

University of Tennessee at Chattanooga

UTC Scholar

UTC Spring Research and Arts Conference

UTC Spring Research and Arts Conference
Proceedings 2023

San Salvador Community Garden Initiative

Jillian Saraney

University of Tennessee at Chattanooga

Emory Evans

University of Tennessee at Chattanooga

Abbie Woodson

University of Tennessee at Chattanooga

Taylor Yates

University of Tennessee at Chattanooga

Follow this and additional works at: <https://scholar.utc.edu/research-dialogues>

Recommended Citation

Saraney, Jillian; Evans, Emory; Woodson, Abbie; and Yates, Taylor, "San Salvador Community Garden Initiative". *ReSEARCH Dialogues Conference proceedings*. <https://scholar.utc.edu/research-dialogues/2023/proceedings/8>.

This presentations is brought to you for free and open access by the Conferences and Events at UTC Scholar. It has been accepted for inclusion in UTC Spring Research and Arts Conference by an authorized administrator of UTC Scholar. For more information, please contact scholar@utc.edu.



THE SAN SALVADOR COMMUNITY GARDEN INITIATIVE



UTC SPRING RESEARCH AND ARTS
CONFERENCE 2023

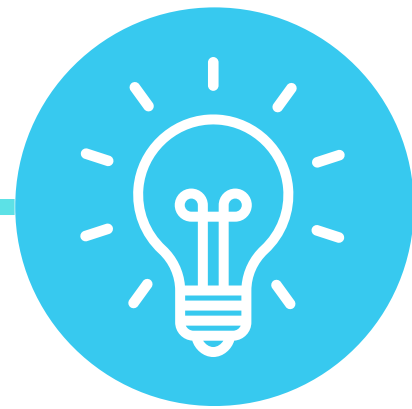
A BRIEF TIMELINE OF EVENTS

**MAY
2022**



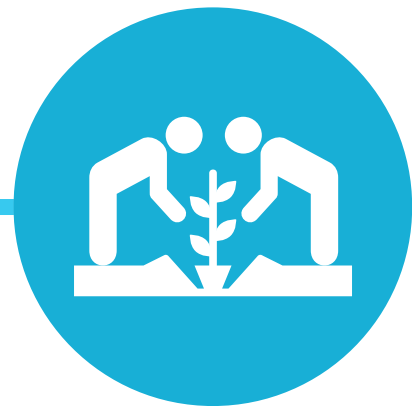
- Health Assessment
- Health Presentation
- High Prevalence of Chronic Diseases
- High Produce Prices = Low Nutrition
 - Supported by literature

**FALL
2022**



- Funding acquisition
- Survey development
- IRB approval
- Creating educational material
- Purchasing material

**JANUARY
2023**



- Garden Repair
- Planting Seeds
- Community Event
- Soil collection
- Data collection

**SPRING
2023**



- Soil analysis
- Grant applications
- Continued Data Collection and Analysis

FUTURE



- Community Enrichment Program
- MPH/PHE Program



San Salvador Population

- Population size 1040
- New Providence population size is 246,329
- Women (518) Men (521)
- The minimum wage is \$5.25

Gerace Research Institute (GRI)



Where?

Located at the top of the island, the GRI has been based out of a retired naval base for the last 50 years!



Who?

Dr. Troy Dexter, our community partner, is the GRI Executive Director.



Community

The GRI is a place where community members can have events, receive clean water, and request automotive assistance.



The Garden

The placement of the garden was chosen because residents frequently visit the GRI.



Community Garden Snapshot



- Tomatoes
- Onions
- Bell peppers
- Spinach
- Cabbage
- Watermelon
- Radishes
- Chives
- Pigeon Peas
- Basil

Baseline Data

- Nutrition Security
- Chronic Disease Prevalence
- Soil Analysis



No recent data available

**What are they eating and why?
What are the most common chronic diseases?**



What is in the island soil?

