The Ohio State University

Weed Control in Liberty Link Corn

Trial ID: 20LLCORN Location: Western Branch G-6 Trial Year: 2020
Protocol ID: BASFC41,BELCHIM20-112 Investigator: Dr. Mark M. Loux
Project ID: Study Director: Anthony Dobbels
Sponsor Contact: Alice Harris, BASF Dennis Long, Bel

General Trial Information
Study Director: Anthony Dobbels
Investigator: Dr. Mark M. Loux

Discipline: H herbicide
Trial Status: E established
ARM Trial Created On: Mar-26-2020 **Trial Usage/Type:** 0 Research and Development
Initiation Date: Apr-22-2020

Trial Location
Address (Location): 7721 South Charleston Pike
City: South Charleston **Country:** USA United States
State/Prov.: Ohio
Postal Code: 45368

Latitude of LL Corner °: 39.85942 N
Longitude of LL Corner °: -83.6746 W
Altitude of LL Corner: 1094.00 FT

Conducted Under GLP: No
Conducted Under GEP: No

Contacts
Study Director: Anthony Dobbels

Investigator: Dr. Mark M. Loux

Crop Description
Crop 1: C ZEAMD Zea mays indentata Dent corn **BBCH Scale:** BCOR
Entry Date: Apr-23-2020 **Stage Scale:** BBCH
Variety: Pioneer P1197AM
Attributes: Glyphosate and Glufosinate Resistant
Seed Lot No: B3PLY13085-N **Seed Source:** Pioneer
% Germination: 95
Planting Date: Apr-22-2020 **Planting Rate:** 32097 S/A
Depth: 2 IN
Rows per Plot: 4 **Planting Method:** PLANTD planted
Row Spacing: 30 IN **Planting Equipment:** FPP finger pickup planter
Seed Bed: MEDIUM medium
Soil Temperature: 54 F **Soil Moisture:** NORMAL normal, adequate
Emergence Date: May-14-2020
Harvest Date: Oct-14-2020 **Harvest Equipment:** Kincaid 8XP
Moisture Meter: Harvest Master **Harvested Width:** 5 FT
% Standard Moisture: 15.5 **Harvested Length:** 30 FT
Weighing Equipment: Harvest Master HM800

Pest Description
Pest 1 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail **Entry Date:** Apr-23-2020

Pest 2 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: ragweed, giant **Entry Date:** Jun-9-2020

Pest 3 Type: W **Code:** CHEAL Chenopodium album
Common Name: lambsquarters, common **Entry Date:** Jun-9-2020

Pest 4 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: velvetleaf **Entry Date:** Jun-9-2020

Pest 5 Type: W **Code:** SIDSP Sida spinosa
Common Name: sida, prickly **Entry Date:** Jun-9-2020

Pest 6 Type: W **Code:** IPOSS Ipomoea sp.
Common Name: Morning glory **Entry Date:** Jun-9-2020

Pest 7 Type: W **Code:** AMARE Amaranthus retroflexus
Common Name: pigweed, redroot **Entry Date:** Jun-22-2020

Pest 8 Type: W **Code:** ECHCG Echinochloa crus-galli
Common Name: barnyardgrass **Entry Date:** Jun-22-2020

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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)

Trial Initiation Comments:
Fall Chisel Plow, spring finishing tool with disc, field cultivator, drag harrow, and rolling basket

No.	Previous Crop	Year
1.	GLXMA	2019

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
Application Date	Apr-22-2020	Jun-9-2020
Appl. Start Time	5:00 PM	8:00 AM
Appl. Stop Time	5:30 PM	8:30 AM
Interval to Prev. Appl.		48 DAYS
Application Method	NONINC	SPRAY
Application Timing	PREPRE	POSPOS
Application Placement	BROSOI	BROFOL
Applied By	Loux	Ackley
Appl. Entry Date	Apr-23-2020	Jun-9-2020
Air Temperature Start, Stop	59 60 F	69 69 F
% Relative Humidity Start, Stop	36 36	64 64
Wind Velocity+Dir. Start	7 MPH S	8 MPH ESE
Wind Velocity+Dir. Stop	7 MPH S	8 MPH ESE
Wind Velocity+Dir. Max	7 MPH S	8 MPH ESE
Wet Leaves (Y/N)	N no	N no
Soil Temperature	55 F	68 F
Soil Moisture	NORMAL	DRY
Soil Surface Condition	MEDIUM	MEDIUM
% Cloud Cover	30	15
Next Moisture Occurred On	Jun-23-2020	Jun-9-2020
Time to Next Moisture	20 HR	9.5 HR
Moisture 6 Hours after Appl.	0 IN	0 IN
Moisture 1 Week after Appl.	1.24 IN	0.37 IN

