

U.S. Virgin Islands (University of the Virgin Islands)

Plan of Work for 2023-2027

Status: Final (Approved 9/19/2022)

Executive Summary Overview

St. Croix, St. Thomas and St. John comprise the primary inhabited U. S. Virgin Islands (USVI), consisting of 68 islands and cays located in the Caribbean. The USVI is an incorporated territory of the United States, located 1,075 miles east/southeast of Miami and 50 miles east of Puerto Rico. Christopher Columbus named the islands in 1493. Settled by Denmark in the 17th century, they were purchased from the Danish Government by the United States in 1917.

St. Croix, forty miles south of St. Thomas, is the largest island - approximately 84 square miles displaying topography, which is flat, compared to St. Thomas and St. John. Christiansted and Frederiksted are the two main towns of St. Croix; both are noted for their architectural quality and historical significance. Christiansted was the former Danish West Indies capital. St. Thomas, where Charlotte Amalie, the Territory's capital is located, is approximately 32 square miles and is well known for its mountainous terrain and excellent harbors. Three miles east of St. Thomas, St. John is approximately 20 square miles; and two-thirds of this island has been designated a U.S. National Park. The U.S. Virgin Islands are semiarid, subtropical islands marked by easterly tradewinds, which provide a nearly constant breeze and alternating periods of drought and heavy rain.

The territory of the U.S. Virgin Islands remains in a very precarious condition. The COVID-19 pandemic has been transitioning to endemic but the negative effect on the economy continues. The mainstay of the economy, the tourism industry, is planning for a rebound in the number of cruise ships visits to the Territory in the upcoming season. The airline industry is also anticipating increased airlift to the territory. There has been some easing of the mandates to reduce the spread of COVID-19, which previously had an adverse effect on the leisure/hospitality sector. The major hotels in the Territory are still trying to reopen from the 2017 hurricanes. However, the Territory's outlook is improving. The Territory is still benefitting from the influx of substantial federal funds.

Schools are now reopened for face-to-face instruction with minimal restrictions.

The new UVI School of Agriculture has combined UVI's Agricultural Experiment Station and Cooperative Extension Service and the new academic teaching unit to expand and strengthen the University's Land-Grant mission. The School of Agriculture expects to conduct the planned programs for all the critical issues. We anticipate that our stakeholders and clients will continue to be dependent on us for services, and we will respond using a variety of methods that will rely heavily on online platforms and formats. We will devise strategies to overcome issues such as the digital divide in order to level the playing field and make the delivery of our programs available and accessible to all stakeholders. Poverty continues to be a critical issue facing the USVI and the need to create jobs is a major priority. Most teen parents are

unmarried, have not graduated from high school, and are unemployed. A growing number of families with children in the territory do not have adequate financial resources. Changes in family structure with more mothers having to work to supplement their families' incomes increase the need for community support of families. It is essential that we provide programs that will assist families in dealing with the multiple stresses they face in the community.

The results of the 2020 population census for the Virgin Islands showed a reduction in the population to 87,146 (compared to the 106,405 for the 2010 census). The closure of the oil refinery, followed by the Category 5 hurricanes of 2017 then the COVID-19 pandemic consecutively contributed to many Virgin Islanders leaving the Territory and relocating to the United States. The census data that has been released to date is limited and more information, including the economic data, is expected in October 2022. It is anticipated that the socioeconomic woes would have changed very little. Low incomes and inflation continue to contribute to a largely starch-based diet resulting in one of the highest incidences of obesity, high blood pressure, heart disease, and diabetes in the nation. Special assistance programs support children, youth and families in need. A significant percentage of children, birth to age 4, receive WIC (Women, Infants and Children) and (Virgin Islands children, ages 0-18) SNAP benefits. The territory's socioeconomic status and low family incomes qualify all public school youth to receive School Breakfast and School Lunch at no cost regardless of reported family income.

In the USVI, positive youth development is optimally attained using the traditional 4-H community club model, however, in-school clubs and special interest programs are growing in popularity providing shorter-term, targeted opportunities for both youth and adults to explore specific interests. Well-trained, highly motivated staff and volunteers remain the single most important factor in establishing strong, vibrant 4-H clubs and day camp programs. A regular, structured orientation and training program for staff and volunteer leaders is necessary to support vibrant, innovative and engaging 4-H clubs, programs, events and activities that routinely feature the key characteristics of positive youth development - competence, confidence, character, connection and caring.

