

# The Ohio State University

## Authority, Anthem, Command pre and post soybean trial

Trial ID: 13 SOYYLD1      Location: Western Branch      Trial Year: 2013  
 Protocol ID: 13 SOYYLD1      Investigator: Dr. Mark M. Loux  
 Project ID: SULF.SOY.13.JPR      Study Director: Bryan Reeb  
 Sponsor Contact: Joe Reed, FMC

### Crop Description

**Crop 1:** GLXMA Glycine max      Soybean  
**Variety:** Seed Consultants 9362      **BBCH Scale:** BSOY  
**Description:** Roundup Ready

**Planting Rate, Unit:** 140000      S/A  
**Depth, Unit:** 0.75 IN  
**Row Spacing, Unit:** 15 IN  
**Soil Moisture:** GOOD      good  
**Seed Bed:** FINE      fine

**Planting Date:** May-15-2013  
**Planting Method:** PLANTD planted  
**Planting Equipment:** PP      Plot Planter  
**Emergence Date:** May-23-2013

### Pest Description

**Pest 1 Type:** W      **Code:** AMARE *Amaranthus retroflexus*  
**Common Name:** Redroot pigweed

**Pest 2 Type:** W      **Code:** AMBTR *Ambrosia trifida*  
**Common Name:** Giant ragweed

**Pest 3 Type:** W      **Code:** ABUTH *Abutilon theophrasti*  
**Common Name:** velvetleaf

**Pest 4 Type:** W      **Code:** CHEAL *Chenopodium album*  
**Common Name:** Common lambsquarters

**Pest 5 Type:** W      **Code:** SETFA *Setaria faberi*  
**Common Name:** Giant foxtail

**Pest 6 Type:** W      **Code:** SOLCA *Solanum carolinense*  
**Common Name:** Horsenettle

**Pest 7 Type:** W      **Code:** ECHCG *Echinochloa crus-galli*  
**Common Name:** Common barnyardgrass

### Site and Design

**Treated Plot Width:** 6.67 FT  
**Treated Plot Length:** 40 FT  
**Treated Plot Area:** 266.8 FT<sup>2</sup>      **Treatments:** 16  
**Replications:** 4

**Site Type:** FIELD field  
**Experimental Unit:** 1 PLOT plot  
**Tillage Type:** CONTIL conventional-till  
**Study Design:** RACOB� Randomized Complete Block (RCB)

### Soil Description

**Description Name:** F-7 West  
**% OM:** 3.1      **Texture:** SICL silty clay loam  
**pH:** 7.1      **Soil Name:** Kokomo Silty Clay Loam  
**CEC:** 22.2      **Fert. Level:** G good  
**Soil Drainage:** G good

### Application Description

	A	B	C
<b>Application Date:</b>	May-16-2013	Jun-4-2013	Jun-19-2013
<b>Appl. Start Time:</b>	8:30	9:00 AM	8:30 AM
<b>Application Method:</b>	SPRAY	SPRAY	SPRAY
<b>Application Timing:</b>	PRE	POST	POST
<b>Application Placement:</b>	BROSOL	BROFOL	BROFOL
<b>Air Temperature, Unit:</b>	67.8 F	61 F	64 F
<b>% Relative Humidity:</b>	78.4	58	68
<b>Wind Velocity, Unit:</b>	1.9 MPH	1 MPH	4 MPH
<b>Wind Direction:</b>	NNW	SE	NE
<b>Dew Presence (Y/N):</b>		Y yes	Y yes
<b>Soil Temperature, Unit:</b>	62 F	58 F	60 F
<b>Soil Moisture:</b>	NORMAL	NORMAL	MOIST
<b>% Cloud Cover:</b>	100	10	10
<b>Next Moisture Occurred On:</b>	May-17-2013	Jun-6-2013	Jun-26-2013

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### Crop Stage At Each Application

	A		B		C	
Crop 1 Code, BBCH Scale:	GLXMA	BSOY	GLXMA	BSOY	GLXMA	BSOY
Stage Scale Used:	BBCH		BBCH		BBCH	
Stage Majority, Percent:	12	100	14	100	8	100
Height, Unit:	3	IN	8	IN		
Height Minimum, Maximum:	3	4	8	9		

