Relative laboratory volatility of Xtendimax with and without Vaporgrip X in closed dome systems

Report: MRID 51226801. Cubbage, J. 2020. Summary of the Relative Volatility of Dicamba Tank Mixes with and without MON 51817 in the Humidome. Unpublished report by Bayer CropScience, Chesterfield, Missouri. Sponsored by Bayer CropScience, Chesterfield, Missouri. Report No. RAR-2020-0403. Report issued August 7, 2020.

MRID 51242202. Hopp, B., Koebel, D., Lane, T. 2020. Evaluation of Relative Volatility of XtendiMax® With VaporGrip® Technology Tank Mixes – Standard Testing – May 2020, Week 3. Unpublished study performed by Battelle Memorial Institute, West Jefferson, Ohio and Columbus, Ohio. Sponsored by Monsanto Company, Chesterfield, Missouri (p. 1). Report No. TRR0000325. Study No. BAT-2020-0325. Experiment initiated May 20, 2020 (p. 6). Final report issued August 20, 2020.

MRID 51242203. Hopp, B., Koebel, D., Lane, T. 2020. Evaluation of Relative Volatility of XtendiMax® With VaporGrip® Technology Tank Mixes – Standard Testing – June 2020, Week 2. Unpublished study performed by Battelle Memorial Institute, West Jefferson, Ohio and Columbus, Ohio. Sponsored by Monsanto Company, Chesterfield, Missouri (p. 1). Report No. TRR0000407. Study No. BAT-2020-0351. Experiment initiated June 10, 2020 (p. 6). Final report issued August 20, 2020.

MRID 51242204. Hopp, B., Koebel, D., Lane, T. 2020. Evaluation of Relative Volatility of XtendiMax® With VaporGrip® Technology Tank Mixes – Standard Testing – June 2020, Week 3. Unpublished study performed by Battelle Memorial Institute, West Jefferson, Ohio and Columbus, Ohio. Sponsored by Monsanto Company, Chesterfield, Missouri (p. 1). Report No. TRR0000410. Study No. BAT-2020-0365. Experiment initiated June 17, 2020 (p. 6). Final report issued August 20, 2020.

MRID 51242205. Hopp, B., Koebel, D., Lane, T. 2020. Evaluation of Relative Volatility of XtendiMax® With VaporGrip® Technology Tank Mixes – Standard Testing – June 2020, Week 4. Unpublished study performed by Battelle Memorial Institute, West Jefferson, Ohio and Columbus, Ohio. Sponsored by Monsanto Company, Chesterfield, Missouri (p. 1). Report No. TRR0000408. Study No. BAT-2020-0377. Experiment initiated June 23, 2020 (p. 6). Final report issued August 20, 2020.

MRID 51242206. Hopp, B., Koebel, D., Lane, T. 2020. Evaluation of Relative Volatility of XtendiMax® With VaporGrip® Technology Tank Mixes – Standard Testing – June 2020, Week 5. Unpublished study performed by Battelle Memorial Institute, West Jefferson, Ohio and Columbus, Ohio. Sponsored by Monsanto Company, Chesterfield, Missouri (p. 1). Report No.

TRR0000486. Study No. BAT-2020-0407. Experiment initiated July 27, 2020 (p. 6). Final report issued August 20, 2020.

MRID 51256201. Callen, S. 2020. pH of Dicamba Tank Mixes Texted with and without MON 51817 in the Humidome. Unpublished report by Bayer CropScience LP, St. Louis, Missouri. Sponsored by Bayer CropScience LP, St. Louis, Missouri. Report issued August 7, 2020.

Document No.: MRID 51226801 - 51256201

Guideline: Non-guideline

Statements: The studies were not conducted in compliance with U.S. EPA FIFRA (40 CFR Part 160) GLP standards (p. 3). Signed and dated GLP Compliance, Data Confidentiality, Quality Assurance, and Certification of Authenticity statements were provided (pp. 2-5).

Classification: This study is **supplemental, non-guideline**. The test soil consisted of 50% Redi-Earth, a soil with a large amount of sphagnum peat moss, which would make it very high in organic carbon. Results of this study should not be used quantitatively except for soils with an organic carbon content greater than or equal to that of peat soil. Differences in volatility should be regarded as relative, not absolute.

PC Code: 128931

Final EPA Reviewer:	Chuck Peck Senior Fate Scientist	Signature: Date:	2020.10.24 10:33:57 -04'00'
Final EPA Reviewer:	William P. Eckel, Ph.D. Senior Advisor	Signature: Date:	Digitally signed by William P. Eckel Date: 2020.10.24 11:48:16 -04'00'

Executive Summary

In a laboratory study, the relative dicamba volatility of 133 tank mixes of dicamba products and other products, with and without Vaporgrip X, was investigated on uncharacterized soil (50% Redi-Earth and 50% US10 field soil mix) under aerobic soil conditions at 35ºCand a relative humidity level of 40% for a period of 24 hours. Three replicates for each tank mix were examined in the study. Polyurethane foam (PUF) samples were collected for 24 hours after treatment at a uniform flow rate of 1.85 L/minute. The PUF samples were extracted using methanol, and dicamba was quantitated using LC-MS/MS. No analyses of dicamba in soil were performed.

A comparison of the reduction in the average flux rates of the 133 tank mixes with and without Vaporgrip X indicated that, for 125 tank mixes, reductions ranged from 11 to 100%. Study authors excluded the results from eight combinations because the mean dicamba air concentration without Vaporgrip X was below 2*LOQ. For three of the combinations (XtendiMax+LoKomotive, XtendiMax+Megafol, and XtendiMax+Voyagro), the reviewer estimated that the reduction was 0%. For two of the combinations (XtendiMax+Revival and XtendiMax+N-PactK12-0-12), the reviewer estimated that there was an increase in the flux rate of 16 and 68%. For the remaining three combinations (XtendiMax+Katalyst0025,

XtendiMax+NovusK, and XtendiMax+DeliveredKPlus), the reviewer estimated that the reduction was 0.13 to 9%.

It should be noted that only 35 of the 133 tank mixes included Powermax (glyphosate), a common tank mix with dicamba products. Powermax has been shown to reduce the pH of dicamba tank mixes and increase the volatility of dicamba. As a result, it is uncertain how the volatility of the 98 tank mixes without Powermax would perform if Powermax were included in the tank mix.

I. Material and Methods

A. Materials

1. Test Material

A list of the various products and the rates used in these studies is provided in **Table 1**.

Table 1. Products tested in study

Material/ Req	Manufacturer/Distributor	Product Name	Product Type	Application Rate
76980	MONSANTO COMPANY	VaporGrip® Technology	Herbicide	22 oz/A 44 oz/A
64314	Bayer CropScience LP	Liberty® 280 SL	Herbicide	32 oz/A
91786	MONSANTO COMPANY	Roundup PowerMAX®	Herbicide	32 oz/A
11112	Valent U.S.A. Corporation	SelectMax®	Herbicide	10 oz/A
52307	MONSANTO COMPANY	Warrant®	Herbicide	48 oz/A
25344	BASF	Engenia®	Herbicide	12.8 oz/A
80832	Monsanto Company	MON51817_20ozA	Adjuvant	20 oz/A
87029	Syngenta Crop Protection, LLC	Tavium®	Herbicide	56.5 oz/A
11824	Monsanto Company	MON119151 (Xtend2)	Herbicide	48 oz/A
95619	Precision Laboratories, LLC	Intact®	DRA	0.5 % v/v
99898	Adjuvants Unlimited, LLC	AU243LFP8 (ImpetroII)	DRA	0.5 % v/v
57363	Monsanto Company	MON51817_40ozA	Adjuvant	40 oz/A
74521	MONSANTO COMPANY	Warrant®Ultra	Herbicide	50 oz/A
94667	FMC Corporation	Anthem®Maxx	Herbicide	5.7 oz/A
82059	MONSANTO COMPANY	Harness®MAX	Herbicide	75 oz/A
61708	Loveland Products, Inc.	Matador®S	Herbicide	1.2 pt/A
30367	FMC Corporation	Spartan®4F	Herbicide	6 oz/A
99661	Syngenta Crop Protection, LLC	Gramoxone®SL2.0	Herbicide	3 pt/A
86626	FMC Corporation	Authority®First	Herbicide	6.45 oz/A (dry)
59240	Valent U.S.A. Corporation	Valor®EZ	Herbicide	3 oz/A
80363	Valent U.S.A. Corporation	Valor®XLT	Herbicide	4.5 oz/A

Material/ Req	Manufacturer/Distributor	Product Name	Product Type	Application Rate
13293	BASF Corporation	Prowl®H2O	Herbicide	64 oz/A
87450	Syngenta Crop Protection, LLC	DualMagnum®	Herbicide	16 oz/A
87208	Valent U.S.A. Corporation	Fierce®	Herbicide	3.75 oz/A
86706	Valent U.S.A. Corporation	Cobra®	Herbicide	10 oz/A
94535	FMC Corporation	Authority®Elite	Herbicide	32 oz/A
25956	FMC Corporation	Authority®Mtz	Herbicide	14 oz/A
87223	Loveland Products, Inc.	Diuron4L	Herbicide	26 oz/A
48394	INNVICTIS CROP CARE, LLC	Vibe	Fungicide	4 oz/A
17805	Arysta LifeScience North America, LLC	Evito®480SC	Fungicide	2 oz/A
33040	INNVICTIS CROP CARE, LLCTM	CrossOver®Pro	Insecticide and Fungicide	4 oz/A
72362	ALBAUGH, LLC	Macho®40	Insecticide	1.52 oz/A
59088	Bayer CropScience LP	Baythroid®XL	Insecticide	3.2 oz/A
29302	Bayer CropScience LP	Leverage®360	Insecticide	2.8 oz/A
86334	Makhteshim Agan of North America, Inc. (d/b/a ADAMA)	FanFare®ES	Insecticide	6 oz/A
31322	LOVELAND PRODUCTS, INC.	Match-UpTM	Insecticide	5.5 oz/A
2019110600003	Winfield/United	Tundra® EC		2.1 oz/A
45634	United Phosphorus, Inc.	Acephate®97UP	Insecticide	0.5 lb/A (dry)
83288	Valent U.S.A. Corporation	SelectMax®	Herbicide	6 oz/A
55195	Makhteshim Agan of North America, Inc.	Cotoran®4L	Herbicide	32 oz/A
51577	Syngenta Crop Protection, LLC	Flexstar®	Herbicide	16 oz/A
87713	Syngenta Crop Protection, LLC	Boundary®6.5EC	Herbicide	1.8 pt/A
89459	FMC Corporation	Authority®Maxx	Herbicide	6.4 oz/A
69788	Syngenta Crop Protection, LLC	Caparol®4L	Herbicide	24 oz/A
95894	Winfield Solutions, LLC	AG16098®	Adjuvant/DRA	0.5 % v/v
62876	Rosen's, Inc.	CapsuleTM	Adjuvant/DRA	0.75 % v/v
19328	Helena Chemical Company	STRIKEZONE®LC	Adjuvant/DRA	0.125 % v/v
69390	Loveland Products, Inc.	Reign®	Adjuvant/DRA	0.5 % v/v
61809	Growmark, Inc.	FSIntentionAdvancedTM	Adjuvant/DRA	2 qt/100 gal
59519	Rosen's, Inc.	AstonishTM	Adjuvant/DRA	54 oz/100 gal
60504	CHEMORSE, LTD.	ChemproCP-80	Adjuvant/DRA	0.625 % v/v

