

The Ohio State University

University Enlist Weed Control System Endorsement Demo-Pre fb POST

Trial ID: 22Enlist
 Protocol ID: NA22K1A005H Location: Western Branch F-7 East
 Project ID: Project ID 2: Project ID 3:
 Study Director: Sponsor Contact:
 Investigator (Creator): Claudio Vrisman

Cooperator Trial ID:
 Trial Year: 2022

Status: E established (draft)
 ARM Trial Created On: Apr-4-2022
 Initiation Date: Apr-27-2022

Trial Location

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

Latitude of LL Corner °: 39.86017 N
 Longitude of LL Corner °: -83.67032 W
 Altitude of LL Corner: 1076.00 FT

Objectives:

What is the efficacy and crop safety of Enlist Weed Control Programs in E3 soybeans with or without a Group 15 herbicide in the tank mixture?

Crop Description

Crop 1: C GLXMA Glycine max Soybean BBCH Scale: SOYB
 Entry Date: May-2-2022 Stage Scale: BBCH
 Variety: Brevant B319EE
 Attributes: AAD-12/GLU/GLY-TOL
 Seed Size: 3230 S/LB
 Planting Date: Apr-27-2022 Planting Rate: 165000 S/A
 Depth: 1.5 IN
 Rows per Plot: 8
 Row Spacing: 15 in
 Planting Method: PLANTD planted
 Planting Equipment: PP plot planter
 Seed Bed: MEDIUM medium
 Soil Moisture: NORMAL normal, adequate
 Soil Temperature: 52 F
 Emergence Date: May-16-2022
 Harvest Date: Oct-5-2022
 Moisture Meter: Harvest Master
 Harvest Equipment: Kincaid 8XP
 Harvested Width: 6.25 FT
 Harvested Length: 30 FT
 % Standard Moisture: 13
 Weighing Equipment: Harvest Master HM800

Pest Description

Pest 1 Type: W Code: SETFA Setaria faberi Entry Date: Jun-6-2022
 Common Name: Giant foxtail Stage Scale: BBCH
 Attributes: AAD-12/GLU/GLY-TOL
 Pest 2 Type: W Code: ECHCG Echinochloa crus-galli Entry Date: Jun-6-2022
 Common Name: common barnyardgrass Stage Scale: BBCH
 Pest 3 Type: W Code: SETLU Setaria pumila Entry Date: Jul-15-2022
 Common Name: foxtail, yellow Stage Scale: BBCH
 Pest 4 Type: W Code: AMBTR Ambrosia trifida Entry Date: Jul-15-2022
 Common Name: Giant ragweed Stage Scale: BBCH
 Pest 5 Type: W Code: CHEAL Chenopodium album Entry Date: Jun-6-2022
 Common Name: common lambsquarters Stage Scale: BBCH
 Pest 6 Type: W Code: ABUTH Abutilon theophrasti Entry Date: Jun-6-2022
 Common Name: velvetleaf Stage Scale: BBCH
 Pest 7 Type: W Code: POLPY Persicaria pensylvanica Entry Date: Jun-6-2022
 Common Name: annual smartweed Stage Scale: BBCH
 Pest 8 Type: W Code: AMBEL Ambrosia artemisiifolia Entry Date: Jun-6-2022
 Common Name: Common ragweed 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 Tillage Type: CONTIL conventional-till
 Replications: 4 Treatments: 10 Plots: 40 Study Design: RACOB L Randomized Complete Block (RCB)
 Untreated Arrangement: INCLUDED

Previous
 No. Crop Year
 1. CORN 2021

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Soil Description

Description Name: F-7 East
 % Sand: 37 % OM: 2.8 Texture: SICL silty clay loam
 % Silt: 48 Soil Name: Kokomo
 % Clay: 15 Fert. Level: G good
 pH: 5.7 CEC: 11

