

The Ohio State University

Demonstrate benefit of adding glyphosate or poast to liberty applications. Determine what rate of glyphosate os needed when tank mixing with liberty in GT27 soybeans.

Trial ID: 19 PRPOST 4 Location: F-8 East Trial Year: 2019
Protocol ID: 19 PRPOST 4 Investigator: Dr. Mark M. Loux
Project ID: MKD-H-2019-US-D41 Study Director: Bryan Reeb
Sponsor Contact: Alice Harris, BASF

General Trial Information

Study Director: Bryan Reeb
Investigator: Dr. Mark M. Loux

Trial Status: E established
ARM Trial Created On: May-30-2019

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 °: 39.86163 N
Longitude of LL Corner °: 83.6671 W
Altitude of LL Corner: 1088.00 FT

Conducted Under GLP: No
Conducted Under GEP: No

Contacts

Study Director: Bryan Reeb

Investigator: Dr. Mark M. Loux

Crop Description

Crop 1: C GLXMA Glycine max Soybean **BBCH Scale:** BSOY
Entry Date: May-30-2019
Variety: Credenzz 3309 GTLL
Attributes: Roundup/Liberty Link/HPPD
Planting Date: May-16-2019 **Planting Rate:** 165000 S/A
Depth: 1.5 IN
Rows per Plot: 8 **Planting Method:** SEEDED seeded
Row Spacing: 15 IN **Planting Equipment:** PP plot planter
Seed Bed: CLODDY cloddy
Soil Temperature: 63 F **Soil Moisture:** GOOD good
Emergence Date: May-28-2019

Pest Description

- Pest 1 Type:** W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail **Entry Date:** Jun-13-2019
- Pest 2 Type:** W **Code:** ECHCG Echinochloa crus-galli
Common Name: Common barnyard grass **Entry Date:** Jun-13-2019
- Pest 3 Type:** W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed **Entry Date:** Jun-13-2019
- Pest 4 Type:** W **Code:** CHEAL Chenopodium album
Common Name: common lambsquarters **Entry Date:** Jun-13-2019
- Pest 5 Type:** W **Code:** AMARE Amaranthus retroflexus
Common Name: Redroot pigweed **Entry Date:** Jun-13-2019
- Pest 6 Type:** W **Code:** SIDSP Sida spinosa
Common Name: Prickly sida **Entry Date:** Jun-13-2019
- Pest 7 Type:** W **Code:** POLPY Persicaria pensylvanica
Common Name: annual smartweed **Entry Date:** Jun-20-2019
- Pest 8 Type:** W **Code:** ABUTH Abutilon theophrasti
Common Name: velvetleaf **Entry Date:** Jun-20-2019
- Pest 9 Type:** W **Code:** IPOHE Ipomoea hederacea
Common Name: ivy-leaf morning glory **Entry Date:** Jun-20-2019

Site and Design

Treated Plot Width: 6.67 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 200.1 FT2 **Treatments:** 10 **Tillage Type:** CONTIL conventional-till
Replications: 3 **Study Design:** RACOB� Randomized Complete Block (RCB)

Previous

- No.** **Crop** **Year**
- 1. SOYBEAN 2018

Soil Description

Description Name: F-8 East
% Sand: 37 **% OM:** 2.7 **Texture:** SIL silt loam
% Silt: 49 **pH:** 6 **Soil Name:** Kokomo
% Clay: 15 **CEC:** 16.9 **Fert. Level:** G good
Soil Drainage: G good

Application Description

	A	B
Application Date	May-16-2019	Jun-19-2019
Appl. Start Time	9:00 PM	4:00 PM
Appl. Stop Time	10:00 PM	4:25 PM
Interval to Prev. Appl.		34 DAYS
Application Method	BROADC	BROADC
Application Timing	PRE	3' WDS
Application Placement	BROFOL	BROFOL
Applied By	KILEY	DOBBELS
Appl. Entry Date	May-30-2019	Jun-20-2019
Air Temperature Start, Stop	74 74 F	75 75 F
% Relative Humidity Start, Stop	43 43	79 79
Wind Velocity+Dir. Start	11 MPH SW	5 MPH SSW
Wind Velocity+Dir. Stop	11 MPH SW	5 MPH SSW
Wind Velocity+Dir. Max	11 MPH S	5 MPH SSW
Wet Leaves (Y/N)	N no	N no
Soil Temperature	63 F	74 F
Soil Moisture	DRY	WET
Soil Surface Condition	SMOOTH	SMOOTH
% Cloud Cover	90	60
Next Moisture Occurred On	May-17-2019	Jun-19-2019
Time to Next Moisture	3 HR	2 HR
Moisture 6 Hours after Appl.	1.32 IN	0.33 IN
Moisture 1 Week after Appl.	2.54 IN	0.75 IN

