Message

From:	JENKINS, DANIEL J [AG/1920] [/O=MONSANTO/OU=NA-1000-01/CN=RECIPIENTS/CN=813004]
Sent:	1/2/2016 11:38:17 AM
To:	BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]; MARTINO-CATT, SUSAN J [AG/1000] [susan.j.martino-catt@monsanto.com]
Subject:	FW: Field Volatility Summary for M1691
Attachments:	Field Volatility Summary_1_2_2016.docx
Importance:	High

Dan Jenkins
U.S. Agency Lead
Regulatory Affairs
Monsanto Company
1300 I St., NW
Suite 450 East
Washington, DC 20005
Office: 202-383-2851
Cell: 571-732-6575

From: HONEGGER, JOY L [AG/1000]
Sent: Saturday, January 02, 2016 3:07 AM
To: URBANCZYK-WOCHNIAK, EWA [AG/1000]; SALL, ERIK D [AG/1000]; JENKINS, DANIEL J [AG/1920]; ORR, THOMAS B [AG/1000]
Subject: Field Volatility Summary for M1691
Importance: High

Happy New Year, Everyone,

I have attached to this message a summary of the M1691 volatility studies for review.

I tried to put a high level summary in the introduction, but then provide enough information in a study summary for each study so that EFED could assess the quality of the study.

Dan,

For your information Ewa provided combined comments from Eric, Ewa, and me back to Waterborne on Wednesday, December 30 for the post-emergence application study conducted in TX.

Joy

EXHIBIT
301
6-27-19 TS

BADER FARMS ET AL v. MONSANTO ET AL.
EXHIBIT
PLTF-301

.mary of Monsanto Field Volatility Studies for M1691 Herbicide

.ction

, field volatility studies for the dicamba diglycolamine salt formulation, M1691, have been .nducted according to US EPA Fate, Transport and Transformation Test Guideline, OCSPP 835.8100: Field Volatility following Good Laboratory Practice (GLP) Standards. The first study was conducted with a bare soil application of M1691 herbicide at a rate of 1 lb dicamba a.e./A in Tift County, Georgia in May 2015. The second study was conducted with a post-emergence application of M1691 herbicide to 6-8 leaf cotton in Fort Bend County, Texas in June 2015. Climatic conditions for these studies were representative of the conditions that might be expected for the pre- and post-emergence uses of dicamba on dicamba tolerant crops, with temperatures above 80°F each day in Georgia, and temperatures above 90°F each day in Texas. For both studies, air monitoring was conducted during and for approximately 3 days after application. In the Georgia study more than 74% of the total mass estimated to be lost within the study period was lost during the first 10 hours of the study, and less than 0.1% of the target application rate was estimated to be lost due to volatilization during or after application. In the Texas study, mass loss during the application period is still being evaluated, but 0.12% or less of the target application rate was estimated to be lost due to volatilization after application, and of the mass lost after application, more than 66% was lost during the first 32 hours of the study. These studies demonstrate that the amount of dicamba lost to volatilization is a very small fraction of the application rate, and the majority of any mass lost due to volatilization occurs soon after application. Brief summaries of the two studies are provided below.

Georgia Study Summary

Materials and Methods

The Georgia study was conducted near Chula, Georgia in a field with soil characterized as Tifton loamy sand soil (88% sand, 6% silt, 6% clay) with a pH of 5.4 and 0.74% organic matter. The test plot was 3.4 acres (1.37 hectares) in area. A GLP characterized lot of M1691 herbicide was applied at a rate of 1 lb a.e./A in a spray solution containing 0.25% v/v Induce a nonionic surfactant. The application was made according to proposed label specifications with TTI 11004 nozzles at a target speed of 6.8 miles per hour and a pressure of 27-28 psi which resulted in a target application volume of 13.5 gallons per acre. Nozzles had an 18 spacing with a boom height of about 18 inches above the soil surface. The application ra confirmed by calibrating each nozzle of the sprayer, monitoring the time of each spray and analyzing the amount of dicamba deposited on filter papers placed in foil pans on t surface within the application area.

