

The Ohio State University

Interseeded Winter Wheat in Soybean

Trial ID: 22-ARC-19S-USB-Interseed-OSU Cooperator Trial ID:
 Protocol ID: 22-USB-Interseed Location: Trial Year: 2022
 Project ID: Project ID 2: Project ID 3:
 Study Director: Karla Gage, Ph.D. Sponsor Contact:
 Investigator (Creator): Karla L. Gage, Ph.D.

General Trial Information

Study Director: Karla Gage, Ph.D. Title: Assistant Professor of Weed Science

Status: E established
 ARM Trial Created On: Mar-14-2022

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 °: 39.85582 N
 Longitude of LL Corner °: -83.66916 W
 Altitude of LL Corner: 1092.00 FT

Conducted Under GLP: No
 Conducted Under GEP: No
 None

Objectives:

Evaluate the effect of interseeding winter wheat (or geographically-appropriate comparison) into a soybean crop on small-seeded broadleaf suppression and soybean yield and grain quality across multiple regions.

Contacts

Role: STYDIR study director
 Study Director: Karla Gage, Ph.D. Title: Assistant Professor of Weed Science
 Organization: Southern Illinois University Carbondale
 Address 1: 1205 Lincoln Drive MC 4415 Phone No.: 618-453-7679 Mobile No.: 618-713-6471
 Country: USA United States E-mail: kgage@siu.edu
 City: Carbondale, IL Postal Code: 62901

Crop Description

Crop 1: CTRZAW Triticum aestivum (winter)	Winter wheat	BBCH Scale: BCER
Entry Date: Feb-22-2022	Stage Scale: BBCH	
Attributes: bin-run		
Planting Date: Apr-25-2022	Planting Rate: 1.5	millionS/A
Depth: 0.5 IN		
	Planting Method: BROADCAST broadcast	
	Planting Equipment: FD fertilizer distributor	
	Seed Bed: SMOOTH smooth	
	Soil Moisture: NORMAL normal, adequate	
Soil Temperature: 50 F		
Emergence Date: May-5-2022		
Crop 2: CTRZAW Triticum aestivum (winter)	Winter wheat	BBCH Scale: BCER
Entry Date: Feb-22-2022	Stage Scale: BBCH	
Attributes: bin-run		
Planting Date: May-24-2022	Planting Rate: 1.5	millionS/A
Depth: 0.5 IN		
	Planting Method: BROADCAST broadcast	
Emergence Date: Jun-1-2022		
Crop 3: CGLXMA Glycine max	Soybean	BBCH Scale: BSOY
Entry Date: Feb-22-2022	Stage Scale: BBCH	
Variety: Pioneer P35T15E		
Attributes: 2,4-D Choline, Glyphosate, Glufosinate Tol		
% Germination: 90	Planting Rate: 140000	S/A
Planting Date: May-24-2022		
Depth: 1.5 IN		
Rows per Plot: 4	Planting Method: SEEDED seeded	
Row Spacing: 30 IN	Planting Equipment: FE field equipment	
	Seed Bed: SMOOTH smooth	
	Soil Moisture: SLIDRY slightly dry	
Soil Temperature: 71 F		
Emergence Date: Jun-3-2022		

Pest Description

Pest 1 Type: W Code: AMATA Amaranthus rudis Sauer	Entry Date: Feb-22-2022
Common Name: waterhemp, common	Stage Scale: BBCH
Pest 2 Type: W Code: SETFA Setaria faberi	Entry Date: Jun-21-2022
Common Name: Giant foxtail	Stage Scale: BBCH
Pest 3 Type: W Code: ECHCG Echinochloa crus-galli	Entry Date: Jun-21-2022
Common Name: common barnyardgrass	Stage Scale: BBCH
Pest 4 Type: W Code: AMBTR Ambrosia trifida	Entry Date: Jun-21-2022
Common Name: Giant ragweed	Stage Scale: BBCH

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Site and Design

Treated Plot Width: 10 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: 300.0FT² Tillage Type: REDTIL reduced-till
 Replications: 4 Treatments: 9 Plots: 36 Study Design: SPLPLO Split-Plot

Previous
 No. Crop Year
 1. SOYBEAN2021

Maintenance

No.	Date	Type	Maintenance Product Name
1.	May-24-2022	MAINTN	___ LB/A, P2O5 ___ LB/A, K2O ___ LB/A

Comment: Gramoxone + NIS was applied to all plots without wheat at planting to ensure a clean start.

