

2014/SOYBEAN/AUTHORITY XL/AUTHORITY ASSIST/AUTHORITY MTZ/SPLIT

Title No. 2: APPLICATIONS/FALL/SPRING PROGRAMS/

Trial ID: 15FALLSOY1 Location: Western Branch f-10 E Trial Year: 2014

Protocol ID: SULF.SOY.14.JPR.21aa 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 °: 39.8587 N

Longitude of LL Corner °: -83.67158 W

Conducted Under GLP: No

Conducted Under GEP: No

Contacts

Study Director: Anthony Dobbels

Investigator: Dr. Mark M. Loux

Crop Description

Crop 1: GLXMA Glycine max

Variety: AG 3533

Description: Asgrow RR2

Seed Shape: ROUND

Planting Rate, Unit: 175000 SEED/A

Depth, Unit: 1 IN

Row Spacing, Unit: 15 IN

Soil Temperature, Unit: 63 F

Soil Moisture: DAMP damp

Seed Bed: SMOTRA smooth/trashy

Soybean

Planting Date: 4-29-2015

Planting Method: PLANTD planted

Planting Equipment: PP Plot Planter

Emergence Date: 5-8-2015

Harvested Width, Unit: 6.25 FT

Harvested Length, Unit: 30 FT

% Standard Moisture: 13

Pest Description

- Pest 1 Type:** W **Code:** ERYRE Erysimum repandum
Common Name: Bushy wallflower
- Pest 2 Type:** W **Code:** LAMPU Lamium purpureum
Common Name: Purple deadnettel
- Pest 3 Type:** W **Code:** STEME Stellaria media
Common Name: Common chickweed
- Pest 4 Type:** W **Code:** ERICA Conyza canadensis
Common Name: Canada horseweed
- Pest 5 Type:** W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed
- Pest 6 Type:** W **Code:** VERAG Veronica agrestis
Common Name: Field speedwell
- Pest 7 Type:** W **Code:** LAMAM Lamium amplexicaule
Common Name: Henbit
- Pest 8 Type:** W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail
- Pest 9 Type:** W **Code:** CHEAL Chenopodium album
Common Name: Common lambsquarters
- Pest10 Type:** W **Code:** AMARE Amaranthus retroflexus
Common Name: Redroot pigweed
- Pest11 Type:** W **Code:** ABUTH Abutilon theophrasti
Common Name: velvetleaf
- Pest12 Type:** W **Code:** AMBEL Ambrosia artemisiifolia
Common Name: Common ragweed

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 30 FT
Treated Plot Area: 300 FT2 **Treatments:** 12
Replications: 3

Site Type: FIELD field
Experimental Unit: 1 PLOT plot
Tillage Type: NOTILL no-till
Study Design: RACOB L Randomized Complete Block (RCB)

No. Previous Crop Year
1. Soybean 2014

Soil Description

Description Name: F-10 East
% OM: 3 **Texture:** SICL silty clay loam
pH: 6 **Soil Name:** Kokomo
CEC: 19.5 **Fert. Level:** G good
Soil Drainage: G good

Application Description

	A	B	C	D	E
Application Date:	11-10-2014	4-24-2015	4-29-2015	5-22-2015	6-3-2015
Appl. Start Time:	11:00 am	10:00 AM	4:00 PM	8:45 AM	9:00 AM
Appl. Stop Time:	11:30 AM	10:30 AM	4:20 PM	9:00 AM	9:15 AM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	FALL	7 EPP	PRE	POST D	POST
Application Placement:	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Applied By:	REEB	DOBBELS	DOBBELS	BARCLAY	LAMB
Air Temperature, Unit:	58.2 F	46 F	66 F	55 F	60 F
% Relative Humidity:	50.4	49	37	69	88
Wind Velocity, Unit:	7.5 MPH	6 MPH	5 MPH	7 MPH	5 M[J
Wind Direction:	SSW	N	N	WSW	NE
Dew Presence (Y/N):	N no	N no	N no	N no	Y yes
Soil Temperature, Unit:	44 F	41 F	63 F	52 F	59 F
Soil Moisture:	GOOD	MOIST	MOIST	DRY	MOIST
% Cloud Cover:	5	0	45	0	100
Next Moisture Occurred On:	11-11-2014	4-25-2015	5-5-2015	5-26-2015	6-5-2015
Time to Next Moisture, Unit:	1 DAY	1 DAY	6 DAY	4 DAY	2 DAY

