTZ	42 FL OZ/A A		100.0 -	0.0 -	100.0 -	100.0 -	100.0 -
INTERLINE	32 FL OZ/A B						
MOCCASIN II PLUS	1 PT/A B						
AMSOL	2.5 % V/V B						
4 MOCCASIN MTZ	42 FL OZ/A A		100.0 -	0.0 -	100.0 -	100.0 -	100.0 -
INTERMOC	64 FL OZ/A B						
AMSOL	2.5 % V/V B						
5 TRICOR	5.33 OZ/A A		100.0 -	0.0 -	100.0 -	100.0 -	100.0 -
INTERLINE	32 FL OZ/A B						
MOCCASIN II PLUS	1 PT/A B						
AMSOL	2.5 % V/V B						
6 TRICOR	8 OZ/A A		100.0 -	0.0 -	100.0 -	100.0 -	100.0 -
INTERLINE	32 FL OZ/A B						
MOCCASIN II PLUS	1 PT/A B						
AMSOL	2.5 % V/V B						
LSD P=.05	.	.	.	.	.	.	.
Standard Deviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CV	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grand Mean	100.00	0.00	100.00	100.00	100.00	100.00	100.00
Levene's F^	.	.	.	.	.	.	.
Levene's Prob(F)	.	.	.	.	.	.	.
Rank X2	.	.	.	.	.	.	.
P(Rank X2)	.	.	.	.	.	.	.
Skewness^	.	.	.	.	.	.	.
Kurtosis^	.	.	.	.	.	.	.
Replicate F	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)	1.0000	1.0000	1.0000	1.0000	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.  
Untreated treatment(s) 1 excluded from analysis.  
Could not calculate LSD (% mean diff) for columns 1,2,3,6,7,8,9,10,11,12 because error mean square = 0.  
^Calculated from residual.

Pest Type	W, Weed		
Pest Code	ECHCG		
Pest Scientific Name	Echinochloa cru>		
Pest Name	Common barnyard>		
Crop Type, Code	C, GLXMA		
BBCH Scale	BSOY		
Crop Scientific Name	Glycine max		
Crop Name	Soybean		
Rating Date	7/3/2020		
Part Rated	PLANT, P		
Rating Type	CONTRO		
Rating Unit/Min/Max	%, 0, 100		
Number of Subsamples	1		
Assessed By	B. Mansfield		
Data Entry Date	12/8/2020		
Rating Timing	21 DAB		
Days After First/Last Applic.	55, 21		
Trt-Eval Interval	55 DA-A		
Plant-Eval Interval	56 DP-1		
Days After Emergence	46 DE-1		
Trt No.	Treatment Name	Rate	Appl Code
		Rate Unit	
1	UNTREATED CHECK		12
			0.0
2	TRIPZIN ZC	44 FL OZ/A	A
	INTERLINE	32 FL OZ/A	B
	MOCCASIN II PLUS	1 PT/A	B
	AMSOL	2.5 % V/V	B
			100.0 -
3	MOCCASIN MTZ	42 FL OZ/A	A
	INTERLINE	32 FL OZ/A	B
	MOCCASIN II PLUS	1 PT/A	B
	AMSOL	2.5 % V/V	B
			100.0 -
4	MOCCASIN MTZ	42 FL OZ/A	A
	INTERMOC	64 FL OZ/A	B
	AMSOL	2.5 % V/V	B
			100.0 -
5	TRICOR	5.33 OZ/A	A
	INTERLINE	32 FL OZ/A	B
	MOCCASIN II PLUS	1 PT/A	B
	AMSOL	2.5 % V/V	B
			100.0 -
6	TRICOR	8 OZ/A	A
	INTERLINE	32 FL OZ/A	B
	MOCCASIN II PLUS	1 PT/A	B
	AMSOL	2.5 % V/V	B
			100.0 -
LSD P=.05	.		
Standard Deviation	0.00		
CV	0.0		
Grand Mean	100.00		
Levene's F^	.		
Levene's Prob(F)	.		
Rank X2	.		
P(Rank X2)	.		
Skewness^	.		
Kurtosis^	.		
Replicate F	0.000		
Replicate Prob(F)	1.0000		
Treatment F	0.000		
Treatment Prob(F)	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.  
Untreated treatment(s) 1 excluded from analysis.  
Could not calculate LSD (% mean diff) for columns 1,2,3,6,7,8,9,10,11,12 because error mean square = 0.  
^Calculated from residual.

# Purdue Weed Science

Trial ID: 20S-TPAC-SOY-23_UPL	Location: TPAC	<b>Soybean Showcase (UPL)</b>
Protocol ID: 20S-TPAC-SOY-23_UPL	Investigator (Creator): Dr. Bill Johnson	Trial Year: 2020
Project ID:	Study Director: Brent Mansfield	
	Sponsor Contact: UPL-Ryan Henry	

**Pest Type**  
W, Weed = Weed or volunteer crop

**Pest Code**  
AMBTR, Ambrosia trifida, Giant ragweed = US  
ECHCG, Echinochloa crus-galli, Common barnyard grass = US

**Crop Type Code**  
C = EPP0 species (Bayer) codes  
GLXMA, BSOY, Glycine max, Soybean = US

**Part Rated**  
PLANT = plant  
C = Crop is Part Rated  
P = Pest is Part Rated

**Rating Type**  
PHYGEN = phytotoxicity - general / injury  
CONTRO = control / burndown or knockdown

**Rating Unit/Min/Max**  
%, 0, 100 = percent

**Plant-Eval Interval**  
15 DP-1 = 1 GLXMA 5/8/2020  
35 DP-1 = 1 GLXMA 5/8/2020  
43 DP-1 = 1 GLXMA 5/8/2020  
49 DP-1 = 1 GLXMA 5/8/2020  
56 DP-1 = 1 GLXMA 5/8/2020