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY
Days after Emergence	-12	22
Stage Majority, Percent		V3 100
Height Average		5 IN

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	SETFA W	SETFA W
Stage Majority, Percent	15	80
Stage Minimum, Percent	13	20
Stage Maximum, Percent	15	80
Height Average	7	IN
Height Minimum, Maximum	5	9
Density Average		306.66 m2
Density Min, Max		120 800
Pest 2 Code, Type, Scale	ECHCG W	ECHCG W
Stage Majority, Percent	13	100
Height Average	8	IN
Height Minimum, Maximum	6	10
Density Average		160 m2
Density Min, Max		80 400
Pest 3 Code, Type, Scale	AMBTR W	AMBTR W
Stage Majority, Percent	19	90
Stage Minimum, Percent	14	10
Stage Maximum, Percent	19	90
Height Average	15	IN
Height Minimum, Maximum	3	20
Density Average		20 m2
Density Min, Max		12 24
Pest 4 Code, Type, Scale	CHEAL W	CHEAL W
Stage Majority, Percent	19	100
Height Average	6	IN
Height Minimum, Maximum	4	10
Density Average		22.6 m2
Density Min, Max		8 60
Pest 5 Code, Type, Scale	AMARE W	AMARE W
Stage Majority, Percent	16	80
Stage Minimum, Percent	16	80
Stage Maximum, Percent	19	20
Height Average	7	IN
Height Minimum, Maximum	7	11
Density Average		173 m2
Density Min, Max		520 520
Pest 6 Code, Type, Scale	SIDSP W	SIDSP W
Stage Majority, Percent	15	100
Height Average	3	IN
Height Minimum, Maximum	2	3
Density Average		4 M2
Density Min, Max		1 5
Pest 7 Code, Type, Scale	POLPY W	POLPY W
Stage Majority, Percent	19	80
Stage Minimum, Percent	15	20
Stage Maximum, Percent	19	80
Height Average	6.5	IN
Height Minimum, Maximum	5	8
Density Average		3 M2
Density Min, Max		1 5
Pest 8 Code, Type, Scale	ABUTH W	ABUTH W
Stage Majority, Percent	14	100
Height Average	6.5	IN
Height Minimum, Maximum	6	7
Density Average		21.3 m2
Density Min, Max		4 40
Pest 9 Code, Type, Scale	IPOHE W	IPOHE W
Stage Majority, Percent	15	100
Height Average	2.5	IN
Height Minimum, Maximum	2	3
Density Average		1 M2
Density Min, Max		0 5

Application Equipment

	A	B
Appl. Equipment	6 foot TTI	6' BACKPACK
Equipment Type	SPRBAC	BACCAI
Operation Pressure	48 PSI	44 PSI
Nozzle Type	TTI	AIXR
Nozzle Size	110015	11015
Nozzle Spacing	18 IN	18 IN
Nozzles/Row		4
Boom Length	6.67 FT	6.67 FT
Boom Height	20 IN	20 IN
Ground Speed	3 MPH	3 MPH
Carrier	WATER	WATER
Application Amount	15 GPA	15 gal/ac
Mix Size	1 Liters	1 liters
Propellant	COMCO2	COMCO2

Date **By** **Context** **Notes**
 May-30-2019 Dr. Mark M. Loux STATUS Automatically added by ARM: Trial Status updated to 'S' during trial creation.
 Jun-13-2019 Dr. Mark M. Loux STATUS Automatically added by ARM: Trial Status updated to 'E' when Rating Date entered.