A meteorological station was established near the test plot so that the data measured representative of the wind pattern for the test plot. The station monitored air temper air temperature sensors with radiation shields), wind speed and wind direction (usi anemometers) located approximately 0.33, 0.55, 0.90 and 1.5 m above the soil sur

V0757909

Summary of Monsanto Field Volatility Studies for M1691 Herbicide

Introduction

Two field volatility studies for the dicamba diglycolamine salt formulation, M1691, have been conducted according to US EPA Fate, Transport and Transformation Test Guideline, OCSPP 835.8100: Field Volatility following Good Laboratory Practice (GLP) Standards. The first study was conducted with a bare soil application of M1691 herbicide at a rate of 1 lb dicamba a.e./A in Tift County, Georgia in May 2015. The second study was conducted with a post-emergence application of M1691 herbicide to 6-8 leaf cotton in Fort Bend County, Texas in June 2015. Climatic conditions for these studies were representative of the conditions that might be expected for the pre- and post-emergence uses of dicamba on dicamba tolerant crops, with temperatures above 80°F each day in Georgia, and temperatures above 90°F each day in Texas. For both studies, air monitoring was conducted during and for approximately 3 days after application. In the Georgia study more than 74% of the total mass estimated to be lost within the study period was lost during the first 10 hours of the study, and less than 0.1% of the target application rate was estimated to be lost due to volatilization during or after application. In the Texas study, mass loss during the application period is still being evaluated, but 0.12% or less of the target application rate was estimated to be lost due to volatilization after application, and of the mass lost after application, more than 66% was lost during the first 32 hours of the study. These studies demonstrate that the amount of dicamba lost to volatilization is a very small fraction of the application rate, and the majority of any mass lost due to volatilization occurs soon after application. Brief summaries of the two studies are provided below.

Georgia Study Summary

Materials and Methods

The Georgia study was conducted near Chula, Georgia in a field with soil characterized as Tifton loamy sand soil (88% sand, 6% silt, 6% clay) with a pH of 5.4 and 0.74% organic matter. The test plot was 3.4 acres (1.37 hectares) in area. A GLP characterized lot of M1691 herbicide was applied at a rate of 1 lb a.e./A in a spray solution containing 0.25% v/v Induce®, a nonionic surfactant. The application was made according to proposed label specifications with TTI 11004 nozzles at a target speed of 6.8 miles per hour and a pressure of 27-28 psi which resulted in a target application volume of 13.5 gallons per acre. Nozzles had an 18-inch spacing with a boom height of about 18 inches above the soil surface. The application rate was confirmed by calibrating each nozzle of the sprayer, monitoring the time of each spray pass, and analyzing the amount of dicamba deposited on filter papers placed in foil pans on the soil surface within the application area.

A meteorological station was established near the test plot so that the data measured was representative of the wind pattern for the test plot. The station monitored air temperature (using air temperature sensors with radiation shields), wind speed and wind direction (using sonic anemometers) located approximately 0.33, 0.55, 0.90 and 1.5 m above the soil surface. Each parameter was measured every second, and the data were summarized every minute and every hour.

Air monitoring was accomplished using glass vapor collection tubes containing polyurethane foam (PUF) sorbent (SKC Inc. Catalog No. 226-92) and SKC® (Model Number 224-52) personal air sampling pumps. This sorbent was demonstrated to trap and retain dicamba at the dicamba amounts measured in this study. The vapor collection tubes were attached to the air sampling pump using Tygon® tubing. The vapor collection tubes were covered with an opaque PVC tube to protect them from sunlight. Air was drawn through the collection tubes at a rate of approximately 3 liters per minute. These collectors were positioned on monitoring stations as described below. Air flow was calibrated each time the collection tube was changed.

In order to determine the flux rate of dicamba ($\mu g\ m^{-2}s^{-1}$) during the test substance application, off-field air monitoring stations were utilized to measure the concentration of dicamba in air during the test substance application. The off-field air sampling consisted of 8 equidistant stations located 10 meters from each corner and from the middle of each plot side (**Figure G-1**). Each off-field location consisted of an air sampling pump with collector mounted approximately 1.5 m above the soil surface. Air samplers in the eight off-field air monitoring locations were turned on at approximately the start of the application and ran until the vapor collection tubes were collected (shortly after the in-field monitoring was initiated) approximately 3 minutes after completion of the application. Dicamba air concentrations determined from these stations, in addition to the dimensions and orientation of the treated field, the location of the samplers, and meteorological information (air temperature, wind speed, and wind direction) were used to estimate the flux rate of dicamba ($\mu g\ m^{-2}s^{-1}$) during the test substance application using the Indirect Flux Method [1]. There is uncertainty in this determination because of the methodology used and the potential for overestimation of volatilization due to contamination of the vapor collection tubes from spray droplet drift or airborne contaminated soil rather than volatilization.

