

USB Cover Crop Trial

Trial ID: 15USBCOVER Location: Western Branch G-8 Trial Year: 2015
 Protocol ID: Investigator: Dr. Mark M. Loux
 Project ID: Study Director:
 Sponsor Contact:

General Trial Information

Investigator: Dr. Mark M. Loux

Initiation Date: 10-9-2014

Trial Location

City: South Charleston **Country:** USA United States
State/Prov.: Ohio
Postal Code: 45368 **Climate Zone:** USWARM US Warm Continental

Latitude of LL Corner °: 39.85787 N
Longitude of LL Corner °: -83.67457 W

Conducted Under GLP: No
Conducted Under GEP: No

Investigator: Dr. Mark M. Loux

Crop Description

<p>Crop 1: GLXMA Glycine max Variety: CZ 3841LL Description: Credenze Liberty Link</p> <p>Planting Rate, Unit: 175000 S/A Depth, Unit: 1 IN Row Spacing, Unit: 15 IN Soil Temperature, Unit: 60 F Soil Moisture: NORMAL normal, adequate Seed Bed: MEDIUM medium</p>	<p>Planting Date: 5-4-2015 Planting Method: PLANTD planted Planting Equipment: FE Field Equipment Emergence Date: 5-14-2015</p>
<p>Crop 2: GLXMA Glycine max Soybean Variety: P35T97R2 Description: Pioneer Roundup Ready 2</p> <p>Planting Rate, Unit: 175000 S/A Depth, Unit: 1 IN Row Spacing, Unit: 15 IN Soil Temperature, Unit: 60 F Soil Moisture: NORMAL normal, adequate Seed Bed: MEDIUM medium</p>	<p>Planting Date: 5-4-2015 Planting Method: PLANTD planted Planting Equipment: FE Field Equipment Emergence Date: 5-14-2015</p>
<p>Crop 3: AVESS Avena sp. Oats Variety: Armor Description: Ohio Certified</p> <p>Planting Rate, Unit: 60 LB/A Depth, Unit: 1 IN Row Spacing, Unit: 7.5 IN Soil Temperature, Unit: 50 F Soil Moisture: SLIWET slightly wet, moist Seed Bed: SMOOTH smooth</p>	<p>Planting Date: 10-9-2014 Planting Method: DRILLE drilled Planting Equipment: DD Disc Drill</p>
<p>Crop 4: SECCW Secale cereale (winter) Winter rye Variety: VNS Description: Walnut Creek Seed, Lot KD2013B</p> <p>Planting Rate, Unit: 90 LB/A Depth, Unit: 1 IN Row Spacing, Unit: 7.5 IN Soil Temperature, Unit: 50 F Soil Moisture: SLIWET slightly wet, moist Seed Bed: SMOOTH smooth</p>	<p>Planting Date: 10-9-2014 Planting Method: DRILLE drilled Planting Equipment: DD Disc Drill</p>

Pest Description

- Pest 1 Type:** W **Code:** STEME *Stellaria media*
Common Name: Common chickweed
- Pest 2 Type:** W **Code:** LAMPU *Lamium purpureum*
Common Name: Purple deadnettel
- Pest 3 Type:** W **Code:** AMBTR *Ambrosia trifida*
Common Name: Giant ragweed
- Pest 4 Type:** W **Code:** CARPE *Cardamine pensylvanica*
Common Name: Pennsylvania bittercress
- Pest 5 Type:** W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail
- Pest 6 Type:** W **Code:** AMARE *Amaranthus retroflexus*
Common Name: Redroot pigweed

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 30 FT
Treated Plot Area: 300 FT2
Replications: 4

Site Type: FIELD field
Experimental Unit: 1 PLOT plot
Tillage Type: MINTIL minimum-till
Study Design: SPLPLO Split-Plot

No. Previous Crop Year

- 1. Soybean 2014

Soil Description

Description Name: G-8 East
% OM: 1.7
pH: 7
CEC: 15

Texture: SIC silty clay
Soil Name: Crosby
Fert. Level: M
Soil Drainage: F fair

Application Description

	A	B	C
Application Date:	4-14-2015	5-28-2015	6-18-2015
Appl. Start Time:	9:00 AM	9:30 AM	9:30 AM
Appl. Stop Time:	9:30 AM	9:45 AM	9:45 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	14 EPP	POST	LPO
Application Placement:	BROFOL	BROFOL	BROFOL
Applied By:	Dobbels	Dobbel/Beth	Barclay
Air Temperature, Unit:	56 F	69 F	76 F
% Relative Humidity:	64	75	80
Wind Velocity, Unit:	6 MPH	2.5 MPH	4 MPH
Wind Direction:	NE	E	WSW
Dew Presence (Y/N):	Y yes		Y yes
Soil Temperature, Unit:	51 F	66 F	69 F
Soil Moisture:	MOIST	DRY/MOIST	WET
% Cloud Cover:	100	60	60
Next Moisture Occurred On:	4-19-2015	5-30-2015	
Time to Next Moisture, Unit:	5 DAY	2 DAY	