SE Definitions

1.
Crop Type, Code C

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
Pest Name	Giant foxtail	Common barnyar>	Giant common lambsqu>		Redroot pigweed
Crop Type, Code	C -	C -	C -	C -	C -
Crop Name					
Rating Date	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019
Rating Timing	AT POST	AT POST	AT POST	AT POST	AT POST
Days After First/Last Applic.	28 28	28 28	28 28	28 28	28 28
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	28 DP-1	28 DP-1	28 DP-1	28 DP-1	28 DP-1
Days After Emergence	16 DE-1	16 DE-1	16 DE-1	16 DE-1	16 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Appl Unit Code	1*	2*	3*	4*	5*
1	UTC					0 -	0 -	0 -	0 -	0 -
2	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
2	Liberty	0.585 lb ai/a	32 oz/a		B					
2	N-pak ams	4.5 % v/v	2.7 qt/a		B					
3	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
3	Roundup Power Max	1.13 lb ae/a	32 oz/a		B					
3	N-pak ams	4.5 % v/v	2.7 qt/a		B					
4	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
4	Liberty	0.585 lb ai/a	32 oz/a		B					
4	Roundup Power Max	1.13 lb ae/a	32 oz/a		B					
4	N-pak ams	4.5 % v/v	2.7 qt/a		B					
5	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
5	Liberty	0.585 lb ai/a	32 oz/a		B					
5	Select Max	0.094 lb ai/a	12 oz/a		B					
5	N-pak ams	4.5 % v/v	2.7 qt/a		B					
6	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
6	Liberty	0.585 lb ai/a	32 oz/a		B					
6	Roundup Power Max	1.13 lb ae/a	32 oz/a		B					
6	Outlook	0.47 lb ai/a	10 oz/a		B					
6	N-pak ams	4.5 % v/v	2.7 qt/a		B					
7	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
7	Liberty	0.585 lb ai/a	32 oz/a		B					
7	Roundup Power Max	0.84 lb ae/a	24 oz/a		B					
7	N-pak ams	4.5 % v/v	2.7 qt/a		B					
8	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
8	Liberty	0.585 lb ai/a	32 oz/a		B					
8	Roundup Power Max	0.56 lb ae/a	16 oz/a		B					
8	N-pak ams	4.5 % v/v	2.7 qt/a		B					
9	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
9	Liberty	0.585 lb ai/a	32 oz/a		B					
9	Select Max	0.094 lb ai/a	12 oz/a		B					
9	Outlook	0.47 lb ai/a	10 oz/a		B					
9	N-pak ams	4.5 % v/v	2.7 qt/a		B					

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	ECHCG	AMBTR	CHEAL	AMARE
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
Pest Name	Giant foxtail	Common barnyar>	Giant common ragweed	lambsqu>	Redroot pigweed
Crop Type, Code	C -	C -	C -	C -	C -
Crop Name					
Rating Date	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019	Jun-13-2019
Rating Timing	AT POST	AT POST	AT POST	AT POST	AT POST
Days After First/Last Applic.	28 28	28 28	28 28	28 28	28 28
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	28 DP-1	28 DP-1	28 DP-1	28 DP-1	28 DP-1
Days After Emergence	16 DE-1	16 DE-1	16 DE-1	16 DE-1	16 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Appl Unit Code	1*	2*	3*	4*	5*
10	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	70 -	0 -	75 -	100 -
10	Liberty	0.53 lb ai/a	29 oz/a		B					
10	Roundup Power Max	0.387 lb ae/a	11 oz/a		B					
10	N-pak ams	4.5 % v/v	2.7 qt/a		B					
LSD P=.05					
Standard Deviation						0.0	0.0	0.0	0.0	0.0
CV						0.0	0.0	0.0	0.0	0.0
Levene's F						0.00	0.00	0.00	0.00	0.00
Levene's Prob(F)										
Skewness						-2.8091*	-2.8091*	.	-2.8091*	-2.8091*
Kurtosis						6.3081*	6.3081*	.	6.3081*	6.3081*
Replicate F						0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)						1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F						0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)						1.0000	1.0000	1.0000	1.0000	1.0000

Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	SIDSP	SETFA	ECHCG	AMBTR
Pest Scientific Name	Sida spinosa	Setaria faberi	Echinochloa cr>	Ambrosia trifi>
Pest Name	Prickly sida	Giant foxtail	Common barnyar>	Giant ragweed
Crop Type, Code	C - C	GLXMA C	GLXMA	C -
Crop Name	Soybean	Soybean		
Rating Date	Jun-13-2019	Jun-13-2019	Jul-2-2019	Jul-2-2019
Rating Type	CONTRO	PYHGEN	PYHGEN	CONTRO
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Data Entry Date	Jun-13-2019	Jun-13-2019	Jul-2-2019	Jul-2-2019
Rating Timing	AT POST	AT POST		
Days After First/Last Applic.	28 28	28 28	47 13	47 13
Trt-Eval Interval	28 DA-A	28 DA-A	13 DA-B	13 DA-B
Plant-Eval Interval	28 DP-1	28 DP-1	47 DP-1	47 DP-1
Days After Emergence	16 DE-1	16 DE-1	35 DE-1	35 DE-1
Number of Decimals	0	0	0	0

Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Appl Unit Code	6*	7*	8*	9*	10*	11*
1	UTC					0 -	0 -	0 -	0 b	0 c	0
2	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	100 a	70 b	95 -
2	Liberty	0.585 lb ai/a	32 oz/a		B						
2	N-pak ams	4.5 % v/v	2.7 qt/a		B						
3	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	99 a	97 a	83 -
3	Roundup Power Max	1.13 lb ae/a	32 oz/a		B						
3	N-pak ams	4.5 % v/v	2.7 qt/a		B						
4	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	100 a	98 a	88 -
4	Liberty	0.585 lb ai/a	32 oz/a		B						
4	Roundup Power Max	1.13 lb ae/a	32 oz/a		B						
4	N-pak ams	4.5 % v/v	2.7 qt/a		B						
5	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	100 a	97 a	95 -
5	Liberty	0.585 lb ai/a	32 oz/a		B						
5	Select Max	0.094 lb ai/a	12 oz/a		B						
5	N-pak ams	4.5 % v/v	2.7 qt/a		B						
6	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	99 a	98 a	93 -
6	Liberty	0.585 lb ai/a	32 oz/a		B						
6	Roundup Power Max	1.13 lb ae/a	32 oz/a		B						
6	Outlook	0.47 lb ai/a	10 oz/a		B						
6	N-pak ams	4.5 % v/v	2.7 qt/a		B						
7	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	98 a	97 a	83 -
7	Liberty	0.585 lb ai/a	32 oz/a		B						
7	Roundup Power Max	0.84 lb ae/a	24 oz/a		B						
7	N-pak ams	4.5 % v/v	2.7 qt/a		B						
8	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	98 a	90 a	93 -
8	Liberty	0.585 lb ai/a	32 oz/a		B						
8	Roundup Power Max	0.56 lb ae/a	16 oz/a		B						
8	N-pak ams	4.5 % v/v	2.7 qt/a		B						
9	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	99 a	83 a	93 -
9	Liberty	0.585 lb ai/a	32 oz/a		B						
9	Select Max	0.094 lb ai/a	12 oz/a		B						
9	Outlook	0.47 lb ai/a	10 oz/a		B						
9	N-pak ams	4.5 % v/v	2.7 qt/a		B						

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Pest Type	W Weed	W Weed	W Weed	W Weed						
Pest Code	SIDSP	SETFA	ECHCG	AMBTR						
Pest Scientific Name	Sida spinosa	Setaria faberi	Echinochloa cr>	Ambrosia trifi>						
Pest Name	Prickly sida	Giant foxtail	Common barnyar>	Giant ragweed						
Crop Type, Code	C - C	GLXMA C	GLXMA	C -						
Crop Name	Soybean	Soybean		C -						
Rating Date	Jun-13-2019	Jun-13-2019	Jul-2-2019	Jul-2-2019						
Rating Type	CONTRO	PYHGEN	PYHGEN	CONTRO						
Rating Unit	%	%	%	%						
Number of Subsamples	1	1	1	1						
Data Entry Date	Jun-13-2019	Jun-13-2019	Jul-2-2019	Jul-2-2019						
Rating Timing	AT POST	AT POST								
Days After First/Last Applic.	28 28	28 28	47 13	47 13						
Trt-Eval Interval	28 DA-A	28 DA-A	13 DA-B	13 DA-B						
Plant-Eval Interval	28 DP-1	28 DP-1	47 DP-1	47 DP-1						
Days After Emergence	16 DE-1	16 DE-1	35 DE-1	35 DE-1						
Number of Decimals	0	0	0	0						
Trt Treatment No. Name	Rate Rate Unit	Other Rate	Other Rate Unit	Appl Code	6*	7*	8*	9*	10*	11*
10 Zidua SC	0.114 lb ai/a	3.5 oz/a		A	70 -	0 -	0 -	99 a	85 a	93 -
10 Liberty	0.53 lb ai/a	29 oz/a		B						
10 Roundup Power Max	0.387 lb ae/a	11 oz/a		B						
10 N-pak ams	4.5 % v/v	2.7 qt/a		B						
LSD P=.05								2.3	12.2	13.9
Standard Deviation	0.0	0.0	0.0					1.3	7.1	8.0
CV	0.0	0.0	0.0					1.49	8.74	8.83
Levene's F	0.00	0.00	0.00					0.593	0.484	0.375
Levene's Prob(F)								0.788	0.868	0.92
Skewness	-2.8091*							-2.7987*	-2.2711*	-0.8039
Kurtosis	6.3081*							6.2706*	4.1677*	-0.5661
Replicate F	0.000	0.000	0.000					3.162	0.336	8.029
Replicate Prob(F)	1.0000	1.0000	1.0000					0.0665	0.7192	0.0039
Treatment F	0.000	0.000	0.000					1661.017	53.268	1.038
Treatment Prob(F)	1.0000	1.0000	1.0000					0.0001	0.0001	0.4490

