The Ohio State University

XtendFlex soybean herbicide recommendations
Trial ID: 19 XTENDFLEX Location: Trial Year: 2019
Protocol ID: 19 XTENDFLEX Investigator: Dr. Mark M. Loux
Project ID: 2019-01-N8-02 Study Director: Bryan Reeb
Sponsor Contact: Rod Stevenson, Monsanto

General Trial Information
Study Director: Bryan Reeb
Investigator: Dr. Mark M. Loux

Trial Status: E established
ARM Trial Created On: Apr-25-2019

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 °: 39.85942 N
Longitude of LL Corner °: 83.67462 W
Altitude of LL Corner: 1110.00 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-21-2019
Variety: 36XF0
Attributes: Xtend Flex
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: CLOTRA cloddy/trashy
Soil Temperature: 65 F **Soil Moisture:** GOOD good
Emergence Date: May-29-2019
Harvested Width: 6.25 FT
% Standard Moisture: 13 **Harvested Length:** 25 FT

Pest Description
Pest 1 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail **Entry Date:** Jun-21-2019

Pest 2 Type: W **Code:** ECHCG Echinochloa crus-galli
Common Name: Common barnyard grass **Entry Date:** Jun-21-2019

Pest 3 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed **Entry Date:** Jun-21-2019

Pest 4 Type: W **Code:** CHEAL Chenopodium album
Common Name: common lambsquarters **Entry Date:** Jun-21-2019

Pest 5 Type: W **Code:** AMARE Amaranthus retroflexus
Common Name: Redroot pigweed **Entry Date:** Jun-21-2019

Site and Design
Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 300 FT2 **Treatments:** 12 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Previous No.	Crop	Year
1.	CORN	2018

Soil Description
Description Name: G-6
% Sand: 32 **% OM:** 2.2 **Texture:** SICL silty clay loam
% Silt: 53 **pH:** 5.9 **Soil Name:** Kokomo
% Clay: 15 **CEC:** 14.8 **Fert. Level:** G good
Soil Drainage: G good

Application Description

	A	B	C
Application Date	May-16-2019	Jun-21-2019	Jul-11-2019
Appl. Start Time	9:00 PM	9:30 AM	8:30 AM
Appl. Stop Time	10:00 PM	10:30 AM	8:50 AM
Interval to Prev. Appl.		36 DAYS	20 DAYS
Application Method	BROADC	Spray	spray
Application Timing	PRE	POST	LPO
Application Placement	BROSOI	BROFOL	BROFOL
Applied By	LAMB	ACKLEY	DOBBELS
Appl. Entry Date	May-17-2019	Jun-21-2019	Jul-11-2019
Air Temperature Start, Stop	74 74 F	65 68 F	73 73 F
% Relative Humidity Start, Stop	43 43	73 63	88 88
Wind Velocity+Dir. Start	11 MPH SW	8 MPH NNW	4 MPH WNW
Wind Velocity+Dir. Stop	11 MPH SW	6 MPH NNW	4 MPH WNW
Wind Velocity+Dir. Max	11 MPH S	8 MPH NNW	4 MPH WNW
Wet Leaves (Y/N)	N no	N no	N no
Soil Temperature	63 F	63 F	70 F
Soil Moisture	DRY	DAMP	DRY
Soil Surface Condition	CLODDY	CLOTRA	TRASHY
% Cloud Cover	90	0	90
Next Moisture Occurred On	May-17-2019	Jun-21-2019	Jul-11-2019
Time to Next Moisture	3 HR	2 HR	6 HR
Moisture 6 Hours after Appl.	1.32 IN	0.01 IN	0.10 IN
Moisture 1 Week after Appl.	2.54 IN	1.21 IN	0.43 IN

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Days after Emergence	-13	23	43
Stage Majority, Percent		V4 100	R1 100
Height Average		7 IN	16 IN
Height Minimum, Maximum		7 8	14 16