Material/ Req	Manufacturer/Distributor	Product Name	Product Type	Application Rate
85142	West Central Distribution, LLC	SedateElite	Adjuvant/DRA	0.75 % v/v
85769	HELENA CHEMICAL COMPANY	Oculus®Maxx	Adjuvant/DRA	1 % v/v
22222	Bayer CropScience LP	DiFlexx®	Herbicide	16 oz/A
59389	CHEMORSE, LTD.	ChemproCP-75	Adjuvant	0.375 % v/v
70115	West Central Distribution, LLC	Soiltrate	Adjuvant	1 pt/A
23537	United Suppliers, Inc,	ChemsurfTM 90	Adjuvant	0.25 % v/v
28868	Harvey's	APSimmer	Adjuvant	2 oz/100 gal
90259	Chemorse, Ltd.	ChemproA-10	Adjuvant	2 oz/100 gal
24726	Van Diest Supply Company	Cornbelt® Locktite	Adjuvant	2 qt/100 gal
56908	United Suppliers, Inc.	FoamBreakerTM	Adjuvant	1.5 oz/100 gal
78744	GROWMARK, Inc.	FSAttero	Adjuvant	1.25 % v/v
43038	GROWMARK, Inc.	FSCertinTM	Adjuvant	1 % v/v
71048	AgraSyst, Inc.	FullLoadComplete®	Adjuvant	1 qt/100 gal
20987	West Central Distribution, LLC	JackhammerTM Elite	Adjuvant	2 qt/100 gal
83377	Hefty Seed Company	LockambaTM	Adjuvant	0.5 % v/v
99257	Carolina Eastern, Inc.	Nu-Surf 80	Adjuvant	1 qt/100 gal
37991	Helena Chemical Company	PenetratorTM Plus	Adjuvant	1 % v/v
19852	Loveland Products, Inc.	Spreader90	Adjuvant	8 oz/100 gal
92307	Rosen's, Inc.	SundanceII®	Adjuvant	1 % v/v
19946	Rosen's, Inc.	Tradition93®	Adjuvant	1 qt/100 gal
63964	MFA Incorporated	XpondTM	Adjuvant	1 qt/100 gal
25049	Chem Nut, Inc.	CNIDefoamer	Adjuvant	1 oz/100 gal
67821	CHEMORSE, Ltd.	Conquer	Adjuvant	1 pt/A
33355	Growmark, Inc.	FSMSOUltraTM	Adjuvant	20 oz/A
90371	Hefty Seed Company	PremiumCOC	Adjuvant	2 qt/100 gal
32580	MFA Incorporated	Astute®	Adjuvant	2 pt/100 gal
35923	Drexel Chemical Company	Peptoil®	Adjuvant	16 oz/A
55113	CHEMORSE, Ltd	ChemproS-205	Adjuvant	0.5 % v/v
23021	CHEMORSE, Ltd.	Chemspray	Adjuvant	0.5 % v/v
2019121800001	Chemorse	Chempro-S-163	Adjuvant	0.09375 %v/v
46876	Winfield Solutions, LLC	MasterLock®	Adjuvant	6.4 oz/A
64559	Brandt Consolidated, Inc.	BrandtTorpedo	Adjuvant	2 qt/100 gal
55281	Winfield Solutions, LLC	ClassActRidion	Adjuvant	1 % v/v
34329	INNVICTISTM CROP CARE, LLC	Allevia	Fertilizer	16 oz/A

Material/ Req	Manufacturer/Distributor	Product Name	Product Type	Application Rate
58838	INNVICTISTM CROP CARE, LLC	Anova®	Fertilizer	16 oz/A
72389	CHS, Inc.	CHSBuckshot	Fertilizer	1 pt/A
72020	AgXplore INTERNATIONAL, LLC	CalPak	Fertilizer	4 pt/A
26282	HYDRITE CHEMICAL CO.	Evolve002	Fertilizer	1 qt/100 gal
83115	LOVELAND PRODUCTS, INC. ®	LoKomotive®	Fertilizer	2 qt/A
65891	LOVELAND PRODUCTS, INC. ®	N-PactK12-0-12	Fertilizer	6 qt/A
29212	AgXplore INTERNATIONAL, LLC	Ntensity	Fertilizer	2 gal/A
80820	Rosen's Inc.	VersaMax® DT	Fertilizer	32 oz/A
25168	West Central Distribution, LLC	N-Ertia26	Fertilizer	4 qt/A
96585	Brandt Consolidated, Inc.	BrandtSmartQuatro®	Fertilizer	32 oz/A
62412	Helena Chemical Company	Coron® 10-0-10	Fertilizer	128 oz/A
43526	Helena Chemical Company	Elemax® Ca	Fertilizer	32 oz/A
41918	Wilbur-Ellis Company LLC	FoliGro® 3	Fertilizer	16 oz/A
76738	Valagro USA, Inc.	Megafol	Fertilizer	1 pt/A
60285	Wilbur-Ellis Company LLC	NDemand® Mn	Fertilizer	32 oz/A
34540	West Central Distribution, LLC	RevivalTM	Fertilizer	3.2 oz/A
72604	INNVICTIS® CROP CARE, LLC	Novus® K	Nutritional	2 gal/A
77147	COMPASS MINERALS USA INC.	ProAcquaTM CuEDTA	Nutritional	0.125 lb/A (dry)
36174	COMPASS MINERALS USA INC.	ProAcquaTM Restore	Nutritional	0.5 lb/A (dry)
64272	INNVICTISTM CROP CARE, LLC	DeliveredKTM Plus	Fertilizer	1.5 gal/A
99946	GROWMARK	InVigoronTM ZM2	Nutritional	1 qt/A
43093	CNI AgriMinerals, LLC.	BeanBuilder	Nutritional	32 oz/A
74799	CNI AgriMinerals	Ignition	Nutritional	32 oz/A
2019112900001	FB Sciences	BioGrowth-NE	Nutritional	12 oz/A
2019112900003	FB Sciences	ProTransit® 500	Nutritional	2 oz/A
20740	Actagro, LLC	Katalyst® 0025	Nutritional	1 qt/A
2019120200003	FB Sciences	MicroBlendFoliarZn-Mn- B	Nutritional	64 oz/A
2019120200005	Winfield/United	Voyagro	Nutritional	16 oz/A

2. Storage Conditions

The storage conditions of the test materials were not reported.

3. Soils

According to ASTM STP1587, on which the humidome studies are based, in order to minimize variability due to the soil composition, a one to one mixture of field soil and Redi-Earth was used. Although different soil types may impact volatility, the use of this standard soil mixture was selected to help reduce the impact of the variability of soil content. According to information obtained from the Internet (http://www.sungro.com/professional-product/sunshine-redi-earth-plug-seedling/), Redi-Earth is a mixture of fine sphagnum peat moss, dolomite lime, and vermiculite, which is an indication that the mixture contains a high level of organic carbon. Soil was characterized as 50/50 mix of Redi-earth/Field Soil with a soil moisture of 12-22 %. No other characterization or analysis of the soil was provided.

B. Study Design

1. Experimental Conditions

Experimental conditions are provided in **Table 2**. Closed dome systems (humidomes) were configured to capture vapor phase dicamba on PUF sampling tubes following the application of various tank mixes to soil (pp. 11-12). The humidomes were disposable, plastic, sealed containers that allow for controlled environmental conditions and were modified to allow dicamba sample collection on the PUF media. Assembled, closed humidomes (dimensions were not specified, but were assumed based on Gavlick, 2016 [10" wide x 20" long x 3" deep, with lids that were 11" wide x 21" long x 6" high]) were filled with 1 L of soil, presifted though a ¼ in screen and applied at a depth of ~1 cm. On each humidome lid a 7/8" diameter air outlet hole on one end of the disposable, clear, plastic dome lid was cut for insertion of the PUF sample tube. The hole was located two inches from the top of the lid. All lids had an air inlet hole on the opposite end (7/8" diameter) to allow the free flow of air through the humidome. This hole was plugged with a #3 rubber stopper after the lid was mounted on the dosed soil tray and until an experiment began. The PUF (30 mm x 22 mm OD) was added to each dome inside the PUF holder approximately 1 in from the ¾ in opening and secured so that it remained horizontal. Approximately 8 metal binder clips were used to secure the dome to base. Assembled humidomes were isolated from the spray solution mixing and application area until immediately prior to spraying to reduce contamination.

Spray solutions were applied to the soil in the humidome tray by means of a track sprayer. The sprayer was in an isolated environment and was equipped with a 9501E nozzle and set to dispense at a rate of 15 gal/A at a distance of 16-in from the tray. Each spray solution was applied to three humidomes. Water was sprayed between all spray solutions to clean out the system.

Assembled and treated humidomes were placed within the environmental chamber to achieve random placement; no two replicates of any spray solution were found on the same shelf or position. Humidomes were exposed to approximately 1.85 L/min air flow for a duration of 24 hours to collect the volatile components. Air flow rates were checked prior to and after the humidome exposure.

Environmental conditions were controlled and monitored throughout the duration of the collection. Temperature was set at 35°C and relative humidity was set at 40%. Lights were on 14 of every 24 hours at an exposure rate of approximately 50 µmoles/meter2/second, as measured using a Hydrofarm Quantum PAR meter.

Table 2. Experimental Design

Parameter		Description
Duration of the test (hours)		24 for each test
Soil condition (Air dried/fresh)		Mixed, non-compacted, sifted with a ¼-in (0.635 cm) opening sieve screen
Soil sample weight (g/replicate)		1 L (soil wt. not reported)
Soil depth (cm)		*ca.* 1
Test concentration (mg ai/kg soil (dry weight))		Soil wt. not reported. Concentrations varied.
Field Equivalent Application Rate (lb a.i./A)		*ca.* 0.5
Number of replicates		3
Test apparatus		Closed dome systems (humidomes) configured to capture dicamba on polyurethane foam media.
Test material application	Test solution volume used/ treatment[2]	15 gallons per acre (GPA)
	Application method	Track sprayer inside a fume hood with a 9501E nozzle tip at 16 inches above the soil
Indication of test material adsorbing to walls of test apparatus?		No
Experimental conditions	Temperature (°C)	35°C
	Relative humidity	40%
	Soil moisture content	12-22%
	Moisture maintenance method	Not reported
	Air flow through system	1.85 L/minute
	Continuous darkness (Yes/No):	No; 14-hour day light cycle. The light cart was set at 50 µmol photons/m^2/s.

Data obtained from pp. 11-12.

2. Sample Handling and Storage Stability

After collection, samples were removed from the humidomes and shipped to the analytical laboratory frozen (p. 13). The samples were maintained in frozen condition (-25 °C) until removed for sample preparation. The sampling schedule is provided in **Table 3**.

