St. Croix Poster Abstracts,
Albert A. Sheen Campus

Progression of Sorrel Wilt Disease During *Hibiscus sabdariffa* Production

STX-P1

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Hibiscus sabdariffa, known commonly as Roselle, is referred to as Sorrel in the Caribbean. The fall production of Sorrel was challenged by heavy amounts of rain, which induced a sorrel wilt disease caused by Fusarium and Phytophthora to spread among Sorrel plants. The objective was to monitor the rate of the sorrel wilt disease in a population of hybrid sorrel. Data was collected on five Sorrel lines over a 25-day period from October through November: 1xKR7, 1xKR8, 1xKR6a, 7X3R13 and 7x3R14. The wilt disease was first observed October 17th following substantially heavy rains the week prior. By November 10th, 1xKR7 had the least wilt disease with only 44% of the line infected, 75% of 7x3R13 was wilted and 97% of 7x3R14 was wilted. Line 1xKR7 was the most favorable line due to its lack of susceptibility to the diseases as well as a high flower number. In conclusion, heavy rains and wet soil promoted the wilt disease throughout the field. We found that 1xKR7 was the most resistant while line 7x3R14 was the most susceptible. This research is supported by USDA-NIFA Hatch and Insular Tropical Grant Funds.

Comparison of Nutrient Film Technique Hydroponics with Recirculating Aquaculture System Aquaponics at Two Feeding Rates

STX-P2

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Nutrient Film Technique (NFT) hydroponics and the Recirculating Aquaculture System (RAS) aquaponics are two soilless vegetable production technologies that can be used in the US Virgin Islands to intensify production on small plots of land and make good use of freshwater resources. NFT uses inorganic fertilizers to create a nutrient solution on which the plants feed. Aquaponics incorporates fish production in the system and the fish waste provides the nutrients needed for plant growth.

Three NFT and six RAS systems were used in this experiment. Each NFT system consists of 10 channels for production, a reservoir and a 1/6 hp sump pump. Channels were spaced 25 cm apart and each channel had 30 locations at 15 cm apart for seedling positioning. Each RAS system consists of a rearing tank, swirl separator and net tank for solids removal, two deep-water troughs for vegetable production, a reservoir and a 1/3 hp sump pump. Each trough has floating polystyrene rafts with holes spaced 25 cm x 15 cm to mimic spacing in the NFT system.

Lettuce seedlings of four varieties were transplanted into the systems and allowed to grow for 3 weeks. Several water quality parameters were monitored daily, pH, electrical conductivity (EC) and dissolved oxygen (DO), while an off-site laboratory weekly determined nutrient content. Fish were fed at two feeding rates of 60 g/m^2 or 100 g/m^2 per day in three systems each. Nutrients were supplemented in the NFT systems when EC dropped below 1.5 mS.

Using Scarification to Enhance Seed Germination Rate in Sweetpotato

STX-P3

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Sweetpotato (*Ipomoea batatas*), is a tuberous root crop that can be grown with three to four harvests a year in the Caribbean. Sweetpotatoes are normally propagated by cutting, while breeding uses seed production to develop new varieties. The research objective was to use scarification to shorten the length of time and enhance germination of hard coated sweetpotato seeds. Sweetpotato seeds were obtained from reciprocal crosses between varieties in an attempt to obtain a weevil resistant purple sweetpotato. A nail clipper was used to cut through one of the three edges of the sweetpotato seed. Scarified and un-scarified seeds were

planted in sterile potting mix and placed in a light and temperature controlled growth room. Data on rate of seed germination was recorded over time. Within four days 80% of the scarified seeds had emerged while none of the unscarified seeds had emerged. The germination of unscarified seeds ranged from one week to over 18 days. Scarification can be used to enhance the rate of the hard coated sweetpotato seed.

This research was funded by the USDA through the VI department of Agriculture Specialty Crops Block Grant program and the USDA-NIFA-Insular Tropical Grant.

Pitaya Floral and Fruit Development in the Virgin Islands

STX-P4

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Hylocereus undatus, pitaya or dragon fruit is a climbing winged cactus which is indigenous to the United States Virgin Islands and has a delicious sweet fruit. The plants normally flower from March through October. The goal of this research was to track flower and fruit development of three varieties of pitaya over time during late season floral development in November. Floral bud and developing fruit length and width were recorded. Data was analyzed and averages plotted in a graph over time. The results on the flower development was successful and can be used to predict flowering date and harvest date. The result on the fruit development wasn't as good due to heavy rains at night during anthesis causing fruits to abort. In conclusion the experiment was successful on floral development and will be repeated during the spring flowering cycle. This research is supported by USDA-NIFA Hatch, Insular Tropical Grant funds and USDA Specialty Crops Block Grant funds administered by the VI Dept. of Agriculture.

Evaluation of the Effect of Hot Iron Branding on Pen Score, Chute Score, Exit Velocity and Flight Distance in Young Senepol Cattle

STX-P5

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The objective of the study was to evaluate the impact of hot branding on behavior of Senepol heifers and bulls (n = 15/sex; 14 mo of age). Calves were evaluated 1 week prior to, at the time of and 1 week after branding for pen score (PS), chute score (CS), exit velocity (EV) and flight distance (FD). Data was analyzed using SAS (9.3) with sex, day and time relative to being in chute as the main effects. There was no difference in PS between bulls and heifers (1.2 ± 0.1 vs. 1.2 ± 0.1, respectively). PS on d 1 was higher than on d 7 or 14. Heifers had higher ($P < 0.002$) CS than bulls on d 1, but not on on d 7 or 14. There was no difference ($P > 0.10$) in EV between bulls and heifers. Heifers had higher EV ($P < 0.03$) on d 7 than d 1 with d 14 being intermediate but there was no difference in bulls ($P > 0.10$). There was no difference in FD between bulls and heifers or between day 7 and 14. These results show that Senepol cattle have a mild temperament that is not altered by branding.

Evaluation of the Effect of Hot Iron Branding on Cortisol Concentrations in Young Senepol Cattle

STX-P6

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The objective was to evaluate the impact of hot iron branding on plasma cortisol concentrations of Senepol heifers and bulls (n = 15/sex; 14 mo of age). Calves were evaluated 1 week prior to, at the time of and 1 week after branding. Plasma was harvested from blood samples, stored at -20 °C until assayed for cortisol by RIA. Free cortisol index (FCI) was determined as the ratio of total cortisol/CBG. Data was analyzed using SAS (9.3) with sex, week and time of sampling as the main effects. Cortisol was higher ($P < 0.0001$) in heifers than in bulls (101.44 ± 3.99 vs. 74.88 ± 3.97 nmol/L, respectively). In bulls cortisol was lower on d 7 compared to d 1 and 14 (50.97 ± 6.88 vs. 87.19 ± 6.88 vs. 86.48 ± 6.88 nmol/L, respectively) but there was no difference ($P > 0.10$) in heifers over time. Cortisol was lower ($P < 0.05$) in the pre-branding than in the post-branding sample (82.45 ± 3.99 vs. 93.87 ± 3.97 nmol/L, respectively). These results show that hot branding elicits a slight, acute cortisol response (13.8 % increase) in Senepol cattle but there was no residual impact 7 d after branding.