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale	ZEAMD BCOR	ZEAMD BCOR
Days after Emergence	-22	26
Stage Majority, Percent		15 100
Height Average		20 IN

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale	SETFA W	SETFA W
Stage Majority, Percent		12 90
Stage Minimum, Percent		11 5
Stage Maximum, Percent		13 5
Height Average		3 IN
Height Minimum, Maximum		1 3
Density Average		326 PLA/m2
Density Min, Max		64 1000
Pest 2 Code, Type, Scale	AMBTR W	AMBTR W
Stage Majority, Percent		21 80
Stage Minimum, Percent		16 20
Stage Maximum, Percent		21 80
Height Average		8 IN
Height Minimum, Maximum		6 12
Density Average		18 PLA/m2
Density Min, Max		12 24
Pest 3 Code, Type, Scale	CHEAL W	CHEAL W
Stage Majority, Percent		16 100
Height Average		3 IN
Height Minimum, Maximum		2 4
Density Average		454 PLA/m2
Density Min, Max		160 1080
Pest 4 Code, Type, Scale	ABUTH W	ABUTH W
Stage Majority, Percent		12 100
Height Average		1 90
Height Minimum, Maximum		0.5 5
Density Average		36 PLA/m2
Density Min, Max		8 48
Pest 5 Code, Type, Scale	SIDSP W	SIDSP W
Stage Majority, Percent		12 100
Height Average		0.5 IN
Height Minimum, Maximum		0.25 1
Pest 6 Code, Type, Scale	IPOSS W	IPOSS W
Stage Majority, Percent		11 100
Height Average		1 IN
Height Minimum, Maximum		0.5 2
Density Average		1 PLA/m2
Density Min, Max		0 3
Pest 7 Code, Type, Scale	AMARE W	AMARE W
Density Average		53 PLA/m2
Density Min, Max		4 160
Pest 8 Code, Type, Scale	ECHCG W	ECHCG W
Density Average		27 PLA/m2
Density Min, Max		0 108

Application Equipment

	A	B
Appl. Equipment	10 Foot TTI	10' TTI
Equipment Type	BACCAI	BACCAI
Operation Pressure	44 PSI	44 PSI
Nozzle Type	TTI	TTI
Nozzle Size	110015	110015
Nozzle Spacing	18 IN	18 IN
Boom Length	10 FT	10 FT
Boom Height	20 IN	20 IN
Ground Speed	3 MPH	3 MPH
Carrier	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC
Mix Size	2 L	2 L
Propellant	COMCO2	COMCO2
Tank Mix (Y/N)		Y yes

Context	Date	By	Notes
STATUS	Mar-26-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Mar-26-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Apr-23-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Initiation Date entered.
STATUS	May-19-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Emergence Date entered.

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SE Definitions

	1.	2.	3.	4.
Rating Timing	1	2	3	4
SE Name	ZUSW001	ZUSX001	ZUSX052_C3	ZUSX003
SE Description	%Control	%PHYTO-GENERAL	YIELD/A	%PHYTO-STUNTING
Part Rated	PLANT	PLANT	GRAIN	PLANT
Rating Type	CONTRO	PHYGEN	YIELD	PHYSTU
Rating Unit	%	%	BU	%
Sample Size	1 PLOT	1 PLOT	FT2	1 PLOT
Collection Basis	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis	1 PLOT	1 PLOT	1 A	1 PLOT
Calculation	NC	NC	IN	NC
Number of Subsamples			1	
ARM Action Codes			@YLDLBBUADM[1,2]	

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Type, Code	C ZEAMX	C ZEAMX	C ZEAMX	C ZEAMX
BBCH Scale	BCOR	BCOR	BCOR	BCOR
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays
Crop Name	Corn	Corn	Corn	Corn
Rating Date	Oct-14-2020	Oct-14-2020	Oct-14-2020	Oct-14-2020
Rating Type	WEIGHT	MOICON	WEITES	YIELD
Rating Unit	LBS	%	LBS	BU
Number of Subsamples	1	1	1	1
Data Entry Date	Oct-15-2020	Oct-15-2020	Oct-15-2020	
Rating Timing				
Days After First/Last Applic.	175 127	175 127	175 127	175 127
Trt-Eval Interval				
Plant-Eval Interval	175 DP-1	175 DP-1	175 DP-1	175 DP-1
Days After Emergence	153 DE-1	153 DE-1	153 DE-1	153 DE-1
ARM Action Codes				TY1
Number of Decimals	1	1	1	1