The on-field air profile monitoring station in the plot consisted of air sampling pumps mounted on a sampling mast located at the approximate center of the plot. Five sample locations (heights) were established on the sample mast at approximately 0.15, 0.33, 0.55, 0.90 and 1.5 m above the soil surface (mast positions "A" through "E", respectively). The air pumps on the center mast were started immediately after the application (10:17 hours on May 5). Vapor collection tubes from each location on the mast were collected approximately 4, 10, 21, 34, 45, 58, and 69 hours following completion of the application to the entire plot. All air samples from a specific time interval were used for the regression analysis for that interval unless samples were disqualified by breakage or other defined cause. The dicamba concentration data collected over time from the on-field air profile monitoring station along with wind speed, wind direction, and air temperature data were used to quantify the emission rate of dicamba ($\mu g\ m^{-2}s^{-1}$) for each sampling time increment after the test substance application using the Integrated Horizontal Flux (IHF) method [2] and the Aerodynamic (AD) method [3].

Results

Maximum, average and minimum air temperatures, soil temperatures at 1 mm depth and relative humidity are shown in **Table G-1**. Air temperature exceeded 80°F on each day of the study, and the average soil temperature at the soil surface for the study was over 80°F.

Flux values and mass loss during and after application are shown in **Tables G-2 and G-3** below calculated using the indirect flux method for the application period and either the integrated horizontal flux method or the aerodynamic method for time periods after application. Estimated flux values for the three methods used to estimate flux ranged from 0.000006 $\mu g\ m^{-2}s^{-1}$ to 0.005146 $\mu g\ m^{-2}s^{-1}$, with the highest flux rate measured during the short interval of application. Total mass estimated to be lost from the plot during application and the first 69 hours after application was 0.001294 kg or 0.08% of the target application rate of 1 lb a.e./A (1.121 kg/ha). Of the total mass estimated to be lost, more than 74% of the total amount was lost during the first 10 hours after application.

References

1. Johnson, B., Barry, T., and Wofford P. 1999. Workbook for Gaussian Modeling Analysis of Air Concentrations Measurements. State of California Environmental Protection Agency, Department of Pesticide Regulation. Sacramento, CA.

2. Denmead, O.T., Simpson, J. R., Freney, J. R. 1977. A direct field measurement of ammonia emission after injection of anhydrous ammonia. Soil Sci. Soc. Am. J., 41: 1001-1004.

3. Majewski, M.S., D.E. Glotfelty, K.T. Paw, and J.N. Seiber. 1990. A field comparison of several methods for measuring pesticide evaporation rates from soil. Environ. Sci. Technol. 24:1490–1497.

Table G-1. Summary of Air Temperature, Soil Temperature, and Relative Humidity during the study

	Maximum	Minimum	Average
Units	°F (°C)	°F (°C)	°F (°C)
Air Temperature	91.4 (33.0)	56.9 (13.8)	71.4 (21.9)
Soil Temperature at 1 mm Depth	116.8 (47.1)	61.7 (16.5)	83.7 (28.7)
Units	Percent	Percent	Percent
Relative Humidity	100	7.7	45.1