### Pest Stage At Each Application

	A		B		C	
Pest 1 Code, Type, Scale:	AMARE	W	AMARE	W	AMARE	W
Stage Majority, Percent:	14	100	19	100	19	100
Stage Minimum, Percent:			19	100		
Height, Unit:	1	IN	8	IN		
Height Minimum, Maximum:	0.5	1	8	8		
Density, Unit:	12	M2				
Pest 2 Code, Type, Scale:	AMBTR	W	AMBTR	W	AMBTR	W
Stage Majority, Percent:	14	100	19	100		
Height, Unit:	2	IN	11	IN		
Height Minimum, Maximum:	2	4	11	18		
Density, Unit:	44	M2				
Pest 3 Code, Type, Scale:	ABUTH	W	ABUTH	W	ABUTH	W
Stage Majority, Percent:	14	100				
Height, Unit:	1	IN				
Height Minimum, Maximum:	1	2				
Pest 4 Code, Type, Scale:	CHEAL	W	CHEAL	W	CHEAL	W
Stage Majority, Percent:	14	100	19	100		
Height, Unit:	1	IN	10	IN		
Height Minimum, Maximum:	1	1	4	10		
Density, Unit:	8	M2				
Pest 5 Code, Type, Scale:	SETFA	W	SETFA	W	SETFA	W
Stage Majority, Percent:	13	100				
Height, Unit:	3	IN	10	IN		
Height Minimum, Maximum:	3	4	10	10		
Density, Unit:	108	M2				
Pest 6 Code, Type, Scale:	SOLCA	W	SOLCA	W	SOLCA	W
Stage Majority, Percent:	14	100				
Height, Unit:	4	IN				
Height Minimum, Maximum:	4	4				
Pest 7 Code, Type, Scale:	ECHCG	W	ECHCG	W	ECHCG	W
Height, Unit:			10	IN		
Height Minimum, Maximum:			10	11		

### Application Equipment

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Equipment Type:	SPRBAC	SPRBAC	SPRBAC
Operation Pressure, Unit:	48 PSI	48 PSI	48 PSI
Nozzle Type:	AIXR	AIXR	AIXR
Nozzle Size:	110015	110015	110015
Nozzle Spacing, Unit:	18 IN	18 IN	18 IN
Boom Length, Unit:	6 FT	6 FT	6 FT
Boom Height, Unit:	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	15 gal/ac	15 gal/ac	15 gal/ac
Mix Size, Unit:	1 Liters	1 Liters	1 Liters
Propellant:	COMCO2	COMCO2	COMCO2

Date	By	Notes
Jul-2-2013		maintenance spray of 32oz Weathermax + AMS @ 10 GPA

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Pest Code	GLXMA	SETFA	AMBTR	AMARE	GLXMA	SETFA	ECHCG
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
Rating Date	Jun-1-2013	Jun-1-2013	Jun-1-2013	Jun-1-2013	Jun-14-2013	Jun-14-2013	Jun-14-2013
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%	%
Days After First/Last Applic.	16 16	16 16	16 16	16 16	29 10	29 10	29 10
Trt-Eval Interval	16 DA-A	16 DA-A	16 DA-A	16 DA-A			
Plant-Eval Interval	17 DP-1	17 DP-1	17 DP-1	17 DP-1	30 DP-1	30 DP-1	30 DP-1
Days After Emergence	9 DE-1	9 DE-1	9 DE-1	9 DE-1	22 DE-1	22 DE-1	22 DE-1

