

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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	1	2	3	4	5	6
LVS (#) min-max, maj	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -
Ht (in) min-max, maj	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____

Weed 8: _____

	1	2	3	4	5	6
LVS (#) min-max, maj	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -
Ht (in) min-max, maj	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -	- / - / -
Est Density (#/sqft)	_____	_____	_____	_____	_____	_____

Weed 9: _____

	1	2	3	4	5	6
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	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	ECHCG	AMATA	AMBTR	ECHCG
Pest Scientific Name	Echinochloa cru>	Amaranthus x ta>	Ambrosia trifida	Echinochloa cru>
Pest Name	common barnyard>	common water he>	Giant ragweed	common barnyard>
Crop Type, Code				
Crop Name				
Rating Date	Jun-7-2022	Jun-7-2022	Jun-7-2022	Jun-14-2022
Part Rated				
Rating Type	CONTRO	CONTRO		
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	Jul-5-2022	Jul-5-2022	Jul-5-2022	Jul-5-2022
Rating Timing				
Days After First/Last Applic.	14, 14	14, 14	14, 14	21, 21
Trt-Eval Interval	14 DA-A	14 DA-A	14 DA-A	21 DA-A
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	50 DP-1
Days After Emergence	33 DE-1	33 DE-1	33 DE-1	40 DE-1
ARM Action Codes				
Number of Decimals				

Trt Treatment	Rate	Rate Unit	Appl Code	1*	2*	3*	4*
1 NO WHEAT				100.0-	100.0-	100.0-	57.5c
1 NONTREATED							
2 NO WHEAT				100.0-	100.0-	100.0-	60.0c
2 SHARPEN	0.0223 lb ai/a	A					
2 ENLIST ONE	0.95 lb ae/a	B					
2 ROUNDUP POWERMAX	1.13 lb ae/a	B					
2 WARRANT	1.13 lb ai/a	B					
2 AMS - LIQUID	2.5% v/v	B					
3 NO WHEAT				100.0-	100.0-	100.0-	100.0a
3 PREFIX	1.65 lb ai/a	A					
3 METRIBUZIN 75	0.28 lb ai/a	A					
3 ENLIST ONE	0.95 lb ae/a	B					
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				100.0-	100.0-	100.0-	90.0ab
4 NONTREATED							

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Pest Code	ECHCG	AMATA	AMBTR	ECHCG
Pest Scientific Name	Echinochloa cru>	Amaranthus x ta>	Ambrosia trifida	Echinochloa cru>
Pest Name	common barnyard>	common water he>	Giant ragweed	common barnyard>
Crop Type, Code				
Crop Name				
Rating Date	Jun-7-2022	Jun-7-2022	Jun-7-2022	Jun-14-2022
Part Rated				
Rating Type	CONTRO	CONTRO		
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	Jul-5-2022	Jul-5-2022	Jul-5-2022	Jul-5-2022
Rating Timing				
Days After First/Last Applic.	14, 14	14, 14	14, 14	21, 21
Trt-Eval Interval	14 DA-A	14 DA-A	14 DA-A	21 DA-A
Plant-Eval Interval	43 DP-1	43 DP-1	43 DP-1	50 DP-1
Days After Emergence	33 DE-1	33 DE-1	33 DE-1	40 DE-1
ARM Action Codes				
Number of Decimals				

Trt Treatment	Rate	Rate Unit	Appl Code	1*	2*	3*	4*
5 WHEAT 4 WEEKS PRIOR TO SOY				100.0-	100.0-	100.0-	87.5ab
5 SHARPEN	0.0223lb	ai/a	A				
5 ENLIST ONE	0.95lb	ae/a	B				
5 ROUNDUP POWERMAX	1.13lb	ae/a	B				
5 WARRANT	1.13lb	ai/a	B				
5 AMS - LIQUID	2.5%	v/v	B				
6 WHEAT 4 WEEKS PRIOR TO SOY				100.0-	100.0-	100.0-	100.0a
6 PREFIX	1.65lb	ai/a	A				
6 METRIBUZIN 75	0.28lb	ai/a	A				
6 ENLIST ONE	0.95lb	ae/a	B				
6 ROUNDUP POWERMAX	1.13lb	ae/a	B				
6 WARRANT	1.13lb	ai/a	B				
6 AMS - LIQUID	2.5%	v/v	B				
7 WHEAT AT SOY PLANTING				100.0-	100.0-	100.0-	67.5bc
7 NONTREATED							
8 WHEAT AT SOY PLANTING				100.0-	100.0-	100.0-	80.0abc
8 SHARPEN	0.0223lb	ai/a	A				
8 ENLIST ONE	0.95lb	ae/a	B				
8 ROUNDUP POWERMAX	1.13lb	ae/a	B				
8 WARRANT	1.13lb	ai/a	B				
8 AMS - LIQUID	2.5%	v/v	B				
9 WHEAT AT SOY PLANTING				100.0-	100.0-	100.0-	100.0a
9 PREFIX	1.65lb	ai/a	A				
9 METRIBUZIN 75	0.28lb	ai/a	A				
9 ENLIST ONE	0.95lb	ae/a	B				
9 ROUNDUP POWERMAX	1.13lb	ae/a	B				
9 WARRANT	1.13lb	ai/a	B				
9 AMS - LIQUID	2.5%	v/v	B				
LSD P=.05				.	.	.	16.84
Standard Deviation				0.00	0.00	0.00	11.54
CV				0.0	0.0	0.0	13.98
Grand Mean				100.00	100.00	100.00	82.50
Levene's F^				.	.	.	1.073
Levene's Prob(F)				.	.	.	0.411
Rank X2				.	.	.	.
P(Rank X2)				.	.	.	.
Skewness^				.	.	.	-0.6101
Kurtosis^				.	.	.	1.7443*
Analyzed as				RCB	RCB	RCB	RCB
Replicate F				0.000	0.000	0.000	1.579
Replicate Prob(F)				1.0000	1.0000	1.0000	0.2204
Treatment F				0.000	0.000	0.000	8.875
Treatment Prob(F)				1.0000	1.0000	1.0000	0.0001