Table 3. Sample Handling Dates

Testing Date	Sample Delivery Date	Extraction/Analysis Date
5/20/2020	5/21/2020	5/22/2020
6/10/2020	6/11/2020	6/15/2020
6/17/2020	6/18/2020	6/22/2020
6/23/2020	6/24/2020	6/29/2020
7/27/2020	7/28/2020	7/29/2020

3. Analytical Procedures

Extraction methods: Polyurethane foam air sampling traps were placed in a 40 mL vial. An internal standard stock solution was prepared by weighing out approximately 10 mg (corrected for purity) of dicamba-$^{13}C_6$ reference substance and diluted in methanol for a nominal concentration of 1 mg/mL. The stock solution was used to fortify the PUF. 10 mL of methanol was added to the vial and the sample was compressed 20 times with a glass pipet. An aliquot was collected and analyzed by LC-MS/MS (p. 13).

Identification and Quantification of Parent Compound: Aliquots of the sorbent extracts were analyzed for dicamba using LC-MS/MS under the following conditions (Method ME-1902-02; p. 13; Appendix A, pp. 31, 40-41):

HPLC	Waters Acquity I-Class UPLC
Mass Spectrometer	Waters Xevo TQ-XS
Data Software	Waters MssLynx
Column	Phenomenex Prodigy ODS-3 (2 × 100 mm, 3-µm)
Mobile Phase	A: Water with 0.1% formic acid B: Acetonitrile with 0.1% formic acid

Time (minutes)	% B	Flow Rate (mL/min.)
0	10	0.3
1.0	10	0.3
6.0	90	0.3
6.1	100	0.3
7	100	0.4
7.01	10	0.4
8	95	0.4

Column Temperature	50ºC
Source Temperature	105ºC
Injection Volume	25 µL
Ionization Mode	ESI, negative ion mode
Desolvation, nebulizer gas	Nitrogen, 400 ºC
Collision Gas	Argon
IonSpray Voltage	-2000 V
MRM Transitions	219/175 Da (Dicamba); 225/181 Da (Dicamba-$^{13}C_6$)
Confirmatory Ions	221/177 Da (Dicamba); 227/183 Da (Dicamba-$^{13}C_6$)
Run time	~ 8 min

Detection Limits (LOD, LOQ) for the Parent Compound: The limit of quantitation (LOQ) of 0.005 ng/PUF and 0.0005 ng/L The limit of detection (LOD) was not specified in the report but was specified as 0.002 ng/PUF (0.0002 ng/L) in a spreadsheet provided by the registrant.

Detection Limits (LOD, LOQ) for the Transformation Products: No transformation products were evaluated in the study.

Instrument performance: A calibration curve based on calibration standards covering concentration levels (0.5, 1.0, 2.5, 10, 50, 100, 250, and 500 ng/mL) for dicamba was analyzed at the beginning and the end of the sequence (p. 14). The concentrations of the standards bracketed the expected concentrations in the samples being analyzed.

Lab recovery, air sampling sorbent material: All laboratory spike recoveries are within the acceptable range with overall recoveries at 75-125% (p. 14).

Lab recovery, soils: Not applicable

Extraction method verification: To verify performance of the validated analytical method during analysis of experimental samples, non-treated control samples of each matrix were fortified with dicamba at concentrations equal to the method 1x LOQ (5 ng/PUF), 50x LOQ (250 ng/PUF) and 200x LOQ (1000 ng/PUF), and analyzed. The concentrations of the quality control extracts were 1x LOQ (0.5 ng/mL), 50x LOQ (25 ng/mL) and 200x LOQ (100 ng/mL). Results are provided in **Table 4**. All method blanks that were tested resulted in non-detect levels.

Table 4. Extraction Method Verification Results

Date	Percent Recovery		
	5 ng/PUF	250 ng/PUF	1000 ng/PUF
5/20/2020	121.7	97.7	108
6/10/2020	96.6	102	109
6/17/2020	118.9	103.5	114.4
6/23/2020	117.7	104	86
7/27/2020	112.7	82.4	90.7

Data obtained from p. 16.

Analytical method verification: During the analytical run, after every 15 experimental samples, calibration verification standards were analyzed at 1, 50 and 500 ng/mL A summary of the results is provided in **Table 5**.

Table 5. Analytical Method Verification Results

Date	Samples per recovery	Percent Recovery		
		1 ng/mL	50 ng/mL	500 ng/mL
5/20/2020	12	102 (96 – 112)	100 (97 – 103)	103 (102 – 106)
6/10/2020	13	96 (89 – 102)	97 (94 – 100)	94 (93 – 95)
6/17/2020	14	92 (81 – 105)	99 (97 – 100)	102 (101 – 103)
6/23/2020	13	99 (88 – 107)	98 (97 – 99)	104 (102 – 106)
7/27/2020	12	102 (98 – 109)	96 (95 – 96)	100 (98 – 101)

Results represent the average (minimum – maximum). Data obtained from p. 20-21.

II. Results and Discussion

A. Data

Sample identifiers, pH, and the mass of dicamba collected on the sorbent material for each tank mix are shown in **Table 6**. Average air flowrates were 1.86 L/min, with a range of 1.78 to 1.92 L/m.

Table 6. Humidome Results

Date	Sample ID	Spray Solution	pH	Rep 1 Dicamba (µg/PUF)	Rep 2 Dicamba (µg/PUF)	Rep 3 Dicamba (µg/PUF)
5/20/2020	H20141001	XtendiMax_22ozA	5.28	0.033096	0.012156	0.014480
5/20/2020	H20141002	XtendiMax_44ozA	5.27	0.011474	0.008538	0.075861
5/20/2020	H20141003	XtendiMax_22ozA+PowerMax	4.73	1.685757	1.790337	3.849980
5/20/2020	H20141004	XtendiMax_44ozA+PowerMax	4.85	0.412200	0.473994	0.486860
5/20/2020	H20141005	XtendiMax_22ozA+PowerMax+MON51817_20ozA	5.22	0.007846	0.006670	0.008370
5/20/2020	H20141006	XtendiMax_22ozA+PowerMax+MON51817_40ozA	5.4	0.005033	0.006952	0.006795
5/20/2020	H20141007	XtendiMax_44ozA+PowerMax+MON51817_20ozA	5.22	0.013598	0.013381	0.022658
5/20/2020	H20141008	XtendiMax_44ozA+PowerMax+MON51817_40ozA	5.41	0.011785	0.008647	0.007487
5/20/2020	H20141009	XtendiMax_22ozA+PowerMax+MON51817_20ozA+Intact	5.21	0.009561	ND	0.007873
5/20/2020	H20141010	XtendiMax_22ozA+PowerMax+MON51817_40ozA+Intact	5.41	ND	0.007418	ND
5/20/2020	H20141011	XtendiMax_22ozA+PowerMax+MON51817_20ozA+AU243LFP8_ImpetroII	5.22	0.014119	0.013999	ND
5/20/2020	H20141012	XtendiMax_22ozA+PowerMax+MON51817_40ozA+AU243LFP8_ImpetroII	5.41	0.004157	ND	0.008841
5/20/2020	H20141013	XtendiMax_44ozA+PowerMax+MON51817_20ozA+Intact	5.23	0.011752	0.009193	0.008770
5/20/2020	H20141014	XtendiMax_44ozA+PowerMax+MON51817_40ozA+Intact	5.38	0.010287	0.003353	ND
5/20/2020	H20141015	XtendiMax_44ozA+PowerMax+MON51817_20ozA+AU243LFP8_ImpetroII	5.2	0.013828	0.007438	0.010703
5/20/2020	H20141016	XtendiMax_44ozA+PowerMax+MON51817_40ozA+AU243LFP8_ImpetroII	5.36	0.007442	0.006522	ND
5/20/2020	H20141017	XtendiMax_22ozA+SelectMax	5.22	0.010608	0.014792	0.060553
5/20/2020	H20141018	XtendiMax_22ozA+Warrant	5.57	0.021660	0.007594	0.013639
5/20/2020	H20141019	XtendiMax_22ozA+Liberty280SL	5.34	14.504160	18.347500	17.081900
5/20/2020	H20141020	XtendiMax_22ozA+SelectMax+PowerMax	4.68	1.633202	1.564841	1.536052
5/20/2020	H20141021	XtendiMax_22ozA+Warrant+PowerMax	4.75	1.022127	2.045035	1.496333
5/20/2020	H20141022	XtendiMax_22ozA+Liberty280SL+PowerMax	4.69	20.523240	19.590340	11.611980
5/20/2020	H20141023	XtendiMax_22ozA+SelectMax+PowerMax+Intact	4.67	1.016415	0.691315	0.584751
5/20/2020	H20141024	XtendiMax_22ozA+Warrant+PowerMax+Intact	4.74	0.791739	0.904192	1.350720
5/20/2020	H20141025	XtendiMax_22ozA+Liberty280SL+PowerMax+Intact	4.69	6.781140	7.574740	4.983080
5/20/2020	H20141026	XtendiMax_22ozA+SelectMax+PowerMax+AU243LFP8_ImpetroII	4.83	0.932161	0.673281	0.547789
5/20/2020	H20141027	XtendiMax_22ozA+Warrant+PowerMax+AU243LFP8_ImpetroII	4.86	0.554948	0.690497	0.657225