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	27*	28*	29*	30*
1	UTC						6.8 e	20.2 -	54.9 -	33.4 d
2	Verdict	488	g ai/ha	10	oz/a	A	53.6 a	20.6 -	56.7 -	261.3 a
2	Atrazine	1120	g ai/ha	32	oz/a	A				
2	Liberty	656	g ai/ha	32	oz/a	B				
2	Atrazine	1120	g ai/ha	32	oz/a	B				
2	N PAK-AMS	5	% v/v	5	% v/v	B				
3	Verdict	488	g ai/ha	10	oz/a	A	51.8 a	20.4 -	56.2 -	253.0 a
3	Atrazine	1120	g ai/ha	32	oz/a	A				
3	Liberty	656	g ai/ha	32	oz/a	B				
3	Armezon Pro	750	g ai/ha	16	oz/a	B				
3	Atrazine	1120	g ai/ha	32	oz/a	B				
3	N PAK-AMS	5	% v/v	5	% v/v	B				
4	Verdict	488	g ai/ha	10	oz/a	A	51.2 ab	20.5 -	56.7 -	250.2 a
4	Atrazine	1120	g ai/ha	32	oz/a	A				
4	Liberty	656	g ai/ha	32	oz/a	B				
4	Armezon Pro	750	g ai/ha	16	oz/a	B				
4	Atrazine	1120	g ai/ha	32	oz/a	B				
4	MSO	1	% v/v	1	% v/v	B				
4	N PAK-AMS	5	% v/v	5	% v/v	B				
5	Verdict	488	g ai/ha	10	oz/a	A	54.6 a	20.7 -	56.7 -	266.0 a
5	Atrazine	1120	g ai/ha	32	oz/a	A				
5	Roundup Powermax	1260	g ai/ha	32	oz/a	B				
5	Armezon Pro	750	g ai/ha	16	oz/a	B				
5	Atrazine	1120	g ai/ha	32	oz/a	B				
5	MSO	1	% v/v	1	% v/v	B				
5	N PAK-AMS	5	% v/v	5	% v/v	B				

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Pest Type												
Pest Code												
Pest Scientific Name												
Pest Name												
Crop Type, Code						C ZEAMX		C ZEAMX		C ZEAMX		C ZEAMX
BBCH Scale						BCOR		BCOR		BCOR		BCOR
Crop Scientific Name						Zea mays		Zea mays		Zea mays		Zea mays
Crop Name						Corn		Corn		Corn		Corn
Rating Date						Oct-14-2020		Oct-14-2020		Oct-14-2020		Oct-14-2020
Rating Type						WEIGHT		MOICON		WEITES		YIELD
Rating Unit						LBS		%		LBS		BU
Number of Subsamples						1		1		1		1
Data Entry Date						Oct-15-2020		Oct-15-2020		Oct-15-2020		
Rating Timing												
Days After First/Last Applic.						175 127		175 127		175 127		175 127
Trt-Eval Interval												
Plant-Eval Interval						175 DP-1		175 DP-1		175 DP-1		175 DP-1
Days After Emergence						153 DE-1		153 DE-1		153 DE-1		153 DE-1
ARM Action Codes												TY1
Number of Decimals						1		1		1		1