Crop Stage At Each Application

	A	B	C	D	E			
Crop 1 Code, BBCH Scale:	GLXMA	BSOY	GLXMA	BSOY	GLXMA	BSOY	GLXMA	BSOY
Stage Scale Used:					BBCH	BBCH		
Stage Majority, Percent:					12	100	13	100
Height, Unit:					3	IN	6	IN

Pest Stage At Each Application

	A		B		C		D		E	
Pest 1 Code, Type, Scale:	ERYRE	W	ERYRE	W	ERYRE	W	ERYRE	W	ERYRE	W
Stage Majority, Percent:	19	100					67	10		
Diameter, Unit:	1	IN					8	IN		
Height, Unit:	0.5	IN					12	IN		
Height Minimum, Maximum:	0.5	0.75					10	12		
Density, Unit:	3	M2					4	M2		
Pest 2 Code, Type, Scale:	LAMPU	W	LAMPU	W	LAMPU	W	LAMPU	W	LAMPU	W
Stage Majority, Percent:	17	100	19	100	69	100	69	100		
Diameter, Unit:	2	IN	1	IN	3	in	3	IN		
Height, Unit:	1.5	IN	0.5	IN	3	in	4	IN		
Height Minimum, Maximum:	1.5	2	0.25	0.5	2	3	3	4		
Density, Unit:	25	M2	15	M2	5	M2	5	M2		
Pest 3 Code, Type, Scale:	STEME	W	STEME	W	STEME	W	STEME	W	STEME	W
Stage Majority, Percent:	16	100								
Diameter, Unit:	0.5	IN								
Height, Unit:	0.75	IN								
Height Minimum, Maximum:	0.75	1								
Density, Unit:	3	M2								
Pest 4 Code, Type, Scale:	ERICA	W	ERICA	W	ERICA	W	ERICA	W	ERICA	W
Stage Majority, Percent:	17	100					19	100	19	100
Diameter, Unit:	0.5	IN					4	IN	4	IN
Height, Unit:	0.5	IN					4	IN	4	IN
Height Minimum, Maximum:	0.5	0.75					3	4	2	8
Density, Unit:	5	M2					12	M2	12	M2
Pest 5 Code, Type, Scale:	AMBTR	W	AMBTR	W	AMBTR	W	AMBTR	W	AMBTR	W
Stage Majority, Percent:			12	90	12	100	14	90	19	100
Stage Minimum, Percent:			11	10			12	10		
Stage Maximum, Percent:			12	90			14	90		
Diameter, Unit:			3	IN	3	IN	3	IN	4	IN
Height, Unit:			2	IN	2	IN	12	IN	12	IN
Height Minimum, Maximum:			1	2	1	2	12	14	8	22
Density, Unit:			5	M2	5	M2	8	M2	8	M2
Pest 6 Code, Type, Scale:	VERAG	W	VERAG	W	VERAG	W	VERAG	W	VERAG	W
Stage Majority, Percent:							67	100		
Diameter, Unit:							4	IN		
Height, Unit:							2	IN		
Height Minimum, Maximum:							2	3		
Density, Unit:							3	M2		
Pest 7 Code, Type, Scale:	LAMAM	W	LAMAM	W	LAMAM	W	LAMAM	W	LAMAM	W
Stage Majority, Percent:							69	100		
Diameter, Unit:							3	IN		
Height, Unit:							4	IN		
Height Minimum, Maximum:							3	4		
Density, Unit:							3	M2		
Pest 8 Code, Type, Scale:	SETFA	W	SETFA	W	SETFA	W	SETFA	W	SETFA	W
Stage Majority, Percent:							13	100	13	100
Height, Unit:							3	IN	7	IN
Height Minimum, Maximum:							3	4	3	12
Density, Unit:							90	M2	120	M2
Pest 9 Code, Type, Scale:	CHEAL	W	CHEAL	W	CHEAL	W	CHEAL	W	CHEAL	W
Stage Majority, Percent:									14	100
Diameter, Unit:									2	IN
Height, Unit:									2	IN
Height Minimum, Maximum:									2	2.5
Density, Unit:									25	M2
Pest10 Code, Type, Scale:	AMARE	W	AMARE	W	AMARE	W	AMARE	W	AMARE	W
Stage Majority, Percent:									12	90
Stage Minimum, Percent:									12	90
Stage Maximum, Percent:									14	10
Diameter, Unit:									1	IN
Height, Unit:									1	IN
Height Minimum, Maximum:									1	2