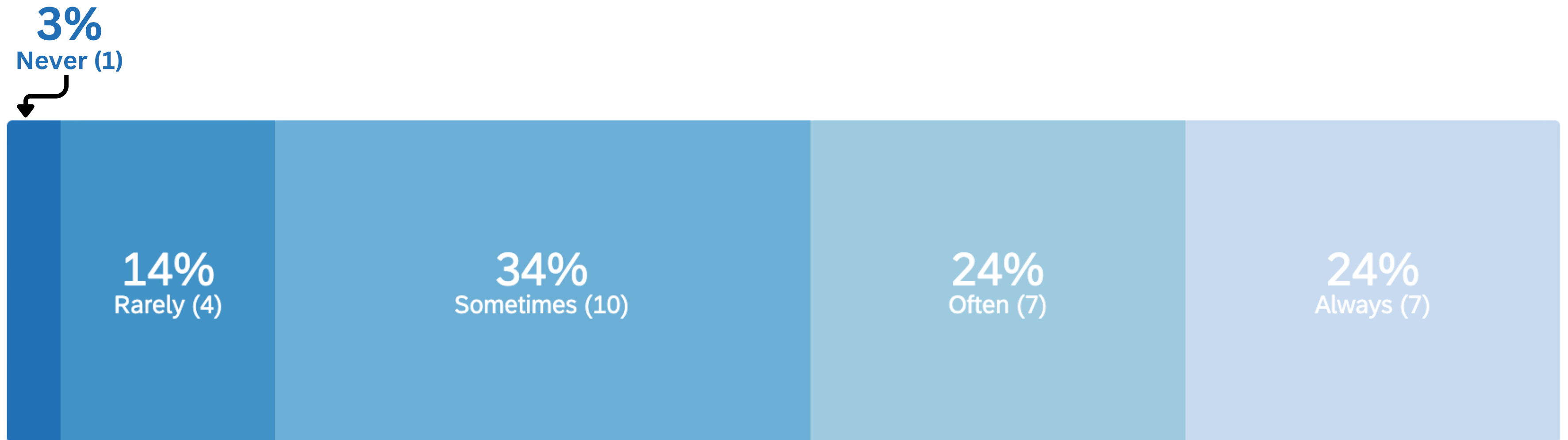
Preliminary Survey Results

- 29 acceptable surveys (n=29)
- 10 questions about nutrition security (1-5 Likert scale)
- Lower scores = more secure; Higher score = less secure
- Min of 10, Max of 50

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Total Score	29	38.00	11.00	49.00	25.7931	7.86211

*Correlations between overall nutrition security score and several variables (gender, age, household size, etc.) were examined, however statistical significance cannot be established due to the small sample size