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH	BBCH
Stage Majority, Percent:		12 100	15 100
Height, Unit:		3 IN	12 IN
Height Minimum, Maximum:			10 13
Crop 2 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		BBCH	BBCH
Stage Majority, Percent:		12 100	15 100
Height, Unit:		3 IN	12 IN
Height Minimum, Maximum:			10 13
Crop 3 Code, BBCH Scale:	AVESS BCER	AVESS BCER	AVESS BCER
Crop 4 Code, BBCH Scale:	SECCW BCER	SECCW BCER	SECCW BCER
Stage Scale Used:		BBCH	
Stage Majority, Percent:		25 80	
Stage Minimum, Percent:		23 20	
Stage Maximum, Percent:		25 80	
Diameter, Unit:		3 IN	
Height, Unit:		7 IN	
Height Minimum, Maximum:		6 8	

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	STEME W	STEME W	STEME W
Stage Majority, Percent:	60 90		
Stage Minimum, Percent:	50 10		
Stage Maximum, Percent:	60 90		
Diameter, Unit:	4 in		
Height, Unit:	1 in		
Height Minimum, Maximum:	0.25 1		
Pest 2 Code, Type, Scale:	LAMPU W	LAMPU W	LAMPU W
Stage Majority, Percent:	65 95		
Stage Minimum, Percent:	50 5		
Stage Maximum, Percent:	65 95		
Diameter, Unit:	3 in		
Height, Unit:	3 IN		
Height Minimum, Maximum:	2 3		
Pest 3 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W
Stage Majority, Percent:	10 100	12 100	16 100
Stage Minimum, Percent:		12 100	
Stage Maximum, Percent:		14 100	
Diameter, Unit:	1 IN		
Height, Unit:	0.5 IN	4 IN	5 IN
Height Minimum, Maximum:	0.25 0.5	1 12	1 8
Pest 4 Code, Type, Scale:	CARPE W	CARPE W	CARPE W
Stage Majority, Percent:	65 100		
Diameter, Unit:	2 IN		
Height, Unit:	2 IN		
Height Minimum, Maximum:	1 2		
Pest 5 Code, Type, Scale:	SETFA W	SETFA W	SETFA W
Stage Majority, Percent:		12 100	15 100
Stage Minimum, Percent:		12 100	
Stage Maximum, Percent:		14 100	
Height, Unit:		3 IN	7 IN
Height Minimum, Maximum:		1 6	4 12
Pest 6 Code, Type, Scale:	AMARE W	AMARE W	AMARE W
Stage Majority, Percent:		14 100	14 100
Stage Minimum, Percent:		14 100	
Stage Maximum, Percent:		14 100	
Height, Unit:		1 IN	2 IN
Height Minimum, Maximum:		1 2	1 4

Application Equipment

	A	B	C
Appl. Equipment:	10' AI XR	10' AI XR	10' AI XR
Equipment Type:	SPRBAC	SPRBAC	SPRBAC
Operation Pressure, Unit:	46 PSI	46 PSI	46 PSI
Nozzle Type:	AI XR	AI XR	AI XR
Nozzle Size:	110015	110015	110015
Nozzle Spacing, Unit:	18 IN	18 IN	18 IN
Boom Length, Unit:	10 FT	10 FT	10 FT
Boom Height, Unit:	20 IN	20 IN	20 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	15 GPA	15 GPA	15 GPA
Mix Size, Unit:	2 Liters	2 Liters	2 Liters
Propellant:	CO2	CO2	CO2