Density, Unit:					5	M2				
Pest11 Code, Type, Scale:	ABUTH	W	ABUTH	W	ABUTH	W	ABUTH	W	ABUTH	W
Stage Majority, Percent:					12	60				
Stage Minimum, Percent:					10	10				
Stage Maximum, Percent:					13	30				
Diameter, Unit:					1	IN				
Height, Unit:					2	IN				
Height Minimum, Maximum:					2	4				
Density, Unit:					1	M2				
Pest12 Code, Type, Scale:	AMBEL	W	AMBEL	W	AMBEL	W	AMBEL	W	AMBEL	W
Stage Majority, Percent:					18	80				
Stage Minimum, Percent:					12	10				
Stage Maximum, Percent:					18	80				
Diameter, Unit:					3	IN				
Height, Unit:					7	IN				
Height Minimum, Maximum:					2	8				
Density, Unit:					3	M2				

Application Equipment

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

Trt No Treatment Application Comment

5 Authority Assist may have been left out of 5 & 6 at the 7 epp

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Protocol ID: SULF.SOY.14.JPR.21aa Investigator: Dr. Mark M. Loux

Project ID: Study Director: Anthony Dobbels

Sponsor Contact: Joe Reed, FMC

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean
Rating Date	9-18-2015	9-18-2015	9-18-2015	9-18-2015
Rating Type	YIELD	MOICON	YIELD	WEITES
Rating Unit	LBS	%	BU	LBS
Sample Size, Unit	1 PLOT	1 QT	1 A	1 QT
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	312 107	312 107	312 107	312 107
Trt-Eval Interval				
Plant-Eval Interval	142 DP-1	142 DP-1	142 DP-1	142 DP-1
Days After Emergence	133 DE-1	133 DE-1	133 DE-1	133 DE-1
Number of Decimals	2	2	1	2

Trt Treatment No. Name	Other Rate	Other Rate	Appl Unit	Appl Code Description	27	28	29	30
1 UNTREATED					0.12 e	11.97 a	0.5 e	41.99 c
2 AUTHORITY MTZ	8 oz/a		A	FALL	17.74 ab	14.10 a	67.8 b	54.71 ab
2 WEEDMASTER	32 oz/a		A	FALL				
2 COC	1 % v/v		A	FALL				
2 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
2 AUTHORITY MAXX	6.4 oz/a		B	7 EPP				
2 2,4-D LV ESTER	16 oz/a		B	7 EPP				
2 ROUNDUP POWERMAX	32 oz/a		B	7 EPP				
2 AMMONIUM SULFATE	2.5 % v/v		B	7 EPP				
2 CADET	0.6 oz/a		E	POST				
2 Roundup PowerMax	28 oz/a		E	POST				
2 Roundup PowerMax	28 oz/a		G	LPO				
3 AUTHORITY MTZ	8 oz/a		A	FALL	18.46 ab	12.42 a	71.9 ab	52.93 ab
3 WEEDMASTER	32 oz/a		A	FALL				
3 COC	1 % v/v		A	FALL				
3 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
3 AUTHORITY XL	3.2 oz/a		B	7 EPP				
3 2,4-D LV ESTER	16 oz/a		B	7 EPP				
3 ROUNDUP POWERMAX	32 oz/a		B	7 EPP				
3 AMMONIUM SULFATE	2.5 % v/v		B	7 EPP				
3 CADET	0.6 oz/a		E	POST				
3 Roundup PowerMax	28 oz/a		E	POST				
3 Roundup PowerMax	28 oz/a		G	LPO				
4 AUTHORITY MAXX	5 oz/a		A	FALL	17.30 b	12.40 a	67.4 b	53.29 ab
4 WEEDMASTER	32 oz/a		A	FALL				
4 COC	1 % v/v		A	FALL				
4 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
4 AUTHORITY MTZ	14 oz/a		B	7 EPP				
4 2,4-D LV ESTER	16 oz/a		B	7 EPP				
4 ROUNDUP POWERMAX	32 oz/a		B	7 EPP				
4 AMMONIUM SULFATE	2.5 % v/v		B	7 EPP				
4 CADET	0.6 oz/a		E	POST				
4 Roundup PowerMax	28 oz/a		E	POST				
4 Roundup PowerMax	28 oz/a		G	LPO				

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.