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Pest Type	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	AMATA	AMBTR	ECHCG	AMATA
Pest Scientific Name	Amaranthus x ta>	Ambrosia trifida	Echinochloa cru>	Amaranthus x ta>
Pest Name	common water he>	Giant ragweed	common barnyard>	common water he>
Crop Type, Code				
Crop Name				
Rating Date	Jun-14-2022	Jun-14-2022	Jun-21-2022	Jun-21-2022
Part Rated				
Rating Type	CONTRO			CONTRO
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	Jul-5-2022	Jul-5-2022	Jun-22-2022	Jun-22-2022
Rating Timing			AT POST	AT POST
Days After First/Last Applic.	21, 21	21, 21	28, 28	28, 28
Trt-Eval Interval	21 DA-A	21 DA-A	0 DA-B	0 DA-B
Plant-Eval Interval	50 DP-1	50 DP-1	57 DP-1	57 DP-1
Days After Emergence	40 DE-1	40 DE-1	47 DE-1	47 DE-1
ARM Action Codes				
Number of Decimals				

Trt Treatment No. Name	Rate	Rate Unit	Appl Code	5*	6*	7*	8*
1 NO WHEAT				50.0b	35.0b	7.5b	7.5b
1 NONTREATED							
2 NO WHEAT				83.8a	77.5ab	10.0b	60.0ab
2 SHARPEN	0.0223	lb ai/a	A				
2 ENLIST ONE	0.95	lb ae/a	B				
2 ROUNDUP POWERMAX	1.13	lb ae/a	B				
2 WARRANT	1.13	lb ai/a	B				
2 AMS - LIQUID	2.5%	v/v	B				
3 NO WHEAT				100.0a	100.0a	98.5a	100.0a
3 PREFIX	1.65	lb ai/a	A				
3 METRIBUZIN 75	0.28	lb ai/a	A				
3 ENLIST ONE	0.95	lb ae/a	B				
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				82.5a	57.5ab	77.5a	72.5ab
4 NONTREATED							

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Pest Type	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	AMATA	AMBTR	ECHCG	AMATA
Pest Scientific Name	Amaranthus x ta>	Ambrosia trifida	Echinochloa cru>	Amaranthus x ta>
Pest Name	common water he>	Giant ragweed	common barnyard>	common water he>
Crop Type, Code				
Crop Name				
Rating Date	Jun-14-2022	Jun-14-2022	Jun-21-2022	Jun-21-2022
Part Rated				
Rating Type	CONTRO			CONTRO
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	Jul-5-2022	Jul-5-2022	Jun-22-2022	Jun-22-2022
Rating Timing			AT POST	AT POST
Days After First/Last Applic.	21, 21	21, 21	28, 28	28, 28
Trt-Eval Interval	21 DA-A	21 DA-A	0 DA-B	0 DA-B
Plant-Eval Interval	50 DP-1	50 DP-1	57 DP-1	57 DP-1
Days After Emergence	40 DE-1	40 DE-1	47 DE-1	47 DE-1
ARM Action Codes				
Number of Decimals				

Trt Treatment	Rate	Rate Unit	Appl Code	5*	6*	7*	8*
5 WHEAT 4 WEEKS PRIOR TO SOY				100.0a	100.0a	82.5a	100.0a
5 SHARPEN	0.0223 lb ai/a	A					
5 ENLIST ONE	0.95 lb ae/a	B					
5 ROUNDUP POWERMAX	1.13 lb ae/a	B					
5 WARRANT	1.13 lb ai/a	B					
5 AMS - LIQUID	2.5% v/v	B					
6 WHEAT 4 WEEKS PRIOR TO SOY				100.0a	100.0a	100.0a	100.0a
6 PREFIX	1.65 lb ai/a	A					
6 METRIBUZIN 75	0.28 lb ai/a	A					
6 ENLIST ONE	0.95 lb ae/a	B					
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				77.5a	70.0ab	30.0b	50.0ab
7 NONTREATED							
8 WHEAT AT SOY PLANTING				90.0a	55.0ab	37.5b	60.0ab
8 SHARPEN	0.0223 lb ai/a	A					
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				100.0a	100.0a	94.3a	100.0a
9 PREFIX	1.65 lb ai/a	A					
9 METRIBUZIN 75	0.28 lb ai/a	A					
9 ENLIST ONE	0.95 lb ae/a	B					
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				22.03	33.83	28.36	46.10
Standard Deviation				15.09	23.18	19.43	31.59
CV				17.33	30.02	32.52	43.74
Grand Mean				87.08	77.22	59.75	72.22
Levene's F^				5.112	2.197	0.879	4.299
Levene's Prob(F)				0.001*	0.06	0.547	0.002*
Rank X2				.	.	.	.
P(Rank X2)				.	.	.	.
Skewness^				-0.7147	-0.3267	-0.4539	-0.3274
Kurtosis^				1.5265	1.7544*	1.2692	0.0355
Analyzed as				RCB	RCB	RCB	RCB
Replicate F				0.515	0.407	0.334	0.468
Replicate Prob(F)				0.6757	0.7495	0.8011	0.7076
Treatment F				4.774	4.461	15.533	4.042
Treatment Prob(F)				0.0013	0.0020	0.0001	0.0037

The Ohio State University

Interseeded Winter Wheat in Soybean

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

Cooperator Trial ID:
 Location:
 Trial Year: 2022

Sponsor Contact:

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	AMBTR	GLXMA	ECHCG	AMATA	AMBTR
Pest Scientific Name	Ambrosia trifida	Glycine max	Echinochloa cru>	Amaranthus x ta>	Ambrosia trifida
Pest Name	Giant ragweed	Soybean	common barnyard>	common water he>	Giant ragweed
Crop Type, Code					
Crop Name					
Rating Date	Jun-21-2022	Jun-29-2022	Jul-5-2022	Jul-5-2022	Jul-5-2022
Part Rated					
Rating Type		COUPLA	CONTRO	CONTRO	CONTRO
Rating Unit/Min/Max	% , 0, 100	meter, -, -	% , 0, 100		
Number of Subsamples	1	2	1	1	1
Data Entry Date	Jun-22-2022	Jun-29-2022	Sep-13-2022	Sep-13-2022	Sep-13-2022
Rating Timing	AT POST				
Days After First/Last Applic.	28, 28	36, 8	42, 14	42, 14	42, 14
Trt-Eval Interval	0 DA-B		14 DA-B	14 DA-B	14 DA-B
Plant-Eval Interval	57 DP-1	65 DP-1	71 DP-1	71 DP-1	71 DP-1
Days After Emergence	47 DE-1	55 DE-1	61 DE-1	61 DE-1	61 DE-1
ARM Action Codes					
Number of Decimals					

Trt Treatment No. Name	Rate	Rate Unit	Appl Code	9*	10*	11*	12*	13*
1 NO WHEAT 1 NONTREATED				7.5b	18.9-	100.0-	100.0-	100.0-
2 NO WHEAT 2 SHARPEN 2 ENLIST ONE 2 ROUNDUP POWERMAX 2 WARRANT 2 AMS - LIQUID	0.0223lb ai/a A 0.95lb ae/a B 1.13lb ae/a B 1.13lb ai/a B 2.5% v/v B			65.0ab	20.6-	100.0-	100.0-	100.0-
3 NO WHEAT 3 PREFIX 3 METRIBUZIN 75 3 ENLIST ONE 3 ROUNDUP POWERMAX 3 WARRANT 3 AMS - LIQUID	1.65lb ai/a A 0.28lb ai/a A 0.95lb ae/a B 1.13lb ae/a B 1.13lb ai/a B 2.5% v/v B			100.0a	18.8-	100.0-	100.0-	100.0-
4 WHEAT 4 WEEKS PRIOR TO SOY 4 NONTREATED				56.3ab	19.3-	100.0-	100.0-	100.0-

The Ohio State University

Interseeded Winter Wheat in Soybean

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

Cooperator Trial ID:
 Location: Trial Year: 2022
 Sponsor Contact:

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	AMBTR	GLXMA	ECHCG	AMATA	AMBTR
Pest Scientific Name	Ambrosia trifida	Glycine max	Echinochloa cru>	Amaranthus x ta>	Ambrosia trifida
Pest Name	Giant ragweed	Soybean	common barnyard>	common water he>	Giant ragweed
Crop Type, Code					
Crop Name					
Rating Date	Jun-21-2022	Jun-29-2022	Jul-5-2022	Jul-5-2022	Jul-5-2022
Part Rated					
Rating Type		COUPLA	CONTRO	CONTRO	CONTRO
Rating Unit/Min/Max	% , 0, 100	meter, -, -	% , 0, 100		
Number of Subsamples	1	2	1	1	1
Data Entry Date	Jun-22-2022	Jun-29-2022	Sep-13-2022	Sep-13-2022	Sep-13-2022
Rating Timing	AT POST				
Days After First/Last Applic.	28, 28	36, 8	42, 14	42, 14	42, 14
Trt-Eval Interval	0 DA-B		14 DA-B	14 DA-B	14 DA-B
Plant-Eval Interval	57 DP-1	65 DP-1	71 DP-1	71 DP-1	71 DP-1
Days After Emergence	47 DE-1	55 DE-1	61 DE-1	61 DE-1	61 DE-1
ARM Action Codes					
Number of Decimals					

Trt Treatment	Rate	Rate Unit	Appl Code	9*	10*	11*	12*	13*
5 WHEAT 4 WEEKS PRIOR TO SOY				100.0a	18.5-	100.0-	100.0-	100.0-
5 SHARPEN	0.0223 lb ai/a	A						
5 ENLIST ONE	0.95 lb ae/a	B						
5 ROUNDUP POWERMAX	1.13 lb ae/a	B						
5 WARRANT	1.13 lb ai/a	B						
5 AMS - LIQUID	2.5% v/v	B						
6 WHEAT 4 WEEKS PRIOR TO SOY				100.0a	18.9-	100.0-	100.0-	100.0-
6 PREFIX	1.65 lb ai/a	A						
6 METRIBUZIN 75	0.28 lb ai/a	A						
6 ENLIST ONE	0.95 lb ae/a	B						
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				40.0ab	21.1-	100.0-	100.0-	100.0-
7 NONTREATED								
8 WHEAT AT SOY PLANTING				40.0ab	21.9-	100.0-	100.0-	100.0-
8 SHARPEN	0.0223 lb ai/a	A						
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				98.8a	17.9-	100.0-	100.0-	100.0-
9 PREFIX	1.65 lb ai/a	A						
9 METRIBUZIN 75	0.28 lb ai/a	A						
9 ENLIST ONE	0.95 lb ae/a	B						
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				42.58	4.41	.	.	.
Standard Deviation				29.18	3.02	0.00	0.00	0.00
CV				43.23	15.47	0.0	0.0	0.0
Grand Mean				67.50	19.53	100.00	100.00	100.00
Levene's F^				2.386	0.737	.	.	.
Levene's Prob(F)				0.043*	0.659	.	.	.
Rank X2				.	.	.	.	.
P(Rank X2)				.	.	.	.	.
Skewness^				0.3291	-0.7429	.	.	.
Kurtosis^				0.5044	0.6093	.	.	.
Analyzed as				RCB	RCB	RCB	RCB	RCB
Replicate F				0.717	0.403	0.000	0.000	0.000
Replicate Prob(F)				0.5517	0.7524	1.0000	1.0000	1.0000
Treatment F				5.515	0.799	0.000	0.000	0.000
Treatment Prob(F)				0.0005	0.6093	1.0000	1.0000	1.0000