Application Description

	A	B	C
Application Date	Apr-28-2022	Jun-3-2022	Jun-21-2022
Appl. Start Time	9:30 AM	11:00 AM	9:00 AM
Appl. Stop Time	10:00 AM	11:30 AM	9:15 AM
Application Method	SPRAY	SPRAY	SPRAY
Application Timing	PRE	POST	POST
Application Placement	BROSOL	BROFOL	BROFOL
Applied By	Loux	Dobbels	Loux
Appl. Entry Date	May-2-2022	Jun-6-2022	Jun-21-2022
Air Temperature Start, Stop	43, 43 F	67, 67 F	84, 84 F
% Relative Humidity Start, Stop	44, 44	52, 52	49, 49
Wind Velocity+Dir. Start	4 MPH, E	4 MPH, W	5 MPH, W
Wind Velocity+Dir. Stop	4 MPH, E	4 MPH, W	5 MPH, W
Wind Velocity+Dir. Max	4 MPH, E	4 MPH, W	5 MPH, W
Wet Leaves (Y/N)	N, no	N, no	N, no
Soil Temperature	44 F	65 F	70 F
Soil Moisture	DRY	DRY	DRY
Soil Surface Condition	MEDIUM	MEDIUM	MEDIUM
% Cloud Cover	90	0	0
Next Moisture Occurred On	Apr-30-2022	Jun-6-2022	Jun-26-2022
Time to Next Moisture	2.0 DAY	3.0 DAY	5.0 DAY
Moisture 6 Hours after Appl.	0 IN	0 IN	0 IN
Moisture 1 Week after Appl.	1.1 IN	1.08 IN	0.3 IN

Protocol Application Directions:

Researcher Defined: PRE at 1X use rate (Kyber, Zidua Pro, Sonic Surveil, Outlook) at plant POST 25-30 DAA

Note: if no till then include Enlist One (2pt) + Durango (1qt) with PRE herbicide

Apply applications using AIXR nozzles, calibrated to deliver 15 - 20 GPA (may require AIXR-110015 nozzles @ 30-45 psi @ 3 MPH, for example)

(A) PRE - apply within 2 days after planting

If PRE herbicides are not fully effective, then make POST applications when weeds reach approximately 4" height, which may be earlier than 25 - 30 days after the PRE treatments.

Apply POST 25-30 DAAA include Group 15 in select treatments: Group 15 POST (1X use rate) apply either Zidua, EverpreX, or your own choice for in season application.

(B) POST - apply 25 - 30 DAAA - or before weeds exceed 4" height.

(C) POST - apply 15 days following initial POST (15DAAB).

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	GLXMA, SOYB	GLXMA, SOYB	GLXMA, SOYB
Days after Emergence	-18	18	36
Stage Majority, Percent		13, 90	R1, 100
Stage Minimum, Percent		12, 10	
Stage Maximum, Percent		13, 90	
Height Average		5 IN	11 IN
Height Minimum, Maximum		4, 5	10, 11