Biomass Studies of Ten Sweetpotato Varieties in the Virgin Islands

STX-P7

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Ten sweetpotato varieties were established in raised beds with drip irrigation on March 7, 2016 to evaluate biomass over time. The varieties included: 'B-14', 'Bonita', 'Charleston Scarlet'. 'Francia', 'Liberty', 'Murasaki-29', 'Ruddy', 'Toquecita', 'VIP' and 'White Jewel'. Harvest and data collection occurred at 18-day intervals up to 90 days and then 15-day interval to day 120. Tuberous root swelling was observed at day 54. 'Charleston Scarlet' had the greatest leaf/stem biomass of 892g DW at 105 days and the lowest was 'Toquecita' at 186g DW. Marketable tuberous roots were obtained by day 72, but at a low percentage. 'Toquecita' was the first to have jumbo sized tuberous roots by 90 days and 50% of the varieties had jumbo sizes by 105 days. 'White Jewel' had the most roots per plant at 120 days (6.6) while 'Francia' had the least (3.4). Weevil damage to roots was first observed in 'Toquecita' at 72 days and 60% of the varieties by day 105. By day 120, over 50% of the 'Francia' and 'Toquecita' roots were unmarketable due to weevil damage. 'Charleston Scarlet', 'Liberty', 'Murasaki-29', 'Ruddy' and 'White Jewel' had less than 10% of the tuberous roots damaged unmarketably by weevils at the 120 day harvest. This research is supported by USDA-NIFA Hatch funds and USDA through the V.I. Dept. of Agric. Specialty Crops Block Grant.

Population Distribution and Structure of Tropical Thorn Lily (*Catesbaea melanocarpa*) on St. Croix

STX-P8

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Catesbaea melanocarpa is a federally endangered thorny shrub in the Rubiaceae family. It is found only at one place on the island of St. Croix and not found on the islands of St. Thomas or St. John. There are

only two sites it grows at in Puerto Rico. The plant has fragrant white flowers and the fruit is a small black berry dispersed by birds. This species rarely grows in full sun. It prefers to grow in the shade of other trees. The purpose of this research is to map and describe the St. Croix population of *C. melanocarpa*. Existing plants were located and mapped with a GPS, then measured, and tagged. The study site is bisected by a road with visibly different plant communities on either side of the road. Using a random number generator, 30 plants on each side of the road were chosen. We recorded the predominant overstory tree species and measured the % of overstory shade. There is a statistically significant difference between the tree species found on the either side the road (p= 0.05). However there is no significant difference between % canopy cover measured with the densiometer (54% east side versus 61% west side, P=0.1458). The population structure of the west side differs from the east side in that there are many more juveniles (<50cm) than adult plants (≥ 100 cm) capable of flowering and fruiting. The east side has many more adults than juveniles. Total population as of 2016 is approximately 400 plants.

This research was funded by a grant from the U.S. Fish and Wildlife Service Foundation.

Evaluation of grazing behavior of hair sheep

STX-P9

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In order to make maximal use of available forages livestock need to spend adequate time grazing to meet their nutritional requirements. The objective of this project was to evaluate patterns of grazing behavior in hair sheep in the tropics. Non-pregnant, non-lactating mature St. Croix White (n = 10) and Dorper x St Croix White (n = 10) ewes were evaluated for 5 consecutive days each month to monitor location and activity in the pasture. Three times each day visual observations were conducted to record location, behavior and posture of the sheep. Data were analyzed using SAS with breed, week and time of day as the main effects. Ambient temperature was highest ($P < 0.001$) at mid-day. There were no breed differences in any trait measured. More sheep ($P < 0.0001$) were grazing in the late afternoon than in the morning or at mid-day (84.7 vs 13.2 vs 63.4%, respectively). Sheep were lying down more in the morning ($P < 0.0001$) than at mid-day or in the afternoon (86.8 vs.36.6 vs 10.9%, respectively). These results show that sheep graze more during the evening than during the hotter times of day and this can be used to develop management and feeding regimens.

Evaluation of the impact of environmental conditions on grazing behavior of hair sheep

STX-P10

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The environmental conditions in the hot humid tropics are not always conducive to livestock production. The objective of this study was to evaluate the impact of ambient conditions on grazing behavior of hair sheep ewes. Non-pregnant, non-lactating mature St. Croix White (n = 10) and Dorper x St Croix White (n = 10) ewes were evaluated for 5 consecutive days each month for a year to monitor behavior. Three times each day visual observations were conducted to record location, behavior and posture of the sheep. Ambient conditions were measured using an onsite weather station. Data were analyzed using SAS with breed, week and time of day as the main effects. Time spent grazing was negatively influenced by temperature ($P < 0.0008$) and solar radiation ($P < 0.04$) during the 60 minutes prior to observation in the morning. At mid-day only temperature during the preceding hour influenced grazing behavior ($P < 0.02$). In the afternoon

there was no influence of temperature on grazing behavior (P > 0.10). These results show that temperature during the morning and at mid-day can influence grazing behavior of sheep more than during the late afternoon.

Primary Macronutrient Dynamics of Sunn Hemp (*Crotalaria juncea* L.) Residue in Different Mulching Strategies for Organic Tropical Cropping Systems

STX-P11

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In tropical cropping systems, tillage is the primary means of field preparation and weed suppression that results in rapid soil nutrient depletion. The objective of this research was to evaluate the integration of cover crops and vegetable crops in reduced tillage and alternative mulching systems on cover crop residue nutrient dynamics. Sunn hemp (*Crotalaria juncea* L.) was planted on October 16, 2015 and terminated on January 11, 2016. Four treatments were arranged in a RCBD and replicated three times. Treatments included: 1) sunn hemp mulch (SHM), 2) sunn hemp mulch plus hay (SHM+hay), 3) sunn hemp mulch plus black landscape fabric (SHM+fabric) and 4) sunn hemp mowed and incorporated that served as a check plot (SH+none). Peppers (*Capsicum annum* L.) were transplanted into treatments on January 14, 2016. Litter bags containing fresh sunn hemp residue were placed within each plot relative to the location of that treatment's cover crop residue and were retrieved from the field at two week intervals for ten weeks. Following termination, total N and P content of sunn hemp residue was stable for the first six weeks and decreased in weeks eight and ten. Total C was lower in incorporated residue (SH+none) compared to all other surface mulch treatments indicating increased decomposition and nutrient release rates. Results indicate that the decomposition and subsequent release of primary macronutrients from SH residue are primarily influenced by time and treatment. Generally, the release of primary macronutrients from SH residue occurs between six and ten weeks after cover crop termination.

