

2014/BAREGROUND/COVER CROP/PLANT BACK/HERBICIDE

Trial ID: 15FMCCOVER      Location: Western Branch E-1      Trial Year: 2015  
Protocol ID: SULF.SOY.14.JPR.20(a)      Investigator: Dr. Mark M. Loux  
Project ID:      Study Director: Anthony Dobbels  
Sponsor Contact: Joe Reed, FMC

**General Trial Information**

**Study Director:** Anthony Dobbels  
**Investigator:** Dr. Mark M. Loux

**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** °: 39.85979 N  
**Longitude of LL Corner** °: -83.66963 W

**Conducted Under GLP:** No  
**Conducted Under GEP:** No

**Contacts**

**Study Director:** Anthony Dobbels

**Investigator:** Dr. Mark M. Loux

**Crop Description**  
Winter rye

**Crop 1:** SECCW Secale cereale (winter)  
**Variety:** WGB13945  
**Description:** Cisco Co. Indianapolis, IN

**Planting Rate, Unit:** 30 LB/A  
**Depth, Unit:** 0.5 IN  
**Row Spacing, Unit:** 7.5 IN  
**Soil Moisture:** NORMAL normal, adequate  
**Seed Bed:** MEDIUM medium

**Planting Date:** 7-30-2015  
**Planting Method:** DRILLE drilled  
**Planting Equipment:** FE Field Equipment  
**Emergence Date:** 8-3-2015

**Crop 2:** AVESA Avena sativa  
Common oat

**Variety:** Armor, Ohio Certified  
**Description:** DKG Seed Farms, LLC

**Planting Rate, Unit:** 90 LB/A  
**Depth, Unit:** 0.5 IN  
**Row Spacing, Unit:** 7.5 IN  
**Soil Moisture:** NORMAL normal, adequate  
**Seed Bed:** MEDIUM medium

**Planting Date:** 7-30-2015  
**Planting Method:** DRILLE drilled  
**Planting Equipment:** FE Field Equipment  
**Emergence Date:** 8-3-2015

**Crop 3:** LOLMG Lolium multiflorum gaudini  
Annual ryegrass

**Variety:** PPERC2, Annual Ryegrass  
**Description:** Rootmax Brand, Robesonia, PA

**Planting Rate, Unit:** 30 LB/A  
**Depth, Unit:** 0.5 IN  
**Row Spacing, Unit:** 7.5 IN  
**Soil Moisture:** NORMAL normal, adequate  
**Seed Bed:** MEDIUM medium

**Planting Date:** 7-30-2015  
**Planting Method:** DRILLE drilled  
**Planting Equipment:** FE Field Equipment  
**Emergence Date:** 8-7-2015

**Crop 4:** RAPSS Raphanus sp.  
Radish

**Variety:** Rootmax Tillage Radish  
**Description:** Cover Crop Solutions, LLC.

**Planting Rate, Unit:** 6 LB/A  
**Depth, Unit:** 0.5 IN  
**Row Spacing, Unit:** 7.5 IN  
**Soil Moisture:** NORMAL normal, adequate  
**Seed Bed:** MEDIUM medium

**Planting Date:** 7-30-2015  
**Planting Method:** DRILLE drilled  
**Planting Equipment:** FE Field Equipment  
**Emergence Date:** 8-3-2015

**Crop 5:** PIBSA Pisum sativum arvense  
Field pea

**Variety:** Winter Pea  
**Description:** Cover Crop Solutions, LLC.

**Planting Rate, Unit:** 50 LB/A  
**Depth, Unit:** 0.5 IN  
**Row Spacing, Unit:** 7.5 IN  
**Soil Moisture:** NORMAL normal, adequate  
**Seed Bed:** MEDIUM medium

**Planting Date:** 7-30-2015  
**Planting Method:** DRILLE drilled  
**Planting Equipment:** FE Field Equipment  
**Emergence Date:** 8-7-2015

**Site and Design**

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 50 FT  
**Treated Plot Area:** 500 FT<sup>2</sup> **Treatments:** 18  
**Replications:** 4