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5/20/2020	H20141028	XtendiMax_22ozA+Liberty280SL+PowerMax+AU243LFP8_ImpetroII	4.84	3.017601	2.644060	4.178613
5/20/2020	H20141029	XtendiMax_22ozA+SelectMax	5.22	0.010348	0.018780	0.020774
5/20/2020	H20141030	XtendiMax_22ozA+Warrant	5.57	0.006526	0.006623	0.007515
5/20/2020	H20141031	XtendiMax_22ozA+Liberty280SL	5.34	20.248220	15.339640	19.209300
5/20/2020	H20141032	XtendiMax_22ozA+SelectMax+PowerMax+MON51817_20ozA	5.16	ND	0.004858	0.006612
5/20/2020	H20141033	XtendiMax_22ozA+Warrant+PowerMax+MON51817_20ozA	5.16	0.011593	0.007454	0.007802
5/20/2020	H20141034	XtendiMax_22ozA+Liberty280SL+PowerMax+MON51817_20ozA	5.17	0.052373	0.033375	0.029675
5/20/2020	H20141035	XtendiMax_22ozA+SelectMax+PowerMax+Intact+MON51817_20ozA	5.14	0.005678	ND	0.006922
5/20/2020	H20141036	XtendiMax_22ozA+Warrant+PowerMax+Intact+MON51817_20ozA	5.19	0.006643	ND	0.009421
5/20/2020	H20141037	XtendiMax_22ozA+Liberty280SL+PowerMax+Intact+MON51817_20ozA	5.18	0.017989	0.021182	0.024969
5/20/2020	H20141038	XtendiMax_22ozA+SelectMax+PowerMax+AU243LFP8_ImpetroII+MON51817_20ozA	5.21	0.009521	ND	0.013874
5/20/2020	H20141039	XtendiMax_22ozA+Warrant+PowerMax+AU243LFP8_ImpetroII+MON51817_20oz A	5.24	0.011082	0.005881	0.005468
5/20/2020	H20141040	XtendiMax_22ozA+Liberty280SL+PowerMax+AU243LFP8_ImpetroII+MON51817 _20ozA	5.23	0.011650	0.014396	0.015590
5/20/2020	H20141041	Engenia	6.33	0.053200	0.045740	0.059597
5/20/2020	H20141042	Engenia+MON51817_20ozA	6.55	0.005712	0.008631	0.007787
5/20/2020	H20141043	Engenia+PowerMax	4.51	6.197780	8.010060	9.460060
5/20/2020	H20141044	Engenia+PowerMax+MON51817_20ozA	5.17	0.024261	0.021450	0.029200
5/20/2020	H20141045	Engenia+PowerMax+MON51817_40ozA	5.37	0.007607	0.010123	0.009742
5/20/2020	H20141046	Tavium	5.31	0.015962	0.007216	0.009090
5/20/2020	H20141047	Tavium+MON51817_20ozA	5.75	0.004664	ND	0.005448
5/20/2020	H20141048	Tavium+PowerMax	4.72	0.562106	0.473029	0.933315
5/20/2020	H20141049	Tavium+PowerMax+MON51817_20ozA	5.17	ND	0.006007	ND
5/20/2020	H20141050	MON119151_Xtend2	5.22	0.351973	0.153058	0.266776
5/20/2020	H20141051	MON119151_Xtend2+Intact	5.22	0.090992	0.155345	0.210029
5/20/2020	H20141052	MON119151_Xtend2+AU243LFP8_ImpetroII	5.3	0.125641	0.266591	0.081668
5/20/2020	H20141053	MON119151_Xtend2+MON51817_20ozA	5.44	0.036881	0.052780	0.010175
5/20/2020	H20141054	MON119151_Xtend2+MON51817_40ozA	5.61	0.007276	ND	0.007761

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5/20/2020	H20141055	MON119151_Xtend2+Intact+MON51817_20ozA	5.47	0.013176	0.019826	0.007896
5/20/2020	H20141056	MON119151_Xtend2+Intact+MON51817_40ozA	5.6	0.006918	0.007083	ND
5/20/2020	H20141057	MON119151_Xtend2+AU243LFP8_ImpetroII+MON51817_20ozA	5.5	0.013646	0.046740	0.016821
5/20/2020	H20141058	MON119151_Xtend2+AU243LFP8_ImpetroII+MON51817_40ozA	5.62	0.007121	ND	ND
6/10/2020	H20162001	XtendiMax	5.36	0.108274	0.011105	0.046292
6/10/2020	H20162002	XtendiMax+PowerMax	4.83	4.487540	4.845960	5.283440
6/10/2020	H20162003	XtendiMax+PowerMax+MON51817	5.34	0.009349	0.005852	0.007800
6/10/2020	H20162004	XtendiMax+WarrantUltra	5.77	0.072535	0.015415	0.013362
6/10/2020	H20162005	XtendiMax+WarrantUltra+PowerMax	4.95	4.306400	2.616100	3.714520
6/10/2020	H20162006	XtendiMax+WarrantUltra+PowerMax+Intact	4.93	4.491493	3.088739	4.666916
6/10/2020	H20162007	XtendiMax+WarrantUltra+PowerMax+AU-243LFP8	5.06	2.282240	1.999780	2.758520
6/10/2020	H20162008	XtendiMax+WarrantUltra+MON51817	6.27	ND	ND	0.003372
6/10/2020	H20162009	XtendiMax+WarrantUltra+PowerMax+MON51817	5.38	0.008703	0.008528	0.004626
6/10/2020	H20162010	XtendiMax+WarrantUltra+PowerMax+MON51817+Intact	5.35	0.012221	0.007138	0.005649
6/10/2020	H20162011	XtendiMax+WarrantUltra+PowerMax+MON51817+AU-243LFP8	5.41	0.003554	0.011000	0.007958
6/10/2020	H20162012	XtendiMax+AnthemMaxx	5.34	0.080237	0.013868	0.011005
6/10/2020	H20162013	XtendiMax+AnthemMaxx+MON51817	6.13	0.004118	0.005557	ND
6/10/2020	H20162014	XtendiMax+HarnessMAX	4.62	0.245249	0.144759	0.148000
6/10/2020	H20162015	XtendiMax+HarnessMAX+MON51817	5.65	0.003696	0.002014	ND
6/10/2020	H20162016	XtendiMax+MatadorS	5.2	0.081794	0.054347	1.178688
6/10/2020	H20162017	XtendiMax+MatadorS+MON51817	6.02	0.005639	0.002375	0.003480
6/10/2020	H20162018	XtendiMax+Spartan4F	5.37	0.011425	0.014466	0.033843
6/10/2020	H20162019	XtendiMax+Spartan4F+MON51817	6.09	0.002468	ND	0.003322
6/10/2020	H20162020	XtendiMax+GramoxoneSL2.0	5.32	0.005245	0.005221	0.019389
6/10/2020	H20162021	XtendiMax+GramoxoneSL2.0+MON51817	5.69	0.006753	0.006242	0.013676
6/10/2020	H20162022	XtendiMax+AuthorityFirst	6.25	0.013893	0.013182	0.011216
6/10/2020	H20162023	XtendiMax+AuthorityFirst+MON51817	5.36	0.003044	0.003435	0.003704
6/10/2020	H20162024	XtendiMax+ValorEZ	5.37	0.020062	0.011771	0.058741

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6/10/2020	H20162025	XtendiMax+ValorEZ+MON51817	6.11	ND	ND	ND
6/10/2020	H20162026	XtendiMax+ValorXLT	5.35	0.227251	0.040446	0.086567
6/10/2020	H20162027	XtendiMax+ValorXLT+MON51817	6.09	ND	0.002916	ND
6/10/2020	H20162028	XtendiMax+ProwlH2O	6.05	0.006374	0.012233	0.009532
6/10/2020	H20162029	XtendiMax+ProwlH2O+MON51817	6.39	0.004241	ND	0.004793
6/10/2020	H20162030	XtendiMax+DualMagnum	5.38	0.622884	0.227250	0.403065
6/10/2020	H20162031	XtendiMax+DualMagnum+MON51817	6.09	0.004283	ND	0.005874
6/10/2020	H20162032	XtendiMax+Fierce	5.39	0.056794	0.052088	0.082111
6/10/2020	H20162033	XtendiMax+Fierce+MON51817	6.13	0.003661	ND	0.002529
6/10/2020	H20162034	XtendiMax+Cobra	5.37	0.018625	0.008480	0.010853
6/10/2020	H20162035	XtendiMax+Cobra+MON51817	6.1	ND	ND	0.003697
6/10/2020	H20162036	XtendiMax+AuthorityElite	5.35	0.011240	0.013894	0.021750
6/10/2020	H20162037	XtendiMax+AuthorityElite+MON51817	6.08	ND	0.005431	ND
6/10/2020	H20162038	XtendiMax+AuthorityMtz	5.63	0.009162	0.023267	0.032170
6/10/2020	H20162039	XtendiMax+AuthorityMtz+MON51817	6.16	0.002662	0.003795	0.003953
6/10/2020	H20162040	XtendiMax+Diuron4L	5.23	0.006972	0.035793	0.007950
6/10/2020	H20162041	XtendiMax+Diuron4L+MON51817	6	0.009344	0.007540	ND
6/10/2020	H20162042	XtendiMax+Vibe	5.22	0.006032	0.037384	0.010410
6/10/2020	H20162043	XtendiMax+Vibe+MON51817	6.04	ND	ND	0.019129
6/10/2020	H20162044	XtendiMax+Evito480SC	5.26	0.002508	ND	0.017133
6/10/2020	H20162045	XtendiMax+Evito480SC+MON51817	6.08	0.003512	0.003915	0.006167
6/10/2020	H20162046	XtendiMax+CrossOverPro	5.32	0.008266	0.020708	0.024216
6/10/2020	H20162047	XtendiMax+CrossOverPro+MON51817	6.08	ND	ND	ND
6/10/2020	H20162048	XtendiMax+Macho40	5.3	0.014701	0.004527	0.005592
6/10/2020	H20162049	XtendiMax+Macho40+MON51817	6.19	0.003072	ND	ND
6/10/2020	H20162050	XtendiMax+BaythroidXL	5.32	0.007361	0.026076	0.034164
6/10/2020	H20162051	XtendiMax+BaythroidXL+MON51817	6.09	ND	0.004362	ND
6/10/2020	H20162052	XtendiMax+Leverage360	5.37	0.040719	0.014587	0.008791

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6/10/2020	H20162053	XtendiMax+Leverage360+MON51817	6.07	0.004083	0.004770	ND
6/10/2020	H20162054	XtendiMax+FanFareES	5.36	0.032436	0.018294	0.007699
6/10/2020	H20162055	XtendiMax+FanFareES+MON51817	6.14	0.001878	0.003933	0.003286
6/10/2020	H20162056	XtendiMax+Match-Up	5.35	0.063586	0.195678	0.010117
6/10/2020	H20162057	XtendiMax+Match-Up+MON51817	6.08	0.008400	0.003880	ND
6/10/2020	H20162058	XtendiMax+Tundra EC	5.35	0.008497	0.012699	0.007740
6/10/2020	H20162059	XtendiMax+Tundra EC+MON51817	6.13	ND	0.002929	0.003476
6/10/2020	H20162060	XtendiMax+Acephate97UP	5.34	0.018639	0.041854	0.008247
6/10/2020	H20162061	XtendiMax+Acephate97UP+MON51817	6.07	ND	ND	0.005713
6/17/2020	H20169001	XtendiMax	5.37	0.004272	0.006881	0.004546
6/17/2020	H20169002	XtendiMax+PowerMax	4.87	1.046983	2.184070	1.651889
6/17/2020	H20169003	XtendiMax+PowerMax+MON51817	5.19	0.021328	0.035648	0.022714
6/17/2020	H20169004	XtendiMax+SelectMax	5.38	ND	0.005509	0.009386
6/17/2020	H20169005	XtendiMax+Warrant	5.64	ND	0.028275	0.010980
6/17/2020	H20169006	XtendiMax+Liberty280SL	5.44	17.441846	10.443300	14.235184
6/17/2020	H20169007	XtendiMax+SelectMax+PowerMax	4.84	2.217099	2.164118	4.700403
6/17/2020	H20169008	XtendiMax+Warrant+PowerMax	4.89	1.844485	2.897491	1.851293
6/17/2020	H20169009	XtendiMax+Liberty280SL+PowerMax	4.87	15.195412	20.196520	14.149144
6/17/2020	H20169010	XtendiMax+SelectMax+PowerMax+Intact	4.87	1.286617	2.854290	2.423624
6/17/2020	H20169011	XtendiMax+Warrant+PowerMax+Intact	4.91	1.997768	3.044774	2.842508
6/17/2020	H20169012	XtendiMax+Liberty280SL+PowerMax+Intact	4.88	13.955554	14.681784	8.082964
6/17/2020	H20169013	XtendiMax+SelectMax+PowerMax+AU-243LFP8	5	2.002366	0.628125	1.926471
6/17/2020	H20169014	XtendiMax+Warrant+PowerMax+AU-243LFP8	5.02	1.395438	1.301137	1.060954
6/17/2020	H20169015	XtendiMax+Liberty280SL+PowerMax+AU-243LFP8	5.01	5.594468	6.392400	6.201622
6/17/2020	H20169016	XtendiMax+SelectMax+MON51817	6.09	0.002176	ND	ND
6/17/2020	H20169017	XtendiMax+Warrant+MON51817	6.24	ND	ND	0.002935
6/17/2020	H20169018	XtendiMax+Liberty280SL+MON51817	6.16	ND	ND	ND
6/17/2020	H20169019	XtendiMax+SelectMax+PowerMax+MON51817	5.33	0.008202	ND	ND