Mulching Strategies using Conservation Tillage for Weed Management in Tropical Organic Hot Pepper Cropping Systems

STX-P12

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Soil conservation and weed management are generally conflicting objectives in tropical organic cropping systems where tillage is the primary means for weed suppression. The primary objective of this research is to evaluate a holistic approach to soil conservation that provides weed suppression in tropical organic cropping systems. Sunn hemp (*Crotalaria juncea* L.) was established in experimental fields on October 16, 2015 and terminated on January 11, 2016. Four treatments were arranged in a RCBD split with two weed removal frequencies (1 and 3 weeks), and replicated three times. Treatments included: 1) sunn hemp mulch (SHM), 2) sunn hemp mulch plus hay (SHM+hay), 3) sunn hemp mulch plus black landscape fabric (SHM+fabric) and

4) sunn hemp mowed and incorporated that served as a check plot (SH+none). Sunn hemp mulch was generated using a no-till roller-crimper. Peppers (*Capsicum annum* L.) were transplanted into treatments on January 14, 2016. Above-ground biomass of sunn hemp at termination measured 3,717 kg ha-1 in field 1 and 4,367 kg ha-1 in field 2. Weed suppression at three and six weeks after pepper transplant was greatest for SHM+fabric. Low frequency weeding at three-week intervals was generally as effective as weekly weed removal resulting in similar pepper yields. Results indicate that soil conservation need not be compromised at the expense of weed suppression through the implementation of reduced tillage, integrated mulching strategies.

Growing Duckweed in Aquaponics

STX-P13

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The University of the Virgin Islands (UVI) Agricultural Experiment Station (AES) Aquaponics/ Horticulture program grew duckweed in 2016, as part of the student-grant program. The first objective was to determine the most appropriate nitrate (NO3) concentration to grow duckweed in, using fiber glass irrigation tanks; the second objective was to determine whether growing duckweed in UVI was feasible to substitute for a portion of the feed UVI purchases. This is a comprehensive analysis that will describe the process of growing and harvesting duckweed in UVI-AES, it will also include details of the process for the duration of this experiment, and state whether or not it is actually practicable to grow in UVI-AES.

Well-water was applied for the first treatment; it consisted of 800 gallons / approximately 1-foot of water. Rain-water was applied to the second. The nitrate quality was analyzed twice a week, and was also sent to a Georgia facility every Friday for further examination. What was determined was that the nitrate quality was stagnant throughout the experiment, and unfortunately the algae in the tanks was overpowering.

Trial: The trial began on February 2nd 2016, where I was required to harvest 2,400 grams of duckweed, to distribute into twelve irrigation tanks. The experiment was conducted over the period of two phases, the first used rain-water and the next well-water. This was done to see which phase would grow duckweed at an efficient rate. The treatments were divided into four groups of three: the tanks were labeled as (A, B, C, D [1,2,3]). 0.25 meters cubed (m3) of raw sludge, tanks B consisted of 0.5 m3, tanks C consisted of 0.1 m3, and tanks D consisted of 0.2 m3.

A major disadvantage encountered during the trial was the growth of algae. Algae and duckweed both need sufficient nitrate to survive. All twelve tanks formed algae growth, which was detrimental to duckweed growth.

Results: The results showed that among the best treatment among the four was tanks C. Tanks C grew the largest amount of duckweed, which average from 1,000-2,700 grams (g) of duckweed.

The Effect of Age, Race, Hispanicity, and Type of Neighborhood on Perception of Police Officers

STX-P14

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Police officers play an important role in the well-being and safety of local communities, and the effectiveness of their work is greatly impacted by the community's perception of them. Thus, the intent of this quasi-experimental research is to determine if age, race, Hispanicity, and type of neighborhoods have an effect on community perception of the police on St. Croix. A proportionate quota sample will be used for my race variable to ensure that there is a sufficient number of non-Black participants. The sample will be 94 Blacks and 30 non-Blacks. The instrument used will be the Perception of Police Survey (POPS), which consists of 12 questions that produce a single score along with additional demographic questions necessary to measure the independent variables. A factorial ANOVA test will detect if there are main effects or interactions between the variables. Public perception of police officers in the United States has become negative due to the killings of Blacks by White police officers who are on duty. This research will determine what factors influence perceptions about police officers and if these negative opinions exist in locales where the population and the police department are predominantly Black.

Improving the Knowledge, Attitudes and Detection of Depression by Care Staff in an Institution for Older Adults on St. Croix

STX-P15

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Misdiagnosis, lack of access, and under-treatment of depression in the elderly is a problem seen all over the world. Families and caregivers are often unaware of the symptoms and/or may be reluctant to have their elderly family member screened for depression. These elements have systemic effects on the individual and their family, reducing quality of life and ultimately increasing the cost of medical care. Research has not kept up with this need, especially in the African American and Afro-Caribbean communities. This study will attempt to ascertain if the professional training of caregivers in a residential facility for the elderly on St. Croix about depression in the elderly and in the use of a simple screening instrument can result in caregivers being able to accurately identify their elderly patients in need of referral for professional evaluation. This will be done by comparing the results of depression screening by care staff before and after training about depression and the use of Geriatric Depression Scale (GDS) against the screening done by a licensed and experienced psychologist. A 2 x 2 mixed ANOVA (time x assessor) will be conducted to determine if their training improved the accuracy of care staff's screen for depression. The study will also assess whether such training can improve the knowledge about depression and attitude of care staff about depression by pre- and post-training administrations of the Knowledge of Depression Scale and the Attitudes toward Depression Scale, respectively. Each of these will be analyzed using paired-samples t-test. If the training is found to be successful, recommendations will be made to the Virgin Islands Department of Health for implementation of the training package to family caregivers and staff of agencies that provide home health care to the elderly.

Stress, Burnout, and Mindfulness among Mental health professionals in the Virgin Islands

STX-P16

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The purpose of this study is to determine whether or not mental health professionals in the Virgin Islands use mindfulness as a way to cope with stress and burnout and, if so, how successful it is. The hypothesis states that there is no relationship nor pattern of causality among stress, burnout, and mental health professionals in the Virgin Islands. The participants include mental health professionals defined in this study as licensed clinical psychologists, licensed social workers, and counselors. The measures include the Perceived Stress Inventory (PSI), Maslach Burnout Inventory (MBI), and the 39 Five Facet Mindfulness Inventory. A path analysis will be used to determine whether or not the data for several variables in a nonexperiment fit an a-prior causal model; it is straightforward extension of multiple regression. It is predicted that mindfulness lowers stress and stress increases burnout. Year of experience in the profession is hypothesized to increase mindfulness and decrease stress. This research may be beneficial to the Virgin Islands if the model is confirmed because it will aid helping professionals implement a technique deemed fit to manage stress and burnout in their professional career and personal lives.

