

Purdue Weed Science

Evaluate efficacy of AMVAC soybean herbicides when used in a soybean herbicide program

Trial ID: 21S-TPAC-SOY-02 Location: TPAC Trial Year: 2021
 Protocol ID: 21S-TPAC-SOY-02 Investigator (Creator): Dr. Bill Johnson
 Project ID: Study Director: Brent Mansfield
 Sponsor Contact:

General Trial Information

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

Discipline: H herbicide
Trial Status: F one-year/final **Trial Reliability:** 1 usable data
ARM Trial Created On: 9/13/2021 **Trial Usage/Type:** DEV Development/Registration
Initiation Date: 5/15/2021 **Planned Completion Date:** 9/1/2021

Trial Location

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

Latitude of LL Corner °: 40.291771 N
Longitude of LL Corner °: -86.907372 W

Conducted Under GLP: No
Conducted Under GEP: No

Objectives:

Evaluate efficacy of AMVAC herbicides Scepter, Python, and FirstRate in tank-mixes for preemergence control in soybean

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 **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

Crop Description

Crop 1: C GLXMA Glycine max Soybean **BBCH Scale:** BSOY
Entry Date: 9/13/2021 **Stage Scale:** BBCH
Variety: AG29XF1
Attributes: XtendFlex
Planting Date: 5/15/2021 **Planting Rate:** 140000 S/A
Depth: 1.5 IN
Rows per Plot: 7 **Planting Method:** PLANTD planted
Row Spacing: 15 IN **Planting Equipment:** PP plot planter
Soil Temperature: 60 F **Soil Moisture:** NORMAL normal, adequate
Emergence Date: 5/23/2021

Pest Description

Pest 1 Type: W **Code:** AMBTR Ambrosia trifida **Entry Date:** 9/13/2021
Common Name: Giant ragweed **Stage Scale:** BBCH
Pest 2 Type: W **Code:** ECHCG Echinochloa crus-galli **Entry Date:** 9/13/2021
Common Name: common barnyardgrass **Stage Scale:** BBCH
Pest 3 Type: W **Code:** CHEAL Chenopodium album **Entry Date:** 9/13/2021
Common Name: common lambsquarters **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:** RACOB� Randomized Complete Block (RCB)

Field Prep./Maintenance:

Conventional tillage required for the trial. Soybean crop should be managed using local practices to ensure optimum soybean growth.

Soil Description

Description Name: TPAC- Field 4AW

% Sand: 17 **% OM:** 3.1 **Texture:** SIL silt loam
% Silt: 56 **pH:** 6.2 **Soil Name:** Toronto-Millbrook
% Clay: 27 **CEC:** 11.5 **Fert. Level:** G good

Weather Conditions

Closest Weather Station: TPAC **Distance:** 0.5 MI

No.	Date	Moisture Total	Unit	Min Temp	Max Temp	Temp Unit
1.	5/1/2021	0	IN	40	63	F
2.	5/2/2021	0	IN	49	74	F
3.	5/3/2021	0.26	IN	56	78	F
4.	5/4/2021	0.01	IN	55	66	F
5.	5/5/2021	0.04	IN	43	59	F
6.	5/6/2021	0	IN	42	61	F
7.	5/7/2021	0.25	IN	38	58	F
8.	5/8/2021	0	IN	32	63	F
9.	5/9/2021	1.43	IN	40	57	F
10.	5/10/2021	0.37	IN	37	47	F
11.	5/11/2021	0.09	IN	39	59	F
12.	5/12/2021	0	IN	36	61	F
13.	5/13/2021	0	IN	38	60	F
14.	5/14/2021	0	IN	41	66	F
15.	5/15/2021	0	IN	46	70	F
16.	5/16/2021	0	IN	53	71	F
17.	5/17/2021	0.35	IN	55	71	F
18.	5/18/2021	0.12	IN	58	63	F
19.	5/19/2021	0	IN	59	72	F
20.	5/20/2021	0	IN	64	75	F
21.	5/21/2021	0	IN	64	84	F
22.	5/22/2021	0	IN	63	83	F
23.	5/23/2021	0	IN	63	85	F
24.	5/24/2021	0	IN	68	85	F
25.	5/25/2021	0	IN	67	88	F
26.	5/26/2021	0.32	IN	66	87	F
27.	5/27/2021	0.19	IN	58	81	F
28.	5/28/2021	0.08	IN	60	80	F
29.	5/29/2021	0.47	IN	43	61	F
30.	5/30/2021	0	IN	41	63	F
31.	5/31/2021	0	IN	43	71	F
32.	6/1/2021	0	IN	57	71	F
33.	6/2/2021	0.04	IN	58	74	F
34.	6/3/2021	0.03	IN	59	87	F
35.	6/4/2021	0	IN	61	82	F
36.	6/5/2021	0	IN	63	88	F
37.	6/6/2021	0	IN	66	86	F
38.	6/7/2021	0.01	IN	69	83	F
39.	6/8/2021	0.1	IN	69	83	F
40.	6/9/2021	0	IN	70	85	F
41.	6/10/2021	0	IN	67	85	F
42.	6/11/2021	0	IN	69	85	F
43.	6/12/2021	0	IN	67	90	F
44.	6/13/2021	0	IN	69	93	F
45.	6/14/2021	0	IN	63	86	F