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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	ECHCG	AMATA	AMBTR	ECHCG
Pest Scientific Name	Echinochloa cru>	Amaranthus x ta>	Ambrosia trifida	Echinochloa cru>
Pest Name	common barnyard>	common water he>	Giant ragweed	common barnyard>
Crop Type, Code				
Crop Name				
Rating Date	Jul-18-2022	Jul-18-2022	Jul-18-2022	Aug-15-2022
Part Rated				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	Jul-18-2022	Jul-18-2022	Jul-18-2022	Aug-15-2022
Rating Timing				
Days After First/Last Applic.	55, 27	55, 27	55, 27	83, 55
Trt-Eval Interval	27 DA-B	27 DA-B	27 DA-B	55 DA-B
Plant-Eval Interval	84 DP-1	84 DP-1	84 DP-1	112 DP-1
Days After Emergence	74 DE-1	74 DE-1	74 DE-1	102 DE-1
ARM Action Codes				
Number of Decimals				

Trt Treatment No. Name	Rate	Rate Unit	Appl Code	14*	15*	16*	17*
1 NO WHEAT				100.0-	92.5-	100.0-	80.0bcd
1 NONTREATED							
2 NO WHEAT				100.0-	100.0-	100.0-	86.3abc
2 SHARPEN	0.0223 lb ai/a	A					
2 ENLIST ONE	0.95 lb ae/a	B					
2 ROUNDUP POWERMAX	1.13 lb ae/a	B					
2 WARRANT	1.13 lb ai/a	B					
2 AMS - LIQUID	2.5% v/v	B					
3 NO WHEAT				100.0-	100.0-	100.0-	100.0a
3 PREFIX	1.65 lb ai/a	A					
3 METRIBUZIN 75	0.28 lb ai/a	A					
3 ENLIST ONE	0.95 lb ae/a	B					
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				100.0-	100.0-	100.0-	62.5e
4 NONTREATED							

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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed
Pest Code	ECHCG	AMATA	AMBTR	ECHCG
Pest Scientific Name	Echinochloa cru>	Amaranthus x ta>	Ambrosia trifida	Echinochloa cru>
Pest Name	common barnyard>	common water he>	Giant ragweed	common barnyard>
Crop Type, Code				
Crop Name				
Rating Date	Jul-18-2022	Jul-18-2022	Jul-18-2022	Aug-15-2022
Part Rated				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Number of Subsamples	1	1	1	1
Data Entry Date	Jul-18-2022	Jul-18-2022	Jul-18-2022	Aug-15-2022
Rating Timing				
Days After First/Last Applic.	55, 27	55, 27	55, 27	83, 55
Trt-Eval Interval	27 DA-B	27 DA-B	27 DA-B	55 DA-B
Plant-Eval Interval	84 DP-1	84 DP-1	84 DP-1	112 DP-1
Days After Emergence	74 DE-1	74 DE-1	74 DE-1	102 DE-1
ARM Action Codes				
Number of Decimals				

Trt Treatment	Rate	Rate Unit	Appl Code	14*	15*	16*	17*
5 WHEAT 4 WEEKS PRIOR TO SOY				100.0-	100.0-	100.0-	67.5de
5 SHARPEN	0.0223 lb ai/a	A					
5 ENLIST ONE	0.95 lb ae/a	B					
5 ROUNDUP POWERMAX	1.13 lb ae/a	B					
5 WARRANT	1.13 lb ai/a	B					
5 AMS - LIQUID	2.5% v/v	B					
6 WHEAT 4 WEEKS PRIOR TO SOY				100.0-	100.0-	100.0-	90.0abc
6 PREFIX	1.65 lb ai/a	A					
6 METRIBUZIN 75	0.28 lb ai/a	A					
6 ENLIST ONE	0.95 lb ae/a	B					
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				100.0-	96.3-	100.0-	77.5b-e
7 NONTREATED							
8 WHEAT AT SOY PLANTING				100.0-	96.3-	100.0-	75.0cde
8 SHARPEN	0.0223 lb ai/a	A					
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				100.0-	100.0-	100.0-	93.8ab
9 PREFIX	1.65 lb ai/a	A					
9 METRIBUZIN 75	0.28 lb ai/a	A					
9 ENLIST ONE	0.95 lb ae/a	B					
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				.	7.07	.	11.72
Standard Deviation				0.00	4.84	0.00	8.03
CV				0.0	4.92	0.0	9.87
Grand Mean				100.00	98.33	100.00	81.39
Levene's F^				.	2.375	.	1.452
Levene's Prob(F)				.	0.044*	.	0.221
Rank X2				.	.	.	.
P(Rank X2)				.	.	.	.
Skewness^				.	-1.1885*	.	-0.5361
Kurtosis^				.	2.7495*	.	0.2235
Analyzed as				RCB	RCB	RCB	RCB
Replicate F				0.000	0.000	0.000	1.880
Replicate Prob(F)				1.0000	1.0000	1.0000	0.1600
Treatment F				0.000	1.267	0.000	9.334
Treatment Prob(F)				1.0000	0.3061	1.0000	0.0001

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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	
Pest Code	AMATA	AMBTR	ABUTH	XANST	
Pest Scientific Name	Amaranthus x ta>	Ambrosia trifida	Abutilon theoph>	Xanthium struma>	
Pest Name	common water he>	Giant ragweed	velvetleaf	clothbur	
Crop Type, Code					C, GLXMA
Crop Name					Soybean
Rating Date	Aug-15-2022	Aug-15-2022	Aug-15-2022	Aug-15-2022	Aug-15-2022
Part Rated					
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	HEIGHT
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	inches, -, -
Number of Subsamples	1	1	1	1	3
Data Entry Date	Aug-15-2022	Aug-15-2022	Aug-15-2022	Aug-15-2022	Oct-17-2022
Rating Timing					
Days After First/Last Applic.	83, 55	83, 55	83, 55	83, 55	83, 55
Trt-Eval Interval	55 DA-B	55 DA-B	55 DA-B	55 DA-B	
Plant-Eval Interval	112 DP-1	112 DP-1	112 DP-1	112 DP-1	83 DP-3
Days After Emergence	102 DE-1	102 DE-1	102 DE-1	102 DE-1	73 DE-3
ARM Action Codes					
Number of Decimals					

