The Ohio State University

Soybean Performance Following Exposure to Dicamba at Multiple Growth Stages - USB 2019

Trial ID: USB-2020_Mult_Exp_Dicamba_2 Location: Trial Year: 2019
Protocol ID: USB-2019_Mult_Exp_Dicamba Investigator: Dr. Mark M. Loux
Project ID: Study Director: Reynolds
Sponsor Contact:

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

Trial Status: E established
ARM Trial Created On: Feb-6-2020

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 °: 39.86089 N
Longitude of LL Corner °: -83.67217 W
Altitude of LL Corner: 1086.00 FT

Conducted Under GLP: No
Conducted Under GEP: No

Contacts
Study Director: Reynolds

Investigator: Dr. Mark M. Loux

Crop Description
Crop 1: C GLXMA Glycine max Soybean **BBCH Scale:** BSOY
Entry Date: May-14-2020 **Stage Scale:** BBCH
Variety: Seed Consultants 3319LL
Attributes: Glufosinate
Planting Date: May-13-2020 **Planting Rate:** 160000 S/A
Depth: 2 IN
Rows per Plot: 4 **Planting Method:** PLANTD planted
Row Spacing: 30 IN **Planting Equipment:** FE field equipment
Seed Bed: MEDIUM medium
Soil Temperature: 62 F **Soil Moisture:** NORMAL normal, adequate
Emergence Date: May-25-2020
Harvest Date: Oct-9-2020 **Harvest Equipment:** Kincaid 8XP
Moisture Meter: Harvest Master **Harvested Width:** 5 FT
% Standard Moisture: 13 **Harvested Length:** 30 FT
Weighing Equipment: Harvest Master HM800

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:** 16 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** FACTOR Factorial

Maintenance

No.	Date	Type	Maintenance Product Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Tank Mix	Tank Mix Code
1.	May-13-2020	HERB	Warrant				48	OZ/A	Y	yes
2.	May-13-2020	HERB	Mauler				8	OZ/A	Y	yes
3.	Jun-23-2020	HERB	Liberty	2.34	LBA/GAL	SL	32	OZ/A	N	no

Soil Description
Description Name: F-7 West
% Sand: 33 **% OM:** 3.8 **Texture:** SIL silt loam
% Silt: 53 **pH:** 7 **Soil Name:** Kokomo
% Clay: 15 **CEC:** 20.5 **Fert. Level:** G good
Analyzed By:
Spectrum Analytic, Wahsington Court House, OH 11-27-2017

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Application Description

	A	B	C	D
Application Date	Jun-24-2020	Jul-1-2020	Jul-15-2020	Aug-5-2020
Appl. Start Time	10:30 AM	2:30 PM	10:45 AM	10:15 AM
Appl. Stop Time	11:00 AM	3:00 PM	11:00 AM	10:30 AM
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	V3	R1	R3	R5
Application Placement	BROFOL	BROFOL	BROFOL	BROFOL
Applied By	Loux	Kimmet	Kimmet	Dobbels
Appl. Entry Date	Jun-25-2020	Jul-13-2020	Jul-15-2020	Aug-5-2020
Air Temperature Start, Stop	66 66 F	87 87 F	80 80 F	67 67 F
% Relative Humidity Start, Stop	80 80	44 44	60 60	68 68
Wind Velocity+Dir. Start	8 MPH W	7 MPH NE	7 MPH S	1 MPH N
Wind Velocity+Dir. Stop	8 MPH W	7 MPH NE	7 MPH S	1 MPH N
Wind Velocity+Dir. Max	8 MPH W	7 MPH NE	7 MPH S	1 MPH NNE
Wet Leaves (Y/N)	N no	N no	N no	N no
Soil Temperature	69 F	72 F	72 F	65 F
Soil Moisture	SLIWET	DRY	DRY	SLIWET
Soil Surface Condition	MEDIUM	MEDIUM	MEDIUM	MEDIUM
% Cloud Cover	30	30	1	5

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Days after Emergence	30	37	51	72
Stage Scale Used	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent	14 90	51 100	69 100	
Stage Minimum, Percent	14 90			
Stage Maximum, Percent	51 10			
Height Average	10 IN	13 IN	20 IN	
Height Minimum, Maximum	8 12	12 14		

