

Investigation Narrative

Plant Industry Division

Memorandum

To: Bret Allen, Environmental Scientist IV, NDA
From: Vanze Lum, Agriculturalist III, NDA
Date: October 14, 2020
Subject: Private Citizen Complaint Investigation: Salisha Odum

On August 31, 2020, you notified me of a complaint from Salisha Odum at 5862 Macpherson Lane, Fallon NV 89406. Ms. Odum, who owns Salisha's Delicious Organic Produce, was concerned about an airplane flying too low above her property several times and possibly releasing chemicals on her and her garden. You also informed me you suggested to Ms. Odum that she see a doctor if she believes she was sprayed with chemicals. You are unsure if she acted on this recommendation because you said she told you she did not think there was much that can be done by a doctor for pesticide exposure.

I visited Ms. Odum on September 1, 2020, to investigate the scene and take samples. Ms. Odum said the plane flew low over her house several times during the morning hours between 6:00 a.m. and 7:10 a.m. On the airplane's third pass, she noticed a chemical smell and said her eyes were burning, throat was sore, and her face developed a rash; she also said she felt dizzy. I asked Ms. Odum if she had seen spray coming out of the aircraft when it was flying over her house, and she said she did not. Ms. Odum said the sun was in her eyes, so this made it difficult to see. Ms. Odum also said her plants were affected by this application and pointed out several crops and trees that she suspected were hit by the chemicals.

After consulting with you on sampling, I collected two vegetation samples from her garden using NDA's sampling guidelines: one from her pepper plants and the other was lilac. These samples were then immediately transported in a cooler, with blue ice packs, to the chemistry laboratory in Sparks and submitted for analysis the same day.

Ms. Odum was able to provide me information about the plane in question, and I was able to determine the pilot was Jerry Frey, Primary Principal of Frey Spray. I contacted Mr. Frey and asked about any pesticide applications that took place in the area of Macpherson Lane in Fallon on August 31st. Mr. Frey told me he had conducted an application on Rambling River Ranches, field Bell 13, which was about a quarter mile west of Macpherson Lane. The application was for the control of insects in alfalfa, and they used mix of two products in his airplane's tank: Fastac (EPA #7969-364; active ingredient cypermethrin), and Yuma 4E (EPA#62719-220-1381; active ingredient chlorpyrifos). The application began at 6:20 a.m. and was finished by 9:05 a.m. I asked Mr. Frey for records of the application, and he provided these to me on Friday, September 2, 2020. Mr. Frey was very cooperative and provided all records I asked for plus pesticide labels and maps of the area treated.

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You informed me that Ms. Odum e-mailed you on September 2, 2020 asking for the name of the chemicals used by Mr. Frey because she wanted to go to the doctor. You said you immediately provided her the name of the two products along with the links to their Safety Data Sheets (SDS) but you are still unsure if she followed-up with a doctor.

I was able to check weather conditions using the MesoWest website (<http://mesowest.utah.edu>). This site is used to access past and current weather data. According to MesoWest, the wind during the pesticide application was from the south at the start of the application and north at the end. The wind ranged from 0 to 5.8 mph which was within parameters for an aerial application. Ms. Odum's property is west of the field where the pesticides were sprayed. I did not notice any pesticide smell when I was on site the day following the application.

The "Fallon Naval Air Station" is the closest weather station to the location of the incident; approximately twelve miles. Weather conditions at the application site may have varied.

Findings and Recommendations:

On October 12, 2020, the NDA chemistry laboratory confirmed that chlorpyrifos was detected in the pepper vegetation sample I collected at 0.009 ppm. This trace amount is at the laboratory's method limit of quantitation for chlorpyrifos. According to the NDA chemistry laboratory, the quantification limit of an individual analytical procedure is the lowest amount of analyte in a sample which can be quantitatively determined with suitable precision and accuracy.

The Yuma 4E label states: Do not allow spray drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas and non-target crops.