Do Healthy-Eating, Self-Efficacy, Body Fat, Spouse's Body Fat, and Ethnicity Predict Marital Satisfaction?

STX-P17

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The purpose for this research is to determine if healthy-eating self-efficacy, body fat, spouse's body fat, and ethnicity predict marital satisfaction. The current study will consist of 84 married adults conveniently selected in person at the University of the Virgin Islands and through Facebook. It is expected that participants will be from all over the world. Healthy-eating self-efficacy will be measured using the standardized instrument entitled Eating Self-Efficacy Scale by Glynn and Ruderman. Participant's body fat will be determined by the participant's report of his/her height and weight. Spouse's body fat will be based on the participant's estimate of his/her spouse's height and weight. This method has been used in prior research and found to be sufficiently valid. Ethnicity will be a simple question asking about whether the person is Hispanic or not Hispanic. Marital satisfaction will be operationally defined as the score on the Couple Satisfaction Index by Funk and Rogge. The statistical analysis that will be used will be multiple regression and bivariate correlation. This research will add to the body of knowledge about marital satisfaction because these four predictor variables have never been investigated in a single study.

Cardiovascular Fitness is Directly Related to Left Entorhinal Cortical Thickness in Healthy Young Adults

STX-P18

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Background: Structures in the medial temporal lobe (MTL) memory system show experience-dependent neuroplasticity. Within the MTL, this plasticity has been observed in the hippocampus (HC) in both humans and animal models. Specifically, rodent model studies have shown a positive correlation between voluntary wheel running and adult neurogenesis of the dentate gyrus subregion of the HC, along with neuroplasticity of the HC and entorhinal cortex (EC). The EC serves as the primary sensory input of the HC, and shares reciprocal connections with this structure. Previous work conducted by Whiteman et al. (2015) found that young healthy human adults showed a positive correlation between right EC volume and aerobic fitness (VO2 max). Here, we examine whether cardiovascular fitness predicts entorhinal cortical thickness and hippocampal volume in healthy young adults.
Methods: We used Freesurfer, a surface-based morphometric analysis method, to measure cortical thickness and brain subcortical volumes in a young adult cohort (n=29, 20-33 years). Using multiple regression, we first examined whether aerobic fitness predicts EC thickness. Second, we correlated VO2 max and cortical thickness and brain volume data with performance on cognitive tasks thought to be dependent on the EC and HC. Age, gender, and intracranial volume were used as covariates.
Results: VO2 max was significantly associated with left EC thickness ($F(4, 20) = 4.58$, $p < .01$, $R2 = .37$), but not with HC volume, holding age, sex, and intracranial volume constant. No significant relationships were identified for measures of spatial cognition and memory with EC thickness or VO2 max.
Conclusion: Consistent with our predictions and previous work, greater VO2 max was associated with greater left EC thickness. These data further support that cardiovascular fitness may be implicated in the experience-dependent plasticity of structures in the MTL, even in healthy young adults. This research lays the basis for an analysis of an exercise intervention in the same cohort of healthy young human adults after a 12-week program.

Characteristics of Sexual Assault Victims Who Seek Help at the Women's Coalition of St. Croix

STX-P19

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The main purpose of this study is to determine the demographics of sexual assault victims who have sought help at the Women's Coalition of St. Croix. Secondarily, information about the problem and recommendations to reduce the incidence of sexual assault will be obtained from key informants. The Women's Coalition of St. Croix serves victims of domestic violence regardless of their sex. Additionally, approximately one in four women and one in seven men are raped in their adult lifetime, which causes severe psychological distress and long-term physical health problems. The impact of sexual assault extends far beyond rape survivors as their

family, friends, and significant others are also negatively affected. Moreover, those who help rape victims, such as rape victim advocates, therapists, as well as sexual assault researchers, can experience vicarious trauma. This research will consist of a mixed method design; which has a quantitative and qualitative component. For the quantitative research, I will use a chi-square for goodness of fit to compare the demographics of the sexual assault victims (age range, income range, marital status, and gender identity) that are recorded on the Encounter Sheet completed by the staff upon intake at the Women's Coalition of St. Croix to the demographics of St. Croix from the 2010 Census to determine if the victims are different from the general population. According to the Women's Coalition, there were 80 reports of sexual assault between the years of 2010-2016. I will randomly select 30 deidentified Encounter Sheets to be analyzed. As for the qualitative design, key informants will be interviewed after the quantitative data are collected to get their opinion about the incidence, causes, remediation and prevention of sexual assault. Overall, this study is tremendously important when we evaluate the steady incline of sexual assault violence on St. Croix. As a society, we are responsible for at least spreading knowledge about sexual assault and safety to somehow prevent the crime.

The Response of Faith Leaders to Intimate Partner Violence in their Faith Communities

STX-P20

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Here on St. Croix, United States Virgin Islands, and perhaps in most parts of the world, intimate partner violence (IPV) is pervasive and potentially deadly. The faith community is not spared from this insidious attack and violation of a person's human rights. This qualitative research will use interpretive phenomenology to determine the response of St. Croix's Christian faith leaders to IPV against women in their faith communities. This study takes a closer look at the response of Christian faith leaders to IPV to understand their knowledge of IPV, the impact of their theological foundations on their attitudes and responses to female victims and male abusers in their faith communities, and to assess the level of their community partnerships. The study will utilize the yellow pages of the Innovative Directory to conduct a systematic random sampling in order to select at least ten participants or until data saturation is met. All participants must be English-speaking Christian clergy, at least 25 years old, and have been in that position for at least one year. An audio recorded face-to-face semi-structured interview comprising of 22 open-ended questions along with three demographical questions will be administered to each participant. The recordings will be transcribed and verified, coded using dedoose software before the themes and patterns are derived by the researcher.

The Effects of Drying on Antioxidant Activity

STX-P21

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Antioxidants are substances that prevent the free radical oxidation of compounds. Free radicals are highly reactive unstable compounds that can cause harm to the cells. Antioxidants can be found in many different sources, such as fruits, vegetables and plants. Antioxidant compounds provide the missing electrons to the free radical then reduce it back to its stable form. The purpose of this study was to measure and compare the Hydrophilic Antioxidant Activity (HAA) of fresh and dry plant samples. Five different plant samples were used from two locally grown gardens on St. Croix, US Virgin Islands, namely: *Laurus nobilis* (Bay Leaf), *Plectranthus amboinicus* (French Thyme), *Cymbopogon* (Lemon Grass), *Moringa oleifera* (Moringa) and *Carica papaya* (Papaya). Fresh plant samples were weighed and extracted in an aqueous phosphate buffer solution and dry plant samples were placed in the oven before extraction. The drop in absorbance of each sample was monitored on the UV-VIS Spectrophotometer. The antioxidant activity was expressed as μmol of Trolox equivalent per grams of dry weight (μmol TE/ g DW). We hypothesized that the HAA of dry plant samples would be higher those of the fresh samples. The results show that 3 of the 5 plants: *Carica papaya* (Papaya), *Cymbopogon* (Lemon Grass), and *Plectranthus amboinicus* (French Thyme) had a higher dry HAA than fresh HAA. *Carica papaya* (Papaya) had the highest dry HAA (1727.95±745.44) and *Moringa oleifera* (Moringa) had the lowest dry HAA (133.93±14.39).

