

# The Ohio State University

## S-MOC + Metribuzin + Cloransulam Efficacy and Crop Safety in Soybean (University - medium soil)

Trial ID: USNK0H4052020 Location: Bruns Dain FS Trial Year: 2020  
 Protocol ID: HSM050B4-2020US Investigator: Dr. Mark M. Loux  
 Master Protocol ID: Study Director:  
 Sponsor Contact:  
 Conducted Under GEP: No Trial Origin: P public institution trial

### General Trial Information

Investigator: Dr. Mark M. Loux

Discipline: H herbicide  
 Trial Status: E established  
 Trial Status Date: May-14-2020 11:35 AM Last Changed By: Dr. Mark M. Loux  
 ARM Trial Created On: Mar-27-2020 Trial Usage/Type: 0 Research and Development  
 Initiation Date: May-13-2020 Protocol Revision Number: 1.0 Protocol Revision Date: Mar-27-2020

### Trial Location

Address (Location): 7721 South Charleston Pike  
 City: South Charleston Country: USA United States  
 State/Prov.: Ohio  
 Postal Code: 45368

Latitude of LL Corner °: 39.85794 N  
 Longitude of LL Corner °: -83.66996 W  
 Altitude of LL Corner: 1098.00 FT

Conducted Under GLP: No  
 Conducted Under GEP: No

### Objectives:

Does A23372A (premix) provide greater weed control and crop safety than current Syngenta or competitor residual herbicides in conventional till soybeans?

Investigator: Dr. Mark M. Loux

### Crop Description

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: BSOY  
 Entry Date: May-14-2020 Stage Scale: BBCH  
 Variety: Pioneer 33A24X  
 Attributes: GLYPHOSATE-R,AUXIN-R  
 Seed Lot No: B3GRA13059-00-1207 Seed Source: Illinois  
 % Germination: 90 Planting Rate: 160000 S/A  
 Planting Date: May-13-2020  
 Depth: 2 IN Planting Method: PLANTD planted  
 Rows per Plot: 8 Planting Equipment: FE field equipment  
 Row Spacing: 15 IN Seed Bed: MEDIUM medium  
 Soil Moisture: NORMAL normal, adequate  
 Plant Arrangement: ROW  
 Soil Temperature: 62 F  
 Emergence Date: May-25-2020 Harvest Equipment: Kincaid 8XP  
 Harvest Date: Oct-8-2020 Harvested Width: 6.25 FT  
 Moisture Meter: Harvest Master Harvested Length: 30 FT  
 % Standard Moisture: 13  
 Weighing Equipment: Harvest Master HM800

### Pest Description

Pest 1 Type: W Code: AMBTR Ambrosia trifida  
 Common Name: ragweed, giant Entry Date: Jun-25-2020  
 Pest 2 Type: W Code: SETFA Setaria faberi  
 Common Name: foxtail, giant Entry Date: Jun-25-2020  
 Pest 3 Type: W Code: ECHCG Echinochloa crus-galli  
 Common Name: barnyardgrass Entry Date: Jun-25-2020  
 Pest 4 Type: W Code: AMARE Amaranthus retroflexus  
 Common Name: pigweed, redroot Entry Date: Jun-25-2020  
 Pest 5 Type: W Code: CHEAL Chenopodium album  
 Common Name: lambsquarters, common Entry Date: Jun-25-2020  
 Pest 6 Type: W Code: ABUTH Abutilon theophrasti  
 Common Name: velvetleaf Entry Date: Jun-25-2020  
 Pest 7 Type: W Code: SIDSP Sida spinosa  
 Common Name: sida, prickly Entry Date: Jun-25-2020

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Master Protocol ID:

Study Director:

Conducted Under GEP: No

Sponsor Contact:  
Trial Origin: P public institution trial

### 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 FT2 Treatments: 10

Tillage Type: CONV

Replications: 4

Study Design: RACOB L Randomized Complete Block (RCB)

### Trial Initiation Comments:

Spring disc followed by 1 pass finishing tool at time of planting.