Trt Treatment No. Name	Rate	Rate Unit	Appl Code	18*	19*	20*	21*	22*
1 NO WHEAT 1 NONTREATED				67.5b	100.0-	88.8-	100.0-	30.5bc
2 NO WHEAT 2 SHARPEN 2 ENLIST ONE 2 ROUNDUP POWERMAX 2 WARRANT 2 AMS - LIQUID	0.0223lb ai/a A 0.95lb ae/a B 1.13lb ae/a B 1.13lb ai/a B 2.5% v/v B			85.0ab	91.3-	100.0-	100.0-	30.8b
3 NO WHEAT 3 PREFIX 3 METRIBUZIN 75 3 ENLIST ONE 3 ROUNDUP POWERMAX 3 WARRANT 3 AMS - LIQUID	1.65lb ai/a A 0.28lb ai/a A 0.95lb ae/a B 1.13lb ae/a B 1.13lb ai/a B 2.5% v/v B			100.0a	100.0-	100.0-	100.0-	35.8a
4 WHEAT 4 WEEKS PRIOR TO SOY 4 NONTREATED				60.0b	100.0-	100.0-	100.0-	24.8d

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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed				
Pest Code	AMATA	AMBTR	ABUTH	XANST				
Pest Scientific Name	Amaranthus x ta>	Ambrosia trifida	Abutilon theoph>	Xanthium struma>				
Pest Name	common water he>	Giant ragweed	velvetleaf	clotbur				
Crop Type, Code					C, GLXMA			
Crop Name					Soybean			
Rating Date	Aug-15-2022	Aug-15-2022	Aug-15-2022	Aug-15-2022	Aug-15-2022			
Part Rated								
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	HEIGHT			
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	inches, -, -			
Number of Subsamples	1	1	1	1	3			
Data Entry Date	Aug-15-2022	Aug-15-2022	Aug-15-2022	Aug-15-2022	Oct-17-2022			
Rating Timing								
Days After First/Last Applic.	83, 55	83, 55	83, 55	83, 55	83, 55			
Trt-Eval Interval	55 DA-B	55 DA-B	55 DA-B	55 DA-B				
Plant-Eval Interval	112 DP-1	112 DP-1	112 DP-1	112 DP-1	83 DP-3			
Days After Emergence	102 DE-1	102 DE-1	102 DE-1	102 DE-1	73 DE-3			
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Rate	Appl	18*	19*	20*	21*	22*
No. Name	Rate	Unit	Code					
5WHEAT 4 WEEKS PRIOR TO SOY				75.0ab	100.0-	92.5-	87.5-	26.7cd
5SHARPEN	0.0223lb ai/a	A						
5ENLIST ONE	0.95lb ae/a	B						
5ROUNDUP POWERMAX	1.13lb ae/a	B						
5WARRANT	1.13lb ai/a	B						
5AMS - LIQUID	2.5% v/v	B						
6WHEAT 4 WEEKS PRIOR TO SOY				96.3a	91.3-	96.3-	100.0-	26.6cd
6PREFIX	1.65lb ai/a	A						
6METRIBUZIN 75	0.28lb ai/a	A						
6ENLIST ONE	0.95lb ae/a	B						
6ROUNDUP POWERMAX	1.13lb ae/a	B						
6WARRANT	1.13lb ai/a	B						
6AMS - LIQUID	2.5% v/v	B						
7WHEAT AT SOY PLANTING				71.3b	82.5-	87.5-	100.0-	28.6bcd
7NONTREATED								
8WHEAT AT SOY PLANTING				75.0ab	100.0-	100.0-	87.5-	28.4bcd
8SHARPEN	0.0223lb ai/a	A						
8ENLIST ONE	0.95lb ae/a	B						
8ROUNDUP POWERMAX	1.13lb ae/a	B						
8WARRANT	1.13lb ai/a	B						
8AMS - LIQUID	2.5% v/v	B						
9WHEAT AT SOY PLANTING				100.0a	100.0-	98.8-	100.0-	35.1a
9PREFIX	1.65lb ai/a	A						
9METRIBUZIN 75	0.28lb ai/a	A						
9ENLIST ONE	0.95lb ae/a	B						
9ROUNDUP POWERMAX	1.13lb ae/a	B						
9WARRANT	1.13lb ai/a	B						
9AMS - LIQUID	2.5% v/v	B						
LSD P=.05				17.06	12.89	14.16	16.09	2.79
Standard Deviation				11.69	8.84	9.70	11.02	1.91
CV				14.41	9.19	10.11	11.34	6.44
Grand Mean				81.11	96.11	95.97	97.22	29.69
Levene's F^				1.303	2.657	0.307	0.347	1.049
Levene's Prob(F)				0.284	0.027*	0.957	0.939	0.426
Rank X2				.	.	.	.	.
P(Rank X2)				.	.	.	.	.
Skewness^				-0.0007	-1.0634*	-0.8875*	-1.6109*	-0.0402
Kurtosis^				-0.2301	4.6708*	2.0758*	4.2268*	-0.7283
Analyzed as				RCB	RCB	RCB	RCB	RCB
Replicate F				3.619	1.874	5.652	2.286	9.810
Replicate Prob(F)				0.0276	0.1610	0.0045	0.1044	0.0002
Treatment F				6.443	2.070	1.108	1.000	15.681
Treatment Prob(F)				0.0002	0.0804	0.3923	0.4613	0.0001