Laurus nobilis (Bay Leaf) had the highest fresh HAA (477.47±23.83) and *Plectranthus amboinicus* (French Thyme) had the lowest fresh HAA (17.18±4.54).

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Antioxidant Research at UVI

STX-P22

***Bernard II Castillo**, Faculty, College of Science and Mathematics*

Antioxidants are substances believed to prevent the destructive oxidation of substances in the cell. Antioxidants recently have received much attention because of their potential health benefits. Studies have shown that antioxidants appear to be related to the prevention of degenerative illnesses, such as different types of cancer, cardiovascular and neurological diseases, cataracts and oxidative stress dysfunctions. Antioxidants can be found in food, plants, vegetables, fruits, etc.

We have investigated different substrates, namely, herbs, algae and local plants. We used a decoloration method that involves 2,2'-azino-bis-(3-ethylbenzthiazoline)-6-sulfonic acid (ABTS), H2O2 and horseradish peroxidase (HRP) to evaluate the antioxidant activities. The ABTS/H2O2/HRP method were used to quantitatively determine the hydrophilic (HAA) and lipophilic (LAA) activities. We used a UV-Spectrophotometer to obtain the absorbance, which is related to the amount of antioxidants in our substrates. The unit for antioxidant activity were expressed in μmol Trolox Equivalent (TE) per grams of dry weight of sample. We have conducted 10 different studies since 2014 and our studies have shown that, HAA values

were higher compared to LAA. Dried samples had higher antioxidant activities that fresh samples. This poster presentation features the different antioxidant projects conducted at UVI.

Population Dynamic Modeling and Control with Discrete and Continuous Models in Calculus

STX-P23

***Celil Ekici**, Faculty, College of Science and Mathematics*
***Christopher Plyley**, Faculty, College of Science and Mathematics*

We developed a series of inquiry based activities on modeling population dynamics using discrete and continuous methods in the calculus and discrete mathematics series for undergraduate students. The activities provided a cross-curricular thread across mathematics and science courses allowing students to develop deep connections between discrete and continuous approaches in the interdisciplinary context of the population dynamics focusing on locally relevant lionfish, sea-turtle, and conch populations. Students were able to develop deeper mathematical and scientific meanings and connections while they engaged activities using multiple mathematical representations and practicing 21st century skills: collaboration, communication, creativity, and critical thinking, in the context of population dynamics and control. We will share our results and future directions for interdisciplinary STEM learning with locally relevant projects.

Using Innovative Technologies to Measure the Development of Undergraduate Chemistry Students' Problem Solving Abilities

STX-P24

***Angie Estien**, Undergraduate Student, College of Science and Mathematics*
***Khadija O'Neil**, Undergraduate Student, College of Liberal Arts & Social Sciences*

Chemistry courses are generally taught using traditional lecture with a formulated method that does little to encourage critical thinking and problem solving skills. Research shows that students participating in blended learning environments experience increased engagement and ability to apply knowledge to solve real-world problems. However, studies have not been conducted to specifically investigate increases in students' cognitive development and engagement within a blended learning environment. This research study uses innovative technologies, more specifically, Tobii Eyeglasses, to assess the development of students' problem solving skills in an undergraduate chemistry course. Using the eye-tracking system, researchers collected data to quantitatively determine how students used the periodic table to solve nomenclature problems. The eye-tracking glasses allowed for researchers to collect real time fixation and area of interest data. Fixation and area of interest data reveal the amount of cognitive effort (or lack thereof) that students exert as they attempt to solve chemistry problems. The findings of this research are useful to informing the design of future distance learning chemistry courses and can aid chemistry faculty in directing students' attention to certain areas of the periodic table while solving chemistry nomenclature multiple-choice problems.

Funded by VI-EPSCoR through the National Science Foundation grant number 1355437.

Evaluation of Learning and Retention in Cellular and Molecular Biology Students at the University of the Virgin Islands

STX-P25

***Serena Joseph**, Undergraduate Student, College of Science and Mathematics*

The objective of the study was to evaluate the impact of learning and retention in Cellular and Molecular Biology students. The subject group consisted of junior and senior Marine Biology and Biology students (n=31). During the study on day 1 students were evaluated on what they knew before the course began. The evaluation was focused on concepts the students learned in Biology 141, Biology 142 and Genetics. The evaluations were used to give the instructor an idea of what students knew before the lecture of the course began. The lecture for the course was 50 minutes three days a week, with an additional 3-hour lab once a week. Reading assignments were offered 3 days a week on a virtual learning system (Blackboard). A total of 23 reading assignments and three biweekly exams were distributed. The exams consisted of eight multiple choice questions and four short answers. Short answers were not used to analyze students increase in learning and retention. The eight questions were replications of the questions on the reading assignments on Blackboard. The percentage correct for each question on the reading assignments were calculated to compare the percentage correct for each question on each exam 1-3. P values for reading assignments and exams were determined using a two paired mean T.test executed on Excel.

Preliminary analysis of the source data showed a trend that students did not demonstrate an increase in improvement pre- and post-exam 1 and exam 2. The percentages decreased from pre- to post-exam 1 and exam 2. However, on exam 3 students' performance increased.
The null hypothesis was rejected for exam 1 ($p=0.001$) and exam 2 ($p=0.0009$) for the T.test. The alternative hypothesis was favorable. Significance does exist. There is a significant decrease in improvement from pre-exam to post-exams. However, we failed to reject the null for the statistical analysis of exam 3 ($p=0.127$). There was no significance of improvement in comparison of pre- and post-exam 3.