**Study Design:** RACOB L Randomized Complete Block (RCB)

**Soil Description**

**Description Name:** E-1  
**% OM:** 3.5 **Texture:** SICL silty clay loam  
**pH:** 6.6 **Soil Name:** Kokomo  
**CEC:** 22 **Fert. Level:** G good  
**Soil Drainage:** G good

**Application Description**

**A**  
Application Date: 5-15-2015  
Appl. Start Time: 8:30 AM  
Appl. Stop Time: 9:00 AM  
Application Method: SPRAY  
Application Timing: PRE  
Application Placement: BROSOI  
Applied By: Reeb  
Air Temperature, Unit: 63 F  
% Relative Humidity: 75  
Wind Velocity, Unit: 2 MPH  
Wind Direction: E  
Dew Presence (Y/N): N no  
Soil Temperature, Unit: 59 F  
Soil Moisture: NORMAL  
% Cloud Cover: 80  
Next Moisture Occurred On: 5-17-2015  
Time to Next Moisture, Unit: 2 DAY

**Crop Stage At Each Application**

**A**  
Crop 1 Code, BBCH Scale: SECCW BCER  
Crop 2 Code, BBCH Scale: AVESA BCER  
Crop 3 Code, BBCH Scale: LOLMG BGRM  
Crop 4 Code, BBCH Scale: RAPSS BVRT  
Crop 5 Code, BBCH Scale: PIBSA BVPU

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Protocol ID: SULF.SOY.14.JPR.20(a)
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Location: Western Branch E-1 Trial Year: 2015
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Table with 5 columns: Pest Type, W Weed, W Weed, W Weed, W Weed. Rows include Pest Code (SETFA, AMBTR, CHEAL, AMARE), Pest Scientific Name (Setaria faberi, Ambrosia trifida, Chenopodium album, Amaranthus retrofractus), Crop Code, BBCH Scale, Crop Scientific Name, Crop Name, Rating Date (6-11-2015), Rating Type (CONTRO), Rating Unit (%), Number of Subsamples (1), Days After First/Last Applic. (27, 27), Trt-Eval Interval (27 DA-A), Plant-Eval Interval (-49 DP-1), Days After Emergence (-53 DE-1), and Number of Decimals (0).

Table with 8 columns: Trt No., Treatment Name, Other Rate, Other Rate, Appl Unit Code, 1, 2, 3, 4. Rows list 17 treatments (1-17) such as AUTHORITY MTZ, AUTHORITY XL, AUTHORITY FIRST DF, AUTHORITY ASSIST, AUTHORITY MAXX, 2,4-D LV ESTER, BANVEL, SPARTAN, SENCOR, CLASSIC, FIRSTRATE, and PURSUIT, with their respective rates and application units.

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19 because error mean square = 0.

The Ohio State University

Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	AMBTR	CHEAL	AMARE
Pest Scientific Name	Setaria faberi	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
Pest Name	Giant foxtail	Giant ragweed	Common lambsqu>	Redroot pigweed
Crop Code				
BBCH Scale				
Crop Scientific Name				
Crop Name				
Rating Date	6-11-2015	6-11-2015	6-11-2015	6-11-2015
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	27 27	27 27	27 27	27 27
Trt-Eval Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Plant-Eval Interval	-49 DP-1	-49 DP-1	-49 DP-1	-49 DP-1
Days After Emergence	-53 DE-1	-53 DE-1	-53 DE-1	-53 DE-1
Number of Decimals	0	0	0	0

Trt Treatment	Other Rate	Other Rate	Appl Unit Code	1	2	3	4
18 UNTREATED				0	0	0	0
LSD P=.05				.	.	.	.
Standard Deviation				.	.	.	.
CV				.	.	.	.
Grand Mean				34.4	34.7	60.0	53.1
Bartlett's X2				.	.	.	.
P(Bartlett's X2)				.	.	.	.
Skewness				-0.2075	0.5152	-1.0857*	-0.6881
Kurtosis				-1.7018	-0.5987	0.0068	-0.3401

