

The Ohio State University

Zone Defense University Soybean Trial

Trial ID: 21ZoneDef Location: Trial Year: 2021
 Protocol ID: 2021-H-US19 Investigator (Creator): Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

Trial Status: E established
ARM Trial Created On: May-10-2021
Initiation Date: May-23-2021

Trial Location

City: South Charleston **Country:** USA United States
State/Prov.: Ohio
Postal Code: 45368

Latitude of LL Corner °: 39.85569 N
Longitude of LL Corner °: -83.66794 W
Altitude of LL Corner: 1107.00 FT

Conducted Under GLP: No
Conducted Under GEP: No

Crop Description

Crop 1: C GLXMA Glycine max Soybean
Entry Date: May-25-2021 **Stage Scale:** BBCH
Variety: Seed Consultants SC8379X
Attributes: glyphosate, dicamba resistant
Seed Size: 2750 S/LB
Planting Date: May-23-2021 **Planting Rate:** 155000 S/A
Depth: 1 IN
Rows per Plot: 4 **Planting Method:** PLANTD planted
Row Spacing: 30 IN **Planting Equipment:** FE field equipment
Soil Temperature: 70 F **Seed Bed:** MEDIUM medium
Emergence Date: Jun-7-2021 **Soil Moisture:** DRY dry

Pest Description

Pest 1 Type: W **Code:** SETFA *Setaria faberi* **Entry Date:** Jun-30-2021
Common Name: Giant foxtail **Stage Scale:** BBCH
Pest 2 Type: W **Code:** ECHCG *Echinochloa crus-galli* **Entry Date:** Jun-30-2021
Common Name: Common barnyard grass **Stage Scale:** BBCH
Pest 3 Type: W **Code:** AMBTR *Ambrosia trifida* **Entry Date:** Jun-30-2021
Common Name: Giant ragweed **Stage Scale:** BBCH
Pest 4 Type: W **Code:** CHEAL *Chenopodium album* **Entry Date:** Jun-30-2021
Common Name: common lambsquarters **Stage Scale:** BBCH
Pest 5 Type: W **Code:** AMATA *Amaranthus x tamariscinus* **Entry Date:** Jun-30-2021
Common Name: Common waterhemp **Stage Scale:** BBCH

Site and Design

Treated Plot Width: 6.67 FT **Site Type:** FIELD field
Treated Plot Length: 40 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 266.8 FT² **Treatments:** 8 **Tillage Type:** CONTIL conventional-till
Replications: 3 **Study Design:** RACOB� Randomized Complete Block (RCB)

Previous

No. Crop Year
 1. PUMPKINS 2020

Soil Description

Description Name: Entomology W-1
% Sand: 35 **% OM:** 2.3 **Texture:** L loam
% Silt: 40 **pH:** 6.6 **Soil Name:** Crosby
% Clay: 25 **CEC:** 12.7 **Fert. Level:** G good
Soil Drainage: G good

The Ohio State University

Zone Defense University Soybean Trial

Trial ID: 21ZoneDef Location: Trial Year: 2021
 Protocol ID: 2021-H-US19 Investigator (Creator): Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

Application Description

A

Application Date May-24-2021
 Appl. Start Time 10:30 AM
 Appl. Stop Time 10:45 AM
 Application Method SPRAY
 Application Timing PRE
 Application Placement BROSOI
 Appl. Entry Date May-25-2021
 Air Temperature Start, Stop 83 83 F
 % Relative Humidity Start, Stop 50 50
 Wind Velocity+Dir. Start 3 MPH E
 Wind Velocity+Dir. Stop 3 MPH E
 Wind Velocity+Dir. Max 3 MPH E
 Wet Leaves (Y/N) N no
 Soil Temperature 70 F
 Soil Moisture DRY
 Soil Surface Condition MEDTRA
 % Cloud Cover 85
 Next Moisture Occurred On May-24-2021
 Time to Next Moisture 3.0 HR
 Moisture 6 Hours after Appl. 0.5 IN
 Moisture 1 Week after Appl. 1.29 IN

