

Ohio State University
Horticulture and Crop Science

To evaluate different rates of F-9324 premix prototype tank mixed with glyphosate for bio efficacy and crop safety of RR soybean

Title No. 2:

Trial ID: 12 SOYYLD3 Protocol ID: 12 SOYYLD 3
 Location: Western Branch Study Director: Bryan Reeb
 Project ID: NA12-0897B-01 Investigator: Dr. Mark M. Loux
 Sponsor Contact: Joe Reed FMC

General Trial Information

Study Director: Bryan Reeb Title: Research Technician
 Investigator: Dr. Mark M. Loux Title: Professor

Planned Completion Date: Oct-30-2012

Trial Location

City: South Charleston Latitude of LL Corner °: 39.85944 N
 State/Prov.: Ohio Longitude of LL Corner °: 83.67461 W
 Postal Code: 45368
 Country: USA

Keywords: Weed control, crop safety, fluthiacet methyl, fomesafen

Objectives:

1. To evaluate bioefficacy of F9324 tank mixing with glyphosate on glyphosate resistant waterhemp, common and giant ragweed and other broadleaf weeds of 4 to 6 inch in height.
2. To examine crop safety of soybean and compare with Flexstar

Crop Description

Crop 1:	GLXMA Glycine max	Soybean
	Variety: SC 9349 RR	Description: Round Up Ready
	BBCH Scale: BSOY	Planting Date: May-18-2012
	Planting Method: PLNTD	Rate, Unit: 155000 S/A
	Depth, Unit: 0.75 IN	
	Row Spacing, Unit: 15 IN	
	Seed Bed: MEDIUM medium	Soil Temperature, Unit: 79 F
	Soil Moisture: DRY dry	Emergence Date: May-27-2012
	Harvest Date: Oct-17-2012	Harvest Equipment: MASSEY 8 XP
	Harvested Width, Unit: 6.25 FT	Harvested Length, Unit: 30 FT
	% Standard Moisture: 13.0	Moisture Meter: HARVEST MASTER
	Weighing Equipment: HARVEST MASTER 401	

Pest Description

- Pest 1 Type: W Code: AMARE *Amaranthus retroflexus*
 Common Name: Redroot pigweed
- Pest 2 Type: W Code: CHEAL *Chenopodium album*
 Common Name: Common lambsquarters
- Pest 3 Type: W Code: AMBTR *Ambrosia trifida*
 Common Name: Giant ragweed
- Pest 4 Type: W Code: ABUTH *Abutilon theophrasti*
 Common Name: velvetleaf
- Pest 5 Type: W Code: IPOHE *Ipomoea hederacea*
 Common Name: Ivyleaf morningglory
- Pest 6 Type: W Code: SETFA *Setaria faberi*
 Common Name: Giant foxtail

Site and Design

Plot Width, Unit: 9.5 FT	Site Type: FIELD	field
Plot Length, Unit: 40 FT	Experimental Unit: 5	PLANT plant
Plot Area, Unit: 380 FT ²	Tillage Type: CONTIL	conventional-till
Replications: 4	Study Design: RACOB	Randomized Complete Block (RCB)
	Untreated Arrangement: INCLUDED	single control randomized in each block

No. Previous Crop Year
 1. CORN 2011

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Soil Description

Description Name: G-6

% OM: 2.2	Texture: SIL	silt loam
pH: 6.3	Soil Name: Crosby Silt Loam	
CEC: 13.6	Fert. Level: G	good
	Soil Drainage: G	good

Application Description

	A	B	C	D
Application Date:	Jun-20-2012	Jun-26-2012	Jul-12-2012	Jul-19-2012
Time of Day:	8:00AM	8:30 AM	8:45AM	7:40 AM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	POST	EPO	VLPO/21DAA	21 DAB
Application Placement:	BROFOL	BROFOL	BROFOL	BROFOL
Air Temperature, Unit:	76 F	63.7 F	78 F	72.5 F
% Relative Humidity:	79	58.4	71	73
Wind Velocity, Unit:	2 MPH	5 MPH	2 MPH	1 MPH
Wind Direction:	N	NE	E	SSW
Dew Presence (Y/N):	Y yes	N no	N no	Y yes
Soil Temperature, Unit:	72 F	68 F	75 F	71 F
Soil Moisture:	MOIST	DRY	DRY	WET
% Cloud Cover:	0	0	0	95
Next Rain Occurred On:	Jun-29-2012	Jun-29-2012	Jul-15-2012	Jul-19-2012