### Previous

No. Crop Year

1. ZEAMX 2019

### Soil Description

Description Name: Big E

% Sand: 44 % OM: 3.1 Texture: L loam

% Silt: 45 pH: 6.6 Soil Name: Kokomo

% Clay: 11 CEC: 15.2 Fert. Level: G good

Soil Drainage: G good

### Application Description

	A	B
Application Date	May-13-2020	Jun-24-2020
Appl. Start Time	3:00 PM	8:00 AM
Appl. Stop Time	3:30 PM	8:30 AM
Interval to Prev. Appl.		42 DAYS
Application Method	NONINC	NONINC
Application Timing	PREPRE	POSPOS
Application Placement	BROSOI	BROFOL
Applied By	Ackley and Essman	Kimmet
Appl. Entry Date	May-14-2020	Jun-25-2020
Air Temperature Start, Stop	64 64 F	66 66 F
% Relative Humidity Start, Stop	32 32	80 80
Wind Velocity+Dir. Start	10 MPH SE	8 MPH W
Wind Velocity+Dir. Stop	10 MPH SE	8 MPH W
Wind Velocity+Dir. Max	11 MPH SE	8 MPH W
Wet Leaves (Y/N)	N no	Y yes
Soil Temperature	62 F	69 F
Soil Moisture	NORMAL	SLIWET
% Cloud Cover	25	30
Next Moisture Occurred On	May-14-2020	Jun-25-2020
Time to Next Moisture	14 HR	1 DAY
Moisture 1 Week after Appl.	2.52 IN	0.09 IN

### Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Stage Scale Used	BBCH	BBCH
Stage Majority, Percent		14 100
Height Average		8 IN
Height Minimum, Maximum		6 10

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## Pest Stage At Each Application

	<b>A</b>	<b>B</b>
<b>Pest 1 Code, Type, Scale</b>	AMBTR W	AMBTR W
Stage Majority, Percent	16	80
Stage Minimum, Percent	14	
Stage Maximum, Percent	19	
Height Average	8	IN
Height Minimum, Maximum	4	16
Density Average	54	PLA/m2
Density Min, Max	36	56
<b>Pest 2 Code, Type, Scale</b>	SETFA W	SETFA W
Stage Majority, Percent	18	80
Stage Minimum, Percent	14	
Stage Maximum, Percent	19	
Height Average	6	IN
Height Minimum, Maximum	4	8
Density Average	250	PLA/m2
Density Min, Max	160	270
<b>Pest 3 Code, Type, Scale</b>	ECHCG W	ECHCG W
Stage Majority, Percent	17	80
Stage Minimum, Percent	14	
Stage Maximum, Percent	19	
Height Average	6	IN
Height Minimum, Maximum	2	10
Density Average	160	PLA/m2
Density Min, Max	80	200
<b>Pest 4 Code, Type, Scale</b>	AMARE W	AMARE W
Stage Majority, Percent	16	90
Stage Minimum, Percent	14	
Stage Maximum, Percent	18	
Height Average	3	IN
Height Minimum, Maximum	2	6
Density Average	58	PLA/m2
Density Min, Max	0	180
<b>Pest 5 Code, Type, Scale</b>	CHEAL W	CHEAL W
Stage Majority, Percent	17	80
Stage Minimum, Percent	16	
Stage Maximum, Percent	19	
Height Average	4	IN
Height Minimum, Maximum	2	6
Density Average	66	PLA/m2
Density Min, Max	8	168
<b>Pest 6 Code, Type, Scale</b>	ABUTH W	ABUTH W
Stage Majority, Percent	16	80
Stage Minimum, Percent	14	
Stage Maximum, Percent	18	
Height Average	4	IN
Height Minimum, Maximum	2	6
Density Average	1	PLA/m2
Density Min, Max	0	4
<b>Pest 7 Code, Type, Scale</b>	SIDSP W	SIDSP W
Stage Majority, Percent	17	80
Stage Minimum, Percent	14	
Stage Maximum, Percent	19	
Height Average	4	IN
Height Minimum, Maximum	2	6
Density Average	74	PLA/m2
Density Min, Max	16	120

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### Application Equipment

	A	B
Appl. Equipment	6' TTI	10' TTI
Equipment Type	BACCAI	BACCAI
Operation Pressure	44 PSI	44 PSI
Nozzle Type	TTI	TTI
Nozzle Size	1110015	110015
Nozzle Spacing	18 IN	18 IN
Boom Length	6.67 FT	10 FT
Boom Height	20 IN	20 IN
Ground Speed	3 MPH	3 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	1 L	2 L
Propellant	COMCO2	COMCO2
Tank Mix (Y/N)		Y yes