Field Prep./Maintenance:

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E	F
Weed 1: _____						
LVS (#) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Ht (in) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____
Weed 2: _____						
LVS (#) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Ht (in) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____
Weed 3: _____						
LVS (#) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Ht (in) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____
Weed 4: _____						
LVS (#) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Ht (in) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____
Weed 5: _____						
LVS (#) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Ht (in) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____
Weed 6: _____						
LVS (#) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Ht (in) min-max, maj	___/___	___/___	___/___	___/___	___/___	___/___
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____
Weed 7: _____						

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LVS (#) min-max, maj	- , -	- , -	- , -	- , -	- , -	- , -
Ht (in) min-max, maj	- , -	- , -	- , -	- , -	- , -	- , -
Est Density (#/sqft)						

Weed 8: _____

LVS (#) min-max, maj	- , -	- , -	- , -	- , -	- , -	- , -
Ht (in) min-max, maj	- , -	- , -	- , -	- , -	- , -	- , -
Est Density (#/sqft)						

Weed 9: _____

LVS (#) min-max, maj	- , -	- , -	- , -	- , -	- , -	- , -
Ht (in) min-max, maj	- , -	- , -	- , -	- , -	- , -	- , -
Est Density (#/sqft)						

Soil Description

Description Name: Entomology West 1
 % Sand: 35 % OM: 2.3 Texture: LOAM
 % Silt: 40 Soil Name: Crosby
 % Clay: 25 Fert. Level: G good
 pH: 6.6 CEC: 12.7

Application Description

	A	B
Application Date	May-24-2022	Jun-21-2022
Appl. Start Time	7:45 PM	1:00 PM
Appl. Stop Time	8:00 PM	1:30 PM
Interval to Prev. Appl.		28 DAYS
Application Method	SPRAY	SPRAY
Application Timing	PRE	POST
Application Placement	BROFOL	BROFOL
Applied By	Dobbels	Dobbels
Appl. Entry Date	May-25-2022	Jun-21-2022
Air Temperature Start, Stop	73, 73 F	84, 84 F
% Relative Humidity Start, Stop	56, 56	49, 49
Wind Velocity+Dir. Start	6 MPH, ESE	5 MPH, W
Wind Velocity+Dir. Stop	6 MPH, ESE	5 MPH, W
Wind Velocity+Dir. Max	6 MPH, ESE	5 MPH, W
Wet Leaves (Y/N)	N, no	N, no
Soil Temperature	71 F	76 F
Soil Moisture	SLIDRY	DRY
Soil Surface Condition	SMOOTH	SMOOTH
% Cloud Cover	25	0
Next Moisture Occurred On	May-25-2022	Jun-26-2022
Time to Next Moisture	1.0 DAY	5.0 DAY
Moisture 6 Hours after Appl.	0 IN	0 IN
Moisture 1 Week after Appl.	1.23 IN	0.3 IN

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	TRZAW, BCER	TRZAW, BCER
Days after Emergence	19	47
Stage Scale Used	BBCH	BBCH
Height Average		14 IN
Crop 2 Code, BBCH Scale	TRZAW, BCER	TRZAW, BCER
Days after Emergence	-8	20
Stage Scale Used	BBCH	BBCH
Stage Majority, Percent		25, 100
Height Average		4 IN
Crop 3 Code, BBCH Scale	GLXMA, BSOY	GLXMA, BSOY
Days after Emergence	-10	18
Stage Scale Used	BBCH	BBCH
Stage Majority, Percent		13, 100
Height Average		6 IN