Crop Stage At Each Application

	A		B		C		D	
Crop 1 Code, BBCH Scale:	GLXMA	BSOY	GLXMA	BSOY	GLXMA	BSOY	GLXMA	BSOY
Stage Scale Used:	BBCH		BBCH		BBCH		BBCH	
Stage Majority, Percent:	14	100	15	100	65	100	66	100
Height, Unit:	7	IN	9	IN	19	IN	25	IN
Height Minimum, Maximum:	7	8	8	10	18	20	23	28

Pest Stage At Each Application

	A		B		C		D	
Pest 1 Code, Type, Scale:	AMARE	W W	AMARE	W W	AMARE	W	AMARE	W
Stage Majority, Percent:	14	100	16	100	16	100	19	100
Height, Unit:	3	IN	6	IN	3.5	IN	7	IN
Height Minimum, Maximum:	2	5	2	8	3	4	6	8
Density, Unit:	12	M2	12	M2	12	M2	12	M2
Pest 2 Code, Type, Scale:	CHEAL	W W	CHEAL	W W	CHEAL	W	CHEAL	W
Stage Majority, Percent:	16	100	19	100				
Height, Unit:	3	IN	7	IN				
Height Minimum, Maximum:	2	5	4	10				
Density, Unit:	6	M2	6	M2				
Pest 3 Code, Type, Scale:	AMBTR	W W	AMBTR	W W	AMBTR	W	AMBTR	W
Stage Majority, Percent:	19	100	19	100	19	100	19	100
Height, Unit:	9	IN	14	IN	6	IN	24	IN
Height Minimum, Maximum:	7	11	10	18	4	8	20	25
Density, Unit:	4	M2	4	M2	4	M2	4	M2
Pest 4 Code, Type, Scale:	ABUTH	W W	ABUTH	W W	ABUTH	W	ABUTH	W
Stage Majority, Percent:			15	100			14	100
Height, Unit:			6	IN			7	IN
Height Minimum, Maximum:			4	8			6	8
Density, Unit:			4	M2			4	M2
Pest 5 Code, Type, Scale:	IPOHE	W W	IPOHE	W W	IPOHE	W	IPOHE	W
Stage Majority, Percent:	13	100	16	100	19	100	19	100
Height, Unit:	3	IN	6	IN	2.5	IN	6	IN
Height Minimum, Maximum:	2	4	5	7	2	3	3	9
Density, Unit:	4	M2	4	M2	4	M2	4	M2
Pest 6 Code, Type, Scale:	SETFA	W	SETFA	W	SETFA	W	SETFA	W
Stage Majority, Percent:			16	100				
Height, Unit:			10	IN				
Height Minimum, Maximum:			8	15				
Density, Unit:			18	M2				

Application Equipment

	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Equipment Type:	SPRBAC	SPRBAC	SPRBAC	SPRBAC
Operation Pressure, Unit:	44 PSI	44 PSI	44 PSI	44 PSI
Nozzle Type:	AIXR	AIXR	AIXR	AIXR
Nozzle Size:	110015	110015	110015	110015
Nozzle Spacing, Unit:	18 IN	18 IN	18 IN	18 IN
Boom Length, Unit:	6 FT	6 FT	6 FT	6 FT
Boom Height, Unit:	18 IN	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH	3 MPH
Carrier:	WATER	WATER	WATER	WATER
Spray Volume, Unit:	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac
Mix Size, Unit:	2 Liters	2 Liters	3 Gallons	3 Gallons
Propellant:	COMCO2	COMCO2	COMCO2	COMCO2

Equipment Comment: Treatments will be applied by Backpack Knapsack Sprayer with CO2 pressurized tank

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Pest Type								
Pest Code								
Pest Scientific Name								
Pest Name								
Crop Code		GLXMA	GLXMA	GLXMA				
BBCH Scale		BSOY	BSOY	BSOY				
Crop Scientific Name		Glycine max	Glycine max	Glycine max				
Crop Name		Soybean	Soybean	Soybean				
Rating Date		Oct-17-2012	Oct-17-201	Oct-17-2012				
Rating Type		YIELD	MOICON	YIELD				
Rating Unit		LBS	%	BU				
Number of Subsamples		1	1	1				
Days After First/Last Applic.		119 90	119 90	119 90				
Trt-Eval Interval								
Plant-Eval Interval		152 DP-1	152 DP-1	152 DP-1				
Days After Emergence		143 DE-1	143 DE-1	143 DE-1				
ARM Action Codes				TY1				
Number of Decimals		1	1	1				

Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Growth Stage	Appl Code	21	22	23
1	4-6 INCH WEED						14.0 ab	10.6 a	55.7 ab
1	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		MPO	A			
1	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		MPO	A			
1	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	C			
1	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	C			
2	F9324-9	5.0 fl oz/a	0.117 lb ai/a		MPO	A	14.4 ab	10.6 a	57.2 ab
2	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		MPO	A			
2	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		MPO	A			
2	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	C			
2	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	C			
3	F9324-9	6.0 fl oz/a	0.14 lb ai/a		MPO	A	14.2 ab	10.6 a	56.7 ab
3	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		MPO	A			
3	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		MPO	A			
3	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	C			
3	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	C			
4	F9324-9	7.25 fl oz/a	0.17 lb ai/a		MPO	A	13.9 a-d	10.5 a	55.4 abc
4	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		MPO	A			
4	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		MPO	A			
4	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	C			
4	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	C			
5	FLEXSTAR	16 fl oz/a	0.235 lb ai/a		MPO	A	14.8 a	10.6 a	58.8 a
5	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		MPO	A			
5	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		MPO	A			
5	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	C			
5	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	C			
6	COBRA	12 fl oz/a	0.188 lb ai/a		MPO	A	14.8 a	10.8 a	58.6 a
6	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		MPO	A			
6	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		MPO	A			
6	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	C			
6	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	C			
7	8-10 INCH WEED				LPO	B	13.6 bcd	10.6 a	54.3 bcd
7	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		LPO	B			
7	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		LPO	B			
7	ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a		VLPO	D			
7	AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal		VLPO	D			
8	F9324-9	6.0 fl oz/a	0.14 lb ai/a		LPO	B	14.1 ab	10.5 a	56.2 ab

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.

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Pest Type						
Pest Code						
Pest Scientific Name						
Pest Name						
Crop Code	GLXMA	GLXMA	GLXMA			
BBCH Scale	BSOY	BSOY	BSOY			
Crop Scientific Name	Glycine max	Glycine max	Glycine max			
Crop Name	Soybean	Soybean	Soybean			
Rating Date	Oct-17-2012	Oct-17-201	Oct-17-2012			
Rating Type	YIELD	MOICON	YIELD			
Rating Unit	LBS	%	BU			
Number of Subsamples	1	1	1			
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Plant-Eval Interval	152 DP-1	152 DP-1	152 DP-1			
Days After Emergence	143 DE-1	143 DE-1	143 DE-1			
ARM Action Codes	TY1					
Number of Decimals	1	1	1			
Trt Treatment	Rate	Other Other	Growth Appl	21	22	23
No. Name	Rate Unit	Rate Rate Unit	Stage Code			
8 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	LPO B			
8 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	LPO B			
8 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	VLPO D			
8 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	VLPO D			
9 F9324-9	7.25 fl oz/a	0.17 lb ai/a	LPO B	13.5 bcd	10.5 a	53.6 bcd
9 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	LPO B			
9 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	LPO B			
9 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	VLPO D			
9 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	VLPO D			
10 FLEXSTAR	16 fl oz/a	0.235 lb ai/a	LPO B	14.0 abc	10.7 a	55.5 abc
10 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	LPO B			
10 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	LPO B			
10 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	VLPO D			
10 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	VLPO D			
11 FLEXSTAR	24 fl oz/a	0.353 lb ai/a	LPO B	12.9 cd	10.4 a	51.3 cd
11 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	LPO B			
11 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	LPO B			
11 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	VLPO D			
11 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	VLPO D			
12 COBRA	12 fl oz/a	0.188 lb ai/a	LPO B	12.8 d	10.5 a	51.1 d
12 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	LPO B			
12 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	LPO B			
12 ROUNDUP POWERMAX	22 fl oz/a	0.95 lb ai/a	VLPO D			
12 AMMONIUM SULFATE	1.02 % v/v	8.5 lb/100 gal	VLPO D			
LSD (P=.05)				1.08	0.27	4.21
Standard Deviation				0.75	0.19	2.91
CV				5.38	1.75	5.26

Crop Code

GLXMA, BSOY, Glycine max, = US

Rating Type

YIELD = yield

MOICON = moisture content

Rating Unit

% = percent

BU = bushel

Plant-Eval Interval

152 DP-1 = 1 GLXMA May-18-2012

ARM Action CodesTY1 = $3.872 * [21] * (100 - [22]) / 87$