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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	ECHCG	SETFA	PANDI	AMATA	AMBTR			
Pest Scientific Name	Echinochloa cru>	Setaria faberi	Panicum dichoto>	Amaranthus x ta>	Ambrosia trifida			
Pest Name	common barnyard>	Giant foxtail	Fall panicum	common water he>	Giant ragweed			
Crop Type, Code								
Crop Name								
Rating Date	Oct-10-2022	Oct-10-2022	Oct-10-2022	Oct-10-2022	Oct-10-2022			
Part Rated								
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100			
Number of Subsamples	1	1	1	1	1			
Data Entry Date	Oct-17-2022	Oct-17-2022	Oct-17-2022	Oct-17-2022	Oct-17-2022			
Rating Timing	HARVEST	HARVEST	HARVEST	HARVEST	HARVEST			
Days After First/Last Applic.	139, 111	139, 111	139, 111	139, 111	139, 111			
Trt-Eval Interval								
Plant-Eval Interval	168 DP-1	168 DP-1	168 DP-1	168 DP-1	168 DP-1			
Days After Emergence	158 DE-1	158 DE-1	158 DE-1	158 DE-1	158 DE-1			
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Rate Unit	Appl Code	23*	24*	25*	26*	27*
5 WHEAT 4 WEEKS PRIOR TO SOY				67.5bc	91.3 ab	85.0-	85.0ab	100.0-
5 SHARPEN	0.0223	lb ai/a	A					
5 ENLIST ONE	0.95	lb ae/a	B					
5 ROUNDUP POWERMAX	1.13	lb ae/a	B					
5 WARRANT	1.13	lb ai/a	B					
5 AMS - LIQUID	2.5%	v/v	B					
6 WHEAT 4 WEEKS PRIOR TO SOY				80.0bc	90.0 ab	92.5-	100.0a	95.0-
6 PREFIX	1.65	lb ai/a	A					
6 METRIBUZIN 75	0.28	lb ai/a	A					
6 ENLIST ONE	0.95	lb ae/a	B					
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				73.8bc	95.0 ab	92.5-	70.0bc	86.3-
7 NONTREATED								
8 WHEAT AT SOY PLANTING				70.0bc	90.0 ab	97.5-	80.0abc	87.5-
8 SHARPEN	0.0223	lb ai/a	A					
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				88.8ab	100.0a	97.5-	100.0a	97.5-
9 PREFIX	1.65	lb ai/a	A					
9 METRIBUZIN 75	0.28	lb ai/a	A					
9 ENLIST ONE	0.95	lb ae/a	B					
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				14.36	11.10	11.94	16.84	13.74
Standard Deviation				9.84	7.60	8.18	11.54	9.42
CV				12.67	8.23	8.67	13.94	10.01
Grand Mean				77.64	92.36	94.31	82.78	94.03
Levene's F^				0.56	0.414	1.597	1.574	0.64
Levene's Prob(F)				0.801	0.902	0.172	0.179	0.737
Rank X2				.	.	.	.	.
P(Rank X2)				.	.	.	.	.
Skewness^				-0.5195	-0.6179	-0.5152	-0.2544	-1.3004*
Kurtosis^				0.1916	1.0152	0.504	0.058	3.204*
Analyzed as				RCB	RCB	RCB	RCB	RCB
Replicate F				2.400	4.721	3.554	1.016	1.282
Replicate Prob(F)				0.0928	0.0100	0.0293	0.4031	0.3031
Treatment F				5.304	2.742	1.567	6.830	1.230
Treatment Prob(F)				0.0007	0.0266	0.1871	0.0001	0.3246

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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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	CHEAL	XANST	ABUTH	ECHCG			
Pest Scientific Name	Chenopodium alb>	Xanthium struma>	Abutilon theoph>	Echinochloa cru>			
Pest Name	common lambsqua>	clotbur	velvetleaf	common barnyard>			
Crop Type, Code							
Crop Name							
Rating Date	Oct-10-2022	Oct-10-2022	Oct-10-2022	Oct-10-2022			
Part Rated							
Rating Type	CONTRO	CONTRO	CONTRO	COUNT			
Rating Unit/Min/Max	% , 0, 100	% , 0, 100	% , 0, 100	.5 m2, -, -			
Number of Subsamples	1	1	1	2			
Data Entry Date	Oct-17-2022	Oct-17-2022	Oct-17-2022	Oct-17-2022			
Rating Timing	HARVEST	HARVEST	HARVEST	HARVEST			
Days After First/Last Applic.	139, 111	139, 111	139, 111	139, 111			
Trt-Eval Interval							
Plant-Eval Interval	168 DP-1	168 DP-1	168 DP-1	168 DP-1			
Days After Emergence	158 DE-1	158 DE-1	158 DE-1	158 DE-1			
ARM Action Codes							
Number of Decimals							
Trt Treatment	Rate	Rate Unit	Appl Code	28*	29*	30*	31*
No. Name							
1 NO WHEAT				96.3a	100.0-	92.5-	3.9-
1 NONTREATED							
2 NO WHEAT				100.0a	100.0-	100.0-	4.0-
2 SHARPEN	0.0223 lb ai/a	A					
2 ENLIST ONE	0.95 lb ae/a	B					
2 ROUNDUP POWERMAX	1.13 lb ae/a	B					
2 WARRANT	1.13 lb ai/a	B					
2 AMS - LIQUID	2.5% v/v	B					
3 NO WHEAT				100.0a	100.0-	100.0-	0.0-
3 PREFIX	1.65 lb ai/a	A					
3 METRIBUZIN 75	0.28 lb ai/a	A					
3 ENLIST ONE	0.95 lb ae/a	B					
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				85.0b	100.0-	100.0-	8.0-
4 NONTREATED							