46.	6/15/2021	0	IN	57	83	F
47.	6/16/2021	0	IN	53	81	F
48.	6/17/2021	0	IN	53	82	F
49.	6/18/2021	0.01	IN	61	86	F
50.	6/19/2021	0.47	IN	67	93	F
51.	6/20/2021	0	IN	67	81	F
52.	6/21/2021	0.1	IN	70	86	F
53.	6/22/2021	0	IN	49	72	F
54.	6/23/2021	0	IN	54	74	F
55.	6/24/2021	0	IN	60	77	F
56.	6/25/2021	1.19	IN	63	79	F
57.	6/26/2021	0.83	IN	70	81	F
58.	6/27/2021	1.05	IN	69	85	F
59.	6/28/2021	0.11	IN	69	86	F
60.	6/29/2021	0	IN	72	88	F
61.	6/30/2021	0	IN	72	89	F

Application Description

	A
Application Date	5/15/2021
Appl. Start Time	4:25 PM
Appl. Stop Time	4:32 PM
Application Method	SPRAY
Application Timing	PREPRE
Application Placement	BROSOI
Applied By	J. Haarmann
Appl. Entry Date	9/13/2021
Air Temperature Start, Stop	69, 69 F
% Relative Humidity Start, Stop	32, 32
Wind Velocity+Dir. Start	4.5 MPH, S
Wind Velocity+Dir. Stop	4.5 MPH, S
Wind Velocity+Dir. Max	4.5 MPH, S
Wet Leaves (Y/N)	N, no
Soil Temperature	60 F
Soil Moisture	NORMAL
% Cloud Cover	80

Protocol Application Directions:

Apply herbicide to bare ground before crop and weeds have emerged

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	GLXMA, BSOY
Days after Emergence	-8
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	AMBTR, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -
Pest 2 Code, Type, Scale	ECHCG, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -
Pest 3 Code, Type, Scale	CHEAL, W, BBCH
Stage Majority, Percent	00, -
Stage Minimum, Percent	00, -
Stage Maximum, Percent	00, -

Application Equipment

	A
Appl. Equipment	CO2 BACKPACK
Equipment Type	BACSPR
Operation Pressure	24 PSI
Nozzle Model	XR
Nozzle Type	FLAFXR
Nozzle TradeName	TEEJET
Nozzle Tip Size, Color	11002, yellow
Nozzle Spacing	15.0 IN
Nozzles/Row	8.0
Boom Length	10.0 FT
Boom Height	17 IN
Ground Speed	3 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Overage	0 mL
Mix Size	1.8 L
Propellant	COMCO2

Treatment Appl. Comments**Trt No Treatment Application Comment**

- 4 Scepter rate should be adjusted based on soil type or geographical rate restrictions
6 Use correct metribuzin rate for soil type

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 Protocol ID: 21S-TPAC-SOY-02 Investigator (Creator): Dr. Bill Johnson
 Project ID: Study Director: Brent Mansfield
 Sponsor Contact:

Pest Type	W, Weed AMBTR	W, Weed ECHCG	W, Weed CHEAL		W, Weed AMBTR	W, Weed ECHCG		
Pest Code	Ambrosia trifida	Echinochloa cru>	Chenopodium alb>		Ambrosia trifida	Echinochloa cru>		
Pest Scientific Name	Giant ragweed	common barnyard>	common lambsqua>		Giant ragweed	common barnyard>		
Pest Name				C, GLXMA				
Crop Type, Code				Soybean				
Crop Name								
Rating Date	5/29/2021	5/29/2021	5/29/2021	5/29/2021	6/11/2021	6/11/2021		
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	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		
Data Entry Date	9/13/2021	9/13/2021	9/13/2021	9/13/2021	9/13/2021	9/13/2021		
Rating Timing	14 DAT	14 DAT	14 DAT	14 DAT	27 DAT	27 DAT		
Days After First/Last Applic.	14, 14	14, 14	14, 14	14, 14	27, 27	27, 27		
Trt-Eval Interval	14 DA-A	14 DA-A	14 DA-A	14 DA-A	27 DA-A	27 DA-A		
Days After Emergence	6 DE-1	6 DE-1	6 DE-1	6 DE-1	19 DE-1	19 DE-1		
Trt Treatment No. Name	Rate	Appl Code	1	2	3	4	5	6
1 NTC			0.0	0.0	0.0	0.0	0.0	0.0
2 Dual II Magnum	20 FL OZ/A	A	72.5 -	100.0 -	100.0 -	0.0 -	55.0 -	93.8 -
3 Dual II Magnum	20 FL OZ/A	A	81.3 -	100.0 -	100.0 -	0.0 -	77.5 -	96.0 -
FirstRate	0.5 OZ/A	A						
4 Dual II Magnum	20 FL OZ/A	A	80.0 -	100.0 -	100.0 -	0.0 -	70.0 -	98.5 -
Scepter	2.1 OZ/A	A						
5 Dual II Magnum	20 FL OZ/A	A	81.3 -	100.0 -	100.0 -	0.0 -	67.5 -	95.0 -
Python	1.0 OZ/A	A						
6 Dual II Magnum	20 FL OZ/A	A	87.5 -	100.0 -	100.0 -	0.0 -	86.5 -	98.5 -
FirstRate	0.5 OZ/A	A						
Glory	8 OZ/A	A						
LSD P=.05			36.14	.	.	.	36.54	3.93
Standard Deviation			23.46	0.00	0.00	0.00	23.72	2.55
CV			29.14	0.0	0.0	0.0	33.26	2.65
Grand Mean			80.50	100.00	100.00	0.00	71.30	96.35
Levene's F^			0.289	.	.	.	0.597	1.706
Levene's Prob(F)			0.881	.	.	.	0.67	0.201
Rank X2			.	.	.	.	.	.
P(Rank X2)			.	.	.	.	.	.
Skewness^			-0.5557	.	.	.	-0.5725	1.04*
Kurtosis^			-1.0395	.	.	.	-0.3391	2.4052*
Replicate F			0.445	0.000	0.000	0.000	1.199	0.642
Replicate Prob(F)			0.7251	1.0000	1.0000	1.0000	0.3520	0.6026
Treatment F			0.208	0.000	0.000	0.000	0.980	2.754
Treatment Prob(F)			0.9291	1.0000	1.0000	1.0000	0.4544	0.0777