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMARE	ABUTH	AMBTR	ECHCG	AMARE
Pest Scientific Name	Amaranthus ret>	Abutilon theop>	Ambrosia trifi>	Echinochloa cr>	Amaranthus ret>
Pest Name	Redroot pigweed	velvetleaf	Giant ragweed	Common barnyar>	Redroot pigweed
Rating Date	5-26-2015	5-26-2015	5-26-2015	5-26-2015	5-26-2015
Collection Basis, Unit					0.5 M2
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	42 42	42 42	42 42	42 42	42 42
Trt-Eval Interval	42 DA-A	42 DA-A	42 DA-A	42 DA-A	42 DA-A
Plant-Eval Interval	22 DP-1	22 DP-1	22 DP-1	22 DP-1	22 DP-1
Days After Emergence	12 DE-1	12 DE-1	12 DE-1	12 DE-1	12 DE-1
Number of Decimals	0	0	0	0	0

Trt Treatment No. Name	Appl Code	Appl Description	1	2	3	4	5
1 Oats			93 ab	92 ab	73 a	55 ab	2.0 cd
1 Roundup Ready	A	PRE					
1 Valor	A	PRE					
1 Post 21 DapL	B	21 DAP					
2 Oats			91 abc	92 ab	56 c	50 ab	1.3 d
2 Roundup Ready							
2 Valor							
2 Post 21 dapL							
2 POST 21 DAPO							
3 Oats			0 d	0 d	0 d	0 c	7.3 bcd
3 Roundup Ready							
3 UTC							
4 Oats			88 abc	90 ab	73 a	54 ab	1.8 d
4 Liberty Link	A	PRE					
4 Valor	A	PRE					
4 Post 21 DapL	B	21 DAP					
5 Oats			84 c	85 bc	58 bc	45 b	1.5 d
5 Liberty Link							
5 Valor							
5 Post 21 dapL							
5 POST 21 DAPO							
6 Oats			0 d	0 d	0 d	0 c	8.3 bcd
6 Liberty Link							
6 UTC							
7 No Cover			93 ab	90 ab	60 bc	53 ab	2.0 cd
7 Roundup Ready	A	PRE					
7 Valor	A	PRE					
7 Post 21 DapL	B	21 DAP					
8 No Cover			95 a	78 c	64 abc	45 b	1.3 d
8 Roundup Ready							
8 Valor							
8 Post 21 dapL							
8 POST 21 DAPO							

Means followed by same letter do not significantly differ (P=.05, LSD)
 Mean separations are based on the complete error term.
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Missing data estimates are included in columns: Yates=3; Average=2,7

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMARE	ABUTH	AMBTR	ECHCG	AMARE
Pest Scientific Name	Amaranthus ret>	Abutilon theop>	Ambrosia trifi>	Echinochloa cr>	Amaranthus ret>
Pest Name	Redroot pigweed	velvetleaf	Giant ragweed	Common barnyar>	Redroot pigweed
Rating Date	5-26-2015	5-26-2015	5-26-2015	5-26-2015	5-26-2015
Collection Basis, Unit					0.5 M2
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	42 42	42 42	42 42	42 42	42 42
Trt-Eval Interval	42 DA-A	42 DA-A	42 DA-A	42 DA-A	42 DA-A
Plant-Eval Interval	22 DP-1	22 DP-1	22 DP-1	22 DP-1	22 DP-1
Days After Emergence	12 DE-1	12 DE-1	12 DE-1	12 DE-1	12 DE-1
Number of Decimals	0	0	0	0	

Trt Treatment No. Name	Appl Code	Appl Description	1	2	3	4	5
9 No Cover			0 d	0 d	0 d	0 c	11.0 bc
9 Roundup Ready							
9 UTC							
10 No Cover			84 c	90 ab	65 abc	53 ab	3.8 cd
10 Liberty Link	A	PRE					
10 Valor	A	PRE					
10 Post 21 DapL	B	21 DAP					
11 No Cover			90 abc	95 a	66 abc	56 a	0.8 d
11 Liberty Link							
11 Valor							
11 Post 21 dapL							
11 POST 21 DAPO							
12 No Cover			0 d	0 d	0 d	0 c	7.3 bcd
12 Liberty Link							
12 UTC							
13 Rye			85 bc	93 ab	58 bc	55 ab	4.0 cd
13 Roundup Ready	A	PRE					
13 Valor	A	PRE					
13 Post 21 DapL	B	21 DAP					
14 Rye			89 abc	95 a	58 bc	53 ab	1.3 d
14 Roundup Ready							
14 Valor							
14 Post 21 dapL							
14 POST 21 DAPO							
15 Rye			0 d	0 d	0 d	0 c	16.3 ab
15 Roundup Ready							
15 UTC							
16 Rye			90 abc	90 ab	58 bc	55 ab	6.0 cd
16 Liberty Link	A	PRE					
16 Valor	A	PRE					
16 Post 21 DapL	B	21 DAP					
17 Rye			90 abc	95 a	68 ab	58 a	7.3 bcd
17 Liberty Link							
17 Valor							
17 Post 21 dapL							
17 POST 21 DAPO							