Closer collaboration of the School of Agriculture programs with other UVI components will allow us to more effectively and efficiently train and support our clients. Partnering with local Departments of Education, Agriculture, Labor, Human Services and other government agencies will assist in marshaling critical resources. In addition, joining forces with community-based organizations will allow us to multiply our efforts.

The critical issues in the Plan of Work are structured to deal with the problems facing the USVI community. The UVI Strategic Plan placed emphasis on leadership and excellence in academics, research and public service for UVI to become a beacon for community engagement and outreach with research-based, data-driven, and proven strategies. Research Centers will be responsive to the community, regional, and national demands by providing relevant research and engagement opportunities. These are priorities of the University; thus, our programs have been developed to address the critical issues facing the USVI community.

Our Research and Extensions Programs have been developed to target all our stakeholders. A long tradition of agriculture in St. Croix provides an ideal location for our research mission. Basic and applied research will be conducted to meet the needs of the local agricultural community in increasing production, improving efficiency, developing new enterprises, preserving and propagating germplasm unique to the USVI, and protecting the natural resource base. The research activity areas are

agroforestry, animal science, aquaculture, biotechnology, forage agronomy and vegetable crops. We have consolidated programs where applicable. This consolidation has been made to maximize program efficiency. Our nutrition programs have been consolidated to address the problems of obesity, hypertension, diabetes and other diseases caused by poor nutrition. Our food safety and EFNEP programs have been combined to address the occurrences of food-borne illness and outbreaks in the USVI so that food-borne illness does not become a menace to the health of the population. There will be workshops, classes, and demonstrations targeting low-income audiences, seniors, and school-aged children. The School of Agriculture programs will maintain partnerships with various departments of the local government and other organizations to successfully administer these programs. Response to COVID-19 has been integrated into outreach programs.

Our vision is to generate information that leads to improved agricultural practices in the USVI and the Caribbean Region by conducting scientifically based agricultural research. Our programs will be increasingly influenced by the needs of the public and the farming community and by research conducted by other agricultural research institutions in multistate projects. Using new technologies, the research results will be widely disseminated to farmers and the local community. Through science-based conferences and journals, our research results will be made available to the national and international scientific communities. Because of our small size and limited scope of programs, our research tends to focus on locally relevant topics. A more equitable distribution of human resources has been undertaken to provide each program with adequate support staff to conduct their research and outreach activities. Research and Extension Programs will empower the U.S. Virgin Islands to meet its full potential as we work to provide opportunities to create, learn, study and grow in a dynamic, flexible environment where quality, relevant research and outreach are used to meet the needs and challenges confronting the territory's residents.

Merit and Scientific Peer Review Processes

Agricultural Experiment Station (AES) faculty participate in five multi-state research projects all of which address issues that are of concern to our stakeholders as evidenced by input obtained from our School of Agriculture Advisory Board (SOAAB), as well as our formal and informal contacts with producers, students and other faculty.

Issues brought up by stakeholders are evaluated within the Agricultural Experiment Station to determine the feasibility of developing research projects to address those issues. If funds can be obtained and the project is relevant to a wide section of the community, then it would be incorporated into the research plan within the appropriate program. Sometimes this can be done by including it in a new or existing Hatch or multistate research project. If it is not suitable for that support, then scientists try to see if they can identify another funding source and submit a grant application to conduct the research.

Scientists submit proposals to the Associate Director to ensure the projects are aligned with the University strategic plan, the School of Agriculture Mission and Vision, and NIFA strategic goals and Critical Issues. The Associate Director sends the proposal to at least three individuals qualified to review the proposal. These individuals can be within or external to the University community.

Research results are shared with the community through seminars, workshops and training sessions coordinated with the Cooperative Extension Service (CES). Attendance is monitored and follow-up is conducted by Cooperative Extension Service staff.

In order to guide resource allocation and programming decisions; Cooperative Extension Service staff, School of Agriculture Advisory Board members, and other stakeholders such as, community representatives, university colleagues, and federal and local government entities weigh in on what is most needed by residents to increase their self-efficacy and resiliency. After programs are developed and delivered, evaluation provides information, which guides future program offerings.