Pest Type	W Weed				
Pest Code	ABUTH				
Pest Scientific Name	Abutilon theop>				
Pest Name	velvetleaf				
Crop Code		SECCW	AVESA	RAPSS	PIBSA
BBCH Scale		BCER	BCER	BVRT	BVPU
Crop Scientific Name		Secale cereale>	Avena sativa	Raphanus sp.	Pisum sativum >
Crop Name		Winter rye	Common oat	Radish	Field pea
Rating Date	6-11-2015	8-18-2015	8-18-2015	8-18-2015	8-18-2015
Rating Type	CONTRO	STARED	STARED	STARED	STARED
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	27 27	95 95	95 95	95 95	95 95
Trt-Eval Interval	27 DA-A	95 DA-A	95 DA-A	95 DA-A	95 DA-A
Plant-Eval Interval	-49 DP-1	19 DP-1	19 DP-1	19 DP-1	19 DP-1
Days After Emergence	-53 DE-1	15 DE-1	15 DE-1	15 DE-1	15 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	5	6	7	8	9
1	AUTHORITY MTZ	10 oz/a	A		50	0	0	0	0
2	AUTHORITY MTZ	14 oz/a	A		50	0	0	0	0
3	AUTHORITY XL	4 oz/a	A		50	0	0	0	0
4	AUTHORITY XL	6 oz/a	A		60	0	0	0	0
5	AUTHORITY FIRST DF	6.4 oz/a	A		100	0	0	0	0
6	AUTHORITY ASSIST	6 oz/a	A		60	0	0	0	0
7	AUTHORITY MAXX	8 oz/a	A		80	0	0	0	0
8	2,4-D LV ESTER	1 pt/a	A		0	0	0	0	0
9	2,4-D LV ESTER	2 pt/a	A		80	0	0	0	0
10	BANVEL	1 pt/a	A		85	0	0	0	0
11	BANVEL	2 pt/a	A		60	0	0	0	0
12	SPARTAN	6 oz/a	A		60	0	0	0	0
13	SPARTAN	12 oz/a	A		30	0	0	0	0
14	SENCOR	8 oz/a	A		50	0	0	0	0
15	CLASSIC	1.25 oz/a	A		40	0	0	0	0
16	FIRSTRATE	0.3 oz/a	A		100	0	0	0	0
17	PURSUIT	4 oz/a	A		30	0	0	0	0

Pest Type	W Weed									
Pest Code	ABUTH									
Pest Scientific Name	Abutilon theop>									
Pest Name	velvetleaf									
Crop Code	SECCW		AVESA		RAPSS		PIBSA			
BBCH Scale	BCER		BCER		BVRT		BVPU			
Crop Scientific Name	Secale cereale>		Avena sativa		Raphanus sp.		Pisum sativum >			
Crop Name	Winter rye		Common oat		Radish		Field pea			
Rating Date	6-11-2015		8-18-2015		8-18-2015		8-18-2015		8-18-2015	
Rating Type	CONTRO		STARED		STARED		STARED		STARED	
Rating Unit	%		%		%		%		%	
Number of Subsamples	1		1		1		1		1	
Days After First/Last Applic.	27	27	95	95	95	95	95	95	95	95
Trt-Eval Interval	27 DA-A		95 DA-A		95 DA-A		95 DA-A		95 DA-A	
Plant-Eval Interval	-49 DP-1		19 DP-1		19 DP-1		19 DP-1		19 DP-1	
Days After Emergence	-53 DE-1		15 DE-1		15 DE-1		15 DE-1		15 DE-1	
Number of Decimals	0		0		0		0		0	
Trt Treatment	Other	Other	Appl							
No. Name	Rate	Rate	Unit Code							
18 UNTREATED	5	0	6	0	7	0	8	0	9	0
LSD P=.05	.									
Standard Deviation	.									
CV	.									
Grand Mean	54.7		0.0		0.0		0.0		0.0	
Bartlett's X2	.									
P(Bartlett's X2)	.									
Skewness	-0.3254		.		.		.		.	
Kurtosis	-0.0142		.		.		.		.	