Application Equipment

	A	B	C	D
Appl. Equipment	6' TTI	6' TTI	6' TTI	6' TTI
Equipment Type	BACCAI	BACCAI	BACCAI	BACCAI
Operation Pressure	44 PSI	44 PSI	44 PSI	44 PSI
Nozzle Type	TTI	TTI	TTI	TTI
Nozzle Size	1110015	1110015	1110015	1110015
Nozzle Spacing	18 IN	18 IN	18 IN	18 IN
Boom Length	6.67 FT	6.67 FT	6.67 FT	6.67 FT
Boom Height	20 IN	20 IN	20 IN	20 IN
Ground Speed	3 MPH	3 MPH	3 MPH	3 MPH
Carrier	WATER	WATER	WATER	WATER
Application Amount	15 GAL/AC	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size	3 GAL	3 GAL	3 GAL	3 GAL
Propellant	COMCO2	COMCO2	COMCO2	COMCO2

Context	Date	By	Notes
STATUS	Feb-6-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	May-14-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.

Crop Type, Code	C GLXMA	C GLXMA	C GLXMA
BBCH Scale	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean
Description			
Rating Date	Oct-9-2020	Oct-9-2020	Oct-9-2020
Part Rated			
Rating Type	weight	moisture	YIELD
Rating Unit	lbs	%	BU
Sample Size	150 FT2		1 A
Number of Subsamples	1	1	1
Data Entry Date	Oct-12-2020	Oct-12-2020	
Days After First/Last Applic.	107 65	107 65	107 65
Trt-Eval Interval	Harvest	Harvest	Harvest
Days After Emergence	137 DE-1	137 DE-1	137 DE-1
ARM Action Codes			TY2
Number of Decimals			1

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	45*	46*	48*

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Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	45*	46*	48*
1	No Clarity - Vegetative						12.84793 a	12.145 b-e	62.8 a
1	No Clarity - Reproductive								
2	No Clarity - Vegetative						10.23480 cd	12.068 cde	50.1 cd
2	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
3	No Clarity - Vegetative						12.32120 ab	13.138 ab	59.5 ab
3	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
4	No Clarity - Vegetative						12.31915 ab	12.770 abc	59.8 ab
4	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
5	No Clarity - Vegetative						8.36158 ef	12.675 a-d	40.7 fg
5	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
5	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
6	No Clarity - Vegetative						10.05408 cd	12.378 a-e	49.0 c-f
6	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
6	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
7	No Clarity - Vegetative						12.76310 a	13.305 a	61.6 a
7	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
7	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
8	No Clarity - Vegetative						8.55880 def	12.445 a-e	41.7 efg
8	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
8	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
8	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
9	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	10.77760 bc	12.833 abc	52.2 bc
9	No Clarity - Reproductive								
10	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	9.14683 cde	11.955 cde	44.8 c-f
10	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
11	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	8.82280 de	11.575 e	43.4 def
11	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
12	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	11.95505 ab	11.690 de	58.7 ab
12	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
13	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	6.89935 fg	11.393 e	34.0 gh
13	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
13	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
14	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	10.07928 cd	12.773 abc	49.0 c-f
14	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
14	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			

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ARM Action Codes			TY2
Number of Decimals			1

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	45*	46*	48*
15	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	10.09683 cd	11.838 cde	49.5 cde
15	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
15	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
16	Clarity - Vegetative V3	0.08	fl oz/a	2.8	g ae/ha	A	6.13668 g	12.210 b-e	30.0 h
16	Clarity - Reproductive R1	0.08	fl oz/a	2.8	g ae/ha	B			
16	Clarity - Reproductive R3	0.08	fl oz/a	2.8	g ae/ha	C			
16	Clarity - Reproductive R5	0.08	fl oz/a	2.8	g ae/ha	D			
LSD P=.05							1.686711	1.0678	8.36
Standard Deviation							1.184333	0.7498	5.87
CV							11.74	6.08	11.94
Grand Mean							10.085940	12.3242	49.17
Levene's F							0.968	0.935	1.023
Levene's Prob(F)							0.501	0.534	0.449
Rank X2							.	.	.
P(Rank X2)							.	.	.
Skewness							0.0021	1.3157*	0.0027
Kurtosis							-0.5547	2.832*	-0.5126
Analyzed as							RCB	RCB	RCB
Replicate F							1.177	1.531	1.053
Replicate Prob(F)							0.3290	0.2194	0.3786
Treatment F							11.846	2.247	11.141
Treatment Prob(F)							0.0001	0.0185	0.0001

Crop Type, Code
C = EPPO species (Bayer) codes
GLXMA, BSOY, Glycine max, Soybean = US
Rating Type
YIELD = yield
Rating Unit
% = percent
BU = bushel

FT2 = square foot
A = acre
ARM Action Codes
TY2 = 4.84*[C45]*(100-[C46])/87