Trt No.	Treatment Name	Other Rate	Other Rate	Growth Unit	Appl Stage	Code	1	2	3	4	5	6	7
1	UTC						0	0	0	0	0	0	0
2	Authority First	6.4 oz/a				A	0	79	89	100	4	74	60
	2 Select Max	8 oz/a				C							
	2 COC	0.6 qt/a				C							
3	Authority XL	4 oz/a				A	0	62	71	98	5	63	45
	3 Select Max	8 oz/a				C							
	3 COC	0.6 qt/a				C							
4	Authority XL	6 oz/a				A	0	66	75	100	8	59	53
	4 Select Max	8 oz/a				C							
	4 COC	0.6 qt/a				C							
5	Authority MAXX	8 oz/a				A	0	69	70	100	8	66	56
	5 Select Max	8 oz/a				C							
	5 COC	0.6 qt/a				C							
6	Authority MTZ	20 oz/a				A	0	69	46	100	3	73	66
	6 Select Max	8 oz/a				C							
	6 COC	0.6 qt/a				C							
7	Valor XLT @ 3oz						12	73	68	100	28	65	60
	7 Valor SX	1.76 oz/a				A							
	7 Classic	1.24 oz/a				A							
	7 Select Max	8 oz/a				C							
	7 COC	0.6 qt/a				C							
8	Fierce	3 oz/a				A	18	86	68	100	29	87	78
	8 Select Max	8 oz/a				C							
	8 COC	0.6 qt/a				C							
9	Prefix	2 pt/a				A	0	83	74	100	8	88	71
	9 Select Max	8 oz/a				C							
	9 COC	0.6 qt/a				C							
10	Authority First	6.4 oz/a				A	0	70	74	100	16	99	99
	10 Anthem	8 oz/a			V1-V3	B							
	10 Select Max	8 oz/a			V1-V3	B							
	10 COC	0.6 qt/a			V1-V3	B							
11	Authority XL	4 oz/a				A	0	74	79	100	21	100	100
	11 Anthem	8 oz/a			V1-V3	B							
	11 Select Max	8 oz/a			V1-V3	B							
	11 COC	0.6 qt/a			V1-V3	B							
12	Authority XL	6 oz/a				A	0	74	75	100	20	99	99
	12 Anthem	8 oz/a			V1-V3	B							
	12 Select Max	8 oz/a			V1-V3	B							
	12 COC	0.6 qt/a			V1-V3	B							

t=Mean descriptions are reported in transformed data units, and are not de-transformed.  
 Missing data estimates are included in columns: Yates=2,3,6,7,8,16

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Pest Code												
Crop Code												
Rating Date												
Rating Type												
Rating Unit												
Days After First/Last Applic.												
Trt-Eval Interval												
Plant-Eval Interval												
Days After Emergence												
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	Appl Code	1	2	3	4	5	6	7
13	Authority MTZ	20 oz/a		A		0	84	61	100	23	100	100
13	Anthem	8 oz/a		V1-V3	B							
13	Select Max	8 oz/a		V1-V3	B							
13	COC	0.6 qt/a		V1-V3	B							
14	Command 3ME	2 pt/a		A		0	100	58	100	16	100	100
14	Marvel	7.25 oz/a		V1-V3	B							
14	COC	0.6 qt/a		V1-V3	B							
15	Authority Assist	6 oz/a		A		0	91	59	100	21	98	98
15	Authority MTZ	16 oz/a		A								
15	Marvel	7.25 oz/a		V1-V3	B							
15	COC	0.6 qt/a		V1-V3	B							
16	Authority MAXX	8 oz/a		A		0	81	83	100	18	86	86
16	Marvel	7.25 oz/a		V1-V3	B							
16	COC	0.6 qt/a		V1-V3	B							
LSD (P=.05)						4.0t	18.0	29.4	1.8	8.9	14.7t	12.9t
Standard Deviation						2.8t	12.6	20.5	1.3	6.2	10.3t	9.0t
CV						71.55	17.36	31.41	1.34	44.23	15.58	14.41
Bartlett's X2						3.241	10.733	12.867	0.0	23.264	15.896	15.755
P(Bartlett's X2)						0.954	0.633	0.537	.	0.056	0.196	0.203
Skewness						1.9865*	-1.7518*	-0.9269*	-3.6866*	0.4942	-1.3058*	-0.8862*
Kurtosis						2.7839*	3.0748*	0.23	12.0031*	-0.2045	1.4289*	0.4437
Replicate F						1.596	2.126	1.819	1.000	4.282	3.781	3.374
Replicate Prob(F)						0.2036	0.1109	0.1584	0.4016	0.0096	0.0169	0.0266
Treatment F						27.831	11.924	3.918	1595.667	8.801	19.608	28.500
Treatment Prob(F)						0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001