Pest Type									
Pest Code									
Pest Scientific Name									
Pest Name									
Crop Code	SECCW	AVESA	RAPSS	PIBSA	LOLMG				
BBCH Scale	BCER	BCER	BVRT	BVPU	BGRM				
Crop Scientific Name	Secale cereale>	Avena sativa	Raphanus sp.	Pisum sativum >	Lolium multifl>				
Crop Name	Winter rye	Common oat	Radish	Field pea	Annual ryegrass				
Rating Date	9-4-2015	9-4-2015	9-4-2015	9-4-2015	9-4-2015				
Rating Type	STARED	STARED	STARED	STARED	STARED				
Rating Unit	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1				
Days After First/Last Applic.	112 112	112 112	112 112	112 112	112 112				
Trt-Eval Interval	112 DA-A	112 DA-A	112 DA-A	112 DA-A	112 DA-A				
Plant-Eval Interval	36 DP-1	36 DP-1	36 DP-1	36 DP-1	36 DP-1				
Days After Emergence	32 DE-1	32 DE-1	32 DE-1	32 DE-1	32 DE-1				
Number of Decimals	0	0	0	0	0				

Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit Code	10	11	12	13	14
1	AUTHORITY MTZ	10 oz/a		A	0	0	0	0	0
2	AUTHORITY MTZ	14 oz/a		A	0	0	0	0	0
3	AUTHORITY XL	4 oz/a		A	0	0	0	0	0
4	AUTHORITY XL	6 oz/a		A	0	0	0	0	0
5	AUTHORITY FIRST DF	6.4 oz/a		A	0	0	0	0	0
6	AUTHORITY ASSIST	6 oz/a		A	0	0	0	0	0
7	AUTHORITY MAXX	8 oz/a		A	0	0	0	0	0
8	2,4-D LV ESTER	1 pt/a		A	0	0	0	0	0
9	2,4-D LV ESTER	2 pt/a		A	0	0	0	0	0
10	BANVEL	1 pt/a		A	0	0	0	0	0
11	BANVEL	2 pt/a		A	0	0	0	0	0
12	SPARTAN	6 oz/a		A	0	0	0	0	0
13	SPARTAN	12 oz/a		A	0	0	0	0	0
14	SENCOR	8 oz/a		A	0	0	0	0	0
15	CLASSIC	1.25 oz/a		A	0	0	0	0	0
16	FIRSTRATE	0.3 oz/a		A	0	0	0	0	0
17	PURSUIT	4 oz/a		A	0	0	0	0	0





Pest Type									
Pest Code									
Pest Scientific Name									
Pest Name									
Crop Code	SECCW	AVESA	RAPSS	PIBSA	LOLMG				
BBCH Scale	BCER	BCER	BVRT	BVPU	BGRM				
Crop Scientific Name	Secale cereale>	Avena sativa	Raphanus sp.	Pisum sativum >	Lolium multifl>				
Crop Name	Winter rye	Common oat	Radish	Field pea	Annual ryegrass				
Rating Date	9-18-2015	9-18-2015	9-18-2015	9-18-2015	9-18-2015				
Rating Type	STARED	STARED	STARED	STARED	STARED				
Rating Unit	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1				
Days After First/Last Applic.	126 126	126 126	126 126	126 126	126 126				
Trt-Eval Interval	126 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A				
Plant-Eval Interval	50 DP-1	50 DP-1	50 DP-1	50 DP-1	50 DP-1				
Days After Emergence	46 DE-1	46 DE-1	46 DE-1	46 DE-1	46 DE-1				
Number of Decimals	0	0	0	0	0				

Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	15	16	17	18	19
1	AUTHORITY MTZ	10 oz/a	A		0	0	0	0	0
2	AUTHORITY MTZ	14 oz/a	A		0	0	0	0	0
3	AUTHORITY XL	4 oz/a	A		0	0	0	0	0
4	AUTHORITY XL	6 oz/a	A		0	0	0	0	0
5	AUTHORITY FIRST DF	6.4 oz/a	A		0	0	0	0	0
6	AUTHORITY ASSIST	6 oz/a	A		0	0	0	0	0
7	AUTHORITY MAXX	8 oz/a	A		0	0	0	0	0
8	2,4-D LV ESTER	1 pt/a	A		0	0	0	0	0
9	2,4-D LV ESTER	2 pt/a	A		0	0	0	0	0
10	BANVEL	1 pt/a	A		0	0	0	0	0
11	BANVEL	2 pt/a	A		0	0	0	0	0
12	SPARTAN	6 oz/a	A		0	0	0	0	0
13	SPARTAN	12 oz/a	A		0	0	0	0	0
14	SENCOR	8 oz/a	A		0	0	0	0	0
15	CLASSIC	1.25 oz/a	A		0	0	0	0	0
16	FIRSTRATE	0.3 oz/a	A		0	0	0	0	0
17	PURSUIT	4 oz/a	A		0	0	0	0	0

Pest Type										
Pest Code										
Pest Scientific Name										
Pest Name										
Crop Code		SECCW		AVESA		RAPSS		PIBSA		LOLMG
BBCH Scale		BCER		BCER		BVRT		BVPU		BGRM
Crop Scientific Name		Secale cereale>		Avena sativa		Raphanus sp.		Pisum sativum >		Lolium multifl>
Crop Name		Winter rye		Common oat		Radish		Field pea		Annual ryegrass
Rating Date		9-18-2015		9-18-2015		9-18-2015		9-18-2015		9-18-2015
Rating Type		STARED		STARED		STARED		STARED		STARED
Rating Unit		%		%		%		%		%
Number of Subsamples		1		1		1		1		1
Days After First/Last Applic.		126 126		126 126		126 126		126 126		126 126
Trt-Eval Interval		126 DA-A		126 DA-A		126 DA-A		126 DA-A		126 DA-A
Plant-Eval Interval		50 DP-1		50 DP-1		50 DP-1		50 DP-1		50 DP-1
Days After Emergence		46 DE-1		46 DE-1		46 DE-1		46 DE-1		46 DE-1
Number of Decimals		0		0		0		0		0
Trt Treatment	Other	Other	Appl							
No. Name	Rate	Rate	Unit Code	15	16	17	18	19		
18 UNTREATED				0	0	0	0	0		
LSD P=.05				.	.	.	.	.		.
Standard Deviation				.	.	.	.	.		.
CV				.	.	.	.	.		.
Grand Mean				0.0	0.0	0.0	0.0	0.0		0.0
Bartlett's X2				.	.	.	.	.		.
P(Bartlett's X2)				.	.	.	.	.		.
Skewness				.	.	.	.	.		.
Kurtosis				.	.	.	.	.		.

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Pest Type

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

Pest Code

SETFA, *Setaria faberi*, = US  
 AMBTR, *Ambrosia trifida*, = US  
 CHEAL, *Chenopodium album*, = US  
 AMARE, *Amaranthus retroflexus*, = US  
 ABUTH, *Abutilon theophrasti*, = US

Crop Code

SECCW, BCER, *Secale cereale* (winter), = US  
 AVESA, BCER, *Avena sativa*, = US  
 RAPSS, BVRT, *Raphanus sp.*, = US  
 PIBSA, BVPU, *Pisum sativum arvense*, = US  
 LOLMG, BGRM, *Lolium multiflorum gaudini*, = US

Rating Type

CONTRO = control / burndown or knockdown  
STARED = stand reduction

Rating Unit

% = percent

Plant-Eval Interval

-49 DP-1 = 1 SECCW 7-30-2015  
 19 DP-1 = 1 SECCW 7-30-2015  
 36 DP-1 = 1 SECCW 7-30-2015  
 50 DP-1 = 1 SECCW 7-30-2015