Programs developed by Cooperative Extension Service agents and specialists are sent to the Assistant Directors for approval and submission to the Associate Director for input and budget allocations. The programs are then forwarded to the Dean and Director for review and approval before being shared with the School of Agriculture Advisory Board for input. The programs are then shared with relevant Commissioners/Directors in the Virgin Islands Government for comments/input. The final programs are sent to the Dean and Director for implementation.

All programs are advertised to encourage participation of the underserved/underrepresented populations. Program activities are held primarily in the evenings and on weekends to accommodate the needs of clientele. Special efforts are made to increase the membership of underrepresented racial/ethnic minority group members into structured 4-H/Youth and family community clubs, and special interest groups.

To reach the greatest number of clientele and maximize our resources, we collaborate with other government and private agencies in coordinating program activities. These collaborations make the School of Agriculture more efficient in reaching their target audience, leveraging more resources to cover more activities and enhance program delivery. These joint efforts also provide a holistic approach to our planned programs thus making them more effective.

The UVI new Strategic Plan entitled Greatness Through Innovation, focuses on leadership and excellence in academics, research and public service. The School of Agriculture's Agricultural Experiment Station and Cooperative Extension Service planned programs are consistent with the University plan and mission.

Stakeholder input: Action Taken to Seek Stakeholder Input

Due to the small geographic area of the U.S. Virgin Islands, Agricultural Experiment Station scientists work closely with the local agricultural community, which fosters considerable communication and responsiveness to farmers' needs. U.S. Virgin Islands farmers and interested citizens tour current projects and have an opportunity to comment on the work that is being performed. Farmers are invited to Agricultural Experiment Station seminars.

Multiple stakeholder group opinions are sought to assist the program in providing the most relevant and current information to residents. The following groups are solicited to provide feedback: Agricultural Experiment Station staff, Cooperative Extension Service staff, community residents, university faculty/staff/students, youth and government officials, and School of Agriculture Advisory Board members.

The Agricultural Experiment Station and Cooperative Extension Service personnel have developed long-standing relationships/associations with all sectors of the U.S. Virgin Islands population and use both direct and indirect methods to encourage stakeholder participation. Primary contacts with this base of stakeholders are often direct, informal and verbal; these contacts often lead to shared participation in projects. Stakeholders also frequently share Agricultural Experiment Station and Cooperative Extension Service information with their friends and families, increasing stakeholder numbers and participation.

Input is sought through direct contact methods as allowed by the current COVID-19 protocols (word-of-mouth, meetings, phone/email, radio or TV conversations) and indirect methods (advertising through various media, informative articles/publications, flyers, public service announcements and social media outreach). Cooperative Extension Service personnel will continue to visit areas and events where current and potential stakeholders congregate (i.e., recreational areas, markets, agriculture and environmental fairs, public hearings, etc.) to learn about stakeholder concerns, share technical information and/or plan participatory activities. When allowed, we will go directly to public and private schools, housing communities, churches, etc., We will work directly (in-person) with low-income individuals who are responsible for preparing family meals, meals for school age children and meals for pregnant teens and adults. The Cooperative Extension Service will continue to work with institutional, governmental and regional partners to seek input on issues of concern and advice about how to increase public participation in shared projects. When existing protocols limit direct contact, we will rely on our indirect contact methods Alternative means of obtaining input will be employed, especially using online platforms and social media when feasible.

The Cooperative Extension Service will involve stakeholders in the process of developing and delivering educational activities. Because of the increasing diversity of the Virgin Islands' populations, the School of Agriculture Advisory Board includes community leaders who are representatives of the respective agriculture programs. Their main purpose is to provide guidance and direction to the agency in its community outreach activities. They advise, counsel, and confer on the development of annual and long-range plans; represent the attitudes, opinions and feelings of stakeholders about outreach activities; assist in the development of new activities and in communication between the Cooperative Extension Service and its stakeholders. The Advisory Board members are also members of different community groups. Special meetings are held as needed by the Advisory Board or are called at the discretion of the Dean and Director. This group evaluates School of Agriculture programs and makes recommendations to modify or refocus the different programs. Community groups are sometimes invited to enable them to give ideas and information to be used in the development of programs.

At Advisory Board meetings, members will continue to review Agricultural Experiment Station and Cooperative Extension Service planned programs and give recommendations on the different programs. They can recommend other programs and activities that they think would benefit the farming community and the general population.