Crop Stage At Each Application

A

Crop 1 Code, BBCH Scale GLXMA BSOY
 Days after Emergence -14

Pest Stage At Each Application

A

Pest 1 Code, Type, Scale SETFA W BBCH
 Density Average 111 PLA/m2
 Density Minimum, Maximum 80 128
 Pest 2 Code, Type, Scale ECHCG W BBCH
 Density Average 377 PLA/m2
 Density Minimum, Maximum 212 576
 Pest 3 Code, Type, Scale AMBTR W BBCH
 Density Average 0 PLA/m2
 Density Minimum, Maximum 0 0
 Pest 4 Code, Type, Scale CHEAL W BBCH
 Density Average 47 PLA/m2
 Density Minimum, Maximum 28 68
 Pest 5 Code, Type, Scale AMATA W BBCH
 Density Average 299 PLA/m2
 Density Minimum, Maximum 184 508

Application Equipment

A

Appl. Equipment 6' TTI
 Equipment Type BACCAI
 Operation Pressure 44 PSI
 Nozzle Model 110015
 Nozzle Type TTI
 Nozzle Spacing 18 IN
 Boom Length 6.67 FT
 Boom Height 20 IN
 Ground Speed 3 MPH
 Carrier WATER
 Application Amount 15 GAL/AC
 Mix Size 1 L
 Propellant COMCO2

Notes

Context	Date	By	Notes
STATUS	May-10-2021	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	May-25-2021	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Initiation Date entered.

The Ohio State University

Zone Defense University Soybean Trial

Trial ID: 21ZoneDef Location: Trial Year: 2021
 Protocol ID: 2021-H-US19 Investigator (Creator): Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed
Pest Code	SETLU	ECHCG	CHEAL
Pest Name	foxtail, yellow	Common barnyard>	common lambsqua>

Crop Type, Code	C GLXMA	C GLXMA			
Crop Name	Soybean	Soybean			
Rating Date	Jun-14-2021	Jun-14-2021	Jun-14-2021	Jun-14-2021	Jun-14-2021
Rating Type	PHYSTU	PHYLMA			
Rating Unit/Min/Max	% 0 100	% 0 100			
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jun-15-2021	Jun-15-2021	Jun-15-2021	Jun-15-2021	Jun-15-2021
Days After First/Last Applic.	21 21	21 21	21 21	21 21	21 21
Trt-Eval Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A	21 DA-A
Days After Emergence	7 DE-1	7 DE-1	7 DE-1	7 DE-1	7 DE-1
Number of Decimals	0	0	0	0	0

Trt Treatment	Other	Other	Appl	1*	2*	3*	4*	5*
No. Name	Rate	Rate	Unit Code	dAS		dAA	dAA	

1 Untreated				0 c	0 b	0 c	0 c	0 -
2 Zone Defense	0.193 lb ai/a	A		6 ab	4 a	76 b	73 b	100 -
3 Zone Defense	0.193 lb ai/a	A		5 ab	4 a	99 ab	97 ab	100 -
Helmet	1.63 lb ai/a	A						
4 Zone Defense	0.241 lb ai/a	A		8 ab	4 a	79 b	75 b	100 -
5 Zone Defense	0.241 lb ai/a	A		8 ab	5 a	100 a	100 a	100 -
Helmet	1.63 lb ai/a	A						
6 Fierce	0.142 lb ai/a	A		4 ab	4 a	99 ab	96 ab	100 -
7 Zone Maxx	0.33 lb ai/a	A		15 a	4 a	94 ab	89 ab	100 -
8 Authority Edge	0.266 lb ai/a	A		3 bc	3 a	98 ab	98 a	100 -
LSD P=.05				5.5 - 7.7	1.5	7.5 - 18.5	8.2 - 18.3	.
Standard Deviation				0.7t	0.9	9.1t	8.1t	0.0
CV				27.24t	24.26	13.53t	12.6t	0.0
Levene's F^				0.421	0.256	0.476	0.481	.
Levene's Prob(F)				0.875	0.962	0.838	0.834	.
Skewness^				-0.0177	0.0412	0.6448	0.4559	.
Kurtosis^				-0.2724	-0.9168	1.0829	0.5408	.
Replicate F				0.780	9.315	1.125	2.008	0.000
Replicate Prob(F)				0.4774	0.0027	0.3522	0.1711	1.0000
Treatment F				6.010	9.291	30.644	35.502	0.000
Treatment Prob(F)				0.0022	0.0002	0.0001	0.0001	1.0000

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.
 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 5,6,7,9,13,15 because error mean square = 0.
 ^Calculated from residual.
 d=Means are reported in de-transformed data units