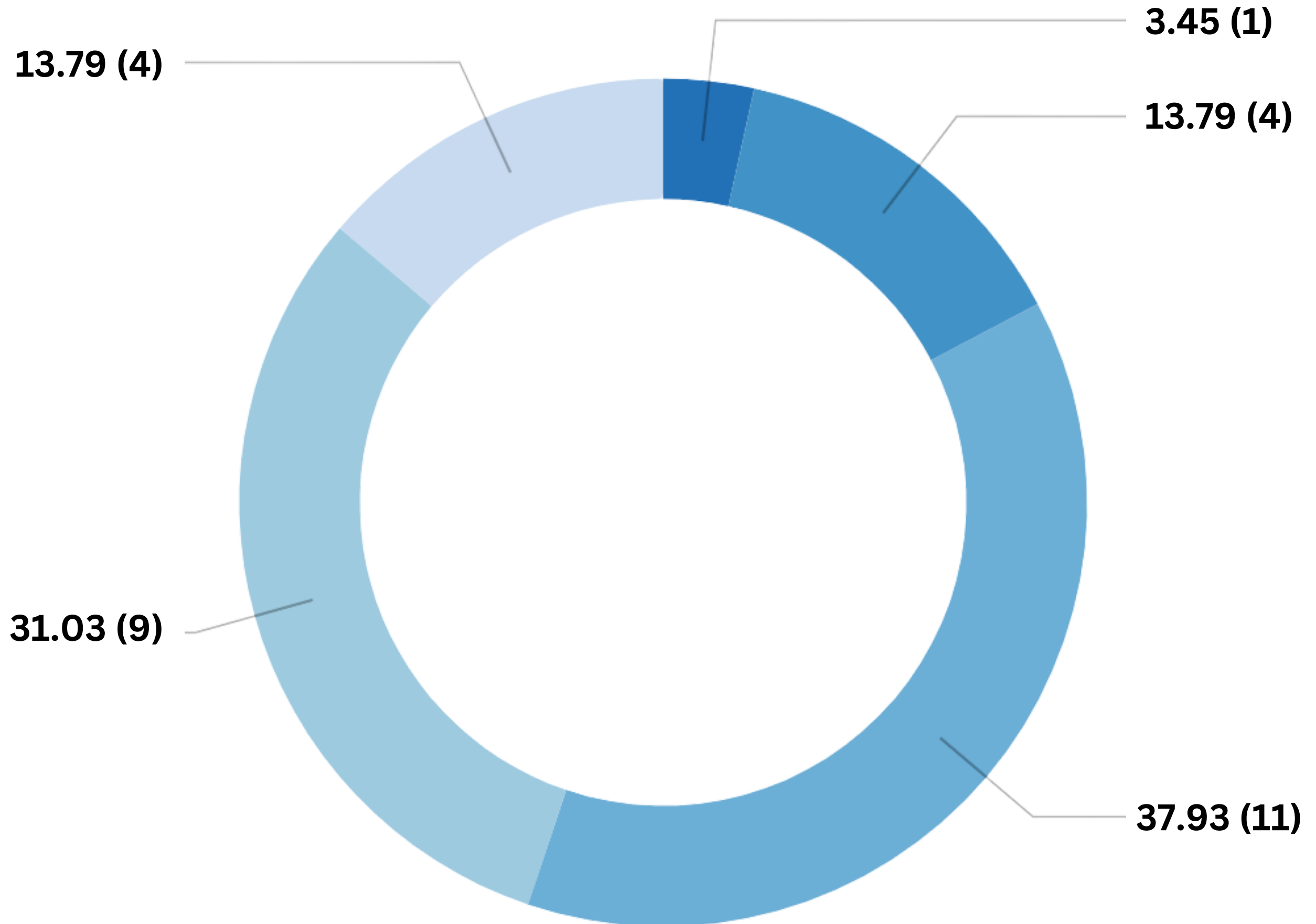
Q5: "In the last 12 months, I could control if I was able to eat quality fruits and vegetables."