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	CHEAL	AMARE	POLPY	SIDSP	IPOHE
Pest Scientific Name	Chenopodium al-	Amaranthus ret-	Persicaria pen-	Sida spinosa	Ipomoea heder-
Pest Name	common lambsqu-	Redroot annual smartwe-	Prickly sida	ivy-leaf morni-	
Crop Type, Code	C -	C -	C -	C -	C -
Crop Name					
Rating Date	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019
Rating Timing					
Days After First/Last Applic.	47 13	47 13	47 13	47 13	47 13
Trt-Eval Interval	13 DA-B	13 DA-B	13 DA-B	13 DA-B	13 DA-B
Plant-Eval Interval	47 DP-1	47 DP-1	47 DP-1	47 DP-1	47 DP-1
Days After Emergence	35 DE-1	35 DE-1	35 DE-1	35 DE-1	35 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Other Rate	Other Rate	Appl Unit Code	12*	13*	14*	15*	16*
1	UTC					0 b	0 -	0 b	0 b	0
2	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	98 a	100 -	97 a	97 a	55 -
	2 Liberty	0.585 lb ai/a	32 oz/a		B					
	2 N-pak ams	4.5 % v/v	2.7 qt/a		B					
3	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	87 a	100 -	85 a	93 a	83 -
	3 Roundup Power Max	1.13 lb ae/a	32 oz/a		B					
	3 N-pak ams	4.5 % v/v	2.7 qt/a		B					
4	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	100 a	100 -	100 a	100 a	70 -
	4 Liberty	0.585 lb ai/a	32 oz/a		B					
	4 Roundup Power Max	1.13 lb ae/a	32 oz/a		B					
	4 N-pak ams	4.5 % v/v	2.7 qt/a		B					
5	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	100 a	100 -	93 a	93 a	82 -
	5 Liberty	0.585 lb ai/a	32 oz/a		B					
	5 Select Max	0.094 lb ai/a	12 oz/a		B					
	5 N-pak ams	4.5 % v/v	2.7 qt/a		B					
6	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	98 a	100 -	93 a	77 a	75 -
	6 Liberty	0.585 lb ai/a	32 oz/a		B					
	6 Roundup Power Max	1.13 lb ae/a	32 oz/a		B					
	6 Outlook	0.47 lb ai/a	10 oz/a		B					
	6 N-pak ams	4.5 % v/v	2.7 qt/a		B					
7	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	97 a	100 -	100 a	93 a	65 -
	7 Liberty	0.585 lb ai/a	32 oz/a		B					
	7 Roundup Power Max	0.84 lb ae/a	24 oz/a		B					
	7 N-pak ams	4.5 % v/v	2.7 qt/a		B					
8	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	97 a	100 -	100 a	73 a	83 -
	8 Liberty	0.585 lb ai/a	32 oz/a		B					
	8 Roundup Power Max	0.56 lb ae/a	16 oz/a		B					
	8 N-pak ams	4.5 % v/v	2.7 qt/a		B					
9	Zidua SC	0.114 lb ai/a	3.5 oz/a		A	99 a	100 -	93 a	73 a	80 -
	9 Liberty	0.585 lb ai/a	32 oz/a		B					
	9 Select Max	0.094 lb ai/a	12 oz/a		B					
	9 Outlook	0.47 lb ai/a	10 oz/a		B					
	9 N-pak ams	4.5 % v/v	2.7 qt/a		B					

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	CHEAL	AMARE	POLPY	SIDSP	IPOHE
Pest Scientific Name	Chenopodium al>	Amaranthus ret>	Persicaria pen>	Sida spinosa	Ipomoea hederata>
Pest Name	common lambsqu>	Redroot annual smartwe>	Prickly sida	ivy-leaf morni>	
Crop Type, Code	C -	C -	C -	C -	C -
Crop Name					
Rating Date	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019	Jul-2-2019
Rating Timing					
Days After First/Last Applic.	47 13	47 13	47 13	47 13	47 13
Trt-Eval Interval	13 DA-B	13 DA-B	13 DA-B	13 DA-B	13 DA-B
Plant-Eval Interval	47 DP-1	47 DP-1	47 DP-1	47 DP-1	47 DP-1
Days After Emergence	35 DE-1	35 DE-1	35 DE-1	35 DE-1	35 DE-1
Number of Decimals	0	0	0	0	0
Trt Treatment	Rate	Other	Other	Appl	
No. Name	Rate Unit	Rate	Rate Unit	Code	
10 Zidua SC	0.114 lb ai/a	3.5 oz/a		A	12* 97 a
10 Liberty	0.53 lb ai/a	29 oz/a		B	13* 100 -
10 Roundup Power Max	0.387 lb ae/a	11 oz/a		B	14* 100 a
10 N-pak ams	4.5 % v/v	2.7 qt/a		B	15* 77 a
					16* 63 -
LSD P=.05					14.3 . 14.2 16.6 27.4
Standard Deviation					8.4 0.0 8.3 9.7 15.8
CV					9.57 0.0 9.61 12.46 21.7
Levene's F					0.729 0.00 0.874 0.424 0.582
Levene's Prob(F)					0.678 . 0.563 0.907 0.78
Skewness					-2.5499* -2.8091* -2.4734* -1.9153* -0.4825
Kurtosis					5.174* 6.3081* 4.9906* 3.201* 0.2286
Replicate F					0.339 0.000 0.595 0.249 2.709
Replicate Prob(F)					0.7170 1.0000 0.5620 0.7822 0.0970
Treatment F					41.082 0.000 41.081 27.277 1.245
Treatment Prob(F)					0.0001 1.0000 0.0001 0.0001 0.3361