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale	SETFA W	SETFA W	SETFA W
Stage Majority, Percent		13 80	13 100
Stage Minimum, Percent		13 80	
Stage Maximum, Percent		15 20	
Height Average		10 IN	3 IN
Height Minimum, Maximum		4 12	2 4
Density Average		535 PLA/m2	535 PLA/m2
Density Min, Max		460 600	460 600
Pest 2 Code, Type, Scale	ECHCG W	ECHCG W	ECHCG W
Stage Majority, Percent		13 80	13 100
Stage Minimum, Percent		13 80	
Stage Maximum, Percent		15 20	
Height Average		8 IN	3 IN
Height Minimum, Maximum		6 10	2 4
Density Average		333 PLA/m2	333 PLA/m2
Density Min, Max		300 400	300 400
Pest 3 Code, Type, Scale	AMBTR W	AMBTR W	AMBTR W
Stage Majority, Percent		19 100	16 80
Stage Minimum, Percent			16 80
Stage Maximum, Percent			18 20
Height Average		16 in	4 IN
Height Minimum, Maximum		12 18	2 6
Density Average		26 PLA/m2	26 PLA/m2
Density Min, Max		16 40	16 40
Pest 4 Code, Type, Scale	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent		14 60	14 60
Stage Minimum, Percent		14 60	12 10
Stage Maximum, Percent		18 20	18 20
Height Average		2 in	1 IN
Height Minimum, Maximum		2 3	0.5 2
Density Average		46 PLA/m2	46 PLA/m2
Density Min, Max		20 80	20 80
Pest 5 Code, Type, Scale	AMARE W	AMARE W	AMARE W
Stage Majority, Percent		16 80	14 90
Stage Minimum, Percent		16 80	14 90
Stage Maximum, Percent		18 20	16 10
Height Average		2 in	2 IN
Height Minimum, Maximum		2 3	1 3
Density Average		33 PLA/m2	33 PLA/m2
Density Min, Max		28 40	28 40

Application Equipment

	A	B	C
Appl. Equipment	10' BACKPACK	10' TTI	10' AI XR
Equipment Type	BACCAI	SPRBAC	SPRBAC
Operation Pressure	44 PSI	40 PSI	42 PSI
Nozzle Type	AIXR	TTI	AI XR
Nozzle Size	11015	110015	110015
Nozzle Spacing	18 IN	18 IN	18 IN
Nozzles/Row	6		
Boom Length	10 FT	10 FT	10 FT
Boom Height	20 IN	20 IN	20 IN
Ground Speed	3 MPH	3 MPH	3 MPH
Carrier	WATER	WATER	WATER
Application Amount	15 gal/ac	15 GPA	15 GPA
Mix Size	2 liters	3 GAL	2 Liters
Propellant	COMCO2	CO2	COMCO2

Context	Date	By	Notes
STATUS	Apr-25-2019	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	May-23-2019	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

SE Definitions

	1.
Crop Type, Code	C

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Type, Code	C GLXMA	C GLXMA	C GLXMA	C GLXMA
Crop Name	Soybean	Soybean	Soybean	Soybean
Rating Date	Oct-2-2019	Oct-2-2019	Oct-2-2019	Oct-2-2019
Rating Type	WEIGHT	MOICON	YIELD	WEITES
Rating Unit	LBS	%	BU	LBS
Number of Subsamples	1	1	1	1
Data Entry Date	Oct-4-2019	Oct-4-2019	Oct-4-2019	Oct-4-2019
Rating Timing				
Days After First/Last Applic.	139 83	139 83	139 83	139 83
Trt-Eval Interval				
Plant-Eval Interval	139 DP-1	139 DP-1	139 DP-1	139 DP-1
Days After Emergence	126 DE-1	126 DE-1	126 DE-1	126 DE-1
ARM Action Codes			TY1	EC
Number of Decimals	2	2	1	2