Stakeholder input: Methods to Identify Individuals and Groups

The Advisory Board consists of individuals who represent a cross-section of the Virgin Islands community (various aspects of research, outreach and academics) and other leaders. The Dean and Director, Associate Directors of both the Agricultural Experiment Station and Cooperative Extension Service, and faculty attend the Advisory Board meetings. The Advisory Board members are given the opportunity to

raise their concerns. The School of Agriculture faculty and staff try to incorporate researchable issues into their research programs. Non-researchable concerns are referred to Cooperative Extension Service or appropriate federal or state agencies for action.

Groups or individual providers of stakeholder input will be identified, based on program and professional experience, through formal and informal meetings with stakeholders or partners, advertisements, radio and TV outreach, and/or social media outreach. In particular, referrals from some of the School of Agriculture's targeted groups will be sought to identify new input sources (for example: farmers, natural resource managers or regulators, STEM educators, taxi drivers, VI businesses/Rotary Clubs, local and federal government partners, VI environmental associations, and non-governmental organizations). Efforts will be made to identify stakeholders in other University programs, federal programs, or from the ranks of job training applicants and trades professionals to collect input.

We will partner with collaborators to target adult volunteers with specific skills/interests and work with local housing communities to identify low-income residents who may be interested. In focusing on youth, partnering with several entities is critical and will be focused on school administrators and counselors, work with the V.I. Department of Labor, partner with V.I. National Guard Youth and Family Program, partner with Caribbean Center for Boys and Girls, and other community and issues-based groups (e.g. St. Croix Environmental Association, Nature Conservancy, V.I. Good Food Coalition, etc.)

Target groups include low income families with children living in the household; youth who receive free school lunch and/or breakfast; families who participate in the SNAP program and or other Federal programs; and families living in public housing communities for low income individuals.

We will develop and maintain relationships with partners including government agencies, clinics, public and private schools, senior citizen centers, and day-care centers along with government departments.

The School of Agriculture will continue to evaluate its programs by giving participants of seminars, meetings, and workshops an evaluation form to complete. Farmers and other clientele visits would be made routinely to determine the impacts of the programs, and suggestions made by clientele would be used to make improvements in the educational activities.

Stakeholder input: Methods for Collecting Stakeholder Input

In addition to our stakeholder meetings, we are in frequent contact with the wider stakeholder community. When we provide workshops, we get feedback that we incorporate into our research programs as appropriate.

In order to collect data, the following methods will be utilized: surveys, anecdotal responses, pre-post evaluation instruments, observations, word-of-mouth, community events, referrals, and market research. Other methods will include one-on-one interviews, informal/formal meetings, collaborative workshops, and focus group discussions.

Stakeholder input: A Statement of How the Input Will Be Considered

Stakeholder input is used when developing new research and extension projects within the School of Agriculture. Local issues are incorporated into projects and programs when it is feasible and can be done

using good scientific design. Because of limited resources not all issues can be addressed, and they are prioritized by potential impact and available resources.

Evaluation data will frame needs or gaps in programming and guide new program initiatives; and focus group feedback will help determine new programming trends especially for teens.

Input collected from stakeholders will be analyzed to determine how to achieve the best support and outcomes for planned programs. The program planning will be stakeholder-based and designed to build support and expected outcomes. Considering and incorporating the input and opinions of stakeholders will be prioritized, and efforts will be made to maintain communication with stakeholder groups to ensure effective program planning outcomes. If necessary, group meetings and collaborative workshops will be conducted to analyze problems, determine levels of stakeholder interest, generate solutions, brainstorm ideas, and /or make decisions and plans.

In educational programs, information obtained from pre and post tests, input from project partners/sponsors, client interviews and focus groups will be used to develop programs needed for educational outreach.

Stakeholders input will be considered in the budget allocation of programs. Stakeholders' involvement in programs will help in setting priorities and addressing emerging issues in the community. Cooperative Extension Service will continue to strengthen its collaboration with the Department of Agriculture, the Department of Health, the Department of Labor, the Department of Education, the Department of Human Services, V.I. Housing Authority, and the Office of the Governor in addressing at-risk population issues in the community. Stakeholders input will be used in redirecting Extension and Research programs and setting priorities.