Pest Type		W Weed	W Weed	W Weed	W Weed
Pest Code		SETFA	ECHCG	AMBTR	CHEAL
Pest Scientific Name		Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>
Pest Name		Giant foxtail	Common barnyar>	Giant ragweed	common lambsqu>
Crop Type, Code	C GLXMA	C -	C -	C -	C -
Crop Name	Soybean				
Rating Date	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-17-2019
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Data Entry Date	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019
Rating Timing					
Days After First/Last Applic.	62 28	62 28	62 28	62 28	62 28
Trt-Eval Interval	28 DA-B	28 DA-B	28 DA-B	28 DA-B	28 DA-B
Plant-Eval Interval	62 DP-1	62 DP-1	62 DP-1	62 DP-1	62 DP-1
Days After Emergence	50 DE-1	50 DE-1	50 DE-1	50 DE-1	50 DE-1
Number of Decimals	0	0	0	0	0

Trt Treatment No. Name	Rate Rate Unit	Other Other Rate Rate Unit	Appl Code	17*	18*	19*	20*	21*
1 UTC				0 -	0 b	0	0	0 b
2 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	100 a	78 -	87 -	90 a
2 Liberty	0.585 lb ai/a	32 oz/a	B					
2 N-pak ams	4.5 % v/v	2.7 qt/a	B					
3 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	100 a	88 -	87 -	93 a
3 Roundup Power Max	1.13 lb ae/a	32 oz/a	B					
3 N-pak ams	4.5 % v/v	2.7 qt/a	B					
4 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	100 a	95 -	87 -	100 a
4 Liberty	0.585 lb ai/a	32 oz/a	B					
4 Roundup Power Max	1.13 lb ae/a	32 oz/a	B					
4 N-pak ams	4.5 % v/v	2.7 qt/a	B					
5 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	100 a	92 -	92 -	95 a
5 Liberty	0.585 lb ai/a	32 oz/a	B					
5 Select Max	0.094 lb ai/a	12 oz/a	B					
5 N-pak ams	4.5 % v/v	2.7 qt/a	B					
6 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	100 a	90 -	88 -	100 a
6 Liberty	0.585 lb ai/a	32 oz/a	B					
6 Roundup Power Max	1.13 lb ae/a	32 oz/a	B					
6 Outlook	0.47 lb ai/a	10 oz/a	B					
6 N-pak ams	4.5 % v/v	2.7 qt/a	B					
7 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	99 a	83 -	90 -	93 a
7 Liberty	0.585 lb ai/a	32 oz/a	B					
7 Roundup Power Max	0.84 lb ae/a	24 oz/a	B					
7 N-pak ams	4.5 % v/v	2.7 qt/a	B					
8 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	99 a	78 -	90 -	93 a
8 Liberty	0.585 lb ai/a	32 oz/a	B					
8 Roundup Power Max	0.56 lb ae/a	16 oz/a	B					
8 N-pak ams	4.5 % v/v	2.7 qt/a	B					
9 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	0 -	98 a	82 -	87 -	93 a
9 Liberty	0.585 lb ai/a	32 oz/a	B					
9 Select Max	0.094 lb ai/a	12 oz/a	B					
9 Outlook	0.47 lb ai/a	10 oz/a	B					
9 N-pak ams	4.5 % v/v	2.7 qt/a	B					