**Context Date By Notes**  
 STATUS Mar-27-2020 Dr. Mark M. Loux Automatically added by ARM: Trial Status updated to 'S' during trial creation.  
 STATUS May-14-2020 Dr. Mark M. Loux Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

Pest ID Code			
Pest Code			
Pest Scientific Name			
Pest Name			
Crop ID Code	1 GLXMA	1 GLXMA	1 GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Crop Variety	Pioneer 33A24X	Pioneer 33A24X	Pioneer 33A24X
Rating Date	Oct-8-2020	Oct-8-2020	Oct-8-2020
SE Name	ZUSX052A	ZUSX052B	ZUSX052_C3
SE Description	Yield/A	Yield/A	YIELD/A
Part Rated	GRAIN -	GRAIN -	GRAIN -
Rating Type	YIELD	CONMOI	YIELD
Rating Unit	LB	%	BU
Calculation	IN	NC	IN
Sample Size	18.75 FT2	1 PLOT	1 A
Collection Basis	1 PLOT	1 PLOT	1 PLOT
Reporting Basis	18.75 FT2	1 PLOT	1 A
Number of Subsamples	1	1	1
Data Entry Date	Oct-12-2020	Oct-12-2020	
Rating Timing			
Days After First/Last Applic.	148 106	148 106	148 106
Trt-Eval Interval			
Plant-Eval Interval	148 DP-1	148 DP-1	148 DP-1
Days After Emergence	136 DE-1	136 DE-1	136 DE-1
ARM Action Codes			TY1
Number of Decimals	1	1	1

Trt Treatment No. Name	Rate Rate Unit	Other Other Rate Rate Unit	Appl Code	34*	35*	36*
1 UNTREATED CHECK				4.0 c	12.8 a	15.5 c
2 A23372A	24.8 oz ai/a	3 pt/a	A	22.7 a	11.2 b	89.6 a
2 INTACT	0.5 % v/v	0.5 % v/v	B			
2 CLASS ACT RIDION	1 % v/v	1 % v/v	B			
2 TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a	B			
2 ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a	B			
3 A23372A	29 oz ai/a	3.5 pt/a	A	22.2 ab	11.1 b	87.7 ab
3 INTACT	0.5 % v/v	0.5 % v/v	B			
3 CLASS ACT RIDION	1 % v/v	1 % v/v	B			
3 TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a	B			
3 ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a	B			

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Pest ID Code			
Pest Code			
Pest Scientific Name			
Pest Name			
Crop ID Code	1 GLXMA	1 GLXMA	1 GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Crop Variety	Pioneer 33A24X	Pioneer 33A24X	Pioneer 33A24X
Rating Date	Oct-8-2020	Oct-8-2020	Oct-8-2020
SE Name	ZUSX052A	ZUSX052B	ZUSX052_C3
SE Description	Yield/A	Yield/A	YIELD/A
Part Rated	GRAIN -	GRAIN -	GRAIN -
Rating Type	YIELD	CONMOI	YIELD
Rating Unit	LB	%	BU
Calculation	IN	NC	IN
Sample Size	18.75 FT2	1 PLOT	1 A
Collection Basis	1 PLOT	1 PLOT	1 PLOT
Reporting Basis	18.75 FT2	1 PLOT	1 A
Number of Subsamples	1	1	1
Data Entry Date	Oct-12-2020	Oct-12-2020	
Rating Timing			
Days After First/Last Applic.	148 106	148 106	148 106
Trt-Eval Interval			
Plant-Eval Interval	148 DP-1	148 DP-1	148 DP-1
Days After Emergence	136 DE-1	136 DE-1	136 DE-1
ARM Action Codes			TY1
Number of Decimals	1	1	1