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6/17/2020	H20169020	XtendiMax+Warrant+PowerMax+MON51817	5.37	0.009292	0.005653	0.005268
6/17/2020	H20169021	XtendiMax+Liberty280SL+PowerMax+MON51817	5.34	0.015372	0.226659	0.067430
6/17/2020	H20169022	XtendiMax+SelectMax+PowerMax+Intact+MON51817	5.37	ND	0.009401	0.011835
6/17/2020	H20169023	XtendiMax+Warrant+PowerMax+Intact+MON51817	5.37	0.010454	ND	0.007700
6/17/2020	H20169024	XtendiMax+Liberty280SL+PowerMax+Intact+MON51817	5.34	0.030805	0.038405	0.044647
6/17/2020	H20169025	XtendiMax+SelectMax+PowerMax+AU-243LFP8+MON51817	5.38	0.006525	0.009273	0.013653
6/17/2020	H20169026	XtendiMax+Warrant+PowerMax+AU-243LFP8+MON51817	5.44	0.006673	ND	0.006802
6/17/2020	H20169027	XtendiMax+Liberty280SL+PowerMax+AU-243LFP8+MON51817	5.4	0.064187	0.018483	0.023888
6/17/2020	H20169028	XtendiMax+Cotoran4L	5.39	0.170940	0.078850	0.029192
6/17/2020	H20169029	XtendiMax+Cotoran4L+MON51817	6.14	ND	0.006651	0.002893
6/17/2020	H20169030	XtendiMax+Flexstar	5.35	0.163055	0.035707	0.086766
6/17/2020	H20169031	XtendiMax+Flexstar+MON51817	6.15	ND	ND	ND
6/17/2020	H20169032	XtendiMax+Boundary6.5EC	5.41	0.677870	0.474431	0.781682
6/17/2020	H20169033	XtendiMax+Boundary6.5EC+MON51817	6.14	0.003215	0.004157	0.004858
6/17/2020	H20169034	XtendiMax+AuthorityMaxx	5.67	0.079387	0.020263	0.022833
6/17/2020	H20169035	XtendiMax+AuthorityMaxx+MON51817	6.28	ND	ND	ND
6/17/2020	H20169036	XtendiMax+Caparol4L	5.35	0.026456	0.008209	0.289218
6/17/2020	H20169037	XtendiMax+Caparol4L+MON51817	6.15	ND	ND	ND
6/17/2020	H20169038	XtendiMax+PowerMax+Intact	4.85	0.639875	0.589334	0.684641
6/17/2020	H20169039	XtendiMax+PowerMax+Intact+MON51817	5.37	0.010562	ND	ND
6/17/2020	H20169040	XtendiMax+PowerMax+AG16098	4.86	0.679607	0.770098	0.668369
6/17/2020	H20169041	XtendiMax+PowerMax+AG16098+MON51817	5.37	ND	0.006633	0.004981
6/17/2020	H20169042	XtendiMax+PowerMax+Capsule	4.86	0.792725	0.644690	0.410719
6/17/2020	H20169043	XtendiMax+PowerMax+Capsule+MON51817	5.37	0.004819	ND	ND
6/17/2020	H20169044	XtendiMax+PowerMax+STRIKEZONELC	4.83	0.817146	0.289151	0.341426
6/17/2020	H20169045	XtendiMax+PowerMax+STRIKEZONELC+MON51817	5.34	ND	0.004837	0.005943
6/17/2020	H20169046	XtendiMax+PowerMax+Reign	4.84	0.877679	0.336348	0.665476
6/17/2020	H20169047	XtendiMax+PowerMax+Reign+MON51817	5.36	0.009037	0.009036	0.004327

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6/17/2020	H20169048	XtendiMax+PowerMax+AU-243LFP8	4.94	0.183915	0.219909	0.378917
6/17/2020	H20169049	XtendiMax+PowerMax+AU-243LFP8+MON51817	5.4	0.006218	0.004788	ND
6/17/2020	H20169050	XtendiMax+PowerMax+FSIntentionAdvanced	4.9	0.469915	0.801405	0.395042
6/17/2020	H20169051	XtendiMax+PowerMax+FSIntentionAdvanced+MON51817	5.38	ND	0.003628	ND
6/17/2020	H20169052	XtendiMax+PowerMax+Astonish	4.9	0.573163	0.863150	1.107217
6/17/2020	H20169053	XtendiMax+PowerMax+Astonish+MON51817	5.36	0.005042	0.007625	0.007750
6/17/2020	H20169054	XtendiMax+PowerMax+ChemproCP-80	4.96	0.483374	1.932523	0.531450
6/17/2020	H20169055	XtendiMax+PowerMax+ChemproCP-80+MON51817	5.43	ND	ND	ND
6/17/2020	H20169056	XtendiMax+PowerMax+SedateElite	4.85	0.486346	0.587016	1.225747
6/17/2020	H20169057	XtendiMax+PowerMax+SedateElite+MON51817	5.36	0.005124	ND	ND
6/17/2020	H20169058	XtendiMax+PowerMax+AU-243LFP13-2	5.01	0.261563	0.176205	0.218808
6/17/2020	H20169059	XtendiMax+PowerMax+AU-243LFP13-2+MON51817	5.41	0.005202	ND	ND
6/17/2020	H20169060	XtendiMax+PowerMax+OculusMaxx	4.95	0.242841	0.539141	0.407687
6/17/2020	H20169061	XtendiMax+PowerMax+OculusMaxx+MON51817	5.35	0.006029	ND	ND
6/17/2020	H20169062	DiFlexx	3.13	0.417899	0.126469	0.158462
6/17/2020	H20169063	DiFlexx+MON51817	6.2	ND	ND	ND
6/23/2020	H20175001	XtendiMax	5.42	0.005845	0.003343	0.007918
6/23/2020	H20175002	XtendiMax+PowerMax	4.84	0.505300	0.638400	1.088000
6/23/2020	H20175003	XtendiMax+PowerMax+MON51817	5.33	0.005246	0.007219	0.004329
6/23/2020	H20175004	XtendiMax+ChemproCP-75	6.86	0.004520	0.013110	0.005840
6/23/2020	H20175005	XtendiMax+ChemproCP-75+MON51817	6.77	ND	ND	ND
6/23/2020	H20175006	XtendiMax+Soiltrate	5.4	0.009114	0.028780	0.080050
6/23/2020	H20175007	XtendiMax+Soiltrate+MON51817	6.14	ND	0.003883	0.004043
6/23/2020	H20175008	XtendiMax+Chemsurf90	5.42	0.012070	0.012470	0.010330
6/23/2020	H20175009	XtendiMax+Chemsurf90+MON51817	6.13	ND	0.005796	0.010520
6/23/2020	H20175010	XtendiMax+APSimmer	5.38	0.006510	0.013590	0.052520
6/23/2020	H20175011	XtendiMax+APSimmer+MON51817	6.12	0.004805	ND	0.010640
6/23/2020	H20175012	XtendiMax+ChemproA-10	5.36	0.012470	0.022480	0.006969

Date	Sample ID	Spray Solution	pH	Rep 1 Dicamba (µg/PUF)	Rep 2 Dicamba (µg/PUF)	Rep 3 Dicamba (µg/PUF)
6/23/2020	H20175013	XtendiMax+ChemproA-10+MON51817	6.18	ND	0.003344	0.002148
6/23/2020	H20175014	XtendiMax+Cornbelt Locktite	5.44	0.143900	0.296600	0.025180
6/23/2020	H20175015	XtendiMax+Cornbelt Locktite+MON51817	6.15	0.007172	0.004158	0.005069
6/23/2020	H20175016	XtendiMax+FoamBreaker	5.45	0.007991	0.007476	0.049100
6/23/2020	H20175017	XtendiMax+FoamBreaker+MON51817	6.14	0.002619	0.015710	0.002998
6/23/2020	H20175018	XtendiMax+FSAttero	7.42	0.012030	0.012760	0.007397
6/23/2020	H20175019	XtendiMax+FSAttero+MON51817	7.28	0.006920	0.001552	ND
6/23/2020	H20175020	XtendiMax+FSCertin	6.67	0.005795	0.004349	0.007365
6/23/2020	H20175021	XtendiMax+FSCertin+MON51817	6.67	ND	0.004168	ND
6/23/2020	H20175022	XtendiMax+FullLoadComplete	5.27	0.085260	0.124400	0.066750
6/23/2020	H20175023	XtendiMax+FullLoadComplete+MON51817	6.03	ND	ND	ND
6/23/2020	H20175024	XtendiMax+JackhammerElite	5.95	0.008485	0.007341	0.010140
6/23/2020	H20175025	XtendiMax+JackhammerElite+MON51817	6.31	ND	0.002786	0.003541
6/23/2020	H20175026	XtendiMax+Lockamba	5.94	0.024950	0.042340	0.005698
6/23/2020	H20175027	XtendiMax+Lockamba+MON51817	6.28	0.006119	0.002585	0.003091
6/23/2020	H20175028	XtendiMax+Nu-Surf 80	5.48	0.024580	0.043850	0.011610
6/23/2020	H20175029	XtendiMax+Nu-Surf 80+MON51817	6.2	0.001955	0.005910	ND
6/23/2020	H20175030	XtendiMax+PenetratorPlus	5.42	0.005027	0.017030	0.004873
6/23/2020	H20175031	XtendiMax+PenetratorPlus+MON51817	6.17	0.002878	ND	ND
6/23/2020	H20175032	XtendiMax+Spreader90	5.4	0.016160	0.008243	0.006935
6/23/2020	H20175033	XtendiMax+Spreader90+MON51817	6.16	ND	0.002961	0.004298
6/23/2020	H20175034	XtendiMax+SundanceII	5.41	0.039130	0.007781	0.024740
6/23/2020	H20175035	XtendiMax+SundanceII+MON51817	6.24	ND	0.004864	0.006752
6/23/2020	H20175036	XtendiMax+Tradition93	6.4	0.019300	0.018650	0.023210
6/23/2020	H20175037	XtendiMax+Tradition93+MON51817	6.11	ND	ND	0.004861
6/23/2020	H20175038	XtendiMax+Xpond	5.56	0.006294	0.026790	0.028600
6/23/2020	H20175039	XtendiMax+Xpond+MON51817	6.18	ND	ND	0.005416
6/23/2020	H20175040	XtendiMax+CNIDefoamer	5.44	0.007972	0.007734	0.018620