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Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale	SETFA, W, BBCH	SETFA, W, BBCH	SETFA, W, BBCH
Stage Majority, Percent		15, 80	
Stage Minimum, Percent		13, 10	
Stage Maximum, Percent		15, 10	
Height Average		4 IN	
Height Minimum, Maximum		3, 4	
Density Average		225 PLA/M2	
Density Minimum, Maximum		120, 267	
Pest 2 Code, Type, Scale	ECHCG, W, BBCH	ECHCG, W, BBCH	ECHCG, W, BBCH
Stage Majority, Percent		15, 80	13, 60
Stage Minimum, Percent		13, 10	13, 20
Stage Maximum, Percent		15, 10	15, 20
Height Average		4 IN	6 IN
Height Minimum, Maximum		3, 4	2, 8
Density Average		56 PLA/M2	12 PLAM2
Density Minimum, Maximum		20, 75	0, 20
Pest 3 Code, Type, Scale	SETLU, W, BBCH	SETLU, W, BBCH	SETLU, W, BBCH
Stage Majority, Percent		15, 80	15, 60
Stage Minimum, Percent		13, 10	13, 20
Stage Maximum, Percent		15, 10	15, 60
Height Average		4 IN	3 IN
Height Minimum, Maximum		3, 4	2, 5
Density Average		10 PLA/M2	6 PLAM2
Density Minimum, Maximum		0, 12	0, 10
Pest 4 Code, Type, Scale	AMBTR, W, BBCH	AMBTR, W, BBCH	AMBTR, W, BBCH
Stage Majority, Percent		18, 80	
Stage Minimum, Percent		14, 10	
Stage Maximum, Percent		18, 80	
Height Average		6 IN	
Height Minimum, Maximum		6, 10	
Density Average		8 PLA/M2	
Density Minimum, Maximum		2, 16	
Pest 5 Code, Type, Scale	CHEAL, W, BBCH	CHEAL, W, BBCH	CHEAL, W, BBCH
Stage Majority, Percent		13, 80	
Stage Minimum, Percent		12, 10	
Stage Maximum, Percent		14, 10	
Height Average		3 IN	
Height Minimum, Maximum		2, 3	
Density Average		19 PLA/M2	
Density Minimum, Maximum		12, 34	
Pest 6 Code, Type, Scale	ABUTH, W, BBCH	ABUTH, W, BBCH	ABUTH, W, BBCH
Stage Majority, Percent		18, 80	
Stage Minimum, Percent		14, 20	
Stage Maximum, Percent		18, 80	
Height Average		3 IN	
Height Minimum, Maximum		2, 3	
Density Average		3 PLA/M2	
Density Minimum, Maximum		0, 5	
Pest 7 Code, Type, Scale	POLPY, W, BBCH	POLPY, W, BBCH	POLPY, W, BBCH
Stage Majority, Percent		19, 50	
Stage Minimum, Percent		12, 20	
Stage Maximum, Percent		19, 50	
Height Average		6 IN	
Height Minimum, Maximum		4, 7	
Density Average		3 PLA/M2	
Density Minimum, Maximum		0, 6	
Pest 8 Code, Type, Scale	AMBEL, W, BBCH	AMBEL, W, BBCH	AMBEL, W, BBCH
Stage Majority, Percent		11, 80	
Stage Minimum, Percent		10, 10	
Stage Maximum, Percent		11, 80	
Height Average		2 IN	
Height Minimum, Maximum		1, 2	
Density Average		1 PLA/M2	
Density Minimum, Maximum		0, 3	

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Application Equipment

	A	B	C
Appl. Equipment	6' TTI	6' AIXR	6' AIXR
Equipment Type	BACCAI	BACCAI	BACCAI
Operation Pressure	44 PSI	44 PSI	44 PSI
Nozzle Model	1110015	110015	110015
Nozzle Type	TTI	AIXR	AIXR
Nozzle TradeName		Air Inducted XR Flat	Air Inducted XR Flat
Nozzle Tip Size, Color	015, green	015, grren	015, grren
Nozzle Spacing	18 IN	18 IN	18 IN
Boom Length	6.67 FT	6.67 FT	6.67 FT
Boom Height	20 IN	20 IN	20 IN
Ground Speed	3 MPH	3 MPH	3 MPH
Carrier	WATER	WATER	WATER
Water Hardness (ppm CaCO3)	250	250	250
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC
Minimum Mix/Treatment	1.564	1.564	1.564
Mix Size	1 L	1 L	1 L
Spray pH	7.8	7.8	7.8
Propellant	COMCO2	COMCO2	COMCO2