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	AMATA, W, BBCH	AMATA, W, BBCH
Stage Majority, Percent		19, 100
Height Average		6 IN
Height Minimum, Maximum		0.5, 8
Pest 2 Code, Type, Scale	SETFA, W, BBCH	SETFA, W, BBCH
Stage Majority, Percent		13, 100
Height Average		4 IN
Height Minimum, Maximum		2, 5
Pest 3 Code, Type, Scale	ECHCG, W, BBCH	ECHCG, W, BBCH
Stage Majority, Percent		28, 100
Height Average		7 IN
Height Minimum, Maximum		6, 8
Pest 4 Code, Type, Scale	AMBTR, W, BBCH	AMBTR, W, BBCH
Stage Majority, Percent		19, 100
Height Average		8 IN
Height Minimum, Maximum		8, 10

Application Equipment

	A	B
Appl. Equipment	CO2 sprayer	CO2 sprayer
Equipment Type	BACSPR	BACSPR
Operation Pressure	30 PSI	30 PSI
Nozzle Model	8002	11002
Nozzle Type	XR	AIXR
Boom Length	10 FT	10 FT
Application Amount	15 GPA	15 GPA

Notes

Context	Date	By	Notes
STATUS	Feb-2-2022	Karla L. Gage, Ph.D.	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	May-3-2022	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Type, Code	C, GLXMA	C, GLXMA	C, GLXMA	C, GLXMA
Crop Name	Soybean	Soybean	Soybean	Soybean
Rating Date	Oct-12-2022	Oct-12-2022	Oct-12-2022	Oct-12-2022
Part Rated	GRAIN, -	GRAIN, -	GRAIN, -	GRAIN, -
Rating Type	WEIGHT	MOICON	YIELD	WEITES
Rating Unit/Min/Max		% , 0, 100	BU, -, -	
Number of Subsamples	1	1	1	1
Data Entry Date	Oct-13-2022	Oct-13-2022		Oct-13-2022
Rating Timing	HARVEST		HARVEST	
Days After First/Last Applic.	141, 113	141, 113	141, 113	141, 113
Trt-Eval Interval				
Plant-Eval Interval	141 DP-3	141 DP-3	141 DP-3	141 DP-3
Days After Emergence	131 DE-3	131 DE-3	131 DE-3	131 DE-3
ARM Action Codes			TY1	
Number of Decimals	2	2	1	2
Trt Treatment	Rate	Rate Unit	Appl Code	
No. Name				
1 NO WHEAT				13.97 abc
1 NONTREATED				13.73 b
				67.1 abc
				56.05 ab
2 NO WHEAT				14.76 abc
2 SHARPEN	0.0223 lb ai/a	A		13.78 b
2 ENLIST ONE	0.95 lb ae/a	B		70.8 abc
2 ROUNDUP POWERMAX	1.13 lb ae/a	B		55.10 abc
2 WARRANT	1.13 lb ai/a	B		
2 AMS - LIQUID	2.5% v/v	B		
3 NO WHEAT				16.92 a
3 PREFIX	1.65 lb ai/a	A		10.80 b
3 METRIBUZIN 75	0.28 lb ai/a	A		84.0 a
3 ENLIST ONE	0.95 lb ae/a	B		57.35 a
3 ROUNDUP POWERMAX	1.13 lb ae/a	B		
3 WARRANT	1.13 lb ai/a	B		
3 AMS - LIQUID	2.5% v/v	B		
4 WHEAT 4 WEEKS PRIOR TO SOY				10.92 bc
4 NONTREATED				20.70 a
				48.7 c
				48.45 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
Crop Name	Soybean	Soybean	Soybean	Soybean