It appears that a degree of drift or off-target movement of chlorpyrifos occurred onto Ms. Odem's property; however, certain circumstances exist making it difficult to determine exactly where the drift originated. For instance, Mr. Frey used two chemicals in his tank and only one of them showed up in one of the collected samples (the two samples were approximately twenty feet apart).

My thought was that one of the pesticides degraded prior to sampling. However, according to EXTOWNET (a pesticide information project put together by numerous cooperative extension agencies), the half-life of cypermethrin is 8-16 days compared to 11-141 days of chlorpyrifos. It is assumed that cypermethrin might break down faster in field conditions. However, I collected the samples the day after the incident. In addition, chlorpyrifos was found on only one of the samples at a very low level. It is likely that if Mr. Frey sprayed Ms. Odem's property at very

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low flight elevation, like she stated in the complaint form, both vegetation samples would have high detection levels of both chemicals.

In addition, Ms. Odum's property is west of the field where the pesticides were sprayed. Based on MesoWest (and Mr. Frey's records), the wind did not blow directly toward the property on the morning of the application from the field that was sprayed.

Ms. Odum's farm is organic certified. Excess pesticide exposure will cause an organic farm to lose its certification. Based on NDA laboratory findings, EPA tolerance limits, and U.S. Department of Agriculture (USDA) organic certification regulations, Ms. Odum's organic certification should still be valid, as the level of chlorpyrifos did not exceed the USDA guidelines. Tolerances are established for residues of the pesticide chlorpyrifos in or on pepper and the tolerance limit for chlorpyrifos in pepper is 1 ppm:

https://www.ecfr.gov/cgi-bin/textidx?SID=2c85909360c7c5aff63ddd1447545d6a&mc=true&node=se40.24.180_1342&rgn=div8.

The USDA limit for organic certified farms is five percent of the EPA tolerance. Therefore, the crop can still be designated as organic even if chlorpyrifos was detected at 0.05 ppm or lower (NDA chemistry findings of 0.009 ppm is far below the USDA limit):

https://www.ams.usda.gov/sites/default/files/media/Pesticide%20Residue%20Testing_Org%20Produce_2010-11PilotStudy.pdf.

Ms. Odum did detect a strong smell of pesticides on the day of the application. She also noted physical symptoms she believes is consistent with pesticide exposure on her plants. However, the laboratory did not detect the presence of any herbicide active ingredients which would physically affect her plants. It is likely that Ms. Odum smelled the chemicals from her property, but this does not constitute an exposure or drift. There are no current state or federal laws that prohibit pesticide applications based on the smell produced by the product. Odorants are often added to pesticide products to alert people to their presence for safety reasons. Information on pesticide odors can be found at this link:

<http://agri.nv.gov/uploadedFiles/agrinvgov/Content/Resources/Forms/Plant/Environmental/Pesticide%20Odor.pdf>

It is also possible that such a low level of chlorpyrifos could drift in from another application not necessarily near Ms. Odum's property. Ms. Odum's property is in a farmland setting, and there are numerous alfalfa fields in the area. Given the variable Nevada winds and the use of chlorpyrifos in the area, it would be very difficult to determine if this drift came from Mr. Frey's application or a different one even weeks earlier (from an unknown area and source).

While strong pesticide odors are unpleasant, they do not generally pose a health risk. If a strong pesticide odor is detected, it is recommended that Ms. Odum (along with her children and

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pets) moves inside and closes windows and doors until it dissipates. I recommend that Frey Spray avoids flying directly over populated areas even while in route to the application site and continues to make sure wind is not moving toward residential areas when spraying fields. Maintaining good application records and have them available if requested by inspectors is also required.

If Ms. Odem is concerned that Mr. Frey's plane was flying too low above her property, it is recommended that she files a complaint with the Federal Aviation Administration (FAA). No further action is recommended at this time regarding pesticide related compliance.