Critical Issues

4-H - Positive Youth Development and Volunteerism

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

In the Virgin Islands, positive youth development is optimally attained using the traditional 4-H community club model, however, in-school clubs and special interest programs are growing in popularity providing shorter-term, targeted opportunities for both youth and adults to explore specific interests. Well trained, highly motivated and empowered volunteer leaders - both youth and adult - remain the single most important factor in establishing strong, vibrant 4-H clubs and day camp programs. A regular, structured orientation and training program for staff and volunteer leaders is necessary to support vibrant, innovative and engaging 4-H clubs, programs, events and activities that routinely feature the key characteristics of positive youth development - competence, confidence, character, connection and caring.

Motivated adult and teen volunteers lead vibrant, fully-functioning 4-H clubs and positive youth development programs. Trained volunteers understand positive youth development and are able to foster youth development and provide a safe, nurturing environment for young people to learn, grow and develop. A well-trained volunteer corps requires additional professional staffing. In addition, staff

could explore potential new volunteer audiences. One potential volunteer audience might be those adult residents of public housing communities needing to fulfil the community service requirement in order to remain a tenant in good standing. Other possible volunteer audiences might include AmeriCorps/VISTA, UVI students, teens and partner agencies.

In partnership with other CES, AES and academic programs, 4-H will create special interest programming focused on small livestock, distance learning and sustainable agriculture.

Science Emphasis Area

Youth Development

A Healthy, Well-Nourished Population

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

A Healthy, Well-Nourished Population program provides community-based nutrition and lifestyle education to all U.S. Virgin Island residents, especially residents at high risk, including low-income audiences. The program also focuses attention on the importance of prevention of childhood obesity. The purpose of this program is to educate the target population about basic nutrition and healthy lifestyle practices in the hopes of the prevention of childhood obesity and other nutrition related diseases. The focus of this program is to get individuals to eat more fruit, vegetables and whole grain foods and to cut down on portion sizes. The program is administered through workshops, classes, and demonstrations.

The program will address and develop culturally sensitive nutrition and health educational products and resources to be made available to nutrition professionals, students and the public. The focus will be to educate low income families with children about healthy lifestyles in order to help prevent nutrition related diseases (diabetes, hypercholesterolemia, hypertension, and obesity) in adults and children.

Science Emphasis Area

Family & Consumer Sciences, Human Nutrition

Beef Cattle Production

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

A local breed of cattle, Senepol, has traits that make it extremely adapted to the tropical climate, both locally and around the world. Studies will be conducted to study the traits that make them adapted along with general cattle productivity traits to develop selection practices. Research will also be conducted on animal management, breeding, mitigating environmental stress and enhancing reproductive efficiency and using assisted reproductive technology.

Science Emphasis Area

Agroclimate Science, Sustainable Agricultural Production Systems

Computer Training and Technology

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

Being technologically competent is now very important but many adults lack the relevant skills. Several of these are older persons who are digitally disadvantaged. There are also others from low-income households who have not had the resources or opportunities to acquire the needed skills. Some persons need these skills to become more marketable or to advance in their jobs; ultimately improving their income. There are others who want to accomplish their day-to-day tasks more effectively. In this fast-moving technological world, these skills are needed so that persons are not left behind.

The Computer Technology Training will increase participants' knowledge and usage of relevant technologies including introductory computer classes that begin with Microsoft Windows, Microsoft Word, and E-mail/Internet usage.

The program also includes computer/technology based workshops: Beginning/Intermediate MS PowerPoint - create effective presentations; Beginning/Intermediate Excel - create spreadsheets and utilize various functions; Usefulness of Internet – get the most out of the internet by finding information, shopping, communicating using various platforms, completing job applications, and paying bills online. The Smartphone and Tablet workshops will teach how to create and use email accounts on mobile devices, and use various apps to communicate, such as WhatsApp and Messenger. They will also download and remove apps, use their phones as hotspots, and connect to WiFi networks. In addition, participants learn safe practices while using their smartphones and tablets on networks. The main objective is to make participants computer literate and give individuals the skills they need to enhance their lives.

Due to COVID-19, workshops and courses will be conducted virtually, when possible. Training videos will be created to allow distance learning. Workshops will be conducted on various videoconferencing platforms.

