

Purdue Weed Science

Trial ID: 21S-MGS-SOY-15	Crop Tolerance and Efficacy in No-Till Soybean	Trial Year: 2021
Protocol ID: 21S-MGS-SOY-15	Location: MEIGS	
	Investigator (Creator): Steve Mroczkiewicz	
	Study Director:	
	Sponsor Contact:	

General Trial Information	
Investigator: Dr. Bill Johnson	Title: Professor
Discipline: H herbicide	
Trial Status: E established	
Trial Status Date: 12/9/2021 10:02 PM	Last Changed By: Dr. Bill Johnson
ARM Trial Created On: 3/8/2021	Trial Usage/Type: 0 Research and Development
Initiation Date: 6/1/2021	Protocol Revision Number: 1.0 Protocol Revision Date: 3/4/2021
Trial Location	
Address (Location): Meigs	
City: Lafayette	Country: USA United States
State/Prov.: Indiana IN	
Postal Code: 47907	
Latitude of LL Corner °: 40.269829 N	
Longitude of LL Corner °: -86.881447 W	
Conducted Under GLP: No	
Conducted Under GEP: No	

Objectives:
Does A23372A (premix) applied preplant burndown with Gramoxone SL 3.0, Roundup PowerMax, or Roundup PowerMax + Xtendimax provide greater weed control and crop safety when compared to Boundary or Zidua Pro in no-till soybeans?

Role: INVEST investigator	Title: Professor
Investigator: Dr. Bill Johnson	
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
Entry Date: 12/9/2021	Stage Scale: BBCH
Variety: AG29XF1	BBCH Scale: BSOY
Attributes: GLYPHOSATE-R,AUXIN-R	
Planting Date: 6/16/2021	Planting Rate: 140000 S/A
Depth: 1.5 IN	Planting Method: PLANTD planted
Rows per Plot: 4	Planting Equipment: PP plot planter
Row Spacing: 30 IN	
Emergence Date: 6/23/2021	

Pest Description	
Pest 1 Type: W Code: ERICA Erigeron canadensis	Entry Date: 12/9/2021
Common Name: mare's-tail	Stage Scale: BBCH
Attributes: GLY-R	Artificial Population: Y yes

Site and Design		
Treated Plot Width: 6.67 FT	Total Plot Width: 10 FT	Site Type: FIELD field
Treated Plot Length: 30 FT	Total Plot Length: 30 FT	Experimental Unit: 1 PLOT plot
Treated Plot Area: 200.1 FT2	Treatments: 13	Tillage Type: NOTILL no-till
Replications: 4		Study Design: RACOB L Randomized Complete Block (RCB)

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

Weather Conditions
Overall Moisture Conditions: FAIR fair
Closest Weather Station: TPAC Distance: 2 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
62.	7/1/2021	0.35	IN	70	78	F
63.	7/2/2021	0	IN	55	82	F
64.	7/3/2021	0	IN	53	75	F
65.	7/4/2021	0	IN	57	78	F
66.	7/5/2021	0	IN	67	85	F
67.	7/6/2021	0	IN	68	86	F
68.	7/7/2021	0	IN	71	86	F
69.	7/8/2021	1.29	IN	67	86	F
70.	7/9/2021	0.05	IN	59	80	F
71.	7/10/2021	0.03	IN	61	73	F
72.	7/11/2021	0.1	IN	65	76	F
73.	7/12/2021	1.3	IN	66	76	F
74.	7/13/2021	0.4	IN	67	82	F
75.	7/14/2021	0.08	IN	65	79	F
76.	7/15/2021	0	IN	66	82	F
77.	7/16/2021	0.16	IN	69	86	F
78.	7/17/2021	0.1	IN	66	78	F
79.	7/18/2021	0.01	IN	66	80	F
80.	7/19/2021	0	IN	61	83	F
81.	7/20/2021	0	IN	61	82	F
82.	7/21/2021	0	IN	64	83	F
83.	7/22/2021	0	IN	64	79	F
84.	7/23/2021	0	IN	67	83	F
85.	7/24/2021	0	IN	71	86	F
86.	7/25/2021	0	IN	69	87	F
87.	7/26/2021	0	IN	65	88	F
88.	7/27/2021	0	IN	62	87	F
89.	7/28/2021	0	IN	66	86	F
90.	7/29/2021	0	IN	70	87	F
91.	7/30/2021	0	IN	65	88	F
92.	7/31/2021	0	IN	62	78	F
93.	8/1/2021	0	IN	57	73	F
94.	8/2/2021	0	IN	52	80	F
95.	8/3/2021	0	IN	54	77	F
96.	8/4/2021	0	IN	55	80	F
97.	8/5/2021	0	IN	54	81	F
98.	8/6/2021	0	IN	61	83	F
99.	8/7/2021	0	IN	67	82	F
100.	8/8/2021	0	IN	67	85	F
101.	8/9/2021	0	IN	69	86	F
102.	8/10/2021	0	IN	71	80	F
103.	8/11/2021	0	IN	74	90	F
104.	8/12/2021	0.1	IN	75	88	F
105.	8/13/2021	0.24	IN	67	78	F
106.	8/14/2021	0	IN	60	86	F
107.	8/15/2021	0	IN	53	81	F