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 2,3,4 because error mean square = 0.
 ^Calculated from residual.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	CHEAL	AMBTR	ECHCG	CHEAL
Pest Scientific Name	Chenopodium alb>	Ambrosia trifida	Echinochloa cru>	Chenopodium alb>
Pest Name	common lambsqua>	Giant ragweed	common barnyard>	common lambsqua>
Crop Type, Code				
Crop Name				
Rating Date	6/11/2021	6/26/2021	6/26/2021	6/26/2021
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	9/13/2021	9/13/2021	9/13/2021	9/13/2021
Rating Timing	27 DAT	42 DAT	42 DAT	42 DAT
Days After First/Last Applic.	27, 27	42, 42	42, 42	42, 42
Trt-Eval Interval	27 DA-A	42 DA-A	42 DA-A	42 DA-A
Days After Emergence	19 DE-1	34 DE-1	34 DE-1	34 DE-1
Trt Treatment	7	8	9	10
No. Name				
Rate				
Rate Unit				
Appl Code				
1 NTC	0.0	0.0	0.0	0.0
2 Dual II Magnum	20 FL OZ/A A	77.5 b	41.3 -	82.5 c
3 Dual II Magnum	20 FL OZ/A A	100.0 a	62.5 -	87.5 bc
FirstRate	0.5 OZ/A A			
4 Dual II Magnum	20 FL OZ/A A	100.0 a	58.8 -	92.5 ab
Scepter	2.1 OZ/A A			
5 Dual II Magnum	20 FL OZ/A A	100.0 a	53.8 -	87.5 bc
Python	1.0 OZ/A A			
6 Dual II Magnum	20 FL OZ/A A	100.0 a	68.8 -	93.3 a
FirstRate	0.5 OZ/A A			
Glory	8 OZ/A A			
LSD P=.05	8.20	34.93	5.40	8.20
Standard Deviation	5.32	22.68	3.50	5.32
CV	5.57	39.78	3.95	5.69
Grand Mean	95.50	57.00	88.65	93.50
Levene's F^	1.013	0.567	0.334	1.013
Levene's Prob(F)	0.432	0.691	0.851	0.432
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Skewness^	-1.6687*	-0.5743	0.7146	-1.6687*
Kurtosis^	5.8601*	-0.6363	0.5539	5.8601*
Replicate F	1.000	0.927	0.525	1.000
Replicate Prob(F)	0.4262	0.4574	0.6733	0.4262
Treatment F	14.294	0.836	6.224	29.824
Treatment Prob(F)	0.0002	0.5278	0.0060	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
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Untreated treatment(s) 1 excluded from analysis.
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^Calculated from residual.

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Evaluate efficacy of AMVAC soybean herbicides when used in a soybean herbicide program

Trial ID: 21S-TPAC-SOY-02
Protocol ID: 21S-TPAC-SOY-02
Project ID:

Location: TPAC
Investigator (Creator): Dr. Bill Johnson
Study Director: Brent Mansfield
Sponsor Contact:

Trial Year: 2021

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

AMBTR, Ambrosia trifida, Giant ragweed = US

ECHCG, Echinochloa crus-galli, common barnyardgrass = US

CHEAL, Chenopodium album, common lambsquarters = US

Crop Type, Code

C = EPP0 species (Bayer) codes

GLXMA, BSOY, Glycine max, Soybean = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

Rating Unit/Min/Max

%, 0, 100 = percent