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	25*	26*	27*	28*
1	UTC						3.30 d	14.81 a	14.9 d	31.22
2	Xtendimax	0.5	lb ae/a	22	oz/a	A	14.29 ab	11.06 bcd	67.9 ab	55.81 a
2	Warrant	1.13	lb ai/a	48	oz/a	A				
2	Mauler	0.25	lb ai/a	8	oz/a	A				
2	Xtendimax	0.5	lb ae/a	22	oz/a	B				
2	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
2	Warrant	1.13	lb ai/a	48	oz/a	B				
2	Intact	0.5	% v/v	9.6	oz/a	B				
2	Class Act Ridion	1	% v/v	19.2	oz/a	B				
3	Xtendimax	0.5	lb ae/a	22	oz/a	A	14.10 ab	11.25 bcd	66.8 ab	55.82 a
3	Warrant	1.13	lb ai/a	48	oz/a	A				
3	Mauler	0.25	lb ai/a	8	oz/a	A				
3	Xtendimax	0.5	lb ae/a	22	oz/a	B				
3	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
3	Warrant	1.13	lb ai/a	48	oz/a	B				
3	Intact	0.5	% v/v	9.6	oz/a	B				
3	Class Act Ridion	1	% v/v	19.2	oz/a	B				
3	Liberty	0.585	lb ai/a	32	oz/a	C				
3	N-pak ams	3	% v/v	1.8	qt/a	C				
4	Xtendimax	0.5	lb ae/a	22	oz/a	A	14.38 ab	11.95 b	67.6 ab	53.80 cd
4	Warrant	1.13	lb ai/a	48	oz/a	A				
4	Mauler	0.25	lb ai/a	8	oz/a	A				
4	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
4	Liberty	0.585	lb ai/a	32	oz/a	B				
4	Warrant	1.13	lb ai/a	48	oz/a	B				
4	N-pak ams	3	% v/v	1.8	qt/a	B				

Pest Type									
Pest Code									
Pest Scientific Name									
Pest Name									
Crop Type, Code							C GLXMA	C GLXMA	C GLXMA	C GLXMA
Crop Name							Soybean	Soybean	Soybean	Soybean
Rating Date							Oct-2-2019	Oct-2-2019	Oct-2-2019	Oct-2-2019
Rating Type							WEIGHT	MOICON	YIELD	WEITES
Rating Unit							LBS	%	BU	LBS
Number of Subsamples							1	1	1	1
Data Entry Date							Oct-4-2019	Oct-4-2019	Oct-4-2019	Oct-4-2019
Rating Timing										
Days After First/Last Applic.							139 83	139 83	139 83	139 83
Trt-Eval Interval										
Plant-Eval Interval							139 DP-1	139 DP-1	139 DP-1	139 DP-1
Days After Emergence							126 DE-1	126 DE-1	126 DE-1	126 DE-1
ARM Action Codes									TY1	EC
Number of Decimals							2	2	1	2

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	25*	26*	27*	28*
5	Xtendimax	0.5	lb ae/a	22	oz/a	A	13.89 ab	11.01 cd	66.0 ab	55.39 abc
5	Warrant	1.13	lb ai/a	48	oz/a	A				
5	Mauler	0.25	lb ai/a	8	oz/a	A				
5	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
5	Warrant	1.13	lb ai/a	48	oz/a	B				
5	N-pak ams	3	% v/v	1.8	qt/a	B				
5	Liberty	0.585	lb ai/a	32	oz/a	C				
5	N-pak ams	3	% v/v	1.8	qt/a	C				
6	Xtendimax	0.5	lb ae/a	22	oz/a	A	13.45 b	11.14 bcd	63.8 b	55.27 abc
6	Warrant Ultra	1.36	lb ai/a	50	oz/a	A				
6	Xtendimax	0.5	lb ae/a	22	oz/a	B				
6	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
6	Warrant	1.13	lb ai/a	48	oz/a	B				
6	Intact	0.5	% v/v	9.6	oz/a	B				
6	Class Act Ridion	1	% v/v	19.2	oz/a	B				
7	Xtendimax	0.5	lb ae/a	22	oz/a	A	15.48 a	11.19 bcd	73.4 a	55.54 ab
7	Warrant Ultra	1.36	lb ai/a	50	oz/a	A				
7	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
7	Liberty	0.585	lb ai/a	32	oz/a	B				
7	Warrant	1.13	lb ai/a	48	oz/a	B				
7	N-pak ams	3	% v/v	1.8	qt/a	B				
8	Xtendimax	0.5	lb ae/a	22	oz/a	A	14.61 ab	11.60 bc	69.0 ab	54.74 a-d
8	Valor SX	0.064	lb ai/a	2	oz/a	A				
8	Xtendimax	0.5	lb ae/a	22	oz/a	B				
8	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
8	Warrant	1.13	lb ai/a	48	oz/a	B				
8	Intact	0.5	% v/v	9.6	oz/a	B				
8	Class Act Ridion	1	% v/v	19.2	oz/a	B				
9	Xtendimax	0.5	lb ae/a	22	oz/a	A	14.90 ab	10.98 cd	70.8 ab	55.45 ab
9	Valor SX	0.064	lb ai/a	2	oz/a	A				
9	Roundup Power Max	1.13	lb ae/a	32	oz/a	B				
9	Liberty	0.585	lb ai/a	32	oz/a	B				
9	Warrant	1.13	lb ai/a	48	oz/a	B				
9	N-pak ams	3	% v/v	1.8	qt/a	B				
10	Roundup Power Max	1.13	lb ae/a	32	oz/a	B	13.85 b	11.77 bc	65.3 b	53.37 d
10	Liberty	0.585	lb ai/a	32	oz/a	B				
10	Warrant	1.13	lb ai/a	48	oz/a	B				
10	N-pak ams	3	% v/v	1.8	qt/a	B				
11	Liberty	0.585	lb ai/a	32	oz/a	B	13.50 b	10.56 d	64.5 b	54.12 bcd
11	Warrant	1.13	lb ai/a	48	oz/a	B				
11	N-pak ams	3	% v/v	1.8	qt/a	B				