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Pest Code	AMBTR	CHEAL	AMARE	POLPY	AMBEL	ABUTH	SETFA							
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA							
Rating Date	Jun-14-2013	Jun-14-2013	Jun-14-2013	Jun-14-2013	Jun-14-2013	Jun-14-2013	Jun-21-2013							
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO							
Rating Unit	%	%	%	%	%	%	%							
Days After First/Last Applic.	29 10	29 10	29 10	29 10	29 10	29 10	36 2							
Trt-Eval Interval														
Plant-Eval Interval	30 DP-1	30 DP-1	30 DP-1	30 DP-1	30 DP-1	30 DP-1	37 DP-1							
Days After Emergence	22 DE-1	22 DE-1	22 DE-1	22 DE-1	22 DE-1	22 DE-1	29 DE-1							
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Growth Stage	Appl Code	8	9	10	11	12	13	14		
13	Authority MTZ	20 oz/a		A		60	100	100	100	100	100	100		
13	Anthem	8 oz/a		V1-V3	B									
13	Select Max	8 oz/a		V1-V3	B									
13	COC	0.6 qt/a		V1-V3	B									
14	Command 3ME	2 pt/a		A		53	100	100	100	100	100	100		
14	Marvel	7.25 oz/a		V1-V3	B									
14	COC	0.6 qt/a		V1-V3	B									
15	Authority Assist	6 oz/a		A		65	100	100	100	100	100	89		
15	Authority MTZ	16 oz/a		A										
15	Marvel	7.25 oz/a		V1-V3	B									
15	COC	0.6 qt/a		V1-V3	B									
16	Authority MAXX	8 oz/a		A		75	100	100	100	100	100	84		
16	Marvel	7.25 oz/a		V1-V3	B									
16	COC	0.6 qt/a		V1-V3	B									
LSD (P=.05)		26.2				8.9		2.9		4.2		6.0	10.4t	
Standard Deviation		18.3				6.2		2.0		3.0		4.2	7.3t	
CV		34.69				6.74		2.16		3.19		4.58	10.81	
Bartlett's X2		5.448				2.768		0.0		1.451		0.01	13.23	
P(Bartlett's X2)		0.979				0.429		.		0.484		0.25	0.353	
Skewness		-0.4397				-3.3158*		-3.6568*		-3.5885*		-3.6299*	-3.4698*	-1.7694*
Kurtosis		-0.6937				9.8961*		11.8526*		11.4915*		11.6951*	10.8527*	3.7855*
Replicate F		2.210				4.237		3.462		2.143		0.721	0.782	1.159
Replicate Prob(F)		0.1007				0.0101		0.0239		0.1080		0.5450	0.5104	0.3357
Treatment F		6.045				63.920		610.231		282.238		312.197	138.609	33.927
Treatment Prob(F)		0.0001				0.0001		0.0001		0.0001		0.0001	0.0001	0.0001











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### Pest Code

SETFA, *Setaria faberi*, = US  
AMBTR, *Ambrosia trifida*, = US  
AMARE, *Amaranthus retroflexus*, = US  
ECHCG, *Echinochloa crus-galli*, = US  
CHEAL, *Chenopodium album*, = US  
POLPY, *Persicaria pensylvanica*, = US  
AMBEL, *Ambrosia artemisiifolia*, = US  
ABUTH, *Abutilon theophrasti*, = US

### Crop Code

GLXMA, BSOY, *Glycine max*, = US

### Rating Type

PHYGEN = phytotoxicity - general / injury  
CONTRO = control / burndown or knockdown

### Rating Unit

% = percent

### Plant-Eval Interval

17 DP-1 = 1 GLXMA May-15-2013  
30 DP-1 = 1 GLXMA May-15-2013  
37 DP-1 = 1 GLXMA May-15-2013  
47 DP-1 = 1 GLXMA May-15-2013