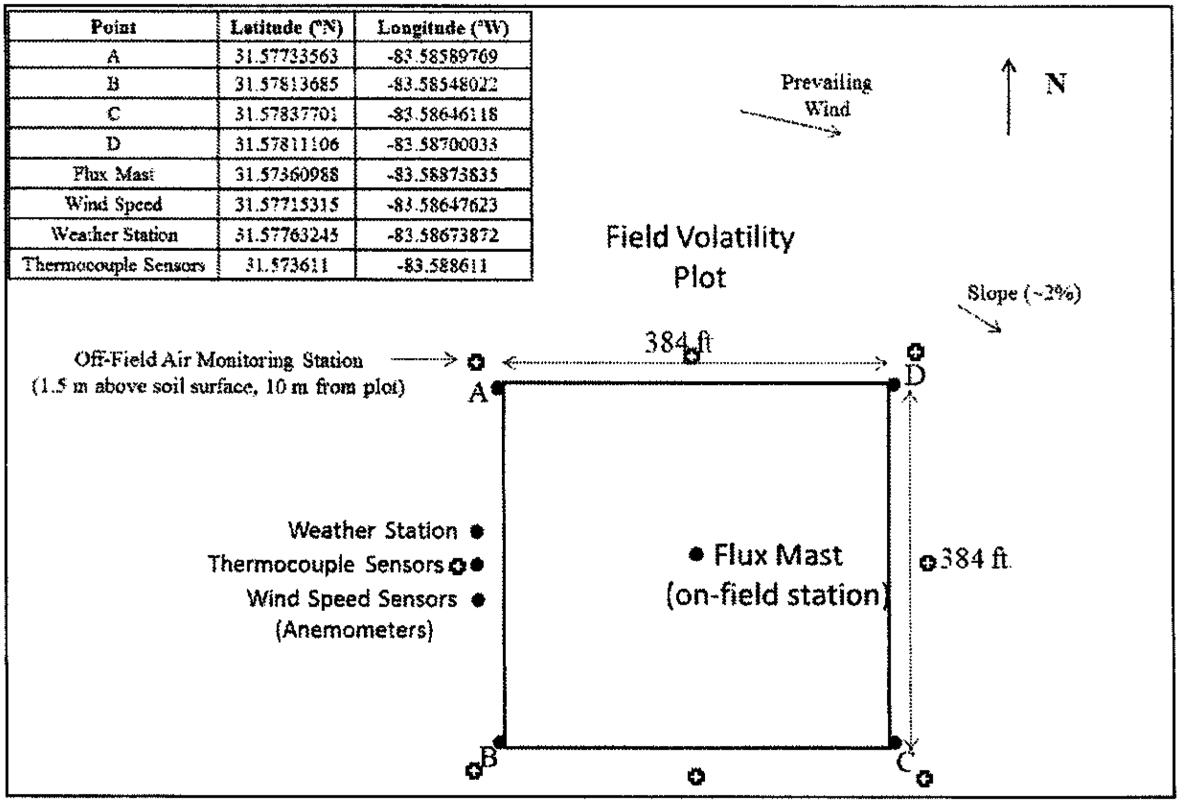
Table G-2 **Field Volatility Concentration, Wind Speed, and Flux Summary for the Indirect Flux Method at Application and the Integrated Horizontal Flux Method for Intervals After Application**

[EMBED Word.Document.12 \s]

Table G-3. **Field Volatility Concentration, Wind Speed, Air Temperature, and Flux Summary for the Indirect Flux Method at Application and the Aerodynamic Flux Method for Intervals After Application**

[EMBED Word.Document.12 \s]

Figure G-1. Plot Layout at the Georgia Study Site



Point	Latitude (°N)	Longitude (°W)
A	31.57733563	-83.58589769
B	31.57813685	-83.58548022
C	31.57837701	-83.58646118
D	31.57811106	-83.58700033
Flux Mast	31.57360988	-83.58873835
Wind Speed	31.57715315	-83.58647623
Weather Station	31.57763245	-83.58673872
Thermocouple Sensors	31.573611	-83.588611

Texas Study Summary

Materials and Methods

The Texas study was conducted near Beasley, TX in a field with soil characterized as Lake Charles clay soil (45% clay, 30% sand, 25% silt) with a pH of 5.5 and 2.1% organic matter. The test plot was 9.6 acres (3.9 hectares) in area. A GLP characterized lot of M1691 herbicide was applied to cotton at the 6-8 leaf stage (approximately 30% canopy cover) at a rate of 0.5 lb a.e./A in a spray solution containing 0.25% v/v Induce®, a nonionic surfactant. The application was made according to proposed label specifications with TTI 11004 nozzles at a target speed of 7.35 miles per hour and a pressure of 25 psi which resulted in a target application volume of 15.35 gallons per acre. Nozzles had an 18-inch spacing with a boom height of about 14-18 inches above the crop canopy. The application rate was confirmed by calibrating each nozzle of the sprayer, monitoring the time of each spray pass, and analyzing the amount of dicamba deposited on filter papers placed in foil pans on the soil surface within the application area.