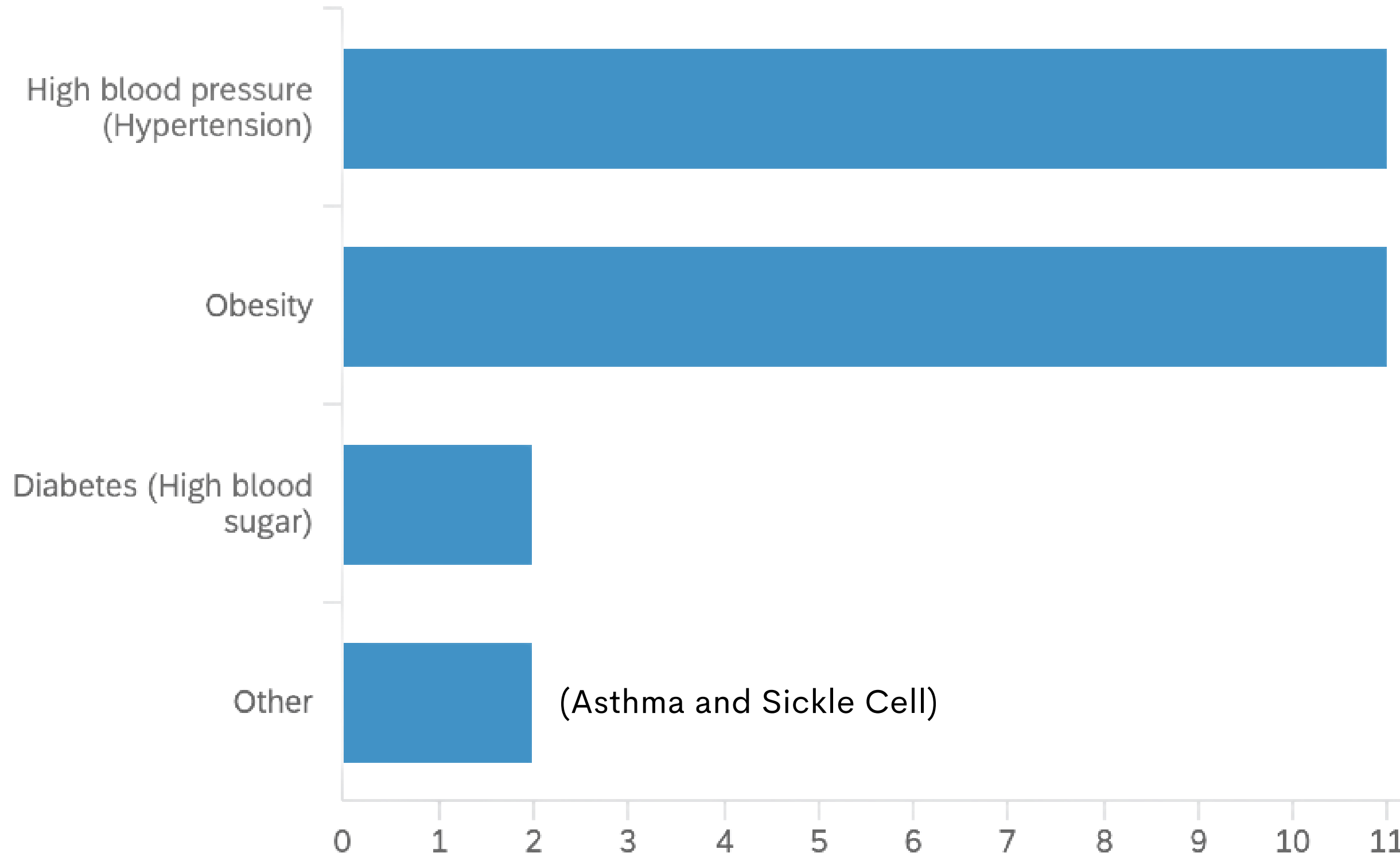
- Over half (51%) of the surveyed participants indicated they could only control eating quality produce "sometimes" or less

Q11 : "In general, how would you rate your overall health now?"

- Excellent**
- Very Good**
- Good**
- Fair**
- Poor**



Q12 : "Has a doctor ever told you that you have any of the following conditions?"



- 75.86% of participants (22) indicated they have a chronic disease
- 13.79% (4) listed 2 or more chronic diseases

Soil Sample

Sample

Mixture from garden beds
comprised of soil and organic
matter from rain catchment