A copy of this report will be forwarded to the Environmental Services Program Manager for review and/or enforcement action.

cc: Salisha Odum
Jerry Frey, Primary Principal of Frey Spray



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

REPORT OF ANALYSIS

1. SAMPLE NO. 090120673050101	2. DATE COLLECTED 09/01/20
3. REGION 09/NV	4. EPA REG. NO.
5. ESTABLISHMENT NO.	

6. DESCRIPTION OF SAMPLE
Veg Sample from Lillac

7. NAME AND ADDRESS OF ESTABLISHMENT WHERE SAMPLE COLLECTED (Include Zip Code) Ms. Salisha Odum 5862 Macpherson Ln Fallon NV 89406	8. PRODUCT NAME Veg Lillac
	9. LOT OR CODE NUMBER(s)

10. NAME AND ADDRESS OF PRODUCER (If different from 7 above)(Include Zip Code)

11. RESULTS OF ANALYSIS

Analyst: S. Cohen (NDA)

Date of Analysis: 10/05/2020

<u>Analyte</u>	<u>Method of Analysis</u>	<u>Result (ug/g)</u>
Chlorpyrifos	LC/MSMS QTRAP 5500	ND
Cypermethrin	LC/MSMS QTRAP 5500	ND

This sample has been analyzed and found to contain no detectable pesticides.
 ND = None Detected Chlorpyrifos less than 0.006ug/g
 ND = None Detected Cypermethrin less than 0.300ug/g
 ug/g = Parts per Million

Screen Type: LC/MS Screen Results: None Detected

Sec 9(a) of the Federal Insecticide, Fungicide, and Rodenticide Act, as ammended (7 U.S.C. 136g) requires that if an analysis is made of any sample collected in connection with the enforcement of the Act, a copy of the results of such analysis must be furnished promptly to the owner, operator or agent in charge of the establishment where the sample was collected. This section of the Act is quoted on the reverse of this form.

The information contained in this report should not be used in the labeling, advertising, or other promortion of the product analyzed.

Additional information regarding results of analysis may be obtained from the individual listed below.

12. NAME AND TITLE OF EPA OFFICIAL Dr. Jian Zhang Ph.D.		15. ADDRESS OF REGIONAL OFFICE Nevada State Department of Agriculutre 405 S. 21st Street Sparks, Nevada 89431	
13. PHONE NUMBER (775) 353-3778	14. DATE 10/12/2020		



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

REPORT OF ANALYSIS

1. SAMPLE NO. 090120673050102	2. DATE COLLECTED 09/01/20
3. REGION 09/NV	4. EPA REG. NO.
5. ESTABLISHMENT NO.	

6. DESCRIPTION OF SAMPLE
Veg Sample from Peppers

7. NAME AND ADDRESS OF ESTABLISHMENT WHERE SAMPLE COLLECTED (Include Zip Code) Ms. Salisha Odum 5862 Macpherson Ln Fallon NV 89406	8. PRODUCT NAME Pepper Vegetation
	9. LOT OR CODE NUMBER(s)

10. NAME AND ADDRESS OF PRODUCER (If different from 7 above)(Include Zip Code)

11. RESULTS OF ANALYSIS
Analyst: S. Cohen (NDA) **Date of Analysis:** 10/05/2020

<u>Analyte</u>	<u>Method of Analysis</u>	<u>Result (ug/g)</u>
Chlorpyrifos	LC/MSMS QTRAP 5500	0.009
Cypermethrin	LC/MSMS QTRAP 5500	ND

This sample has been analyzed and found to contain Chlorpyrifos at the Limit of Quantitation
Limit of Detection Chlopryrifos = 0.006ug/g
Limit of Quantitation Chlorpyrifos = 0.009ug/g
ND = None Detected Cypermethrin less than 0.300ug/g
ug/g = Parts per Million

Screen Type: LC/MS Screen Results: Chlorpyrifos Confirmed

Sec 9(a) of the Federal Insecticide, Fungicide, and Rodenticide Act, as ammended (7 U.S.C. 136g) requires that if an analysis is made of any sample collected in connection with the enforcement of the Act, a copy of the results of such analysis must be furnished promptly to the owner, operator or agent in charge of the establishment where the sample was collected. This section of the Act is quoted on the reverse of this form.

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