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	27*	28*	29*	30*
6	Verdict	488	g ai/ha	10	oz/a	A	55.9 a	20.5 -	57.0 -	272.7 a
6	Atrazine	1120	g ai/ha	32	oz/a	A				
6	Liberty	656	g ai/ha	32	oz/a	B				
6	Status	98	g ai/ha	2.5	oz/a	B				
6	Atrazine	1120	g ai/ha	32	oz/a	B				
6	N PAK-AMS	5	% v/v	5	% v/v	B				
7	Verdict	488	g ai/ha	10	oz/a	A	53.7 a	20.8 -	57.0 -	260.9 a
7	Atrazine	1120	g ai/ha	32	oz/a	A				
7	Roundup Powermax	1260	g ai/ha	32	oz/a	B				
7	Status	98	g ai/ha	2.5	oz/a	B				
7	Atrazine	1120	g ai/ha	32	oz/a	B				
7	N PAK-AMS	5	% v/v	5	% v/v	B				
8	Resicore	1150	g ai/ha	40	oz/a	A	54.6 a	20.4 -	56.0 -	266.5 a
8	Atrazine	1120	g ai/ha	32	oz/a	A				
8	Liberty	656	g ai/ha	32	oz/a	B				
8	Status	98	g ai/ha	2.5	oz/a	B				
8	Atrazine	1120	g ai/ha	32	oz/a	B				
8	N PAK-AMS	5	% v/v	5	% v/v	B				
9	Dual II Magnum	1.53	lb ai/a	1.6	pt/a	A	31.9 d	19.7 -	54.0 -	157.1 c
9	Atrazine	1.5	lb ai/a	3	pt/a	B				
9	COC	1	% v/v	1	% v/v	B				
10	Dual II Magnum	1.53	lb ai/a	1.6	pt/a	A	36.1 cd	18.9 -	53.7 -	179.0 bc
10	Atrazine	1.5	lb ai/a	3	pt/a	B				
10	Tough	0.313	lb ai/a	8	oz/a	B				
10	COC	1	% v/v	1	% v/v	B				
11	Dual II Magnum	1.53	lb ai/a	1.6	pt/a	A	36.4 cd	20.6 -	55.6 -	177.2 bc
11	Liberty	0.585	lb ai/a	32	oz/a	B				
11	N PAK-AMS	2.5	% v/v	2.5	% v/v	B				

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Pest Type												
Pest Code												
Pest Scientific Name												
Pest Name												
Crop Type, Code						C ZEAMX		C ZEAMX		C ZEAMX		C ZEAMX
BBCH Scale						BCOR		BCOR		BCOR		BCOR
Crop Scientific Name						Zea mays		Zea mays		Zea mays		Zea mays
Crop Name						Corn		Corn		Corn		Corn
Rating Date						Oct-14-2020		Oct-14-2020		Oct-14-2020		Oct-14-2020
Rating Type						WEIGHT		MOICON		WEITES		YIELD
Rating Unit						LBS		%		LBS		BU
Number of Subsamples						1		1		1		1
Data Entry Date						Oct-15-2020		Oct-15-2020		Oct-15-2020		
Rating Timing												
Days After First/Last Applic.						175 127		175 127		175 127		175 127
Trt-Eval Interval												
Plant-Eval Interval						175 DP-1		175 DP-1		175 DP-1		175 DP-1
Days After Emergence						153 DE-1		153 DE-1		153 DE-1		153 DE-1
ARM Action Codes												TY1
Number of Decimals						1		1		1		1
Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	27*		28*		29*	30*
12	Dual II Magnum	1.53	lb ai/a	1.6	pt/a	A	42.6	bc	20.4	-	55.8 -	208.1 b
12	Liberty	0.585	lb ai/a	32	oz/a	B						
12	Tough	0.313	lb ai/a	8	oz/a	B						
12	N PAK-AMS	2.5	% v/v	2.5	% v/v	B						
LSD P=.05							8.66		1.36		2.51	41.53
Standard Deviation							6.02		0.95		1.74	28.87
CV							13.65		4.67		3.12	13.4
Grand Mean							44.11		20.30		55.84	215.43
Levene's F							1.809		1.397		1.064	1.821
Levene's Prob(F)							0.089		0.216		0.416	0.087
Rank X2							.		.		.	.
P(Rank X2)							.		.		.	.
Skewness							-1.2907*		-4.0537*		-2.8274*	-1.3285*
Kurtosis							1.1018		20.6642*		10.0306*	1.2328
Replicate F							6.610		3.634		1.116	6.387
Replicate Prob(F)							0.0013		0.0227		0.3565	0.0016
Treatment F							23.252		1.218		1.717	23.831
Treatment Prob(F)							0.0001		0.3138		0.1128	0.0001

Crop Type, Code
C = EPPO species (Bayer) codes
ZEAMX, BCOR, Zea mays, Corn = US
Rating Type
WEIGHT = weight
MOICON = moisture content
WEITES = weight - test
YIELD = yield
Rating Unit
% = percent
BU = bushel
Plant-Eval Interval
175 DP-1 = 1 ZEAMD Apr-22-2020
ARM Action Codes
TY1 = 5.185714*[27]*(100-[28])/84.5