A meteorological station was established near the test plot so that the data measured was representative of the wind pattern for the test plot. The station monitored air temperature (using air temperature sensors with radiation shields), wind speed and wind direction (using sonic anemometers) located approximately 0.33, 0.55, 0.90 and 1.5 m above the soil surface. Each parameter was measured every second and the data were summarized every minute and every hour.

Air monitoring was accomplished using glass vapor collection tubes containing polyurethane foam (PUF) sorbent (SKC Inc. Catalog No. 226-92) and SKC® (Model Number 224-52) personal air sampling pumps. This sorbent was demonstrated to trap and retain dicamba at the dicamba amounts measured in this study. The vapor collection tubes were attached to the air sampling pump using Tygon® tubing. The vapor collection tubes were covered with an opaque PVC tube to protect them from sunlight. Air was drawn through the collection tubes at a rate of approximately 3 liters per minute. These collectors were positioned on monitoring stations as described below. Air flow was calibrated each time the collection tube was changed.

In order to determine the flux rate of dicamba ($\mu g\ m^{-2}s^{-1}$) during the test substance application, off-field air monitoring stations were utilized to measure the concentration of dicamba in air during the test substance application. The off-field air sampling consisted of 8 equidistant stations located 5 meters from each corner and from the middle of each plot side (**Figure T-1**). Each off-field location consisted of an air sampling pump with collector mounted approximately 1.5 m above the soil surface. Air samplers in the eight off-field air monitoring locations were turned on at approximately the start of the application and ran until the vapor collection tubes were collected (shortly after the in-field monitoring was initiated) approximately 3 minutes after completion of the application. Dicamba air concentrations determined from these stations, in addition to the dimensions and orientation of the treated field, the location of the samplers, and meteorological information (air temperature, wind speed, and wind direction) were used to calculate the flux rate of dicamba ($\mu g\ m^{-2}s^{-1}$) during the test substance application using the Indirect Flux Method [**1**]. There is uncertainty in this determination because of the methodology used and the potential for overestimation of volatilization due to contamination of the vapor collection tubes from spray droplet drift or airborne contaminated soil rather than volatilization.

The on-field air profile monitoring station in the plot consisted of air sampling pumps mounted on a sampling mast located at the approximate center of the plot. Five sample locations (heights) were established on the sample mast at approximately 0.15, 0.33, 0.55, 0.90 and 1.5 m above the soil surface (mast positions "A" through "E", respectively). The air pumps on the center mast were started immediately after the application (11:35 hours on June 8). Vapor collection tubes from each location on the mast were collected approximately 4.5, 8.5, 19, 32, 43, 56, and 67 hours following completion of the application to the entire plot. All air samples from a specific time interval were used for the regression analysis for that interval unless samples were disqualified by breakage or other defined cause. The dicamba concentration data collected over time from the on-field air profile monitoring station along with wind speed, wind direction, and air temperature data were used to quantify the emission rate of dicamba ($\mu g\ m^{-2}s^{-1}$) for each sampling time increment after the test substance application using the Integrated Horizontal Flux (IHF) method [**2**] and the Aerodynamic (AD) method [**3**].

Results

Maximum, average and minimum air temperatures, soil temperatures at 1 mm depth and relative humidity are shown in **Table T-1**. Average air temperature during the study exceeded 80°F, and the average soil temperature at the soil surface for the study was over 98.2°F (36.8°C).

Flux values and mass loss during and after application are shown in **Tables T-2 and T-3** below calculated using the indirect flux method for the application period and either the integrated horizontal flux method or the aerodynamic method for time periods after application. The flux value during the short time interval of application is still being evaluated. Flux values estimated using the IHF and AD methods for the 67 hours after application ranged from 0.000024 $\mu g\ m^{-2}s^{-1}$ to 0.000699 $\mu g\ m^{-2}s^{-1}$. Total mass estimated to be lost from the plot during application is also still being evaluated. The estimated mass lost during the first 67 hours after application was 0.001166 kg (AD) or 0.002679 kg (IHF) or 0.05% to 0.12% of the target application rate of 0.5 lb a.e./A (0.561 kg/ha). Of the total mass estimated to be lost after application, more than 66% of the total amount was lost during the first 32 hours or less after application.

References

3. Johnson, B., Barry, T., and Wofford P. 1999. Workbook for Gaussian Modeling Analysis of Air Concentrations Measurements. State of California Environmental Protection Agency, Department of Pesticide Regulation. Sacramento, CA.