The Ohio State University

Pest Type												
Pest Code												
Pest Scientific Name												
Pest Name												
Crop Type, Code							C GLXMA		C C GLXMA		C GLXMA	
Crop Name							Soybean		GLXMA Soybean		Soybean	GLXMA Soybean
Rating Date							Oct-2-2019		Oct-2-2019		Oct-2-2019	Oct-2-2019
Rating Type							WEIGHT		MOICON		YIELD	WEITES
Rating Unit							LBS		%		BU	LBS
Number of Subsamples							1		1		1	1
Data Entry Date							Oct-4-2019		Oct-4-2019		Oct-4-2019	Oct-4-2019
Rating Timing												
Days After First/Last Applic.							139 83		139 83		139 83	139 83
Trt-Eval Interval												
Plant-Eval Interval							139 DP-1		139 DP-1		139 DP-1	139 DP-1
Days After Emergence							126 DE-1		126 DE-1		126 DE-1	126 DE-1
ARM Action Codes											TY1	EC
Number of Decimals							2		2		1	2
Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	25*		26*		27*	28*
12	Xtendimax	0.5	lb ae/a	22	oz/a	A	11.80 c		11.42 bcd		55.8 c	53.64 d
12	Warrant	1.13	lb ai/a	48	oz/a	A						
12	Roundup Power Max	1.13	lb ae/a	32	oz/a	C						
12	Liberty	0.585	lb ai/a	32	oz/a	C						
12	N-pak ams	3	% v/v	1.8	qt/a	C						
LSD P=.05							1.631		0.923		7.63	1.603
Standard Deviation							1.134		0.641		5.31	1.110
CV							8.63		5.55		8.54	2.03
Grand Mean							13.129		11.561		62.16	54.814
Levene's F							0.398		2.781		0.455	0.752
Levene's Prob(F)							0.948		0.01*		0.918	0.672
Skewness							-2.272*		2.558*		-2.2736*	-0.8068*
Kurtosis							5.0728*		7.89*		5.0392*	0.4302
Replicate F							4.795		2.578		5.093	0.283
Replicate Prob(F)							0.0070		0.0703		0.0052	0.8369
Treatment F							32.366		11.535		34.042	2.744
Treatment Prob(F)							0.0001		0.0001		0.0001	0.0158

Crop Type, Code
C = EPPO species (Bayer) codes
GLXMA, BSOY, Glycine max, Soybean = US
Rating Type
WEIGHT = weight
MOICON = moisture content
YIELD = yield
WEITES = weight - test
Rating Unit
% = percent
BU = bushel
Plant-Eval Interval
139 DP-1 = 1 GLXMA May-16-2019
ARM Action Codes
EC = Do not analyze untreated check, while still reporting treatment mean on AOV Means Table
TY1 = 4.6464*[C25]*(100-[C26])/87