Evaluation of 21 Cucumber Varieties for Downy Mildew Resistance in the Virgin Islands

STX-P26

***Augustus Laurencin Jr.**, Undergraduate Student, Cooperative Extension Service*
***Stafford Crossman**, Faculty, Cooperative Extension Service*
***Vanessa Forbes**, Staff, Cooperative Extension Service*
***Carlos Montilla**, Staff, Agricultural Experiment Station*
***Thomas Zimmerman**, Faculty, Agricultural Experiment Station*

The effect of Downy Mildew was studied on production of slicing and pickling cucumber grown in the United States Virgin Islands. Downy Mildew is a foliar disease leading to death of the plant and is caused by *Pseudoperonospora cubensis* (Berk. and Curt.). This research is essential for Caribbean farmers because cucumbers are a valuable commodity throughout the U.S. Virgin Islands and can be grown year round. Downy Mildew can be devastating to cucumber production during humid and wet weather. The objective of this project was to test 21 cucumber varieties, 7 pickling and 14 slicing, that were bred to be resistant or tolerant to Downy Mildew. The study was conducted during the fall rainy season. The experimental design was randomized complete blocks

with three replications. There were 15 plants per row, spaced 1 foot within rows and 4 feet between rows. Leaf damage from Downy Mildew was measured on a scale of 1-6 and was observed at every harvest. The results indicated that slicing cucumbers were the most tolerant to Downy Mildew based upon production. 'Summer Dance' had the highest total yield and marketable yield of the slicing varieties. 'Vlasstar' produced the most fruits of the pickling varieties and 'Diamant' had the highest yield of marketable fruit. This research was funded by the USDA through the V.I. Dept. of Agriculture Specialty Crops Block Grant.

Individualized Math Progress Map

STX-P27

***Cigdem Alagoz**, Faculty, School of Education*
***Celil Ekici**, Faculty, College of Science and Math*

Three-fourths of our students come to college under-prepared, needing to be placed in a series of developmental mathematics courses to get them prepared for college level mathematics courses (NCPPHE & SREB, 2010). Building strong mathematical foundations for these students is highly critical for their access to STEM majors and careers and developing 21st century skills. It is also often the case that about 50% of these students repeat these developmental math courses. Correct placement of students into developmental math course sequence is associated with an increase in students' degree attainment, and success. (Kristen, Melguizo, & Prather, 2015). Resulting from the lack of an effective assessment and placement procedures, students with similar ability levels are placed into different level courses (Melguizo, et al, 2014). This study is motivated by the promise of a recent development in psychometrics in providing more information about students' knowledge states and proposes a new method to place students into developmental math course sequence by analyzing the Math Placement Assessment with these recently developed Diagnostic Classification Models (Rupp, A., Templin, J., & Henson, R., 2010). Furthermore, it is hypothesized that these DCMs have the potential to be a step to model and calculate individualized detailed learning progression.

Measuring Project-Based Learning in a STEM Classroom

STX-P28

***Annette Isaac**, Graduate Student, School of Education*
***Cigdem Alagoz**, Faculty, School of Education*

United States achievement scores are lagging behind compared to other countries. There have been initiatives to support transformation of the educational system and increase emphasis on STEM education. Classrooms need to become more relevant to the real world, and incorporating 21st century skills is essential. As today's students face higher expectations in both school and the workforce, 21st century skills help to prepare students for what they will need to know and be able to do in school and college, at work and throughout all aspects of personal and civic life. This study investigates the impact of project-based instruction on students' learning and 21st century skills on a 9th grade science classroom. The study adopts 21st century skills assessment tool to measure the student growth.

World Events and the Modern-Day Teacher

STX-P29

***Fatima Yusuf**, Undergraduate Student, School of Education*
***Cleone Lynch**, Undergraduate Student, School of Education*

In the world of current events, whose side are you on? How do you respond to students in the classroom asking and presenting information about the world we live in today? Every day, history is made. There is a broad scope of current events that is taking place right now, from #BlackLivesMatter, the Muslim ban, LGBT movement, and others. It is our belief that preservice teachers in the Virgin Islands do not feel prepared to approach the reflections of current events in K-12 classrooms.

Our research will utilize surveys to collect data from preservice teachers about their beliefs on the matter here at the University of the Virgin Islands, St. Croix campus. Based on this data, we will report average belief scores. These results will allow us to investigate the data, evaluating trends and approaches for the classroom environment.

Pre-Service Teachers' Perceptions and Attitudes of Inclusion

STX-P30

***Taliah Bryan**, Undergraduate Student, School of Education*
***Dian John-Brown**, Undergraduate Student, School of Education*
***Lenay Brooks**, Undergraduate Student, School of Education*
***Cigdem Alagoz**, Faculty, School of Education*

Inclusion in education is teaching students with and without disabilities in the same classroom. To provide a successful inclusive early childhood education for all, teachers need to be trained and supported. Teachers need to feel competent in addressing the needs of all the children in the classroom. In this study, we investigated the perceptions and attitudes of pre-service teachers about successful inclusive early childhood education. The study will describe the inclusive early childhood teacher education preparation program. In-service teachers who are also students at UVI will be interviewed about their practical concerns in inclusive early childhood education. Their insights on the practical problems and the appropriateness and usefulness of the preparation program's trainings will be reported.

Homicide in the VI: Hispanicity of the Victim, Seasonality of Homicides, and Modus Operandi

STX-P31

***Rakeem Gumbs**, Undergraduate Student, University of the Virgin Islands*

Although, according to the literature, Hispanicity and seasonality can influence crime and some weapons are more likely to be used, little or no empirical research has been done to investigate these variables within the U.S. Virgin Islands. The purpose of this study is to determine if Hispanics are more likely to be murdered than non-Hispanics, which months have the higher homicide rates than could be expected by chance, and what weapons are more likely to be used.

This study, based on secondary data from the Virgin Islands Police Department's database of homicides in the Virgin Islands from 2000-2015, will utilize a quasi-experiment strategy to answer these questions. I will report the percentages of each categories for the variables. I am going to use three chi-square tests for goodness-of-fit: (1) to compare the frequency of Hispanic victims and non-Hispanics victims to the expected frequency based on the 2010 census; (2) to determine which months have more homicide than would be expected by chance; and (3) to find out what weapons are more likely to be used. This research will give the U.S. Virgin Islands insight into which ethnicity, months and weapons are most likely to be involved in homicides.

Adverse Childhood Experience and the Perpetration of Domestic Violence

STX-P32

***Jana Austrie**, Undergraduate Student, University of the Virgin Island*s

The purpose of this study is to investigate the extent to which adverse childhood experience impacts perpetration of domestic violence in St. Croix. Adverse childhood experience plays a role in the development of chronic mental and physical diseases in adulthood. These experiences include adversities such as emotional and verbal abuse, sexual abuse, physical abuse, and household dysfunction. The role of adverse childhood experience in perpetration of domestic violence has been explored; however, it has never been explored here in St. Croix. The research question is: "Is there a difference in adverse childhood experiences between domestic violence perpetrators and those who have not perpetrated domestic violence?" The Adverse Childhood Experiences Survey (ACES), a retrospective measure of adverse childhood experiences, will be administered to individuals who have been court-ordered to attend anger management programs at the Men's Coalition for domestic violence and individuals who have not attended anger-management programs. The score on the ACES will be operational definition of the predictor variable. The operational definition for domestic violence perpetration is court-ordered anger management training; thus, domestic violence perpetration is binary. Binary logistic regression analysis will be used to determine whether variation in childhood adversity can predict perpetration of domestic violence.