Science Emphasis Area

Education and Multicultural Alliances

Food Safety Education

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

The Food Safety Education and EFNEP program will focus attention on the importance of safe food handling and preparation in home kitchens; as well as educating low income families about basic nutrition and behavior change practices. Extension educators will work to increase public awareness of the auses of foodborne illness and microorganisms that may make food unsafe when basic food safety techniques are not followed. Participants will experience increased awareness about food safety issues related to personal hygiene, food storage, food preparation and food handling. Focus will be placed on food safety issues related to eating away from home, i.e. in restaurants, mobile food vans, food booths

and purchasing of food from street vendors, i.e. fish. The program will help prevent food borne illness outbreaks in the territory. The program will be administered through workshops, classes, and demonstrations. The location where the program is offered includes schools, day-care centers, churches, senior centers, community centers, and health clinics.

The program will address and develop culturally sensitive food safety educational products and resources to be made available to clientele, especially those individuals who are responsible for preparing the family meals, meals for school age children, pregnant teens and adults in the Virgin Islands.

Science Emphasis Area

Food Safety, Human Nutrition

Marketable Skills for Limited Resource Residents

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

The Family and Consumer Sciences staff will offer workshops, short courses and activities that provide participants with the opportunity to explore career options, entrepreneurship and workforce preparation. Programming will focus primarily on short courses that teach marketable skills. Many program participants who have developed the skills to become employable and effective volunteers indicated the need to augment their experiences with workforce preparation skills. The opportunity to learn how to turn their skills into small home-based businesses to help supplement their limited family incomes has also generated considerable interest. Using volunteers would allow a very small staff to maximize and multiply resources while reaching a greater number of interested clientele.

Virgin Islands residents are often impacted by adverse conditions, which can negatively affect quality of life. Limited resources, high unemployment, high cost of living, and a large number of families headed by single, female heads of households make it difficult to establish and maintain a good quality of life. When single parents get menial low paying jobs, many become demoralized in light of not being able to make a meaningful impact on their family resources. This situation makes it even more important to provide training and support to help individuals successfully enter the workforce and become competent, contributing members of the community. Providing innovative, interactive, non-formal opportunities for these residents is even more critical due to the impact of the two recent hurricanes and COVID-19, which exacerbated the existing, long-term circumstances.

Science Emphasis Area

Family & Consumer Sciences

Protecting the VI Natural Resources and Environment

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

Critically linked VI terrestrial and marine ecosystems need protection. Extension activities encourage the adoption of sustainable natural resource and watershed management practices to preserve environmental and natural resources base, assist post-hurricane recovery, restore post-hurricane landscapes, conserve cultural and natural history resources in recreational areas, and stimulate/grow a vital tourism/ecotourism industry. Extension educational activities promote learning and inform decision-making by citizens, public officials, resource managers, farmers, developers, educators and students to foster and promote a more complete understanding of terrestrial plant resources, ethnobotany, watershed processes impacted by humans, how to minimize nonpoint source (NPS) pollution of ground or surface waters, low-impact development practices, healthy home strategies and climate-related research findings to enable adaptation to predicted climate change conditions.

Science Emphasis Area

Agroclimate Science, Environmental Systems

Small Livestock Production

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

Livestock producers in the Virgin Islands face a myriad of problems affecting production and profitability. Many producers operate their enterprises on a part-time basis. This approach often leads to improper or inadequate: housing facilities; pasture usage; animal identification; and recordkeeping; which results in infertility, poor growth, parasitism and a generally unproductive and unprofitable enterprise. Hair sheep are a popular breed in the territory and provide income for producers and help satisfy significant market demand. Research to evaluate management systems and practices to enhance productivity under tropical conditions will be conducted. Areas to be investigated include reproductive physiology, breeding, heat tolerance and grazing.

The rapid pace of development in the islands is forcing producers to raise their animals on smaller parcels of land. The consequences are forage degradation from overgrazing and increased occurrences of parasites. Working with AES and other research entities, the program will continue incorporating hardier strains of forages that will withstand more intense grazing practices. Farmers will be continually educated about proper management techniques for heavily stocked pastures. Demonstrations and workshops will be conducted to assist producers in evaluating their management practices and determine how improvements can address their problems.

Most of the meats and eggs sold and consumed in the Virgin Islands are imported at a low cost making it difficult for local producers to compete but the public is interested in buying more local products for better taste and freshness. Consumers need more information, as they are often unaware of availability and prices. Marketing education programs will be conducted with a focus on quality standards, as well educating consumers on the availability and benefits of purchasing and consuming locally produced animals and derived products.