4. Denmead, O.T., Simpson, J. R., Freney, J. R. 1977. A direct field measurement of ammonia emission after injection of anhydrous ammonia. Soil Sci. Soc. Am. J., 41: 1001-1004.

3. Majewski, M.S., D.E. Glotfelty, K.T. Paw, and J.N. Seiber. 1990. A field comparison of several methods for measuring pesticide evaporation rates from soil. Environ. Sci. Technol. 24:1490–1497.

Table T-1. Summary of Air Temperature, Soil Temperature, and Relative Humidity during the study

	Maximum	Minimum	Average
Units	**°F (°C)**	**°F (°C)**	**°F (°C)**
Air Temperature	98.4 (36.9)	70.4 (21.3)	82.2 (27.9)
Soil Temperature at 1 mm Depth	68.1 (154.6)	22.6 (72.7)	36.8 (98.2)
Units	**Percent**	**Percent**	**Percent**
Relative Humidity	99.0	18.0	50.8

Table T-2. Flux Summary for the Integrated Horizontal Flux Method for Intervals after Application

Event No.	Interval (Hours)	Duration (Hours)	Flux ($\mu g/m^2/sec$)	Mass Loss (kg/period)	Percent of Total Loss
1	0 - 4	4.47	0.000261	0.000164	6.12
2	4 - 8	4.02	0.000699	0.000394	14.7
3	8 - 19	10.9	0.000649	0.000997	37.2
4	19 - 32	13.0	0.000187	0.000340	12.7
5	32 - 43	11.0	0.000161	0.000250	9.33
6	43 - 56	13.0	0.000243	0.000444	16.6
7	56 - 67	11.0	0.000058	0.000090	3.36
			Total Loss	**0.002679**	
			Percent of Applied	**0.12**	

Percent Loss = Total loss (kg) ÷ Plot Area (m^2) * 10^4 m^2/ha ÷ Target Application Rate (0.561 kg/ha) * 100.
Plot Area = 197.5m * 197.5m = 39,006 m^2 (3.90 ha).

Table T-3. Flux Summary for the Aerodynamic Flux Method for Intervals after Application

Event No.	Interval (Hours)	Duration (Hours)	Flux ($\mu g/m^2/sec$)	Mass Loss (kg/period)	Percent of Total Loss
1	0 - 4	4.47	0.000139	0.000087	7.46
2	4 - 8	4.02	0.000113	0.000064	5.49
3	8 - 19	10.9	0.000024	0.000037	3.17
4	19 - 32	13.0	0.000321	0.000585	50.2
5	32 - 43	11.0	0.000046	0.000072	6.17
6	43 - 56	13.0	0.000154	0.000282	24.2
7	56 - 67	11.0	0.000025	0.000039	3.34
			Total Loss	**0.001166**	
			Percent of Applied	**0.05**	

Percent Loss = Total loss (kg) ÷ Plot Area (m^2) * 10^4 m^2/ha ÷ Target Application Rate (0.561 kg/ha) * 100.
Plot Area = 197.5m * 197.5m = 39,006 m^2 (3.90 ha).

Indirect Flux Method

Event	Duration (Hours)	Dicamba Concentration µg/m³ — Location: NW Corner	NE Corner	SW Corner	SE Corner	N Edge	S Edge	E Edge	W Edge	Flux (µg/m²/sec)	Mass Loss (kg/period)	Percent of Total Loss
Applic-ation	0.367	0.00792	0.00573	0.01791	0.00487	0.00000	0.00645	0.00325	0.04517	0.005146	0.000093	7.2