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Pest Type	W Weed	W Weed	W Weed	W Weed					
Pest Code	SETFA	ECHCG	AMBTR	CHEAL					
Pest Scientific Name	Setaria faberi	Echinochloa cr>	Ambrosia trifi>	Chenopodium al>					
Pest Name	Giant foxtail	Common barnyar>	Giant ragweed	common lambsqu>					
Crop Type, Code	C GLXMA	C -	C -	C -					
Crop Name	Soybean								
Rating Date	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-17-2019					
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO					
Rating Unit	%	%	%	%					
Number of Subsamples	1	1	1	1					
Data Entry Date	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019					
Rating Timing									
Days After First/Last Applic.	62 28	62 28	62 28	62 28					
Trt-Eval Interval	28 DA-B	28 DA-B	28 DA-B	28 DA-B					
Plant-Eval Interval	62 DP-1	62 DP-1	62 DP-1	62 DP-1					
Days After Emergence	50 DE-1	50 DE-1	50 DE-1	50 DE-1					
Number of Decimals	0	0	0	0					
Trt Treatment No. Name	Rate	Other Rate	Other Rate	Appl Unit Code	17*	18*	19*	20*	21*
10 Zidua SC	0.114 lb ai/a	3.5 oz/a		A	0 -	97 a	88 -	86 -	95 a
10 Liberty	0.53 lb ai/a	29 oz/a		B					
10 Roundup Power Max	0.387 lb ae/a	11 oz/a		B					
10 N-pak ams	4.5 % v/v	2.7 qt/a		B					
LSD P=.05						2.6	16.8	11.2	14.5
Standard Deviation					0.0	1.5	9.7	6.5	8.4
CV					0.0	1.68	11.29	7.33	9.9
Levene's F					0.00	0.714	0.412	0.225	0.485
Levene's Prob(F)					.	0.69	0.899	0.981	0.867
Skewness					.	-2.795*	-0.4247	-0.5663	-2.512*
Kurtosis					.	6.257*	-0.8845	-1.0434	5.2005*
Replicate F					0.000	0.372	6.382	23.758	0.222
Replicate Prob(F)					1.0000	0.6946	0.0092	0.0001	0.8032
Treatment F					0.000	1320.628	1.125	0.307	38.179
Treatment Prob(F)					1.0000	0.0001	0.3981	0.9522	0.0001

Pest Type	W Weed	W Weed	W Weed	W Weed			
Pest Code	AMARE	POLPY	SIDSP	IPOHE			
Pest Scientific Name	Amaranthus ret>	Persicaria pen>	Sida spinosa	Ipomoea hedera>			
Pest Name	Redroot pigweed	annual smartwe>	Prickly sida	ivy-leaf morni>			
Crop Type, Code	C -	C -	C -	C -			
Crop Name							
Rating Date	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-17-2019			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%			
Number of Subsamples	1	1	1	1			
Data Entry Date	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019			
Rating Timing							
Days After First/Last Applic.	62 28	62 28	62 28	62 28			
Trt-Eval Interval	28 DA-B	28 DA-B	28 DA-B	28 DA-B			
Plant-Eval Interval	62 DP-1	62 DP-1	62 DP-1	62 DP-1			
Days After Emergence	50 DE-1	50 DE-1	50 DE-1	50 DE-1			
Number of Decimals	0	0	0	0			
Trt Treatment No. Name	Rate Rate Unit	Other Other Rate Rate Unit	Appl Code	22*	23*	24*	25*
1 UTC				0 -	0 b	0 b	0 b
2 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	87 a	97 a	73 a
2 Liberty	0.585 lb ai/a	32 oz/a	B				
2 N-pak ams	4.5 % v/v	2.7 qt/a	B				
3 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	93 a	90 a	100 a
3 Roundup Power Max	1.13 lb ae/a	32 oz/a	B				
3 N-pak ams	4.5 % v/v	2.7 qt/a	B				
4 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	100 a	98 a	83 a
4 Liberty	0.585 lb ai/a	32 oz/a	B				
4 Roundup Power Max	1.13 lb ae/a	32 oz/a	B				
4 N-pak ams	4.5 % v/v	2.7 qt/a	B				
5 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	100 a	100 a	80 a
5 Liberty	0.585 lb ai/a	32 oz/a	B				
5 Select Max	0.094 lb ai/a	12 oz/a	B				
5 N-pak ams	4.5 % v/v	2.7 qt/a	B				
6 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	100 a	90 a	100 a
6 Liberty	0.585 lb ai/a	32 oz/a	B				
6 Roundup Power Max	1.13 lb ae/a	32 oz/a	B				
6 Outlook	0.47 lb ai/a	10 oz/a	B				
6 N-pak ams	4.5 % v/v	2.7 qt/a	B				
7 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	100 a	90 a	83 a
7 Liberty	0.585 lb ai/a	32 oz/a	B				
7 Roundup Power Max	0.84 lb ae/a	24 oz/a	B				
7 N-pak ams	4.5 % v/v	2.7 qt/a	B				
8 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	100 a	80 a	83 a
8 Liberty	0.585 lb ai/a	32 oz/a	B				
8 Roundup Power Max	0.56 lb ae/a	16 oz/a	B				
8 N-pak ams	4.5 % v/v	2.7 qt/a	B				
9 Zidua SC	0.114 lb ai/a	3.5 oz/a	A	100 -	100 a	85 a	90 a
9 Liberty	0.585 lb ai/a	32 oz/a	B				
9 Select Max	0.094 lb ai/a	12 oz/a	B				
9 Outlook	0.47 lb ai/a	10 oz/a	B				
9 N-pak ams	4.5 % v/v	2.7 qt/a	B				