Trt No.	Treatment Name	Rate Unit	Other Rate	Other Rate Unit	Appl Code	34*	35*	36*
4	A23372A	34.7 oz ai/a	4.2 pt/a		A	22.8 a	11.1 b	90.2 a
4	INTACT	0.5 % v/v	0.5 % v/v		B			
4	CLASS ACT RIDION	1 % v/v	1 % v/v		B			
4	TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a		B			
4	ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a		B			
5	BOUNDARY 6.5 EC	23.4 oz ai/a	1.8 pt/a		A	20.8 ab	11.2 b	82.2 ab
5	INTACT	0.5 % v/v	0.5 % v/v		B			
5	CLASS ACT RIDION	1 % v/v	1 % v/v		B			
5	TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a		B			
5	ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a		B			
6	BROADAXE XC 7 EC	21.8 oz ai/a	25 fl oz/a		A	20.3 b	11.1 b	80.1 b
6	INTACT	0.5 % v/v	0.5 % v/v		B			
6	CLASS ACT RIDION	1 % v/v	1 % v/v		B			
6	TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a		B			
6	ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a		B			
7	SONIC 70 DF	4.5 oz ai/a	6.45 oz wt/a		A	21.9 ab	10.7 b	87.1 ab
7	INTACT	0.5 % v/v	0.5 % v/v		B			
7	CLASS ACT RIDION	1 % v/v	1 % v/v		B			
7	TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a		B			
7	ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a		B			
8	FIERCE XLT 62.41 WG	2.8 oz ai/a	4.5 oz wt/a		A	21.2 ab	11.4 b	83.7 ab
8	INTACT	0.5 % v/v	0.5 % v/v		B			
8	CLASS ACT RIDION	1 % v/v	1 % v/v		B			
8	TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a		B			
8	ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a		B			
9	ZIDUA PRO 4.09 SC	3.07 oz ai/a	6 fl oz/a		A	20.5 b	10.9 b	81.2 b
9	INTACT	0.5 % v/v	0.5 % v/v		B			
9	CLASS ACT RIDION	1 % v/v	1 % v/v		B			
9	TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a		B			
9	ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a		B			

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Trial Origin: P public institution trial

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Pest Code			
Pest Scientific Name			
Pest Name			
Crop ID Code	1 GLXMA	1 GLXMA	1 GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Crop Variety	Pioneer 33A24X	Pioneer 33A24X	Pioneer 33A24X
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SE Name	ZUSX052A	ZUSX052B	ZUSX052_C3
SE Description	Yield/A	Yield/A	YIELD/A
Part Rated	GRAIN -	GRAIN -	GRAIN -
Rating Type	YIELD	CONMOI	YIELD
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Trt-Eval Interval			
Plant-Eval Interval	148 DP-1	148 DP-1	148 DP-1
Days After Emergence	136 DE-1	136 DE-1	136 DE-1
ARM Action Codes			TY1
Number of Decimals	1	1	1
Trt Treatment			
No. Name	Rate	Other Other	Appl
	Rate Unit	Rate Rate Unit Code	34* 35* 36*
10 PREFIX [F]	21.1 oz ai/a	32 fl oz/a	A 21.8 ab 11.4 b 85.8 ab
10 INTACT	0.5 % v/v	0.5 % v/v	B
10 CLASS ACT RIDION	1 % v/v	1 % v/v	B
10 TAVIUM PLUS VAPORGRIP TECH	27.5 oz ae/a	3.53 pt/a	B
10 ROUNDUP POWERMAX 4.5 SL	18 oz ae/a	32 fl oz/a	B
LSD P=.05			2.00 0.77 8.03
Standard Deviation			1.38 0.53 5.54
CV			6.96 4.7 7.07
Grand Mean			19.81 11.29 78.33
Levene's F			0.37 0.981 0.429
Levene's Prob(F)			0.941 0.475 0.909
Rank X2			.
P(Rank X2)			.
Skewness			-2.4204* 1.7162* -2.4191*
Kurtosis			4.819* 3.3045* 4.8111*
Replicate F			1.533 1.615 1.354
Replicate Prob(F)			0.2287 0.2091 0.2778
Treatment F			66.511 4.583 65.199
Treatment Prob(F)			0.0001 0.0010 0.0001

Crop ID Code

1, GLXMA, BSOY, Glycine max, Soybean, Pioneer 33A24X = GLYPHOSATE-R,AUXIN-R

Part Rated

GRAIN = grain

Rating Type

YIELD = yield

CONMOI = content - moisture

Rating Unit

LB = pound

% = percent

BU = bushel

Calculation

IN = increase

NC = no calculation

FT2 = square foot

PLOT = total plot

A = acre

PLOT = total plot

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Conducted Under GEP: No

FT2 = square foot

PLOT = total plot

A = acre

Plant-Eval Interval

148 DP-1 = 1 GLXMA May-13-2020

ARM Action Codes

TY1 =  $3.872 * [34] * (100 - [35]) / 87$