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA
BBCH Scale	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean
Rating Date	9-18-2015	9-18-2015	9-18-2015	9-18-2015
Rating Type	YIELD	MOICON	YIELD	WEITES
Rating Unit	LBS	%	BU	LBS
Sample Size, Unit	1 PLOT	1 QT	1 A	1 QT
Number of Subsamples	1	1	1	1
Days After First/Last Applic.	312 107	312 107	312 107	312 107
Trt-Eval Interval				
Plant-Eval Interval	142 DP-1	142 DP-1	142 DP-1	142 DP-1
Days After Emergence	133 DE-1	133 DE-1	133 DE-1	133 DE-1
Number of Decimals	2	2	1	2

Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	27	28	29	30
5	AUTHORITY MTZ	8 oz/a		A	FALL	18.14 ab	12.31 a	70.8 ab	54.03 ab
5	WEEDMASTER	32 oz/a		A	FALL				
5	COC	1 % v/v		A	FALL				
5	AMMONIUM SULFATE	2.5 % v/v		A	FALL				
5	AUTHORITY ASSIST	5 oz/a		B	7 EPP				
5	2,4-D LV ESTER	16 oz/a		B	7 EPP				
5	ROUNDUP POWERMAX	32 oz/a		B	7 EPP				
5	AMMONIUM SULFATE	2.5 % v/v		B	7 EPP				
5	CADET	0.6 oz/a		E	POST				
5	Roundup PowerMax	28 oz/a		E	POST				
5	Roundup PowerMax	28 oz/a		G	LPO				
6	AUTHORITY MTZ	8 oz/a		A	FALL	18.31 ab	13.13 a	70.8 ab	53.76 ab
6	WEEDMASTER	32 oz/a		A	FALL				
6	COC	1 % v/v		A	FALL				
6	AMMONIUM SULFATE	2.5 % v/v		A	FALL				
6	AUTHORITY ASSIST	5 oz/a		B	7 EPP				
6	SENCOR	5 oz/a		B	7 EPP				
6	2,4-D LV ESTER	16 oz/a		B	7 EPP				
6	ROUNDUP POWERMAX	32 oz/a		B	7 EPP				
6	AMMONIUM SULFATE	2.5 % v/v		B	7 EPP				
6	CADET	0.6 oz/a		E	POST				
6	Roundup PowerMax	28 oz/a		E	POST				
6	Roundup PowerMax	28 oz/a		G	LPO				
7	2,4-D LV ESTER	16 oz/a		A	FALL	19.52 a	13.55 a	75.1 a	50.39 b
7	COC	1 % v/v		A	FALL				
7	AMMONIUM SULFATE	2.5 % v/v		A	FALL				
7	AUTHORITY MTZ	14 oz/a		C	PRE				
7	GRAMOXONE INTEON	64 oz/a		C	PRE				
7	AIM	1 oz/a		C	PRE				
7	COC	1 % v/v		C	PRE				
7	AMMONIUM SULFATE	2.5 % v/v		C	PRE				
7	CADET	0.6 oz/a		E	POST				
7	Roundup PowerMax	28 oz/a		E	POST				
7	Roundup PowerMax	28 oz/a		G	LPO				
8	2,4-D LV ESTER	16 oz/a		A	FALL	19.16 a	13.27 a	74.0 ab	55.19 a
8	COC	1 % v/v		A	FALL				
8	AMMONIUM SULFATE	2.5 % v/v		A	FALL				
8	AUTHORITY MTZ	14 oz/a		B	7 EPP				
8	AIM	1 oz/a		B	7 EPP				
8	GRAMOXONE INTEON	32 oz/a		B	7 EPP				
8	2,4-D LV ESTER	16 oz/a		B	7 EPP				
8	AMMONIUM SULFATE	2.5 % v/v		B	7 EPP				
8	CADET	0.6 oz/a		E	POST				
8	Roundup PowerMax	28 oz/a		E	POST				
8	Roundup PowerMax	28 oz/a		G	LPO				