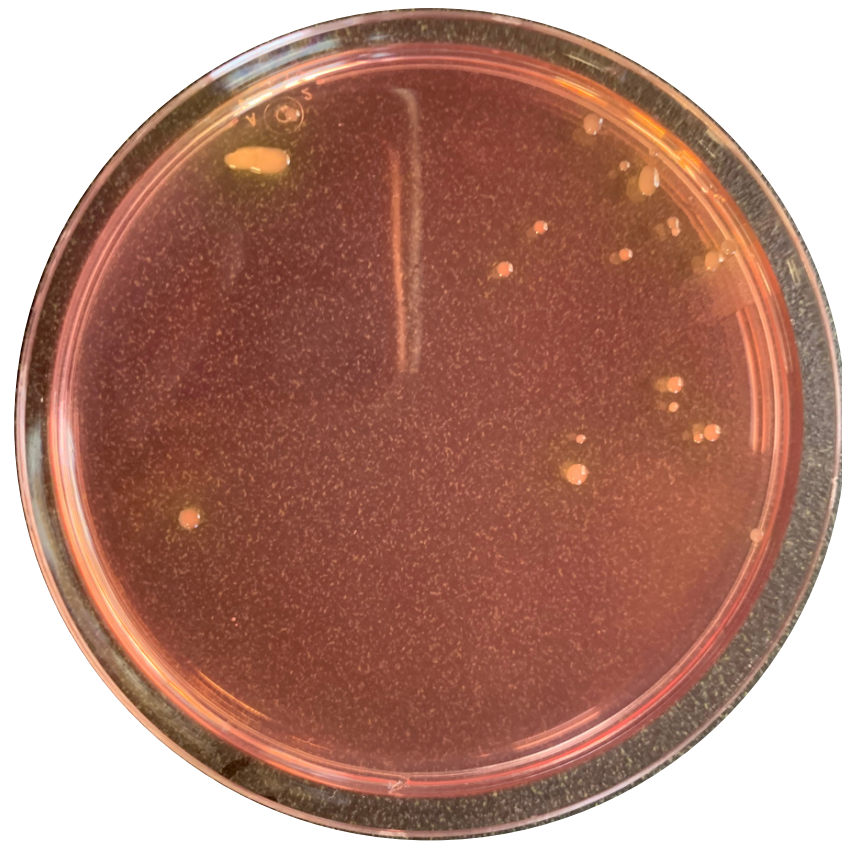


Composition

Sandy, organic matter



Microbial Ecology

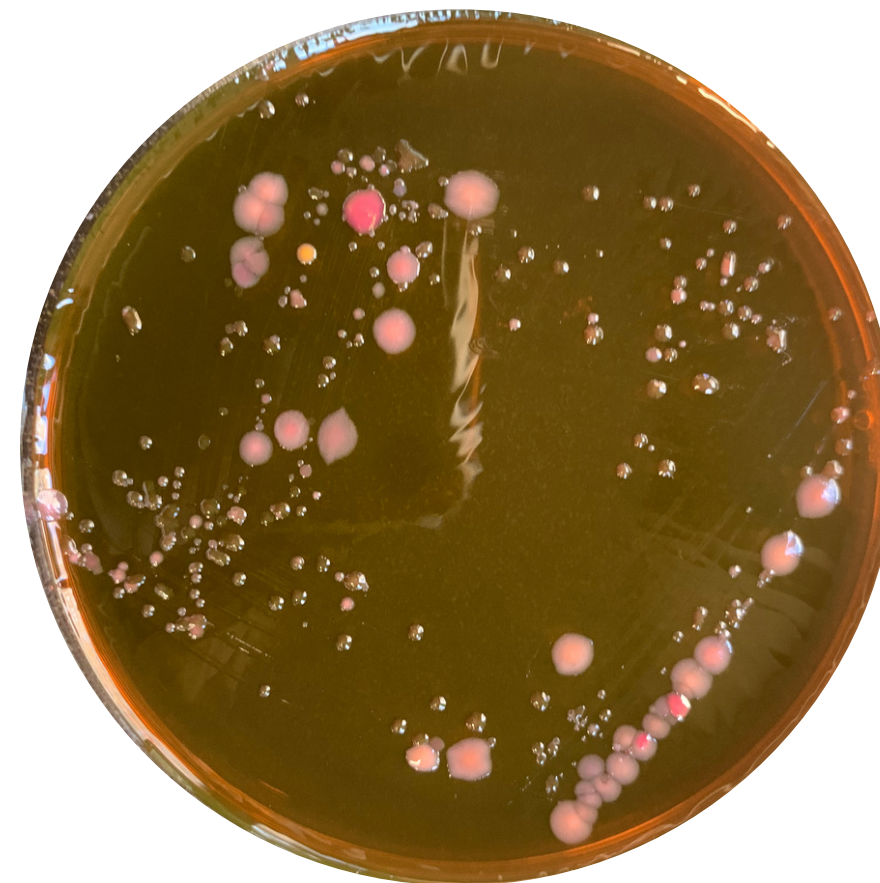


MSA

Selects for staphylococci,
which tolerate salt
Indicates salty soil

EMB

Selects for gram-negative
bacteria
Presense of enterobacteria



TSA

Nonselective
Presence of common soil
mycelium and
staphylococcus aureus

Soil Chemistry

	Jan 2023: Left + Right Garden Beds	Mar 2023: Right Garden Bed	Mar 2023: Left Garden Bed	Mar 2023: Boat Bed
pH	alkaline	alkaline	neutral	alkaline
Nitrogen	adequate	depleted	depleted	adequate
Potassium	deficient	depleted	depleted	sufficient
Phosphorus	adequate	sufficient	deficient	depleted