Accuracy of Parents' Prediction of their Children's Knowledge of Firearm Safety in the Virgin Islands

STX-P33

***Kahadijah Guy**, Undergraduate Student, University of the Virgin Islands*

There are two purposes of this study. Firstly, assess the knowledge of firearm safety among children. Secondly, compare the child's knowledge of firearm safety with their parent's prediction of their knowledge. The participants will be selected from the Boys and Girls Club at both sites within the St. Croix district. A total number of 30 youth, aged eight and older, and their parents will be surveyed. The participants will be selected based on availability and convenience after the age requirement is met. After completing the survey, the children will be shown a video on firearm safety from the National Rifle Association. The predictor variables for the first part of the experiment are age, gender, grade and location site (Frederiksted and Christiansted)

and the outcome variable is knowledge of firearm safety. The children's knowledge is based on one question from Baxley (2006) and their answers will be assessed using a Chi-Square for Goodness of Fit. To see if there is a relationship between age, gender, grade and location with their knowledge, a chi-square test for independence will be conducted. For the second part of the experiment, the child's knowledge and their parent's prediction of it will be compared using Cohen's Kappa to test interrater reliability between the parents of the respected children within the after-school program. This study is very important as firearm violence among children is a tragedy. As a society we, the adults, are responsible for teaching our children about firearm safety. Parents, from time to time, are oblivious to the amount of knowledge about firearms their children have.

Behavioral Patterns of the Index of Non-Repetitive Sequences

STX-P34

***Chanae Ottley**, Undergraduate Student, University of the Virgin Islands*

The study of sequences of group elements which sum to zero has numerous applications in game theory, cryptography, and graph theory. For example, the determination of Davenport's Constant is one of the most important unsolved problems in finite group theory. If a sequence contains no repetition, Olson's Constant (denoted *Ol(G)*) is the analog of Davenport's Constant, defined as the minimal integer *k* such that every sequence of length *k* has a zero-sum subsequence. Even for Zn (the integers under addition modulo *n*), the value of *Ol(Zn)* is only known when $n<65$. If *S* is a zero-sum sequence in Z_n, then the index of *S* is the minimal integer multiple of *n* that *S* may be made to sum to under group automorphism.

It is an open question to determine the minimal integer *k* such that every sequence of length *k* has a zero-sum subsequence with index 1. In this project, we determine this value (denoted by T(*n*)) for all $n<40$ by using a combination of brute force hand calculations and by utilizing a computer program specifically written for our problem. Our data suggests that the value of T(*n*) is likely closely linked to the value of *Ol(Zn)*.

This research was funded by National Science Foundation/ HBCU-UP under grant no.1137472.

Total Antioxidant Activity in Locally Grown Virgin Island Plants

STX-P35

***Torhera Durand**, Undergraduate Student, University of the Virgin Islands*

Antioxidants have been portrayed as substances that are greatly beneficial to human health and are widely used in a number of cosmetic and nutritional products. Antioxidants work to quench the formation of free radicals, thus preventing cellular oxidation and the formation of certain illnesses like cancers, degenerative and cognitive illnesses, and the effects of aging. In nature, antioxidants can be found in a number of products, including, but not limited to, fruits, vegetables, and herbs. The purpose of our research was to determine the Total Antioxidant Activity in locally grown Virgin Islands plants (St. Croix, USVI) and to determine which plant had the highest Total Antioxidant Activity. Total Antioxidant Activity can be obtained from the

Hydrophilic Antioxidant Activity (HAA) and the Lipophilic Antioxidant Activity (LAA). We hypothesized that for each of the plants tested the HAA would be greater than that of the LAA. Six locally grown plants were tested, *Laurus nobilis* (Bayleaf), *Moringa oleifera* (Moringa), *Carica papaya* (Papaya), *Cymbopogon citratus* (Lemon Grass), *Capsicum anuum* (Bell Pepper) and *Plectranthus amboinicus* (French Thyme). The antioxidant compounds for all six plants were extracted in aqueous and organic solutions for the HAA and the LAA, respectively. The antioxidant activities were measured using the ABTS/H2O2/HRP decoloration method using a UV-Visible Spectrophotometer at a wavelength of 730 nm for 5 minutes. The resulting antioxidant activities were expressed as (µmole Trolox Equivalent per gram dry weight). For all of the plants tested the HAA was generally higher than the LAA. Laurus nobilis (Bayleaf) had the highest Total Antioxidant activity (504.02 ± 36.17 µmole Trolox Equivalent per gram dry weight) while Plectranthus amboinicus (French Thyme) had the lowest Total Antioxidant Activity (31.86 ± 5.34 µmole Trolox Equivalent per gram dry weight). This lead to the acceptance of our hypothesis that the HAA would be greater than that of the LAA, and our findings promoted the consumption of *Laurus nobilis* for the greatest intake of antioxidants among the six plants tested.

This research is funded by NIH MBRS-RISE Grant #GM061325.

The Prediction of Childhood Emotional and Physical Neglect from Birthplace, Gender, and Hispanicity

STX-P36

***Kennisha Grant**, Undergraduate Student, University of the Virgin Islands*

The purpose of this research is to examine the relationships among childhood emotional and physical neglect and birthplace, gender, and Hispanicity. It is known that childhood maltreatment occurs among some families in all groups. However, one's birthplace, gender and Hispanicity might make one at higher risk for physical and emotional neglect. This study is based on secondary data from Wallace-Berube's master's thesis. Data were gathered from 179 adolescents in 9th through 12th grade who attended public, private, and parochial schools in St. Croix, United States Virgin Islands. The youth answered several demographic questions that I will use as predictor variables. There were four options for birthplace: born in the U.S Virgin Islands, born in the United States, born on another Caribbean Islands or other. Gender had two options: male and female. Hispanicity was a yes or no answer to the question "Are you Hispanic?" The outcome variables will be derived from the Childhood Trauma Questionnaire (CTQ). Although the CTQ measures five types of childhood maltreatment, I will focus on the scores from two subscales: emotional and physical neglect. The data from Wallace-Berube will be analyzed by two multiple regression equations to see if these three demographic variables significantly predict my outcome variables.