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Rating Date	5-26-2015	5-26-2015	5-26-2015	5-26-2015	5-26-2015
Collection Basis, Unit					0.5 M2
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	42 42	42 42	42 42	42 42	42 42
Trt-Eval Interval	42 DA-A	42 DA-A	42 DA-A	42 DA-A	42 DA-A
Plant-Eval Interval	22 DP-1	22 DP-1	22 DP-1	22 DP-1	22 DP-1
Days After Emergence	12 DE-1	12 DE-1	12 DE-1	12 DE-1	12 DE-1
Number of Decimals	0	0	0	0	0
Trt Treatment	Appl Appl				
No. Name	Code Description	1	2	3	4
18 Rye		0 d	0 d	0 d	0 c
18 Liberty Link					20.3 a
18 UTC					
LSD P=.05	8.3	8.0	10.5	10.4	9.22
Standard Deviation	5.8	5.3	7.3	7.2	6.43
CV	9.78	8.88	17.53	20.67	112.41
Grand Mean	59.4	60.2	41.9	35.0	5.72
Bartlett's X2	11.297	1.025	12.351	12.6	57.739
P(Bartlett's X2)	0.335	0.998	0.338	0.32	0.001*
Skewness	-0.6547*	-0.1531	-0.5034	-0.4468	2.0092*
Kurtosis	-1.5298*	-1.9999*	-1.5651*	-1.5096*	3.6439*
Replicate F	0.767	0.321	1.417	4.053	1.331
Replicate Prob(F)	0.5200	0.8100	0.2543	0.0140	0.2794
Treatment F	222.401	270.452	70.645	50.388	2.935
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0032

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Pest Scientific Name	Amaranthus ret>	Abutilon theop>	Ambrosia trifi>	Echinochloa cr>	Amaranthus ret>		
Pest Name	Redroot pigweed	velvetleaf	Giant ragweed	Common barnyar>	Redroot pigweed		
Rating Date	6-17-2015	6-17-2015	6-17-2015	6-17-2015	6-18-2015		
Collection Basis, Unit					0.5 m2		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	64 20	64 20	64 20	64 20	65 21		
Trt-Eval Interval							
Plant-Eval Interval	44 DP-1	44 DP-1	44 DP-1	44 DP-1	45 DP-1		
Days After Emergence	34 DE-1	34 DE-1	34 DE-1	34 DE-1	35 DE-1		
Number of Decimals							
Trt Treatment	Appl	Appl					
No. Name	Code	Description	6	7	8	9	10
1 Oats			97.5 a	93.3 a	87.5 a	93.8 a	0.0 c
1 Roundup Ready A	PRE						
1 Valor A	PRE						
1 Post 21 DapL B	21 DAP						
2 Oats			95.0 a	97.5 a	83.8 ab	88.8 abc	2.5 c
2 Roundup Ready							
2 Valor							
2 Post 21 dapL							
2 POST 21 DAPO							
3 Oats			0.0 e	0.0 c	0.0 f	0.0 g	17.8 ab
3 Roundup Ready							
3 UTC							
4 Oats			86.3 bcd	90.0 ab	75.0 b-e	77.5 de	0.8 c
4 Liberty Link A	PRE						
4 Valor A	PRE						
4 Post 21 DapL B	21 DAP						
5 Oats			85.0 cd	90.0 ab	76.3 bcd	70.0 f	2.3 c
5 Liberty Link							
5 Valor							
5 Post 21 dapL							
5 POST 21 DAPO							
6 Oats			0.0 e	0.0 c	0.0 f	0.0 g	15.0 b
6 Liberty Link							
6 UTC							
7 No Cover			92.5 abc	72.5 b	80.0 abc	90.0 ab	0.8 c
7 Roundup Ready A	PRE						
7 Valor A	PRE						
7 Post 21 DapL B	21 DAP						
8 No Cover			93.8 ab	95.0 a	83.8 ab	86.3 bc	1.0 c
8 Roundup Ready							
8 Valor							
8 Post 21 dapL							
8 POST 21 DAPO							