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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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	CHEAL	XANST	ABUTH	ECHCG			
Pest Scientific Name	Chenopodium alb>	Xanthium struma>	Abutilon theoph>	Echinochloa cru>			
Pest Name	common lambsqua>	clotbur	velvetleaf	common barnyard>			
Crop Type, Code							
Crop Name							
Rating Date	Oct-10-2022	Oct-10-2022	Oct-10-2022	Oct-10-2022			
Part Rated							
Rating Type	CONTRO	CONTRO	CONTRO	COUNT			
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	.5 m2, -, -			
Number of Subsamples	1	1	1	2			
Data Entry Date	Oct-17-2022	Oct-17-2022	Oct-17-2022	Oct-17-2022			
Rating Timing	HARVEST	HARVEST	HARVEST	HARVEST			
Days After First/Last Applic.	139, 111	139, 111	139, 111	139, 111			
Trt-Eval Interval							
Plant-Eval Interval	168 DP-1	168 DP-1	168 DP-1	168 DP-1			
Days After Emergence	158 DE-1	158 DE-1	158 DE-1	158 DE-1			
ARM Action Codes							
Number of Decimals							
Trt Treatment	Rate	Rate Unit	Appl Code	28*	29*	30*	31*
No. Name							
5 WHEAT 4 WEEKS PRIOR TO SOY				95.0a	85.0-	95.0-	7.6-
5 SHARPEN	0.0223 lb ai/a	A					
5 ENLIST ONE	0.95 lb ae/a	B					
5 ROUNDUP POWERMAX	1.13 lb ae/a	B					
5 WARRANT	1.13 lb ai/a	B					
5 AMS - LIQUID	2.5% v/v	B					
6 WHEAT 4 WEEKS PRIOR TO SOY				100.0a	100.0-	95.0-	4.4-
6 PREFIX	1.65 lb ai/a	A					
6 METRIBUZIN 75	0.28 lb ai/a	A					
6 ENLIST ONE	0.95 lb ae/a	B					
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				100.0a	95.0-	95.0-	7.5-
7 NONTREATED							
8 WHEAT AT SOY PLANTING				93.8a	95.0-	97.5-	6.4-
8 SHARPEN	0.0223 lb ai/a	A					
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				100.0a	100.0-	97.5-	1.3-
9 PREFIX	1.65 lb ai/a	A					
9 METRIBUZIN 75	0.28 lb ai/a	A					
9 ENLIST ONE	0.95 lb ae/a	B					
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				7.32	10.41	9.13	5.79
Standard Deviation				5.02	7.14	6.25	3.96
CV				5.19	7.34	6.45	82.98
Grand Mean				96.67	97.22	96.94	4.78
Levene's F^				1.226	2.086	0.315	0.548
Levene's Prob(F)				0.322	0.073	0.953	0.81
Rank X2				.	.	.	.
P(Rank X2)				.	.	.	.
Skewness^A				-1.2791*	-0.4887	-0.7984*	0.9316*
Kurtosis^A				3.0154*	2.1577*	1.2178	0.8678
Analyzed as				RCB	RCB	RCB	RCB
Replicate F				1.103	3.127	4.994	2.233
Replicate Prob(F)				0.3670	0.0445	0.0078	0.1104
Treatment F				4.034	2.018	0.763	2.077
Treatment Prob(F)				0.0037	0.0878	0.6375	0.0795

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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.

Pest Type	W, Weed	W, Weed	W, Weed	W, Weed	W, Weed			
Pest Code	SETFA	PANDI	AMATA	AMBTR	CHEAL			
Pest Scientific Name	Setaria faberi	Panicum dichoto>	Amaranthus x ta>	Ambrosia trifida	Chenopodium alb>			
Pest Name	Giant foxtail	Fall panicum	common water he>	Giant ragweed	common lambsqua>			
Crop Type, Code								
Crop Name								
Rating Date	Oct-10-2022	Oct-10-2022	Oct-10-2022	Oct-10-2022	Oct-10-2022			
Part Rated								
Rating Type	COUNT	COUNT	COUNT	COUNT	COUNT			
Rating Unit/Min/Max	.5 m2, -, -	.5 m2, -, -	.5 m2, -, -	.5 m2, -, -	.5 m2, -, -			
Number of Subsamples	2	2	2	2	2			
Data Entry Date	Oct-17-2022	Oct-17-2022	Oct-17-2022	Oct-17-2022	Oct-17-2022			
Rating Timing	HARVEST	HARVEST	HARVEST	HARVEST	HARVEST			
Days After First/Last Applic.	139, 111	139, 111	139, 111	139, 111	139, 111			
Trt-Eval Interval								
Plant-Eval Interval	168 DP-1	168 DP-1	168 DP-1	168 DP-1	168 DP-1			
Days After Emergence	158 DE-1	158 DE-1	158 DE-1	158 DE-1	158 DE-1			
ARM Action Codes								
Number of Decimals								
Trt Treatment	Rate	Rate	Appl	32*	33*	34*	35*	36*
No. Name	Rate	Unit	Code					
5 WHEAT 4 WEEKS PRIOR TO SOY				1.1-	2.9-	0.5cd	0.0-	0.1b
5 SHARPEN	0.0223	lb ai/a	A					
5 ENLIST ONE	0.95	lb ae/a	B					
5 ROUNDUP POWERMAX	1.13	lb ae/a	B					
5 WARRANT	1.13	lb ai/a	B					
5 AMS - LIQUID	2.5%	v/v	B					
6 WHEAT 4 WEEKS PRIOR TO SOY				0.5-	0.4-	0.0d	0.1-	0.0b
6 PREFIX	1.65	lb ai/a	A					
6 METRIBUZIN 75	0.28	lb ai/a	A					
6 ENLIST ONE	0.95	lb ae/a	B					
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				0.3-	0.3-	1.4b	0.6-	0.0b
7 NONTREATED								
8 WHEAT AT SOY PLANTING				0.9-	0.1-	0.8bcd	0.6-	0.3b
8 SHARPEN	0.0223	lb ai/a	A					
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				0.0-	0.0-	0.0d	0.1-	0.0b
9 PREFIX	1.65	lb ai/a	A					
9 METRIBUZIN 75	0.28	lb ai/a	A					
9 ENLIST ONE	0.95	lb ae/a	B					
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				1.59	2.09	0.61	0.76	0.27
Standard Deviation				1.09	1.43	0.42	0.52	0.18
CV				147.71	294.6	55.46	208.83	130.77
Grand Mean				0.74	0.49	0.75	0.25	0.14
Levene's F^				1.129	1.977	1.26	0.689	2.847
Levene's Prob(F)				0.376	0.089	0.305	0.698	0.02*
Rank X2				.	.	.	.	.
P(Rank X2)				.	.	.	.	.
Skewness^				1.6666*	2.2657*	-0.586	1.5985*	0.5661
Kurtosis^				6.869*	12.5627*	1.1789	3.5249*	0.3518
Analyzed as				RCB	RCB	RCB	RCB	RCB
Replicate F				1.885	1.295	0.910	0.713	0.842
Replicate Prob(F)				0.1590	0.2991	0.4510	0.5536	0.4843
Treatment F				2.292	1.649	16.706	0.975	7.316
Treatment Prob(F)				0.0555	0.1633	0.0001	0.4787	0.0001

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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.