The Ohio State University

Zone Defense University Soybean Trial

Trial ID: 21ZoneDef Location: Trial Year: 2021
 Protocol ID: 2021-H-US19 Investigator (Creator): Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed		W Weed	W Weed
Pest Code	AMATA	HIBTR		SETLU	ECHCG
Pest Name	Common waterhemp	Venice mallow		foxtail, yellow	Common barnyard>
Crop Type, Code			C GLXMA	C GLXMA	
Crop Name			Soybean	Soybean	
Rating Date	Jun-14-2021	Jun-14-2021	Jun-28-2021	Jun-28-2021	Jun-28-2021
Rating Type			PHYSTU	PHYLMA	
Rating Unit/Min/Max			% 0	% 0	
			100	100	
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jun-15-2021	Jun-15-2021	Jun-30-2021	Jun-30-2021	Jun-30-2021
Days After First/Last Applic.	21 21	21 21	35 35	35 35	35 35
Trt-Eval Interval	21 DA-A	21 DA-A	35 DA-A	35 DA-A	35 DA-A
Days After Emergence	7 DE-1	7 DE-1	21 DE-1	21 DE-1	21 DE-1
Number of Decimals	0	0	0	0	0
Trt Treatment	6*	7*	8*	9*	10*
No. Name	Other Rate	Other Rate	Unit Code		11*

1 Untreated			0 -	0 -	0 -	0 -	0	0 c
2 Zone Defense	0.193 lb ai/a	A	100 -	100 -	0 -	0 -	89 -	83 ab
3 Zone Defense	0.193 lb ai/a	A	100 -	100 -	0 -	0 -	93 -	85 ab
Helmet	1.63 lb ai/a	A						
4 Zone Defense	0.241 lb ai/a	A	100 -	100 -	0 -	0 -	92 -	80 ab
5 Zone Defense	0.241 lb ai/a	A	100 -	100 -	2 -	0 -	95 -	94 a
Helmet	1.63 lb ai/a	A						
6 Fierce	0.142 lb ai/a	A	100 -	100 -	0 -	0 -	93 -	87 ab
7 Zone Maxx	0.33 lb ai/a	A	100 -	100 -	6 -	0 -	87 -	77 b
8 Authority Edge	0.266 lb ai/a	A	100 -	100 -	2 -	0 -	93 -	90 ab
LSD P=.05					4.0	.	6.6	10.2
Standard Deviation			0.0	0.0	2.3	0.0	3.7	5.8
CV			0.0	0.0	195.39	0.0	4.04	7.78
Levene's F^			.	.	0.747	.	0.802	0.443
Levene's Prob(F)			.	.	0.637	.	0.585	0.861
Skewness^			.	.	-0.4156	.	0.0554	-0.3802
Kurtosis^			.	.	1.349	.	0.9816	0.2567
Replicate F			0.000	0.000	1.596	0.000	9.209	1.666
Replicate Prob(F)			1.0000	1.0000	0.2375	1.0000	0.0038	0.2244
Treatment F			0.000	0.000	2.529	0.000	1.709	83.564
Treatment Prob(F)			1.0000	1.0000	0.0661	1.0000	0.2021	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.
 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 5,6,7,9,13,15 because error mean square = 0.
 ^Calculated from residual.
 d=Means are reported in de-transformed data units