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Pest Name	Redroot pigweed	velvetleaf	Giant ragweed	Common barnyar>	Redroot pigweed		
Rating Date	6-17-2015	6-17-2015	6-17-2015	6-17-2015	6-18-2015		
Collection Basis, Unit					0.5 m2		
Number of Subsamples	1	1	1	1	1		
Days After First/Last Applic.	64 20	64 20	64 20	64 20	65 21		
Trt-Eval Interval							
Plant-Eval Interval	44 DP-1	44 DP-1	44 DP-1	44 DP-1	45 DP-1		
Days After Emergence	34 DE-1	34 DE-1	34 DE-1	34 DE-1	35 DE-1		
Number of Decimals							
Trt Treatment	Appl	Appl					
No. Name	Code	Description	6	7	8	9	10
9 No Cover			0.0 e	0.0 c	0.0 f	0.0 g	15.5 ab
9 Roundup Ready							
9 UTC							
10 No Cover			95.0 a	97.5 a	71.3 cde	70.0 f	0.5 c
10 Liberty Link	A	PRE					
10 Valor	A	PRE					
10 Post 21 DapL	B	21 DAP					
11 No Cover			92.5 abc	92.5 a	70.0 de	73.8 ef	1.3 c
11 Liberty Link							
11 Valor							
11 Post 21 dapL							
11 POST 21 DAPO							
12 No Cover			0.0 e	0.0 c	0.0 f	0.0 g	16.3 ab
12 Liberty Link							
12 UTC							
13 Rye			86.3 bcd	91.3 ab	76.3 bcd	77.5 de	4.5 c
13 Roundup Ready	A	PRE					
13 Valor	A	PRE					
13 Post 21 DapL	B	21 DAP					
14 Rye			85.0 cd	88.8 ab	66.3 e	82.5 cd	2.8 c
14 Roundup Ready							
14 Valor							
14 Post 21 dapL							
14 POST 21 DAPO							
15 Rye			0.0 e	0.0 c	0.0 f	0.0 g	21.8 ab
15 Roundup Ready							
15 UTC							
16 Rye			82.5 d	88.3 ab	67.5 de	70.0 f	1.8 c
16 Liberty Link	A	PRE					
16 Valor	A	PRE					
16 Post 21 DapL	B	21 DAP					
17 Rye			90.0 a-d	96.7 a	72.5 cde	77.5 de	1.5 c
17 Liberty Link							
17 Valor							
17 Post 21 dapL							
17 POST 21 DAPO							

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Collection Basis, Unit					0.5 m2
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	64 20	64 20	64 20	64 20	65 21
Trt-Eval Interval					
Plant-Eval Interval	44 DP-1	44 DP-1	44 DP-1	44 DP-1	45 DP-1
Days After Emergence	34 DE-1	34 DE-1	34 DE-1	34 DE-1	35 DE-1
Number of Decimals					
Trt Treatment	Appl Appl				
No. Name	Code Description	6	7	8	9
18 Rye		0.0 e	0.0 c	0.0 f	0.0 g
18 Liberty Link					22.5 a
18 UTC					
LSD P=.05	8.32	19.87	8.96	6.92	7.03
Standard Deviation	5.80	13.77	6.25	4.82	4.90
CV	9.66	22.68	12.35	9.07	68.78
Grand Mean	60.07	60.74	50.56	53.19	7.13
Bartlett's X2	14.986	43.304	10.894	9.175	60.2
P(Bartlett's X2)	0.183	0.001*	0.366	0.606	0.001*
Skewness	-0.6349*	-0.4891	-0.5752*	-0.5818*	1.3492*
Kurtosis	-1.5339*	-1.7522*	-1.5042*	-1.5221*	0.5269
Replicate F	1.770	0.571	1.448	2.726	1.905
Replicate Prob(F)	0.1704	0.6383	0.2450	0.0583	0.1462
Treatment F	228.738	41.793	141.824	265.345	11.347
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001

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Project ID: Study Director:
Sponsor Contact:

Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

AMARE, Amaranthus retroflexus, = US
ABUTH, Abutilon theophrasti, = US
AMBTR, Ambrosia trifida, = US
ECHCG, Echinochloa crus-galli, = US

M2 = square meter

Plant-Eval Interval

22 DP-1 = 1 GLXMA 5-4-2015
44 DP-1 = 1 GLXMA 5-4-2015
45 DP-1 = 1 GLXMA 5-4-2015