Date	Sample ID	Spray Solution	pH	Rep 1 Dicamba (µg/PUF)	Rep 2 Dicamba (µg/PUF)	Rep 3 Dicamba (µg/PUF)
6/23/2020	H20175041	XtendiMax+CNIDefoamer+MON51817	6.65	0.004866	0.004535	0.002894
6/23/2020	H20175042	XtendiMax+Conquer	5.47	0.059350	0.198000	0.047770
6/23/2020	H20175043	XtendiMax+Conquer+MON51817	6.52	ND	0.004509	ND
6/23/2020	H20175044	XtendiMax+FSMSOUltra	5.61	0.149400	0.597900	0.054560
6/23/2020	H20175045	XtendiMax+FSMSOUltra+MON51817	6.16	ND	0.002235	ND
6/23/2020	H20175046	XtendiMax+PremiumCOC	5.34	0.163500	0.059000	0.049200
6/23/2020	H20175047	XtendiMax+PremiumCOC+MON51817	6.18	0.004302	ND	0.003236
6/23/2020	H20175048	XtendiMax+Astute	5.47	0.054970	0.046060	0.101500
6/23/2020	H20175049	XtendiMax+Astute+MON51817	6.23	0.003094	0.003399	0.003074
6/23/2020	H20175050	XtendiMax+Peptoil	5.23	0.015530	0.206100	0.061380
6/23/2020	H20175051	XtendiMax+Peptoil+MON51817	6.16	0.004742	0.010840	ND
6/23/2020	H20175052	XtendiMax+ChemproS-205	5.42	0.018740	0.183400	0.147000
6/23/2020	H20175053	XtendiMax+ChemproS-205+MON51817	6.15	ND	0.002724	0.001836
6/23/2020	H20175054	XtendiMax+Chemspray	5.67	0.026200	0.016630	0.175900
6/23/2020	H20175055	XtendiMax+Chemspray+MON51817	6.2	0.002669	0.004174	ND
6/23/2020	H20175056	XtendiMax+Chempro-S-163	5.66	0.085210	0.041850	0.209600
6/23/2020	H20175057	XtendiMax+Chempro-S-163+MON51817	6.18	0.006885	0.002904	ND
6/23/2020	H20175058	XtendiMax+MasterLock	5.14	0.008906	0.025250	0.016180
6/23/2020	H20175059	XtendiMax+MasterLock+MON51817	6.64	0.004218	0.003335	ND
6/23/2020	H20175060	XtendiMax+BrandtTorpedo	5.37	0.009567	0.047450	0.012630
6/23/2020	H20175061	XtendiMax+BrandtTorpedo+MON51817	6.16	ND	ND	0.003706
6/23/2020	H20175062	XtendiMax+ClassActRidion	5.91	0.006749	0.023300	0.018510
6/23/2020	H20175063	XtendiMax+ClassActRidion+MON51817	6.31	0.005874	0.002736	0.004290
7/27/2020	H20209001	XtendiMax	5.28	0.007352	0.007945	0.028252
7/27/2020	H20209002	XtendiMax+MON51817	6.07	ND	0.003999	ND
7/27/2020	H20209003	XtendiMax+PowerMax	4.8	3.597723	3.780814	2.407012
7/27/2020	H20209004	XtendiMax+PowerMax+MON51817	5.29	ND	0.008196	0.002831
7/27/2020	H20209005	XtendiMax+Allevia	7.94	0.052125	0.024084	0.087442

Date	Sample ID	Spray Solution	pH	Rep 1 Dicamba (µg/PUF)	Rep 2 Dicamba (µg/PUF)	Rep 3 Dicamba (µg/PUF)
7/27/2020	H20209006	XtendiMax+Allevia+MON51817	7.78	ND	ND	0.003601
7/27/2020	H20209007	XtendiMax+Anova	5.03	0.010129	0.007299	0.025695
7/27/2020	H20209008	XtendiMax+Anova+MON51817	5.84	0.004724	ND	ND
7/27/2020	H20209009	XtendiMax+CHSBuckshot	7.58	0.010436	0.011961	0.013669
7/27/2020	H20209010	XtendiMax+CHSBuckshot+MON51817	7.71	ND	0.004869	ND
7/27/2020	H20209011	XtendiMax+CalPak	5.28	0.010493	0.006078	0.013585
7/27/2020	H20209012	XtendiMax+CalPak+MON51817	6.05	ND	ND	ND
7/27/2020	H20209013	XtendiMax+Evolve002	5.02	0.034430	0.016714	0.033101
7/27/2020	H20209014	XtendiMax+Evolve002+MON51817	5.89	ND	ND	ND
7/27/2020	H20209015	XtendiMax+LoKomotive	6.06	ND	ND	ND
7/27/2020	H20209016	XtendiMax+LoKomotive+MON51817	6.14	ND	ND	ND
7/27/2020	H20209017	XtendiMax+N-PactK12-0-12	8.6	ND	ND	ND
7/27/2020	H20209018	XtendiMax+N-PactK12-0-12+MON51817	8.52	0.007620	ND	ND
7/27/2020	H20209019	XtendiMax+Ntensity	8.93	ND	0.004552	0.004171
7/27/2020	H20209020	XtendiMax+Ntensity+MON51817	8.94	ND	ND	ND
7/27/2020	H20209021	XtendiMax+VersaMaxDT	5.57	0.006496	0.008385	0.003303
7/27/2020	H20209022	XtendiMax+VersaMaxDT+MON51817	5.96	ND	0.005582	0.003834
7/27/2020	H20209023	XtendiMax+N-Ertia26	8.3	0.008299	0.005879	0.005340
7/27/2020	H20209024	XtendiMax+N-Ertia26+MON51817	8.21	ND	ND	ND
7/27/2020	H20209025	XtendiMax+BrandtSmartQuatro	7.95	0.189065	0.053658	0.044214
7/27/2020	H20209026	XtendiMax+BrandtSmartQuatro+MON51817	7.82	0.003763	ND	ND
7/27/2020	H20209027	XtendiMax+Coron10-0-10	8.76	0.008142	0.005630	0.007425
7/27/2020	H20209028	XtendiMax+Coron10-0-10+MON51817	8.74	ND	0.006599	ND
7/27/2020	H20209029	XtendiMax+ElemaxCa	7.67	0.013981	0.001983	0.003431
7/27/2020	H20209030	XtendiMax+ElemaxCa+MON51817	7.5	ND	0.003470	0.002961
7/27/2020	H20209031	XtendiMax+FoliGro3	4.34	1.583490	1.699177	2.573904
7/27/2020	H20209032	XtendiMax+FoliGro3+MON51817	5.46	ND	ND	0.002958
7/27/2020	H20209033	XtendiMax+Megafol	5.68	ND	ND	ND

Date	Sample ID	Spray Solution	pH	Rep 1 Dicamba (µg/PUF)	Rep 2 Dicamba (µg/PUF)	Rep 3 Dicamba (µg/PUF)
7/27/2020	H20209034	XtendiMax+Megafol+MON51817	6.11	ND	ND	ND
7/27/2020	H20209035	XtendiMax+NDemandMn	7.45	0.495322	0.587985	0.391953
7/27/2020	H20209036	XtendiMax+NDemandMn+MON51817	7.07	ND	ND	ND
7/27/2020	H20209037	XtendiMax+Revival	5.28	ND	0.006530	ND
7/27/2020	H20209038	XtendiMax+Revival+MON51817	6.05	ND	0.008347	ND
7/27/2020	H20209039	XtendiMax+NovusK	9.06	ND	0.003160	ND
7/27/2020	H20209040	XtendiMax+NovusK+MON51817	9.07	ND	ND	ND
7/27/2020	H20209041	XtendiMax+ProAcquaCuEDTA	5.21	0.007598	0.039843	0.005641
7/27/2020	H20209042	XtendiMax+ProAcquaCuEDTA+MON51817	6.02	ND	0.005315	0.003272
7/27/2020	H20209043	XtendiMax+ProAcquaRestore	5.09	0.121556	0.190413	0.256301
7/27/2020	H20209044	XtendiMax+ProAcquaRestore+MON51817	5.69	0.003756	ND	0.003279
7/27/2020	H20209045	XtendiMax+DeliveredKPlus	8.88	0.003246	ND	ND
7/27/2020	H20209046	XtendiMax+DeliveredKPlus+MON51817	8.8	ND	ND	ND
7/27/2020	H20209047	XtendiMax+InVigoronZM2	8.3	0.696698	0.619820	2.451204
7/27/2020	H20209048	XtendiMax+InVigoronZM2+MON51817	8.33	ND	ND	ND
7/27/2020	H20209049	XtendiMax+BeanBuilder	5.37	0.080789	0.269873	0.117033
7/27/2020	H20209050	XtendiMax+BeanBuilder+MON51817	6	0.005539	0.002630	0.004073
7/27/2020	H20209051	XtendiMax+Ignition	6.31	0.008148	0.009258	0.004063
7/27/2020	H20209052	XtendiMax+Ignition+MON51817	6.4	ND	ND	ND
7/27/2020	H20209053	XtendiMax+BioGrowth-NE	4.92	0.003920	0.014754	0.005631
7/27/2020	H20209054	XtendiMax+BioGrowth-NE+MON51817	5.73	0.003286	0.002804	ND
7/27/2020	H20209055	XtendiMax+ProTransit500	5.2	0.005937	0.007135	0.009953
7/27/2020	H20209056	XtendiMax+ProTransit500+MON51817	6.02	ND	ND	0.003001
7/27/2020	H20209057	XtendiMax+Katalyst0025	6.51	ND	0.002776	ND
7/27/2020	H20209058	XtendiMax+Katalyst0025+MON51817	6.54	ND	ND	0.002766
7/27/2020	H20209059	XtendiMax+MicroBlendFoliarZn-Mn-B	4.78	0.495725	0.571868	1.001080
7/27/2020	H20209060	XtendiMax+MicroBlendFoliarZn-Mn-B+MON51817	5.47	0.013924	0.012765	0.008173
7/27/2020	H20209061	XtendiMax+Voyagro	5.54	ND	ND	ND

Date	Sample ID	Spray Solution	pH	Rep 1 Dicamba (µg/PUF)	Rep 2 Dicamba (µg/PUF)	Rep 3 Dicamba (µg/PUF)
7/27/2020	H20209062	XtendiMax+Voyagro+MON51817	6.06	ND	ND	ND

ND – level was below 0.002 ng/PUF. Vaporgrip X denoted as MON51817.