Application Description	
	A
Application Date	6/1/2021
Appl. Start Time	11:50 AM
Appl. Stop Time	1:05 PM
Application Method	SPRAY
Application Timing	PREPLA
Application Placement	BROFOL
Appl. Entry Date	12/9/2021
Air Temperature Start, Stop	66, 66 F
% Relative Humidity Start, Stop	60, 60
Wind Velocity+Dir. Start	1 MPH, ENE
Wind Velocity+Dir. Stop	1 MPH, ENE
Wind Velocity+Dir. Max	1 MPH, ENE
Wet Leaves (Y/N)	N, no
Soil Temperature	65 F
Soil Moisture	NORMAL
% Cloud Cover	85

Crop Stage At Each Application	
	A
Crop 1 Code, BBCH Scale	GLXMA, BSOY

Pest Stage At Each Application	
	A
Pest 1 Code, Type, Scale	ERICA, W, BBCH
Stage Majority, Percent	19, -
Stage Minimum, Percent	12, -
Stage Maximum, Percent	19, -
Height Average	4 IN
Height Minimum, Maximum	2, 6
Density Average	10 FT2

Application Equipment	
	A
Appl. Equipment	CO2 BACKPACK
Equipment Type	BACSPR
Operation Pressure	24 PSI
Nozzle Model	XR TTI AIXR
Nozzle Type	FLAFXR
Nozzle TradeName	TEEJET
Nozzle Tip Size, Color	8002, YELLOW
Nozzle Spacing	20 IN
Nozzles/Row	4
Boom Length	6.67 FT
Boom Height	24.0 IN
Ground Speed	3 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	1119.0 mL
Propellant	COMCO2

Purdue Weed Science

Crop Tolerance and Efficacy in No-Till Soybean

Trial ID: 21S-MGS-SOY-15
Protocol ID: 21S-MGS-SOY-15

Location: MEIGS
Investigator (Creator): Steve Mroczkiewicz
Study Director:
Sponsor Contact:

Trial Year: 2021

Trt No.	Treatment Name	Rate	Unit	Appl Code	1	2	3
1	CHECK				0.0	0.0	0.0
2	XR 11002 ACTIVATOR 90 A23372 [A] GRAMOXONE SL 3.0	0.25 % V/V 2430 g AI/ha 842 g AI/ha	V/V A A A	A	0.0 -	82.5 c	78.8 e
3	XR 11002 AMSOL A23372 [A] ROUNDUP POWERMAX 4.5 SL	2.5 % V/V 2430 g AI/ha 1260 g AE/ha	V/V A A A	A	0.0 -	66.3 f	63.8 g
4	TTI 11002 VOLT-EDGE INTACT CLASS ACT RIDION A23372 [A] XTENDIMAX 2.9 SL ROUNDUP POWERMAX 4.5 SL	1.46 L/ha 0.5 % V/V 1 % V/V 2430 g AI/ha 563 g AE/ha 1260 g AE/ha	L/ha V/V V/V A A A A	A	0.0 -	67.5 f	88.8 c
5	XR 11002 ACTIVATOR 90 BOUNDARY 6.5 EC GRAMOXONE SL 3.0	0.25 % V/V 1820 g AI/ha 842 g AI/ha	V/V A A A	A	0.0 -	83.8 bc	73.8 f
6	XR 11002 AMSOL BOUNDARY 6.5 EC ROUNDUP POWERMAX 4.5 SL	2.5 % V/V 1820 g AI/ha 1260 g AE/ha	V/V A A A	A	0.0 -	55.0 g	65.0 g
7	TTI 11002 VOLT-EDGE INTACT CLASS ACT RIDION BOUNDARY 6.5 EC XTENDIMAX 2.9 SL ROUNDUP POWERMAX 4.5 SL	1.46 L/ha 0.5 % V/V 1 % V/V 1820 g AI/ha 563 g AE/ha 1260 g AE/ha	L/ha V/V V/V A A A A	A	0.0 -	71.3 ef	88.8 c
8	XR 11002 AMSOL MSO ULTRA ZIDUA PRO 4.09 SC GRAMOXONE SL 3.0	2.5 % V/V 1 % V/V 161 g AI/ha 842 g AI/ha	V/V V/V A A A	A	0.0 -	91.3 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.
 Untreated treatment(s) 1 excluded from analysis.
 Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.
 ^Calculated from residual.