Aerodynamic Flux Method

Event No.	Interval (Hours)	Duration (Hours)	Dicamba Concentration µg/m³ Sample Height (meters)					Average Wind Speed m/s Sample Height (meters)				Average Temperature °C Sample Height (meters)				Wind Direction (deg)	Flux (µg/m²/sec)	Mass Loss (kg/period)	Percent of Total Loss
			0.15 m	0.33 m	0.55 m	0.90 m	1.5 m	0.33 m	0.55 m	0.90 m	1.5 m	0.33 m	0.55 m	0.90 m	1.5 m				
1	0-4	3.72	0.08337	0.05324	0.03873	0.03085	0.02118	2.22	2.47	2.61	2.69	25.4	25.0	24.6	24.2	75.1	0.004030	0.000739	57.1
2[1]	4-10	6	0.17993	0.02107	0.01549	0.01462	0.00906	1.88	2.07	2.20	2.29	26.9	26.6	26.3	26.1	90.9	0.000891	0.000264	20.4
3	10-21	11	0.01327	0.00843	0.00525	0.00346	0.00213	0.754	0.855	0.917	0.964	18.9	18.9	18.9	19.0	88.0	0.000051	0.000028	2.1
4	21-34	13	0.00387	0.00292	0.00175	0.00184	0.00144	1.63	1.85	1.94	2.05	25.6	25.3	25.0	24.7	46.9	0.000142	0.000091	7.0
5	34-45	11	0.00962	0.00516	0.00254	0.00143	0.00059	0.355	0.413	0.455	0.477	17.6	17.6	17.7	17.9	5.1	0.000008	0.000004	0.3
6[1]	45-58	13	0.01882	0.00215	0.00183	0.00117	0.00090	1.62	1.90	1.98	2.15	26.8	26.5	26.2	25.9	11.4	0.000112	0.000072	5.6
7	58-69	11	0.00697	0.00426	0.00281	0.00156	0.00098	0.426	0.490	0.535	0.545	18.2	18.2	18.3	18.4	12.4	0.000006	0.000003	0.2
																	Total Loss (kg)	0.001294	100
																	Percent Loss	0.08	

Percent Loss = Total loss (kg) ÷ Plot Area (m²) * 10⁴ m²/ha ÷ Target Application Rate (1.121 kg/ha) * 100.
Plot Area = 117m * 117m = 13,689 m² (1.37 ha).
[1] For the flux calculation at events 2 and 6, the dicamba concentration value at the 0.15 m height was removed as an outlier.

Indirect Flux Method

Event	Duration (Hours)	Dicamba Concentration µg/m³ Location NW Corner	NE Corner	SW Corner	SE Corner	N Edge	S Edge	E Edge	W Edge	Flux (µg/m²/sec)	Mass Loss (kg/period)	Percent of Total Loss
Applic-ation	0.367	0.00792	0.00573	0.01791	0.00487	0.00000	0.00645	0.00325	0.04517	0.005146	0.000093	7.2

Integrated Horizontal Flux Method

Event No.	Interval (Hours)	Duration (Hours)	Dicamba Concentration µg/m³ Sample Height (meters) 0.15 m	0.33 m	0.55 m	0.90 m	1.5 m	Average Wind Speed m/s Sample Height (meters) 0.33 m	0.55 m	0.90 m	1.5 m	Wind Direction (deg)	Flux (µg/m²/sec)	Mass Loss (kg/period)	Percent of Total Loss
1	0-4	3.72	0.08337	0.05324	0.03873	0.03085	0.02118	2.22	2.47	2.61	2.69	75.1	0.002894	0.000530	41.0
2[1]	4-10	6	0.17993	0.02107	0.01549	0.01462	0.00906	1.88	2.07	2.20	2.29	90.9	0.001458	0.000431	33.3
3	10-21	11	0.01327	0.00843	0.00525	0.00346	0.00213	0.754	0.855	0.917	0.964	88.0	0.000120	0.000065	5.0
4	21-34	13	0.00387	0.00292	0.00175	0.00184	0.00144	1.63	1.85	1.94	2.05	46.9	0.000114	0.000073	5.7
5	34-45	11	0.00962	0.00516	0.00254	0.00143	0.00059	0.355	0.413	0.455	0.477	5.1	0.000029	0.000016	1.2
6[1]	45-58	13	0.01892	0.00215	0.00183	0.00117	0.00090	1.62	1.90	1.98	2.15	11.4	0.000106	0.000068	5.3
7	58-69	11	0.00697	0.00426	0.00281	0.00156	0.00098	0.426	0.490	0.535	0.545	12.4	0.000033	0.000018	1.4
												Total Loss (kg)	0.001294	100
												Percent Loss	0.08	

Percent Loss = Total loss (kg) ÷ Plot Area (m²) * 10⁴ m²/ha ÷ Target Application Rate (1.121 kg/ha) * 100.
Plot Area = 117m * 117m = 13,689 m² (1.37 ha).
[1] For the flux calculation at events 2 and 6, the dicamba concentration value at the 0.15 m height was removed as an outlier.