B. Reductions

A comparison of the reduction in the average flux rates of the 133 tank mixes with and without Vaporgrip X is provided in **Table 7**. Flux rates were estimated by dividing the mass collected in the PUF with the surface area of the soil in the humidome and the duration of the study. Reduction in flux rates with the use of Vaporgrip X for 125 tank mixes ranged from 11 to 100%. Study authors excluded the results from eight combinations because the mean dicamba air concentration without Vaporgrip X was below 2*LOQ. For three of the combinations (XtendiMax+LoKomotive, XtendiMax+Megafol, and XtendiMax+Voyagro), the reviewer estimated that the reduction was 0%. For two of the combinations (XtendiMax+Revival and XtendiMax+N-PactK12-0-12), the reviewer estimated that there was an increase in the flux rate of 16 and 68%. For the remaining three combinations (XtendiMax+Katalyst0025, XtendiMax+NovusK, and XtendiMax+DeliveredKPlus), the reviewer estimated that the reduction was 0.13 to 9%.

It should be noted that only 35 of the 133 tank mixes included Powermax (glyphosate), a common tank mix with dicamba products. Powermax has been shown to reduce the pH of dicamba tan mixes and increase the volatility of dicamba. As a result, it is uncertain how the volatility of the 98 tank mixes without Powermax would perform if Powermax were included in the tank mix.

III. Study Deficiencies and Reviewer's Comments

1. The test soil was not fully characterized. ASTM protocol STP1587, used in the conduct of this study, requires that "In order to minimize variability due to the soil composition, a one to one mixture of US10 field soil and Redi-Earth was used. Although different soil types may impact volatility, using this standard soil mixture helped reduce the impact of this variable." Results of this study should not be used quantitatively except for soils with an organic carbon content greater than or equal to that of peat soil. Differences in volatility should be regarded as relative, not as absolute values.

IV. References

1. U.S. Environmental Protection Agency. 2008. Fate, Transport and Transformation Test Guidelines, OCSPP 835.1410, Laboratory Volatility. Office of Chemical Safety and Pollution Prevention, Washington, DC. EPA 712-C-08-011.

2. Gavlick, W.K., Wright, D.R., MacInnes, A., Hemminghaus, J.W., Webb, J.K., Yermolenka, V.I., and Su, W. 2016. "A Method to Determine the Relative Volatility of Auxin Herbicide Formulations," Pesticide Formulation and Delivery Systems: 35th Volume, ASTM STP1587, G.R. Goss, Ed., ASTM International, West Conshohocken, PA, pp. 24-32. doi:10.1520/STP158720150006.

3. Gavlick, W.K. 2016. "Evaluation of Dicamba Breakthrough for a PUF Based Air Sampling System". MSL0026676.

Table 7. Comparison of Humidome Tank Mixes with and without Vaporgrip X

Spray Solution w/o VGX	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Percent Reduction
XtendiMax_22ozA+SelectMax+PowerMax	H20141020	4.68	1.416E-04	H20141032	5.16	4.178E-07	99.70%
XtendiMax_22ozA+Warrant+PowerMax	H20141021	4.75	1.365E-04	H20141033	5.16	8.030E-07	99.41%
XtendiMax_22ozA+Liberty280SL+PowerMax	H20141022	4.69	1.547E-03	H20141034	5.17	3.452E-06	99.78%
XtendiMax_22ozA+SelectMax+PowerMax+Intact	H20141023	4.67	6.856E-05	H20141035	5.14	4.516E-07	99.34%
XtendiMax_22ozA+Warrant+PowerMax+Intact	H20141024	4.74	9.112E-05	H20141036	5.19	5.552E-07	99.39%
XtendiMax_22ozA+Liberty280SL+PowerMax+Intact	H20141025	4.69	5.784E-04	H20141037	5.18	1.918E-06	99.67%
XtendiMax_22ozA+SelectMax+PowerMax+AU243LFP8_ImpetroII	H20141026	4.83	6.440E-05	H20141038	5.21	7.744E-07	98.80%
XtendiMax_22ozA+Warrant+PowerMax+AU243LFP8_ImpetroII	H20141027	4.86	5.690E-05	H20141039	5.24	6.708E-07	98.82%
XtendiMax_22ozA+Liberty280SL+PowerMax+AU243LFP8_ImpetroII	H20141028	4.84	2.943E-04	H20141040	5.23	1.245E-06	99.58%
Engenia	H20141041	6.33	4.741E-06	H20141042	6.55	6.618E-07	86.04%
Engenia+PowerMax	H20141043	4.51	7.078E-04	H20141044	5.17	2.240E-06	99.68%
Tavium	H20141046	5.31	9.650E-07	H20141047	5.75	3.772E-07	60.91%
Tavium+PowerMax	H20141048	4.72	5.887E-05	H20141049	5.17	3.292E-07	99.44%
MON119151_Xtend2	H20141050	5.22	2.308E-05	H20141053	5.44	2.986E-06	87.06%
MON119151_Xtend2+Intact	H20141051	5.22	1.365E-05	H20141055	5.47	1.223E-06	91.04%
MON119151_Xtend2+AU243LFP8_ImpetroII	H20141052	5.3	1.417E-05	H20141057	5.5	2.309E-06	83.71%
XtendiMax+WarrantUltra+PowerMax	H20162005	4.95	3.181E-04	H20162009	5.38	6.537E-07	99.79%
XtendiMax+WarrantUltra+PowerMax+Intact	H20162006	4.93	3.663E-04	H20162010	5.35	7.479E-07	99.80%
XtendiMax+WarrantUltra+PowerMax+AU-243LFP8	H20162007	5.06	2.106E-04	H20162011	5.41	6.733E-07	99.68%
XtendiMax+AnthemMaxx	H20162012	5.34	3.144E-06	H20162013	6.13	3.641E-07	88.42%
XtendiMax+HarnessMAX	H20162014	4.62	1.609E-05	H20162015	5.65	2.455E-07	98.47%
XtendiMax+MatadorS	H20162016	5.2	3.932E-05	H20162017	6.02	3.438E-07	99.13%
XtendiMax+Spartan4F	H20162018	5.37	1.786E-06	H20162019	6.09	2.479E-07	86.12%
XtendiMax+GramoxoneSL2.0	H20162020	5.32	8.929E-07	H20162021	5.69	7.977E-07	10.66%
XtendiMax+AuthorityFirst	H20162022	6.25	1.145E-06	H20162023	5.36	3.045E-07	73.41%
XtendiMax+ValorEZ	H20162024	5.37	2.709E-06	H20162025	6.11	2.243E-07	91.72%

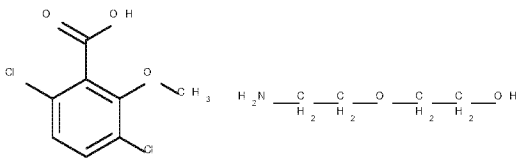
Spray Solution w/o VGX	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Percent Reduction
XtendiMax+ValorXLT	H20162026	5.35	1.060E-05	H20162027	6.09	2.367E-07	97.77%
XtendiMax+ProwlH2O	H20162028	6.05	8.416E-07	H20162029	6.39	3.449E-07	59.01%
XtendiMax+DualMagnum	H20162030	5.38	3.748E-05	H20162031	6.09	3.785E-07	98.99%
XtendiMax+Fierce	H20162032	5.39	5.712E-06	H20162033	6.13	2.599E-07	95.45%
XtendiMax+Cobra	H20162034	5.37	1.135E-06	H20162035	6.1	2.601E-07	77.09%
XtendiMax+AuthorityElite	H20162036	5.35	1.402E-06	H20162037	6.08	3.120E-07	77.75%
XtendiMax+AuthorityMtz	H20162038	5.63	1.932E-06	H20162039	6.16	3.113E-07	83.89%
XtendiMax+Diuron4L	H20162040	5.23	1.517E-06	H20162041	6	5.797E-07	61.78%
XtendiMax+Vibe	H20162042	5.22	1.610E-06	H20162043	6.04	7.216E-07	55.17%
XtendiMax+Evito480SC	H20162044	5.26	6.622E-07	H20162045	6.08	4.066E-07	38.60%
XtendiMax+CrossOverPro	H20162046	5.32	1.591E-06	H20162047	6.08	2.243E-07	85.90%
XtendiMax+Macho40	H20162048	5.3	7.423E-07	H20162049	6.19	2.414E-07	67.48%
XtendiMax+BaythroidXL	H20162050	5.32	2.022E-06	H20162051	6.09	2.800E-07	86.15%
XtendiMax+Leverage360	H20162052	5.37	1.917E-06	H20162053	6.07	3.395E-07	82.29%
XtendiMax+FanFareES	H20162054	5.36	1.747E-06	H20162055	6.14	2.721E-07	84.43%
XtendiMax+Match-Up	H20162056	5.35	8.056E-06	H20162057	6.08	4.420E-07	94.51%
XtendiMax+Tundra EC	H20162058	5.35	8.654E-07	H20162059	6.13	2.663E-07	69.23%
XtendiMax+Acephate97UP	H20162060	5.34	2.056E-06	H20162061	6.07	3.204E-07	84.42%
XtendiMax+SelectMax	H20169004	5.38	5.202E-07	H20169016	6.09	2.146E-07	58.75%
XtendiMax+Warrant	H20169005	5.64	1.249E-06	H20169017	6.24	2.373E-07	81.00%
XtendiMax+Liberty280SL	H20169006	5.44	1.260E-03	H20169018	6.16	2.243E-07	99.98%
XtendiMax+SelectMax+PowerMax	H20169007	4.84	2.716E-04	H20169019	5.33	3.948E-07	99.85%
XtendiMax+Warrant+PowerMax	H20169008	4.89	1.972E-04	H20169020	5.37	6.045E-07	99.69%
XtendiMax+Liberty280SL+PowerMax	H20169009	4.87	1.482E-03	H20169021	5.34	9.255E-06	99.38%
XtendiMax+SelectMax+PowerMax+Intact	H20169010	4.87	1.963E-04	H20169022	5.37	7.099E-07	99.64%
XtendiMax+Warrant+PowerMax+Intact	H20169011	4.91	2.358E-04	H20169023	5.37	6.177E-07	99.74%
XtendiMax+Liberty280SL+PowerMax+Intact	H20169012	4.88	1.098E-03	H20169024	5.34	3.405E-06	99.69%