Pest Type
 Pest Code
 Pest Scientific Name
 Pest Name
 Crop Type, Code C, GLXMA C, GLXMA C, GLXMA C, GLXMA
 BBCH Scale BSOY BSOY BSOY BSOY
 Crop Scientific Name Glycine max Glycine max Glycine max Glycine max
 Crop Name Soybean Soybean Soybean Soybean
 Crop Variety
 Rating Date
 Part Rated
 Rating Type weight moisture YIELD WEITES
 Rating Unit/Min/Max LB, -, - % 0, 100 BU, -, - BU, -, -
 Sample Size 187.5 FT2 1 qt 1 A 1 QT
 Collection Basis 1 plot 1 PLOT 1 plot
 Number of Subsamples 1 1 1 1
 Data Entry Date Oct-7-2022 Oct-7-2022 Oct-7-2022
 Days After First/Last Applic.
 Trt-Eval Interval
 Plant-Eval Interval
 Days After Emergence
 ARM Action Codes TY1
 Number of Decimals 2 2 1 2

Trt No.	Treatment Name	Rate	Appl Code	33*	34*	35*	36*
1	SONIC	220g ai/ha	A	18.03a	13.14b	69.8a	54.81a
1	Enlist One	1070g ae/ha	B				
1	LIBERTY	600g ae/ha	B				
1	EverpreX	1070g ai/ha	B				
1	AMSOL	2.5% v/v	B				
2	SONIC	220g ai/ha	A	18.16a	13.08b	70.2a	54.12a
2	Enlist One	1070g ae/ha	B				
2	Durango DMA	1120g ae/ha	B				
2	EverpreX	1070g ai/ha	B				
2	AMSOL	2.5% v/v	B				
3	SONIC	220g ai/ha	A	17.54a	12.01b	68.7a	54.87a
3	Enlist One	1070g ae/ha	B				
3	LIBERTY	600g ae/ha	B				
3	EverpreX	1070g ai/ha	B				
3	AMSOL	2.5% v/v	B				
3	Enlist One	1070g ae/ha	C				
3	LIBERTY	600g ae/ha	C				
3	AMSOL	2.5% v/v	C				

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Pest Type
 Pest Code
 Pest Scientific Name
 Pest Name
 Crop Type, Code C, GLXMA C, GLXMA C, GLXMA C, GLXMA
 BBCH Scale BSOY BSOY BSOY BSOY
 Crop Scientific Name Glycine max Glycine max Glycine max Glycine max
 Crop Name Soybean Soybean Soybean Soybean
 Crop Variety
 Rating Date
 Part Rated
 Rating Type weight moisture YIELD WEITES
 Rating Unit/Min/Max LB, -, - %, 0, 100 BU, -, - BU, -, -
 Sample Size 187.5 FT2 1 qt 1 A 1 QT
 Collection Basis 1 plot 1 PLOT 1 plot 1 plot
 Number of Subsamples 1 1 1 1
 Data Entry Date Oct-7-2022 Oct-7-2022 Oct-7-2022
 Days After First/Last Applic.
 Trt-Eval Interval
 Plant-Eval Interval
 Days After Emergence
 ARM Action Codes TY1
 Number of Decimals 2 2 1 2