Pest Type									
Pest Code									
Pest Scientific Name									
Pest Name									
Crop Code		GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale		BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name		Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name		Soybean	Soybean	Soybean	Soybean				
Rating Date		9-18-2015	9-18-2015	9-18-2015	9-18-2015				
Rating Type		YIELD	MOICON	YIELD	WEITES				
Rating Unit		LBS	%	BU	LBS				
Sample Size, Unit		1 PLOT	1 QT	1 A	1 QT				
Number of Subsamples		1	1	1	1				
Days After First/Last Applic.		312 107	312 107	312 107	312 107				
Trt-Eval Interval									
Plant-Eval Interval		142 DP-1	142 DP-1	142 DP-1	142 DP-1				
Days After Emergence		133 DE-1	133 DE-1	133 DE-1	133 DE-1				
Number of Decimals		2	2	1	2				

Trt Treatment No. Name	Other Rate	Other Rate	Appl Unit	Appl Code Description	27	28	29	30
9 AUTHORITY MTZ	8 oz/a		A	FALL	5.17 d	12.43 a	20.1 d	40.10 c
9 WEEDMASTER	32 oz/a		A	FALL				
9 COC	1 % v/v		A	FALL				
9 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
9 LIBERTY 280 SL	28 oz/a		D	POST				
9 LIBERTY 280 SL	28 oz/a		F	LPO				
10 AUTHORITY MTZ	8 oz/a		A	FALL	7.33 c	13.82 a	28.1 c	39.40 c
10 WEEDMASTER	32 oz/a		A	FALL				
10 COC	1 % v/v		A	FALL				
10 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
10 CADET	0.6 oz/a		D	POST				
10 LIBERTY	28 oz/a		D	POST				
10 LIBERTY	28 oz/a		F	LPO				
11 AUTHORITY MTZ	8 oz/a		A	FALL	5.82 cd	12.51 a	22.7 cd	40.30 c
11 WEEDMASTER	32 oz/a		A	FALL				
11 COC	1 % v/v		A	FALL				
11 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
11 LIBERTY 280 SL	28 oz/a		D	POST				
11 ANTHEM	6 oz/a		D	POST				
11 LIBERTY 280 SL	28 oz/a		F	LPO				
12 AUTHORITY MTZ	8 oz/a		A	FALL	6.47 cd	15.40 a	24.3 cd	41.21 c
12 WEEDMASTER	32 oz/a		A	FALL				
12 COC	1 % v/v		A	FALL				
12 AMMONIUM SULFATE	2.5 % v/v		A	FALL				
12 MARVEL	6 oz/a		D	POST				
12 Roundup PowerMax	28 oz/a		F	LPO				
LSD P=.05					1.792	2.544	6.85	4.413
Standard Deviation					1.058	1.502	4.05	2.606
CV					8.27	11.46	8.18	5.42
Grand Mean					12.795	13.107	49.46	48.108
Bartlett's X2					29.859	7.492	31.955	18.928
P(Bartlett's X2)					0.002*	0.758	0.001*	0.062
Skewness					-0.496	0.1344	-0.4922	-0.1979
Kurtosis					-1.4053	-0.7217	-1.4177	-1.8151*
Replicate F					3.640	0.338	3.369	0.539
Replicate Prob(F)					0.0431	0.7165	0.0529	0.5911
Treatment F					136.160	1.294	139.980	20.162
Treatment Prob(F)					0.0001	0.2907	0.0001	0.0001

Crop Code

GLXMA, BSOY, Glycine max, = US

Rating Type

YIELD = yield

MOICON = moisture content

WEITES = weight - test

Rating Unit

% = percent

BU = bushel

PLOT = total plot

QT = quart

A = acre

Plant-Eval Interval

142 DP-1 = 1 GLXMA 4-29-2015