Rating Date	Oct-12-2022	Oct-12-2022	Oct-12-2022	Oct-12-2022
Part Rated	GRAIN, -	GRAIN, -	GRAIN, -	GRAIN, -
Rating Type	WEIGHT	MOICON	YIELD	WEITES
Rating Unit/Min/Max		%, 0, 100	BU, -, -	
Number of Subsamples	1	1	1	1
Data Entry Date	Oct-13-2022	Oct-13-2022		Oct-13-2022
Rating Timing	HARVEST		HARVEST	
Days After First/Last Applic.	141, 113	141, 113	141, 113	141, 113
Trt-Eval Interval				
Plant-Eval Interval	141 DP-3	141 DP-3	141 DP-3	141 DP-3
Days After Emergence	131 DE-3	131 DE-3	131 DE-3	131 DE-3
ARM Action Codes			TY1	
Number of Decimals	2	2	1	2
Trt Treatment	Rate	Rate Unit	Appl Code	
No. Name				
5 WHEAT 4 WEEKS PRIOR TO SOY				39*
5 SHARPEN	0.0223 lb ai/a	A		40*
5 ENLIST ONE	0.95 lb ae/a	B		41*
5 ROUNDUP POWERMAX	1.13 lb ae/a	B		42*
5 WARRANT	1.13 lb ai/a	B		
5 AMS - LIQUID	2.5% v/v	B		
6 WHEAT 4 WEEKS PRIOR TO SOY				39*
6 PREFIX	1.65 lb ai/a	A		40*
6 METRIBUZIN 75	0.28 lb ai/a	A		41*
6 ENLIST ONE	0.95 lb ae/a	B		42*
6 ROUNDUP POWERMAX	1.13 lb ae/a	B		
6 WARRANT	1.13 lb ai/a	B		
6 AMS - LIQUID	2.5% v/v	B		
7 WHEAT AT SOY PLANTING				39*
7 NONTREATED				40*
8 WHEAT AT SOY PLANTING				41*
8 SHARPEN	0.0223 lb ai/a	A		42*
8 ENLIST ONE	0.95 lb ae/a	B		
8 ROUNDUP POWERMAX	1.13 lb ae/a	B		
8 WARRANT	1.13 lb ai/a	B		
8 AMS - LIQUID	2.5% v/v	B		
9 WHEAT AT SOY PLANTING				39*
9 PREFIX	1.65 lb ai/a	A		40*
9 METRIBUZIN 75	0.28 lb ai/a	A		41*
9 ENLIST ONE	0.95 lb ae/a	B		42*
9 ROUNDUP POWERMAX	1.13 lb ae/a	B		
9 WARRANT	1.13 lb ai/a	B		
9 AMS - LIQUID	2.5% v/v	B		
LSD P=.05				3.126
Standard Deviation				2.142
CV				15.85
Grand Mean				13.519
Levene's F^				10.882
Levene's Prob(F)				0.00*
Rank X2				.
P(Rank X2)				.
Skewness^				-0.1218
Kurtosis^				0.7021
Analyzed as				RCB
Replicate F				2.583
Replicate Prob(F)				0.0768
Treatment F				4.140
Treatment Prob(F)				0.0032
				RCB
				1.860
				0.1634
				4.506
				0.0019
				RCB
				2.857
				0.0582
				4.887
				0.0011
				RCB
				3.288
				0.0379
				4.370
				0.0023

Crop Type, Code

C = EPPO species (Bayer) codes
 GLXMA, BSOY, Glycine max, Soybean = US
 Part Rated
 GRAIN = grain

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Rating Type

WEIGHT = weight
MOICON = moisture content
YIELD = yield
WEITES = weight - test

Rating Unit/Min/Max

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

Plant-Eval Interval

141 DP-3 = 3 GLXMA May-24-2022

ARM Action Codes

TY1 = $4.84 * [C39] * (100 - [C40]) / 87$