Spray Solution w/o VGX	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Percent Reduction
XtendiMax+SelectMax+PowerMax+AU-243LFP8	H20169013	5	1.363E-04	H20169025	5.38	8.808E-07	99.35%
XtendiMax+Warrant+PowerMax+AU-243LFP8	H20169014	5.02	1.124E-04	H20169026	5.44	4.778E-07	99.57%
XtendiMax+Liberty280SL+PowerMax+AU-243LFP8	H20169015	5.01	5.440E-04	H20169027	5.4	3.187E-06	99.41%
XtendiMax+Cotoran4L	H20169028	5.39	8.344E-06	H20169029	6.14	3.602E-07	95.68%
XtendiMax+Flexstar	H20169030	5.35	8.539E-06	H20169031	6.15	2.243E-07	97.37%
XtendiMax+Boundary6.5EC	H20169032	5.41	5.784E-05	H20169033	6.14	3.658E-07	99.37%
XtendiMax+AuthorityMaxx	H20169034	5.67	3.663E-06	H20169035	6.28	2.243E-07	93.88%
XtendiMax+Caparol4L	H20169036	5.35	9.686E-06	H20169037	6.15	2.243E-07	97.68%
XtendiMax+PowerMax+Intact	H20169038	4.85	5.724E-05	H20169039	5.37	4.654E-07	99.19%
XtendiMax+PowerMax+AG16098	H20169040	4.86	6.335E-05	H20169041	5.37	4.221E-07	99.33%
XtendiMax+PowerMax+Capsule	H20169042	4.86	5.527E-05	H20169043	5.37	2.937E-07	99.47%
XtendiMax+PowerMax+STRIKEZONELC	H20169044	4.83	4.330E-05	H20169045	5.34	3.972E-07	99.08%
XtendiMax+PowerMax+Reign	H20169046	4.84	5.621E-05	H20169047	5.36	6.699E-07	98.81%
XtendiMax+PowerMax+AU-243LFP8	H20169048	4.94	2.341E-05	H20169049	5.4	4.039E-07	98.27%
XtendiMax+PowerMax+FSIntentionAdvanced	H20169050	4.9	4.984E-05	H20169051	5.38	2.580E-07	99.48%
XtendiMax+PowerMax+Astonish	H20169052	4.9	7.607E-05	H20169053	5.36	6.106E-07	99.20%
XtendiMax+PowerMax+ChemproCP-80	H20169054	4.96	8.815E-05	H20169055	5.43	2.243E-07	99.75%
XtendiMax+PowerMax+SedateElite	H20169056	4.85	6.876E-05	H20169057	5.36	3.028E-07	99.56%
XtendiMax+PowerMax+AU-243LFP13-2	H20169058	5.01	1.964E-05	H20169059	5.41	3.051E-07	98.45%
XtendiMax+PowerMax+OculusMaxx	H20169060	4.95	3.558E-05	H20169061	5.35	3.298E-07	99.07%
DiFlexx	H20169062	3.13	2.102E-05	H20169063	6.2	2.243E-07	98.93%
XtendiMax+ChemproCP-75	H20175004	6.86	7.019E-07	H20175005	6.77	2.243E-07	68.04%
XtendiMax+Soiltrate	H20175006	5.4	3.527E-06	H20175007	6.14	3.118E-07	91.16%
XtendiMax+Chemsurf90	H20175008	5.42	1.043E-06	H20175009	6.13	5.627E-07	46.04%
XtendiMax+APSimmer	H20175010	5.38	2.172E-06	H20175011	6.12	5.367E-07	75.29%
XtendiMax+ChemproA-10	H20175012	5.36	1.254E-06	H20175013	6.18	2.390E-07	80.93%
XtendiMax+Cornbelt Locktite	H20175014	5.44	1.393E-05	H20175015	6.15	4.904E-07	96.48%

Spray Solution w/o VGX	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Percent Reduction
XtendiMax+FoamBreaker	H20175016	5.45	1.931E-06	H20175017	6.14	6.378E-07	66.97%
XtendiMax+FSAttero	H20175018	7.42	9.626E-07	H20175019	7.28	3.281E-07	65.91%
XtendiMax+FSCertin	H20175020	6.67	5.236E-07	H20175021	6.67	2.742E-07	47.64%
XtendiMax+FullLoadComplete	H20175022	5.27	8.267E-06	H20175023	6.03	2.243E-07	97.29%
XtendiMax+JackhammerElite	H20175024	5.95	7.766E-07	H20175025	6.31	2.640E-07	66.01%
XtendiMax+Lockamba	H20175026	5.94	2.183E-06	H20175027	6.28	3.528E-07	83.84%
XtendiMax+Nu-Surf 80	H20175028	5.48	2.394E-06	H20175029	6.2	3.100E-07	87.05%
XtendiMax+PenetratorPlus	H20175030	5.42	8.054E-07	H20175031	6.17	2.356E-07	70.75%
XtendiMax+Spreader90	H20175032	5.4	9.372E-07	H20175033	6.16	2.919E-07	68.86%
XtendiMax+SundanceII	H20175034	5.41	2.143E-06	H20175035	6.24	4.222E-07	80.30%
XtendiMax+Tradition93	H20175036	6.4	1.829E-06	H20175037	6.11	2.949E-07	83.88%
XtendiMax+Xpond	H20175038	5.56	1.845E-06	H20175039	6.18	3.115E-07	83.11%
XtendiMax+CNIDefoamer	H20175040	5.44	1.027E-06	H20175041	6.65	3.677E-07	64.18%
XtendiMax+Conquer	H20175042	5.47	9.125E-06	H20175043	6.52	2.844E-07	96.88%
XtendiMax+FSMSOUltra	H20175044	5.61	2.398E-05	H20175045	6.16	2.164E-07	99.10%
XtendiMax+PremiumCOC	H20175046	5.34	8.126E-06	H20175047	6.18	3.002E-07	96.31%
XtendiMax+Astute	H20175048	5.47	6.057E-06	H20175049	6.23	2.861E-07	95.28%
XtendiMax+Peptoil	H20175050	5.23	8.464E-06	H20175051	6.16	5.408E-07	93.61%
XtendiMax+ChemproS-205	H20175052	5.42	1.044E-05	H20175053	6.15	2.111E-07	97.98%
XtendiMax+Chemspray	H20175054	5.67	6.542E-06	H20175055	6.2	2.794E-07	95.73%
XtendiMax+Chempro-S-163	H20175056	5.66	1.007E-05	H20175057	6.18	3.675E-07	96.35%
XtendiMax+MasterLock	H20175058	5.14	1.505E-06	H20175059	6.64	3.007E-07	80.03%
XtendiMax+BrandtTorpedo	H20175060	5.37	2.083E-06	H20175061	6.16	2.604E-07	87.50%
XtendiMax+ClassActRidion	H20175062	5.91	1.452E-06	H20175063	6.31	3.858E-07	73.43%
XtendiMax+Allevia	H20209005	7.94	4.894E-06	H20209006	7.78	2.572E-07	94.74%
XtendiMax+Anova	H20209007	5.03	1.290E-06	H20209008	5.84	2.908E-07	77.45%
XtendiMax+CHSBuckshot	H20209009	7.58	1.079E-06	H20209010	7.71	2.952E-07	72.64%

Spray Solution w/o VGX	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Sample ID	pH	Average 24-hour Avg Flux Dicamba (µg/m2-s)	Percent Reduction
XtendiMax+CalPak	H20209011	5.28	9.019E-07	H20209012	6.05	2.243E-07	75.13%
XtendiMax+Evolve002	H20209013	5.02	2.520E-06	H20209014	5.89	2.243E-07	91.10%
XtendiMax+LoKomotive	H20209015	6.06	2.243E-07	H20209016	6.14	2.243E-07	0.00%
XtendiMax+N-PactK12-0-12	H20209017	8.6	2.243E-07	H20209018	8.52	3.774E-07	-68.27%
XtendiMax+Ntensity	H20209019	8.93	3.356E-07	H20209020	8.94	2.243E-07	33.17%
XtendiMax+VersaMaxDT	H20209021	5.57	5.438E-07	H20209022	5.96	3.564E-07	34.47%
XtendiMax+N-Ertia26	H20209023	8.3	5.837E-07	H20209024	8.21	2.243E-07	61.57%
XtendiMax+BrandtSmartQuatro	H20209025	7.95	8.581E-06	H20209026	7.82	2.621E-07	96.95%
XtendiMax+Coron10-0-10	H20209027	8.76	6.339E-07	H20209028	8.74	3.469E-07	45.28%
XtendiMax+ElemaxCa	H20209029	7.67	5.800E-07	H20209030	7.5	2.671E-07	53.95%
XtendiMax+FoliGro3	H20209031	4.34	1.752E-04	H20209032	5.46	2.380E-07	99.86%
XtendiMax+Megafol	H20209033	5.68	2.243E-07	H20209034	6.11	2.243E-07	0.00%
XtendiMax+NDemandMn	H20209035	7.45	4.412E-05	H20209036	7.07	2.243E-07	99.49%
XtendiMax+Revival	H20209037	5.28	3.448E-07	H20209038	6.05	3.992E-07	-15.76%
XtendiMax+NovusK	H20209039	9.06	2.440E-07	H20209040	9.07	2.243E-07	8.09%
XtendiMax+ProAcquaCuEDTA	H20209041	5.21	1.588E-06	H20209042	6.02	3.316E-07	79.11%
XtendiMax+ProAcquaRestore	H20209043	5.09	1.700E-05	H20209044	5.69	2.852E-07	98.32%
XtendiMax+DeliveredKPlus	H20209045	8.88	2.466E-07	H20209046	8.8	2.243E-07	9.05%
XtendiMax+InVigoronZM2	H20209047	8.3	1.127E-04	H20209048	8.33	2.243E-07	99.80%
XtendiMax+BeanBuilder	H20209049	5.37	1.399E-05	H20209050	6	3.661E-07	97.38%
XtendiMax+Ignition	H20209051	6.31	6.421E-07	H20209052	6.4	2.243E-07	65.07%
XtendiMax+BioGrowth-NE	H20209053	4.92	7.269E-07	H20209054	5.73	2.569E-07	64.66%
XtendiMax+ProTransit500	H20209055	5.2	6.886E-07	H20209056	6.02	2.393E-07	65.25%
XtendiMax+Katalyst0025	H20209057	6.51	2.326E-07	H20209058	6.54	2.323E-07	0.13%
XtendiMax+MicroBlendFoliarZn-Mn-B	H20209059	4.78	6.187E-05	H20209060	5.47	1.043E-06	98.31%
XtendiMax+Voyagro	H20209061	5.54	2.243E-07	H20209062	6.06	2.243E-07	0.00%

DER ATTACHMENT 1. Dicamba-diglycolamine and Its Environmental Transformation Products. [A]

Code Name/ Synonym	Chemical Name	Chemical Structure	Study Type	MRID	Maximum %AR (day)	Final %AR (study length)
PARENT						
Dicamba-diglycolamine (MON 76980; Diglycolamine salt of dicamba)	**IUPAC:** 3,6-Dichloro-o-anisic acid-2-(2-aminoethoxy)ethanol **CAS:** 2-(2-Aminoethoxy)ethanol;3,6-dichloro-2-methoxy-benzoic acid **CAS No.:** 104040-79-1 **Formula:** $C_{12}H_{17}Cl_2NO_5$ **MW:** 326.17 g/mol **SMILES:** COc1c(Cl)ccc(Cl)c1C(=O)O.NCCOCCO		Non-guideline	51017509	NA	NA
MAJOR (>10%) TRANSFORMATION PRODUCTS						
No major transformation products were identified.						
MINOR (<10%) TRANSFORMATION PRODUCTS						
No minor transformation products were identified.						
REFERENCE COMPOUNDS NOT IDENTIFIED						
All compounds used as reference compounds were identified.						

[A] AR means "applied radioactivity". MW means "molecular weight". NA means "not applicable".

Attachment 2: Statistics Spreadsheets and Graphs

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ER-Fate_NG-Humidon