Science Emphasis Area

Agroclimate Science, Sustainable Agricultural Production Systems

Sustainable Agriculture

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

The Sustainable Agriculture program will educate and encourage farmers to adopt sustainable agricultural practices that are environmentally responsible, economically viable, and enhance the overall wellbeing of the territory. The long term success of local farms depends upon educational outreach programs that will disseminate to producers recommended research-based information on (a) management and production practices, (b) farm financial and operational planning, organizing, managing, and recordkeeping practices, (c) enhancing water resources, (d) alternative enterprises and commodities, and (e) value-added technologies. Farmers need to increase their knowledge and adoption of marketing strategies, including alternative enterprises and strategies to add value to agricultural commodities to increase profits. Due to the poor soil quality and rapid organic material turnover in the tropics, cover crops will be evaluated as a way to enhance soil quality and productivity. Cover crops will be evaluated in both livestock grazing scenarios as well as in crop production. Varieties of cover crops will be evaluated for their utility in the tropics. Production of fish and crops in aquaponic and/or hydroponic systems will be evaluated. Plant nutrient requirements and production rates will be evaluated within each system.

Through a combination of workshops, shortcourses, lectures, demonstrations, etc., farmers will be trained and encouraged to adopt best management, production, processing, and marketing practices. Crop and livestock farmers typically sell their products without considering marketing strategies to add value and/or promote the shelf life of their commodities. The sustainability of local farm enterprises can be improved to enhance production levels, operational efficiency, economic return, and environmental stewardship through a combination of research and extension programming.

Science Emphasis Area

Agroclimate Science, Sustainable Agricultural Production Systems

Tropical Horticulture

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

Tropical Horticulture involves AES Horticulture and Biotechnology research projects with CES Urban Gardening program to provide information, education, and technical advice to commercial growers, home gardeners, nonprofit organizations, public and private agencies, and residents about caring for and cultivating fruits and vegetables. Virgin Islanders love to garden. Gardening provides mental, physical and economic benefits to young and older residents. The rising cost of imported basic necessities, including food items, has created a desire among residents to reduce their cost of living. Heart disease, cancer, hypertension, and diabetes are the top health problems facing Virgin Islands residents. Many residents have begun to make lifestyle changes such as getting more exercise, reducing stress levels and changing dietary habits. They are also requesting more information on being able to

manage their terrestrial resources more efficiently in order to achieve some of the lifestyle changes that they are seeking.

As new varieties of tropical fruits and vegetable crops are developed they will be evaluated for production potential. Traits relative to production, harvesting and marketing will be evaluated. In addition, because of limited, seasonal rainfall, water requirement and micro-irrigation practices will be evaluated that growers and gardeners can incorporate into their production practice. Additionally, the growth and expansion of commercial development continues to reduce the amount of open areas. Urban planners are now including more green space zones in their recommendations to developers. Cultivated ornamental plants have become more common in landscape designs among, and within, commercial and domestic structures. Management of these zones is critical in order for the survival of the plants. Education in the most current best management practices will be needed to ensure that the benefits sought by planners and residents are achieved.

Science Emphasis Area

Agroclimate Science, Sustainable Agricultural Production Systems

Urban Forestry

Initiated on: Nov 26, 2019

State: U.S. Virgin Islands

Term Length: Long-term (>5 years)

The terrestrial landscape of the Virgin Islands is changing rapidly. Because of limited land space on each island, management decisions concerning the Territory's tree populations have become more difficult. Lawmakers continue to seek a balance between changing economic forces, environmental concerns and demographics. As a result, policies create situations that put landowners in tough decision-making positions about the management of their forest resources.

Many of the materials entering the waste stream can be reused/recycled to provide economic opportunities for entrepreneurs in our communities. Efforts have been made by local authorities to address these issues over the years. Recent category 5 hurricanes have devastated the Virgin Islands, destroying and damaging many trees throughout the Territory. Our community's ability to prepare and respond to these disasters was hampered by a lack of utilizing up to date scientific information. This information could have helped to reduce the severity of the damage to our tree populations and improve our response and recovery process. A tree law was recently passed and its implementation should improve the urban forest, aid in our recovery efforts and help to restore a more resilient urban forest.

The Urban Forestry program will assist public and private agencies, policy makers, community organizations, and individuals in the preservation, conservation, and management of the urban and suburban tree populations in our communities.

Science Emphasis Area

Agroclimate Science