Trt Treatment No. Name	Rate	Rate Unit	Appl Code	37*	38*
1 NO WHEAT 1 NONTREATED				0.0-	0.4-
2 NO WHEAT 2 SHARPEN 2 ENLIST ONE 2 ROUNDUP POWERMAX 2 WARRANT 2 AMS - LIQUID	0.0223 lb ai/a 0.95 lb ae/a 1.13 lb ae/a 1.13 lb ai/a 2.5% v/v	A B B B B		0.0-	0.0-
3 NO WHEAT 3 PREFIX 3 METRIBUZIN 75 3 ENLIST ONE 3 ROUNDUP POWERMAX 3 WARRANT 3 AMS - LIQUID	1.65 lb ai/a 0.28 lb ai/a 0.95 lb ae/a 1.13 lb ae/a 1.13 lb ai/a 2.5% v/v	A A B B B B		0.0-	0.0-
4 WHEAT 4 WEEKS PRIOR TO SOY 4 NONTREATED				0.0-	0.1-

Pest Type	W, Weed	W, Weed
Pest Code	XANST	ABUTH
Pest Scientific Name	Xanthium struma>	Abutilon theoph>
Pest Name	clotbur	velvetleaf
Crop Type, Code		
Crop Name		
Rating Date	Oct-10-2022	Oct-10-2022
Part Rated		
Rating Type	COUNT	COUNT
Rating Unit/Min/Max	.5 m2, -, -	.5 m2, -, -
Number of Subsamples	2	2
Data Entry Date	Oct-17-2022	Oct-17-2022
Rating Timing	HARVEST	HARVEST
Days After First/Last Applic.	139, 111	139, 111
Trt-Eval Interval		
Plant-Eval Interval	168 DP-1	168 DP-1
Days After Emergence	158 DE-1	158 DE-1
ARM Action Codes		
Number of Decimals		

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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.

Pest Type	W, Weed	W, Weed
Pest Code	XANST	ABUTH
Pest Scientific Name	Xanthium struma>	Abutilon theoph>
Pest Name	clotbur	velvetleaf
Crop Type, Code		
Crop Name		
Rating Date	Oct-10-2022	Oct-10-2022
Part Rated		
Rating Type	COUNT	COUNT
Rating Unit/Min/Max	.5 m2, -, -	.5 m2, -, -
Number of Subsamples	2	2
Data Entry Date	Oct-17-2022	Oct-17-2022
Rating Timing	HARVEST	HARVEST
Days After First/Last Applic.	139, 111	139, 111
Trt-Eval Interval		
Plant-Eval Interval	168 DP-1	168 DP-1
Days After Emergence	158 DE-1	158 DE-1
ARM Action Codes		
Number of Decimals		

Trt Treatment	Rate	Rate Unit	Appl Code	37*	38*
5 WHEAT 4 WEEKS PRIOR TO SOY				1.6-	0.1-
5 SHARPEN	0.0223 lb ai/a	A			
5 ENLIST ONE	0.95 lb ae/a	B			
5 ROUNDUP POWERMAX	1.13 lb ae/a	B			
5 WARRANT	1.13 lb ai/a	B			
5 AMS - LIQUID	2.5% v/v	B			
6 WHEAT 4 WEEKS PRIOR TO SOY				0.0-	0.1-
6 PREFIX	1.65 lb ai/a	A			
6 METRIBUZIN 75	0.28 lb ai/a	A			
6 ENLIST ONE	0.95 lb ae/a	B			
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				0.3-	0.1-
7 NONTREATED					
8 WHEAT AT SOY PLANTING				0.3-	0.1-
8 SHARPEN	0.0223 lb ai/a	A			
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				0.0-	0.1-
9 PREFIX	1.65 lb ai/a	A			
9 METRIBUZIN 75	0.28 lb ai/a	A			
9 ENLIST ONE	0.95 lb ae/a	B			
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				1.40	0.42
Standard Deviation				0.96	0.29
CV				406.01	228.52
Grand Mean				0.24	0.13
Levene's F^				0.929	0.681
Levene's Prob(F)				0.509	0.704
Rank X2				.	.
P(Rank X2)				.	.
Skewness^				2.6546*	1.3625*
Kurtosis^				13.9216*	4.3731*
Analyzed as				RCB	RCB
Replicate F				1.861	3.489
Replicate Prob(F)				0.1631	0.0312
Treatment F				1.232	0.574
Treatment Prob(F)				0.3235	0.7884

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Interseeded Winter Wheat in Soybean

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

Pest Type

W, Weed = Weed or volunteer crop

Pest Code

ECHCG, Echinochloa crus-galli, common barnyardgrass = US
 AMATA, Amaranthus x tamariscinus, common water hemp = US
 AMBTR, Ambrosia trifida, Giant ragweed = US
 GLXMA, Glycine max, Soybean = US
 ABUTH, Abutilon theophrasti, velvetleaf = US
 XANST, Xanthium strumarium, clotbur = US
 SETFA, Setaria faberi, Giant foxtail = US
 PANDI, Panicum dichotomiflorum, Fall panicum = US
 CHEAL, Chenopodium album, common lambsquarters = US

Crop Type Code

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

Rating Type

CONTRO = control / burndown or knockdown
 COUPLA = count - plant / emergence - objective
 HEIGHT = height
 COUNT = count

Rating Unit/Min/Max

%, 0, 100 = percent

Plant-Eval Interval

43 DP-1 = 1 TRZAW Apr-25-2022
 50 DP-1 = 1 TRZAW Apr-25-2022
 57 DP-1 = 1 TRZAW Apr-25-2022
 65 DP-1 = 1 TRZAW Apr-25-2022
 71 DP-1 = 1 TRZAW Apr-25-2022
 84 DP-1 = 1 TRZAW Apr-25-2022
 112 DP-1 = 1 TRZAW Apr-25-2022
 83 DP-3 = 3 GLXMA May-24-2022
 168 DP-1 = 1 TRZAW Apr-25-2022