Trt	Treatment	Rate	Appl	33*	34*	35*	36*
No.	Name	Rate Unit	Code				
4	SONIC	220g ai/ha	A	17.98a	12.47b	70.1a	55.52a
4	Enlist One	1070g ae/ha	B				
4	Durango DMA	1120g ae/ha	B				
4	EverpreX	1070g ai/ha	B				
4	AMSOL	2.5% v/v	B				
4	Enlist One	1070g ae/ha	C				
4	LIBERTY	600g ae/ha	C				
4	AMSOL	2.5% v/v	C				
5	SONIC	220g ai/ha	A	17.70a	11.96b	69.4a	55.29a
5	Enlist One	1070g ae/ha	B				
5	LIBERTY	600g ae/ha	B				
5	EverpreX	1070g ai/ha	B				
5	AMSOL	2.5% v/v	B				
5	Enlist One	1070g ae/ha	C				
5	Durango DMA	1120g ae/ha	C				
5	AMSOL	2.5% v/v	C				
6	SONIC	220g ai/ha	A	18.44a	13.25b	71.2a	54.43a
6	Durango DMA	1120g ae/ha	B				
6	LIBERTY	600g ae/ha	B				
6	EverpreX	1070g ai/ha	B				
6	AMSOL	2.5% v/v	B				
7	Fierce EZ	160g ai/ha	A	18.05a	11.80b	70.9a	55.57a
7	Enlist One	533g ai/ha	B				
7	Roundup Powermax	1260g ae/ha	B				
7	Perpetuo	121g ai/ha	B				
7	Select Max	79g ai/ha	B				
7	AMSOL	2.5% v/v	B				
7	NIS	0.25% v/v	B				
8	Firstrate	35.3g ai/ha	A	17.87a	11.84b	70.1a	55.79a
8	Fierce EZ	160g ai/ha	A				
8	Enlist One	533g ai/ha	B				
8	Roundup Powermax	1260g ae/ha	B				
8	Perpetuo	121g ai/ha	B				
8	Select Max	79g ai/ha	B				
8	AMSOL	2.5% v/v	B				
8	NIS	0.25% v/v	B				
9	Fierce XLT	175g ai/ha	A	17.71a	11.91b	69.4a	55.89a
9	Enlist One	533g ai/ha	B				
9	Roundup Powermax	1260g ae/ha	B				
9	Perpetuo	121g ai/ha	B				
9	Select Max	79g ai/ha	B				
9	AMSOL	2.5% v/v	B				
9	NIS	0.25% v/v	B				

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Pest Type	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA
Pest Code	BSOY	BSOY	BSOY	BSOY
Pest Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Pest Name	Soybean	Soybean	Soybean	Soybean
Crop Type, Code				
BBCH Scale				
Crop Scientific Name				
Crop Name				
Crop Variety				
Rating Date				
Part Rated				
Rating Type	weight	moisture	YIELD	WEITES
Rating Unit/Min/Max	LB, -, -	%, 0, 100	BU, -, -	BU, -, -
Sample Size	187.5 FT2	1 qt	1 A	1 QT
Collection Basis	1 plot	1 PLOT	1 plot	
Number of Subsamples	1	1	1	1
Data Entry Date	Oct-7-2022	Oct-7-2022		Oct-7-2022
Days After First/Last Applic.				
Trt-Eval Interval				
Plant-Eval Interval				
Days After Emergence				
ARM Action Codes			TY1	
Number of Decimals	2	2	1	2
Trt Treatment	33*	34*	35*	36*
No. Name				
Rate Unit				
Appl Code				
10UTC	4.49b	18.41a	16.4b	36.09b
LSD P=.05	1.498	2.279	5.82	5.005
Standard Deviation	1.033	1.571	4.01	3.450
CV	6.22	12.1	6.21	6.48
Grand Mean	16.597	12.986	64.62	53.239
Levene's F^	0.47	2.513	0.521	3.171
Levene's Prob(F)	0.883	0.028*	0.848	0.008*
Rank X2
P(Rank X2)
Skewness^	0.4927	0.4147	0.5655	1.5649*
Kurtosis^	0.706	5.9885*	1.0006	10.9845*
Replicate F	21.935	2.251	24.459	1.516
Replicate Prob(F)	0.0001	0.1052	0.0001	0.2328
Treatment F	68.090	6.423	71.465	12.318
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001

Crop Type, Code

C = EPP0 species (Bayer) codes
 GLXMA, BSOY, Glycine max, Soybean = US

Rating Type

YIELD = yield
 WEITES = weight - test

Rating Unit/Min/Max

LB, , = pound
 %, 0, 100 = percent
 BU, , = bushel

FT2 = square foot

qt = quart

A = acre

plot = total plot

ARM Action Codes

TY1 = $3.872 * [C33] * (100 - [C34]) / 87$