*March 2023 samples taken by first year MPH students Laura Baker and Ashley Ellis



Organic Matter

Nitrogen and phosphorus were diminished after two months. Use of organic matter encouraged macronutrient presence at onset, but use of a fertilizer with a higher nutrient content is indicated.



Salt Content & Potassium

Presence of staphylococci on MSA indicates higher salt content, consistent with tropical location. Potassium, which had also diminished after 2 months, is required in higher amounts for saline soils. Therefore, a fertilizer with a potassium content of at least 90.5 lbs/acre is recommended.

Implications for Community & Home Gardeners



Future Plans



- GRI Conference June 2023
- Grant Application:
 - Research & Applications for Social Change Grant (RASCG), Walden University: \$9,998 (**Granted**)
 - Alliance of Women Philanthropist (AWP) Circle of Giving Grant, The University of Tennessee Foundation: \$5,805.
 - The Catalyst Fund, Roddenberry Foundation
- Future MPH trips/PHE opportunity

Acknowledgements

Special thanks to Dr. Dawn Ford for mentoring us throughout our project, helping us apply and receive the Walden Grant, and introducing us to San Salvador!

Additional thanks to Dr. Henry Spratt for allowing us to use the microbiology lab and tools for our microbial ecology analysis.

Final thanks to Dr. Marissa McElrone for mentoring us in our PIE and ILE courses.

References

- Archer, L., Hogg, B. S., Perumal, V., Saunders, O., & Johnson, B. (2021). *A living wage for the Bahamas: Estimates, potentials, and problems*. *International Journal of Bahamian Studies*.
<https://journals.sfu.ca/cob/index.php/files/article/view/427>
- BRATHWAITE, BRATHWAITE, A., & TAYLOR, M. (2011). The Socio-economic Determinants of Obesity in Adults in the Bahamas. *West Indian Medical Journal*, 60(4), 434–441.
- Gregory, C., & Coleman-Jensen, A. (2017). Food Insecurity, Chronic Disease, and Health Among Working-Age Adults. <https://doi.org/10.13140/RG.2.2.22221.18404> [PDF]
- Karpyn, A., Headley, M. G., Knowles, Z., Hepburn, E., Kennedy, N., Wolgast, H. K., Riser, D., & Sarfo, A. R. (2020). Validity of the food insecurity experience scale and prevalence of food insecurity in the Bahamas. <https://doi.org/10.21203/rs.3.rs-23162/v1>
- LaMorte, W. (2019). Behavioral change models. The Health Belief Model. Doi: <https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/behavioralchangetheories2.html>
- Mackey, C., Dorsett, K., Lowe, C., Saunders, K., Frith, I., Williams, L., & Newbold, L. (2012). *San Salvador & Rum Cay*. Bahamas.gov. <https://www.bahamas.gov.bs/wps/wcm/connect/ff58f98e-b1eb-42d1-bd67-a6f3a361d27c/SAN+SALVADOR+2010+CENSUS+REPORT.pdf?MOD=AJPERES> [PDF]
- Sinha, D., Tandon, P.K. (2020). An Overview of Nitrogen, Phosphorus and Potassium: Key Players of Nutrition Process in Plants. In: Mishra, K., Tandon, P.K., Srivastava, S. (eds) *Sustainable Solutions for Elemental Deficiency and Excess in Crop Plants*. Springer, Singapore. https://doi.org/10.1007/978-981-15-8636-1_5
- University of Bahamas [UB]. (n.d). Gerace Research Institute 2019-2020 Handbook. UB. (2019). <https://www.ub.edu.bs/wp-content/uploads/2016/10/GRI-2019-2020-Handbook.pdf> [PDF]