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Pest Type	W Weed	W Weed	W Weed	W Weed				
Pest Code	AMARE	POLPY	SIDSP	IPHOE				
Pest Scientific Name	Amaranthus ret>	Persicaria pen>	Sida spinosa	Ipomoea heder>				
Pest Name	Redroot annual smartwe> pigweed	Prickly sida	ivy-leaf morni>					
Crop Type, Code	C -	C -	C -	C -				
Crop Name								
Rating Date	Jul-17-2019	Jul-17-2019	Jul-17-2019	Jul-17-2019				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%				
Number of Subsamples	1	1	1	1				
Data Entry Date	Jul-18-2019	Jul-18-2019	Jul-18-2019	Jul-18-2019				
Rating Timing								
Days After First/Last Applic.	62 28	62 28	62 28	62 28				
Trt-Eval Interval	28 DA-B	28 DA-B	28 DA-B	28 DA-B				
Plant-Eval Interval	62 DP-1	62 DP-1	62 DP-1	62 DP-1				
Days After Emergence	50 DE-1	50 DE-1	50 DE-1	50 DE-1				
Number of Decimals	0	0	0	0				
Trt Treatment	Rate	Other	Other	Appl				
No. Name	Rate Unit	Rate	Rate Unit	Code	22*	23*	24*	25*
10 Zidua SC	0.114 lb ai/a	3.5 oz/a		A	100 -	100 a	87 a	97 a
10 Liberty	0.53 lb ai/a	29 oz/a		B				
10 Roundup Power Max	0.387 lb ae/a	11 oz/a		B				
10 N-pak ams	4.5 % v/v	2.7 qt/a		B				
LSD P=.05						14.3	23.4	31.1
Standard Deviation					0.0	8.3	13.6	18.1
CV					0.0	9.48	16.7	22.94
Levene's F					0.00	0.911	0.675	0.551
Levene's Prob(F)					.	0.535	0.722	0.82
Skewness					-2.8091*	-2.5354*	-2.0781*	-1.5221*
Kurtosis					6.3081*	5.0925*	3.443*	1.3404
Replicate F					0.000	0.574	0.408	2.770
Replicate Prob(F)					1.0000	0.5730	0.6712	0.0894
Treatment F					0.000	42.043	13.897	7.758
Treatment Prob(F)					1.0000	0.0001	0.0001	0.0001

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Demonstrate benefit of adding glyphosate or poast to liberty applications. Determine what rate of glyphosate os needed when tank mixing with liberty in GT27 soybeans.

Trial ID: 19 PRPOST 4	Location: F-8 East	Trial Year: 2019
Protocol ID: 19 PRPOST 4	Investigator: Dr. Mark M. Loux	
Project ID: MKD-H-2019-US-D41	Study Director: Bryan Reeb	
	Sponsor Contact: Alice Harris, BASF	

Pest Type

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

Pest Code

SETFA, Setaria faberi, Giant foxtail = US
 ECHCG, Echinochloa crus-galli, Common barnyard grass = US
 AMBTR, Ambrosia trifida, Giant ragweed = US
 CHEAL, Chenopodium album, common lambsquarters = US
 AMARE, Amaranthus retroflexus, Redroot pigweed = US
 SIDSP, Sida spinosa, Prickly sida = US
 POLPY, Persicaria pensylvanica, annual smartweed = US
 IPOHE, Ipomoea hederacea, ivy-leaf morning glory = US

Crop Type, Code

C, G-ByrC7 = EPPO species (Bayer) codes
 GLXMA, BSOY, Glycine max, Soybean = US

Rating Type

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

Rating Unit

% = percent

Plant-Eval Interval

28 DP-1 = 1 GLXMA May-16-2019
 47 DP-1 = 1 GLXMA May-16-2019
 62 DP-1 = 1 GLXMA May-16-2019