Trt	Treatment No.	Rate	Rate Unit	Appl Code	1	2	3
9	XR 11002				0.0 -	90.0 ab	99.3 a
	AMSOL	2.5 %	V/V	A			
	ZIDUA PRO 4.09 SC	161 g	AI/ha	A			
	ROUNDUP POWERMAX 4.5 SL	1260 g	AE/ha	A			
	MSO ULTRA	1 %	V/V	A			
10	TTI 11002				0.0 -	91.3 a	100.0 a
	VOLT-EDGE	1.46 L	/ha	A			
	INTACT	0.5 %	V/V	A			
	CLASS ACT RIDION	1 %	V/V	A			
	ZIDUA PRO 4.09 SC	161 g	AI/ha	A			
	XTENDIMAX 2.9 SL	563 g	AE/ha	A			
	ROUNDUP POWERMAX 4.5 SL	1260 g	AE/ha	A			
	MSO ULTRA	1 %	V/V	A			
11	AIXR 11002				0.0 -	75.0 de	83.8 d
	FIERCE MTZ HERBICIDE	373 g	AI/ha	A			
	ENLIST ONE 3.8 SL	530 g	AI/ha	A			
	ROUNDUP POWERMAX 4.5 SL	1260 g	AE/ha	A			
	AMSOL	2.5 %	V/V	A			
12	AIXR 11002				0.0 -	78.8 cd	86.3 cd
	FIERCE XLT 62.41 WG	175 g	AI/ha	A			
	ENLIST ONE 3.8 SL	530 g	AI/ha	A			
	ROUNDUP POWERMAX 4.5 SL	1260 g	AE/ha	A			
	AMSOL	2.5 %	V/V	A			
13	TTI 11002				0.0 -	75.0 de	93.8 b
	WARRANT 3 CS	1260 g	AI/ha	A			
	TRICOR 75 DF	315 g	AI/ha	A			
	XTENDIMAX 2.9 SL	563 g	AE/ha	A			
	ROUNDUP POWERMAX 4.5 SL	1260 g	AE/ha	A			
	VOLT-EDGE	1.46 L	/ha	A			
	INTACT	0.5 %	V/V	A			
	CLASS ACT RIDION	1 %	V/V	A			
	LSD P=.05				.	6.35	4.38
	Standard Deviation				0.00	4.42	3.05
	CV				0.0	5.71	3.58
	Grand Mean				0.00	77.29	85.15
	Levene's F^				.	1.264	1.447
	Levene's Prob(F)				.	0.284	0.195
	Rank X2				.	.	.
	P(Rank X2)				.	.	.
	Skewness^				.	0.0205	0.303
	Kurtosis^				.	-0.6962	0.4636
	Replicate F				0.000	0.320	1.816
	Replicate Prob(F)				1.0000	0.8105	0.1633
	Treatment F				0.000	25.796	69.675
	Treatment Prob(F)				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.
Untreated treatment(s) 1 excluded from analysis.
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.
^Calculated from residual.

Pest ID Code

1, W, Weed, ERICA, Erigeron canadensis, mare's-tail, GLY-R = Y

Crop ID Code

1, GLXMA, BSOY, Glycine max, Soybean, AG29XF1 = GLYPHOSATE-R,AUXIN-R

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

Calculation

EF = efficacy

PLOT = total plot

PLOT = total plot

PLOT = total plot

Plant-Eval Interval

13 DP-1 = 1 GLXMA 6/16/2021

-1 DP-1 = 1 GLXMA 6/16/2021

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 because error mean square = 0.
^Calculated from residual.