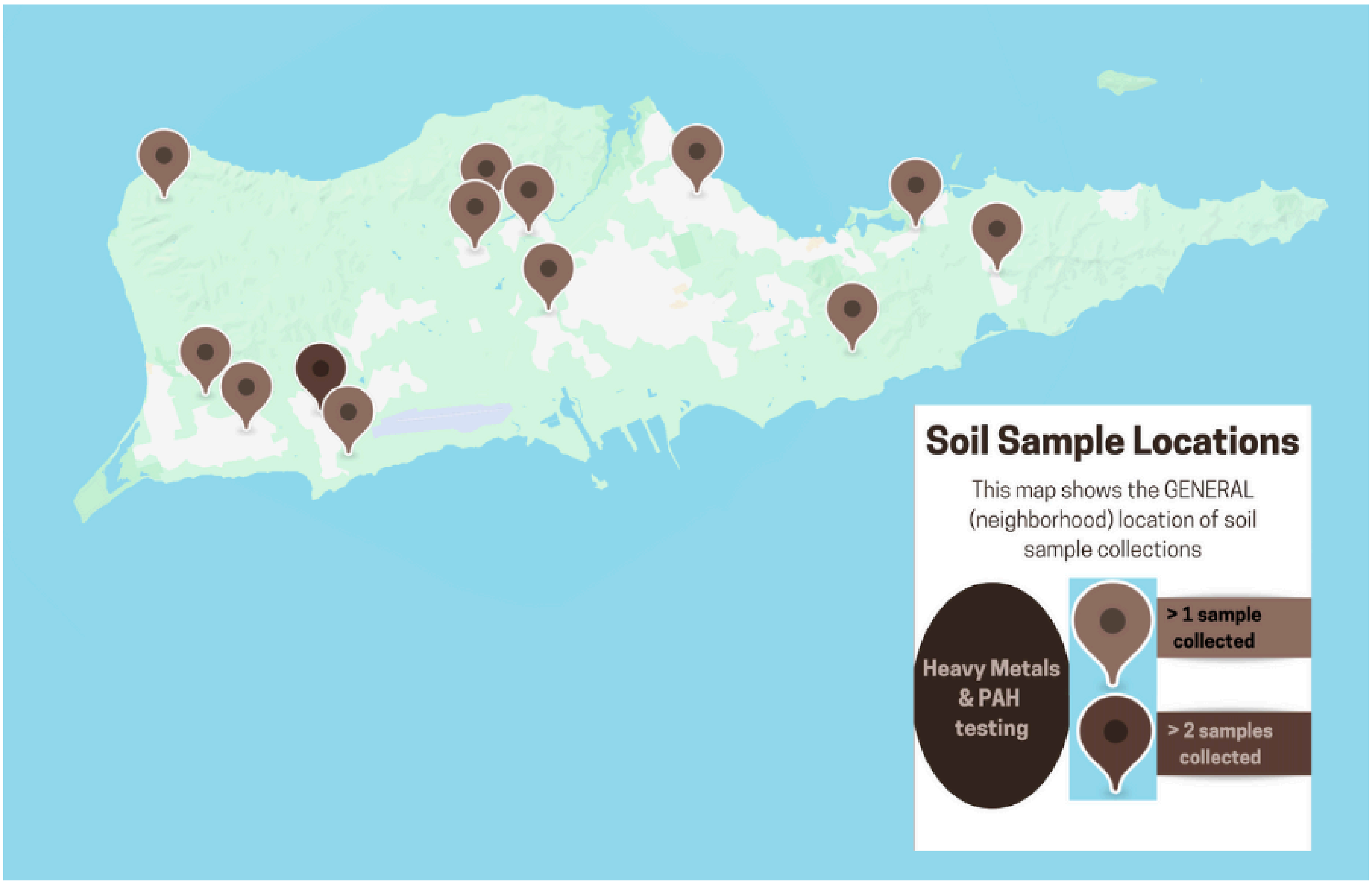
Citizen-Science Project Collecting Data on St. Croix's Air, Water & Soil Quality

Soil Sample collection and farmer/food grower coordination was conducted by project partner, VI Good Food



Raw soil testing data can be found on Terra Ay Ay Project's website here.

The raw data is highly technical and requires experience to understand. We share the raw data (deidentified to protect participation privacy) for full transparency and in the hope that students, citizen scientists and/or future community initiatives may find it useful.

Soil lab testing was conducted utilizing Citizen Science Community Resources.

Terra Ay Ay Project is very grateful for the hard work and support we received from CSCR.

Below is an interpretation of lab results by CSCR's team of technical experts:

May 30, 2025

For The Terra Ay Ay Project,
Thank you for allowing Citizen Science Community Resources, Inc. to assist in your soil sampling and testing services. Now that we have the results, you are probably wondering, what do these results mean? With this letter, we hope to be able to provide some guidance.
The samples were received by the lab in good condition and met all necessary laboratory requirements.(*) Samples were analyzed by the lab for 8 toxic metals (EPA 6010C, 7471B), and semi-volatile organic compounds, or PAH (EPA 8270D). The following results were obtained.