Age, Gender. Ethnicity, Body Fat, Income, and Types of Diabetes as Predictors of Blood Glucose Level

STX-P37

***Paulette Toussaint-Jarvis**, Undergraduate Student, School of Nursing*

The purpose of this study is to determine the relative contribution of age, sex, body fat, ethnicity, income, and types of diabetes to blood glucose level. A review of the literature showed that some researchers studied the relationship of age, gender and body mass index, and others studied age, gender and socioeconomic status, but none of the studies looked at all six predictor variables together. Looking at all six variables together will give more insight on how each of the predictor variables can contribute to blood glucose levels. The survey will include 90 participants 18 years and older with diabetes, who are inpatients at the Governor Juan F. Luis Hospital and Medical Center. The participants in the study will be selected based on the quota sampling of 45 males and 45 female participants. The predictor variables are age, gender, body fat, ethnicity, income, and types of diabetes. Hispanicity and income level will be self-reported, but age, gender, body fat, type of diabetes and the outcome variable of blood glucose level will be obtained from the medical records. The results of this study will be beneficial to nursing practice by including all the predictor variables in this study in patient assessment, not just the common risk factors of age, gender, and BMI for the diabetic patient. This study will also add to the body of knowledge on diabetes by expanding on existing research and closing an identified gap in the literature. Permission was given by the Acting Chief Nursing Officer (CNO), of the Governor Juan F. Luis Hospital and Medical Center to conduct the study on Intensive Care Unit and the Progressive Care Unit. The nurse manager will access the medical records and provide the researcher with the data. Results of the study will be analyzed with SPSS using a multiple regression test.

The Effect of Domestic Violence on Preschoolers in the USVI

STX-P38

***Martha Nelson**, Graduate Student, University of the Virgin Islands*

Domestic violence seems to be a great concern in the U.S. Virgin Islands. It affects adults and children. Domestic violence is abusive behavior against family members which also affects young children at an early stage of their development. Children who witness domestic violence in their preschool years usually behave abusively in the classroom and in the community. Domestic violence has negative connotations on children; it impacts every aspect of their life, such as language, social, emotional and cognitive skills. Domestic violence is disgraceful; it brings shame and embarrassment to everyone. Young children who witness domestic violence in their homes or in the community, may not have positive relationships with friends and family. They may not respect authority and might become juvenile delinquents, especially boys. Young children may experience fear, pain or anger which sometimes causes them to react negatively, by hitting, fighting, biting, scratching, pinching, spitting on others and throwing temper tantrums.

Toxic Heavy Metal Determination

STX-P39

***Steve Lawrence**, Graduate Student, VI Institute for STEM Education Research & Practice/VI EPSCoR/College of Science & Mathematics*
***Dante James**, Undergraduate Student, University of the Virgin Islands*

Are there any toxic heavy metals present in the water and soil samples at the various bin sites located on St. Croix, U.S. Virgin Islands? That was the driving question behind this student lead research project. Samples were collected from several bin sites and analysed using two test methods. Later, an improved and optimized procedure from Osumex was employed to extract the toxic metal ions and test them with a do-it-yourself kit. Soil samples were collected using a more systematic approach. Based on the analysis of the soil and water samples, my students were to put forth recommendations as to what can be done at the bin sites based on the data collected during their investigation.

Critical Study and Community Based Approaches to Lionfish Problem for a Culturally Responsive STEM Education in the Caribbean

STX-P40

***Nora Santana**, Undergraduate Student, VI Institute for STEM Education Research & Practice/VI EPSCoR/College of Science & Mathematics*
***Risa Gordon**, Undergraduate Student, VI Institute for STEM Education Research & Practice/VI EPSCoR/College of Science & Mathematics*
***Ismael Rosado Jr.**, Student, VI Institute for STEM Education Research & Practice/VI EPSCoR/ College of Science & Mathematics*
***Celil Ekici,** Faculty, College of Science and Mathematics*

Over ten years the invasion of lionfish in the Caribbean is a growing threat to the ecology of tropical and subtropical marine areas of the Wider Caribbean. Lionfish caused damage, direct and indirect, to coral reefs, sea grasses and mangroves, due to their high rate of reproduction and growth, its voracious feeding capacity and the lack of predators. This study requires a complex system approach even if they are controlled in one area they are still aggressively reproducing in another area. An interdisciplinary collaborative action research team is formed to support and provide critical examination of lionfish problems and its solutions as an integrated STEM project in schools. Students from St. Croix Educational Complex High School and Central High School are continually informing the public about the impact that lionfish are causing to the fishing and marine ecotourism. Students are doing research to address the problems in which the lionfish are causing and finding ways to introduce the lionfish to the culinary market. The students also started a campaign which aims on finding solutions to the problem of the overpopulation of lionfish.

Highlights - Bioluminescent Mangrove Lagoon, St. Croix USVI

STX-P41

***Kynoch Reale-Munroe**, Part-time Faculty, College of Science and Mathematics*
***James Pinckney**, Faculty, University of South Carolina*
***Dianne Greenfield**, Faculty, University of South Carolina*
***Carmelo Tomas**, Faculty, University of North Carolina*
***Chad Lane**, Faculty, University of North Carolina*

Bioluminescent bays and lagoons, also known as biobays, are rare, natural phenomena. One such biobay, Mangrove Lagoon, is located within Salt River Bay National and Historical Park and Ecological Preserve, St. Croix, U.S. Virgin Islands. Little was known about Mangrove Lagoon besides the vibrant displays of light that were observed when the water was agitated, which made it a very popular eco-tourism destination for locals and tourists alike. Over the course of four years, collaborative studies were conducted to better understand this unique ecosystem. *Pyrodinium bahamense*, a dinoflagellate, was found to be the primary species creating the bioluminescence. A new dinoflagellate species was discovered, *Coolia santocroce*. Measured water quality parameters were generally found to be typical of healthy tropical lagoons. No correlations between nutrient concentrations and dinoflagellate blooms were observed. The water residence time was found to be low and the inlet to the lagoon was filling in from natural deposition. The findings from these studies have provided insight into factors governing bioluminescence in Mangrove Lagoon.

St. Croix Roundtable Abstracts,
Albert A. Sheen Campus

Psychologists' Experience with Presentation of Intergenerational Trauma Due to Slavery

STX-R42

***Audrey Laban**, Graduate Student, College of Liberal Arts & Social Sciences*

The purpose of this study is to research the perspectives and the treatment approaches of licensed psychologists practicing on the island of St. Croix for intergenerational trauma due to slavery. This study is to address concerns about treatment of trauma due to slavery occurring within the St. Croix community, which has similar characteristics to a rural community where the ethical dilemmas of dual relationships and confidentiality may present challenges for psychologists who provide counseling to people who may need this service, and where attitudes toward seeking professional counseling may present an additional obstacle, as well as psychologists' self-care and vicarious traumatization. The proposed methodology for this study is a phenomenological approach within a qualitative research strategy in which the data collection will be gathered from up to 10 participants during standardized interviews consisting of open-ended questions to gain insight into the treatment of intergenerational trauma due to slavery and how the treatment affects the therapists. The audio-recorded interviews will be transcribed to allow coding and identifying themes for qualitative description and interpretation.