The Ohio State University

Zone Defense University Soybean Trial

Trial ID: 21ZoneDef Location: Trial Year: 2021
 Protocol ID: 2021-H-US19 Investigator (Creator): Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	SETLU	CHEAL	AMATA	HIBTR	ECHCG				
Pest Name	foxtail, common lambsqua> yellow		Common Venice waterhemp	mallow	Common barnyard>				
Crop Type, Code									
Crop Name									
Rating Date	Jun-28-2021	Jun-28-2021	Jun-28-2021	Jun-28-2021	Jul-12-2021				
Rating Type									
Rating Unit/Min/Max									
Number of Subsamples	1	1	1	1	1				
Data Entry Date	Jun-30-2021	Jun-30-2021	Jun-30-2021	Jun-30-2021	Jul-13-2021				
Days After First/Last Applic.	35 35	35 35	35 35	35 35	49 49				
Trt-Eval Interval	35 DA-A	35 DA-A	35 DA-A	35 DA-A	49 DA-A				
Days After Emergence	21 DE-1	21 DE-1	21 DE-1	21 DE-1	35 DE-1				
Number of Decimals	0	0	0	0	0				
Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	12*	13*	14* dAS	15*	16*
1	Untreated				0 d	0 -	0 b	0 -	0 d
2	Zone Defense	0.193 lb ai/a		A	33 c	100 -	100 a	100 -	17 cd
3	Zone Defense	0.193 lb ai/a		A	73 a	100 -	100 a	100 -	57 a
	Helmet	1.63 lb ai/a		A					
4	Zone Defense	0.241 lb ai/a		A	43 bc	100 -	100 a	100 -	30 bc
5	Zone Defense	0.241 lb ai/a		A	77 a	100 -	100 a	100 -	60 a
	Helmet	1.63 lb ai/a		A					
6	Fierce	0.142 lb ai/a		A	67 a	100 -	100 a	100 -	50 ab
7	Zone Maxx	0.33 lb ai/a		A	57 ab	100 -	96 a	100 -	43 ab
8	Authority Edge	0.266 lb ai/a		A	70	100 -	100 a	100 -	60 a
	LSD P=.05				16.9	.	3.2 - 3.2	.	17.1
	Standard Deviation				9.5	0.0	0.1t	0.0	9.8
	CV				18.96	0.0	1.05t	0.0	24.73
	Levene's F^				1.013	.	1.707	.	0.738
	Levene's Prob(F)				0.456	.	0.178	.	0.644
	Skewness^				0.5774	.	-1.1016*	.	0.5811
	Kurtosis^				1.2121	.	8.0329*	.	2.3853*
	Replicate F				0.119	0.000	1.000	0.000	0.304
	Replicate Prob(F)				0.8887	1.0000	0.3927	1.0000	0.7424
	Treatment F				24.477	0.000	3741.936	0.000	15.348
	Treatment Prob(F)				0.0001	1.0000	0.0001	1.0000	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.
 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 5,6,7,9,13,15 because error mean square = 0.
 ^Calculated from residual.
 d=Means are reported in de-transformed data units

The Ohio State University

Zone Defense University Soybean Trial

Trial ID: 21ZoneDef Location: Trial Year: 2021
 Protocol ID: 2021-H-US19 Investigator (Creator): Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed
Pest Code	CHEAL	AMATA	HIBTR
Pest Name	common	Common	Venice
	lambsqua>	waterhemp	mallow
Crop Type, Code			
Crop Name			
Rating Date	Jul-12-2021	Jul-12-2021	Jul-12-2021
Rating Type			
Rating Unit/Min/Max			
Number of Subsamples	1	1	1
Data Entry Date	Jul-13-2021	Jul-13-2021	Jul-13-2021
Days After First/Last Applic.	49 49	49 49	49 49
Trt-Eval Interval	49 DA-A	49 DA-A	49 DA-A
Days After Emergence	35 DE-1	35 DE-1	35 DE-1
Number of Decimals	0	0	0
Trt Treatment	Other Other	Appl	17*
No. Name	Rate Rate	Unit Code	dAS
1 Untreated			0 c
2 Zone Defense	0.193 lb ai/a	A	100 a
3 Zone Defense	0.193 lb ai/a	A	100 a
Helmet	1.63 lb ai/a	A	
4 Zone Defense	0.241 lb ai/a	A	100 a
5 Zone Defense	0.241 lb ai/a	A	100 a
Helmet	1.63 lb ai/a	A	
6 Fierce	0.142 lb ai/a	A	99 b
7 Zone Maxx	0.33 lb ai/a	A	100 a
8 Authority Edge	0.266 lb ai/a	A	100 a
LSD P=.05			0.7 - 0.7
Standard Deviation			0.0t
CV			0.23t
Levene's F^			0.643
Levene's Prob(F)			0.715
Skewness^			1.7125*
Kurtosis^			8.0329*
Replicate F			1.000
Replicate Prob(F)			0.3927
Treatment F			77592.308
Treatment Prob(F)			0.0001
			0 b
			93 a
			97 a
			100 a
			92 a
			96 a
			97 a
			97 a
			100 a
			100 a
			9.3
			5.3
			6.34
			0.877
			0.545
			-0.8161
			1.8674*
			0.990
			0.0653
			91.170
			0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
 t=Mean descriptions are reported in transformed data units, and are not de-transformed.

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 5,6,7,9,13,15 because error mean square = 0.

^Calculated from residual.

d=Means are reported in de-transformed data units