Analyte	Result Range (ppm)	USEPA Region 2 RSLs US Virgin Islands
Arsenic	1.1 – 15.1	0.68
Barium	91.9 - 571	15000
Cadmium	0.24 – 0.77	7.1
Chromium*	18.5 – 235	120,000
Lead	4.3 – 52.3	200
Selenium	1.1 – 1.6	390
Silver	0.23 – 0.64	390
Mercury	0.015 – 0.057	7.1

Benzo(a)pyrene 0.032 1 Benz(a)anthracene 0.055 1 Benzo(b)fluoranthene 0.077 1 Chrysene 0.069 1 Dibenz(a,h)anthracene ND 0.33 Indeno(1,2,3-cd)pyrene 0.024 0.5
***RSLs used are for trivalent chromium; according to the EPA air emissions of chromium are predominantly of trivalent chromium**

Note: ppm = parts per million, or mg/kg
RSL = Regional Screening Level for Residential Soils

U.S Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) are numbers used to make decisions about whether or not further investigation is needed. The concentration listed in the USEPA RSL column is for residential exposures, including children, representing the concentration at or below which represents no greater than a one in one million (1.0 x 10-6) excess chance of cancer or adverse health effect and a Hazard Quotient (HQ) of equal to or less than 1.0, the “action” level. The residential SCOs are typically used for land with single family homes.

According to the results table, the arsenic samples represent a higher than typical risk for adverse health effect; however, it should be noted that the New York State Region 2 Soil Cleanup Objectives (SCOs) for arsenic in residential soil is 16 ppm, thus all the arsenic samples are below this screening level. It is not uncommon to find arsenic concentrations at this level and above in soils in Florida and other U.S. states. Thus, there would have to be an exposure route of soil ingestion in large amounts over a long period of time for arsenic to likely cause an adverse health effect, which is unlikely.

While the concentrations of chromium are not likely to cause a concern, the sample SY-NP-4-2025 has a high result that may be due to an error in the lab analysis as explained in the lab report. This result should be followed up on and could be investigated further to determine a source or relationship with other elevated chromium results, especially OFG-SB-4-2025.

At the conclusion of this project, it will be up to you and your constituents to determine how best to interpret and use these results.

For more information or clarification on the results of the sampling, analysis, and conclusions about the levels of metals in your soil, please contact me through CSCR’s project manager. You may also contact us for more information on reducing your exposure through additional practices.

Thank you for allowing Citizen Science Community Resources, Inc. to assist you. Respectfully,

Dr. Shaun A. Crawford, CIH
Technical Advisor, CSCR, Inc.
Attachment: Soil Sample Analytical Results

(*) Terra Ay Ay Project asked a clarifying question in regard to this statement which might be understood to undermine a section, on Page 5, of the Analytical Report from EuroFins Laboratory.

Terra Ay Ay: “On page 5 of the EuroFins Analytical Report they note that samples were received outside the required temperature criteria, but Dr. Crawford’s interpretation states that *"The samples were received by the lab in good condition and met all necessary laboratory requirements."*

Page 5 of Analytical report: *"Receipt Exceptions* *The following samples were received at the laboratory outside the required temperature criteria: (...) This does not meet regulatory requirements."*

Can we get clarification on these seemingly contradictory statements and also how not meeting the temperature criteria could affect the results?”

Dr. Crawford's response:

Possible Effect of Temperature on Environmental Samples for Metals and PAH -
Regarding temperature exceedance of the samples received at the lab, while we are not knowledgeable about the handling and condition of the samples from collection to shipping, we can discuss the effect of temperature on the results.

Heavy metal concentrations are not likely to change considerably in the soil samples where they have existed in a warm, dry, breezy climate if we cool them to between 4 and 13.9 degrees C before analysis. This is because most heavy metals like toxic lead and arsenic are not likely to degrade rapidly in the soil sample over a short time if cooled. Pure elemental mercury evaporates rapidly, but most environmental mercury is inorganic, bound with other more stable substances.
Since PAH also are stable in organic matter and have half-lives of weeks to months, these are also not likely to be rapidly lost due to cooling before analysis. A half-life is the approximate time it takes for half of the original amount of PAH to degrade by 50%, so 100 ppm may be 50 ppm, but it's rarely that much. The sampled amount of PAH in stable, cooled samples is likely to degrade much more slowly than normal.

The lab states the samples as received were 13.9 degrees C, or 57.2 degrees F. If shipped at 4 degrees C, then the samples likely stayed cool enough to rely on for making informed decisions, as they would have been reasonably similar to the concentrations at the time of sampling.